

Odessa National University, Ukraine
Research Institute “Astronomical observatory”
Department of space research

ATLAS
of light curves of space objects

Part 4
(2014-2015)

Editor Nikolay Koshkin

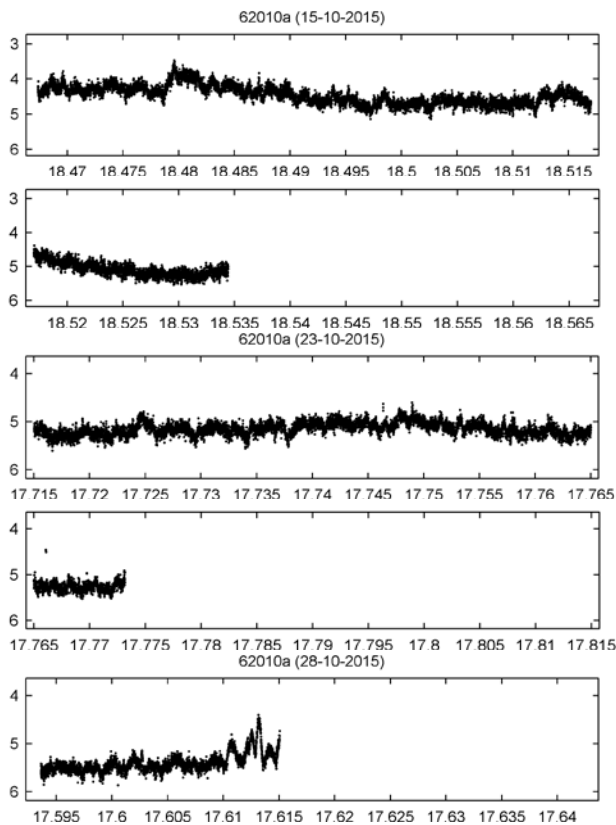
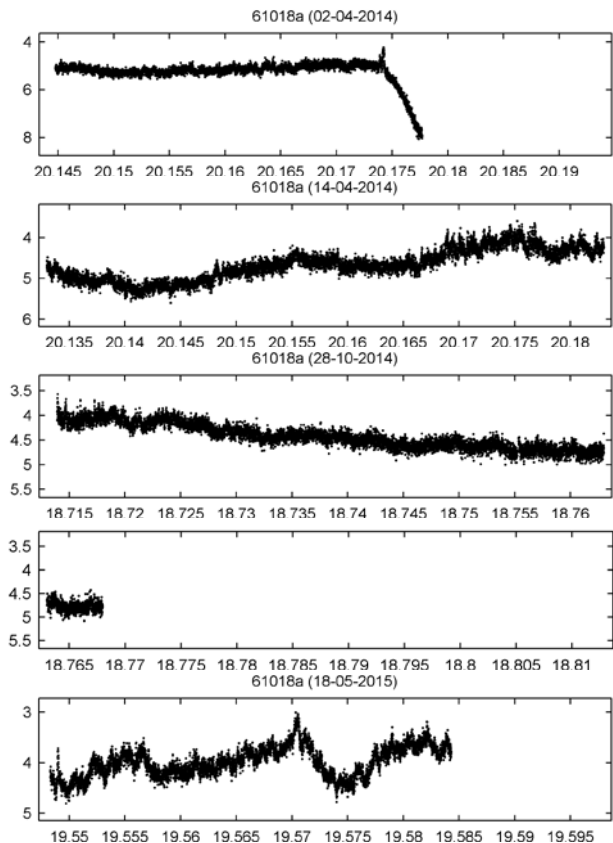
2016

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1962-010A	271	1990-050C	20691
1965-073F	1589	1990-081A	20788
1967-045B	2802	1990-081T	20855
1968-040B	3230	1991-076C	21799
1969-062B	4048	1991-076D	21808
1970-008A	4320	1991-076E	21809
1970-106A	4793	1992-023A	21949
1971-010A	4922	1992-052A	22076
1971-028B	5118	1992-052D	22079
1971-067E	5398	1994-046A	23191
1972-018A	5903	1994-078A	23411
1972-089A	6275	1994-085B	23440
1973-005A	6350	1994-089A	23455
1973-064B	6826	1995-021A	23560
1974-063A	7411	1995-033A	23605
1975-052A	7924	1995-046A	23657
1976-061B	8924	1996-029C	23908
1976-126A	9634	1996-029D	23862
1977-002B	9662	1996-029E	23936
1977-112A	10502	1996-072A	24680
1977-112D	10529	1997-020A	24792
1978-042A	10820	1997-020D	24795
1978-096A	11060	1997-020E	24796
1978-121B	11166	1997-043A	24903
1979-011B	11267	1997-043B	24904
1980-069B	11933	1997-043C	24905
1981-087B	12804	1997-043D	24906
1981-116J	12983	1997-043E	24907
1981-120G	13003	1997-051A	24944
1982-039B	13154	1997-051B	24945
1982-096B	13590	1997-051E	24948
1982-118A	13736	1997-051F	24949
1983-003B	13771	1997-051G	24950
1983-004A	13777	1997-056A	24965
1985-003G	15475	1997-056B	24966
1985-020B	15593	1997-056C	24967
1985-047A	15821	1997-056D	24968
1985-047B	15822	1997-056E	24969
1985-094G	16144	1997-069A	25039
1986-014H	16631	1997-069B	25040
1986-019C	16615	1997-069C	25041
1986-061A	16908	1997-082B	25105
1986-061C	16910	1997-082C	25106
1986-092J	17146	1997-082E	25108
1987-043E	18009	1998-017A	25260
1987-043H	18025	1998-018A	25262
1987-053A	18123	1998-018B	25263
1987-060A	18187	1998-019A	25272
1987-074G	18340	1998-019B	25273
1988-005B	18821	1998-019C	25274
1988-021A	18960	1998-019E	25276
1988-078A	19460	1998-020B	25281
1989-009G	19791	1998-021A	25285
1990-005A	20436	1998-026A	25319

1998-026B	25320	2008-040H	33319
1998-032E	25346	2008-049C	33398
1998-048A	25431	2008-054A	33412
1998-048B	25432	2009-059A	36036
1998-051E	25471	2009-059B	36037
1998-067FL	40314	2009-061B	36089
1998-071A	25560	2009-063A	36095
1998-074A	25577	2009-072A	36121
1998-074B	25578	2010-013A	36508
1999-019D	25679	2010-023A	36588
1999-032B	25778	2010-028A	36598
1999-051A	25919	2010-028D	36601
1999-068A	25994	2010-028E	36602
2000-050A	26481	2010-060A	37216
2000-057F	26550	2011-005B	37363
2001-032B	26874	2011-015A	37387
2001-040C	26907	2011-015B	37388
2001-049C	26959	2011-015C	37389
2001-055A	26997	2011-015D	37390
2002-005D	27375	2011-044B	37789
2002-009A	27386	2011-044G	37794
2002-012A	27391	2011-044J	37796
2002-012B	27392	2011-044K	37797
2002-021A	27421	2011-053A	37820
2002-024A	27430	2012-001A	38046
2002-031A	27450	2012-044A	38744
2002-036C	27466	2012-044B	38745
2002-056A	27597	2012-044C	38746
2003-046A	28051	2012-044D	38747
2003-054A	28095	2013-003A	39068
2003-054C	28097	2013-009A	39086
2004-014A	28230	2013-009J	39094
2004-018A	28254	2013-028A	39177
2004-021A	28352	2013-030A	39186
2005-004A	28537	2013-032A	39194
2005-004C	28541	2013-033A	39197
2005-016A	28646	2013-033B	39198
2005-031A	28809	2013-042A	39227
2005-032A	28822	2013-067A	39451
2005-042A	28888	2013-067B	39452
2006-021A	29228	2013-067C	39453
2006-029A	29252	2014-021A	39678
2007-010A	31113	2014-024A	39731
2007-012A	31117	2014-025A	39732
2007-012B	31118	2014-033A	40010
2007-012D	31120	2014-033AP	40047
2007-012G	31123	2014-033AQ	40048
2007-023A	31598	2014-033B	40011
2007-028A	31789	2014-033F	40015
2007-029A	31792	2014-033H	40017
2007-029B	31793	2014-037A	40069
2007-042A	32062	2014-037B	40070
2007-059A	32376	2014-084A	40353
2008-032A	33105	2015-025L	40661
2008-037A	33272		

**MIDAS 3
(MILITARY DEFENCE ALARM SYSTEM)**

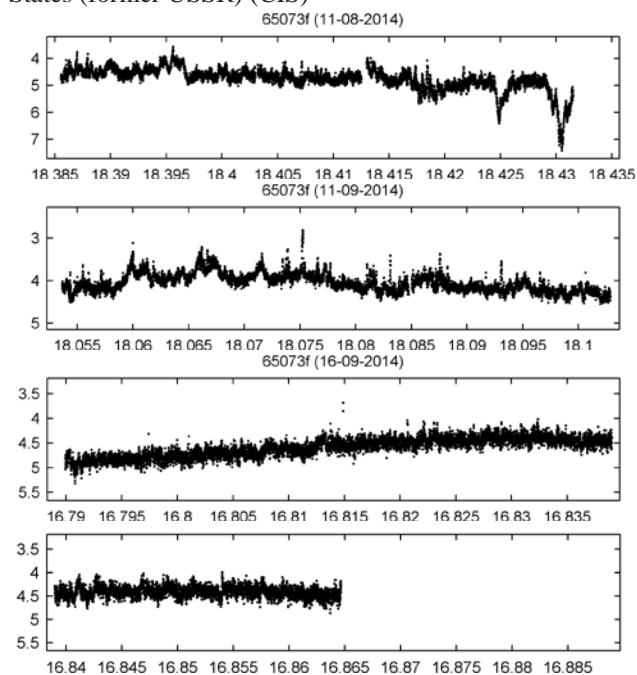
NORAD ID: 00163
 Int'l Code: 1961-018A
 Dimensions: cylinder 9m long 1.5m dia
 Initial orbit:
 Perigee: 3358 km
 Apogee: 3534 km
 Inclination: 91.2°
 Period: 161.54 min
 Eccentricity: 0.009
 Launch date: 1961-07-12
 Source: United States (US)

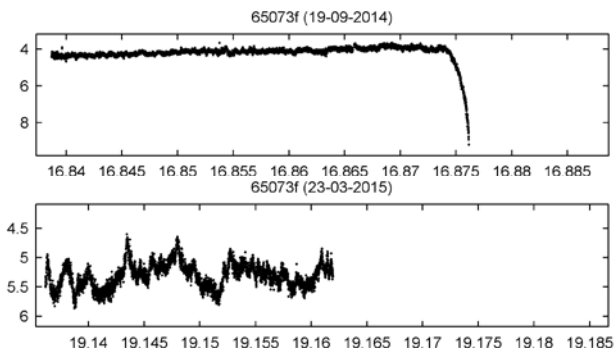


SL-8 R/B
 NORAD ID: 01589
 Int'l Code: 1965-073F
 Dimensions: cylinder 7.4m long, 2.4m dia
 Initial orbit:
 Perigee: 1379 km
 Apogee: 1695 km
 Inclination: 56.03°
 Period: 116.75 min
 Eccentricity: 0.02
 Launch date: 1965-09-18
 Source: Commonwealth of Independent States (former USSR) (CIS)



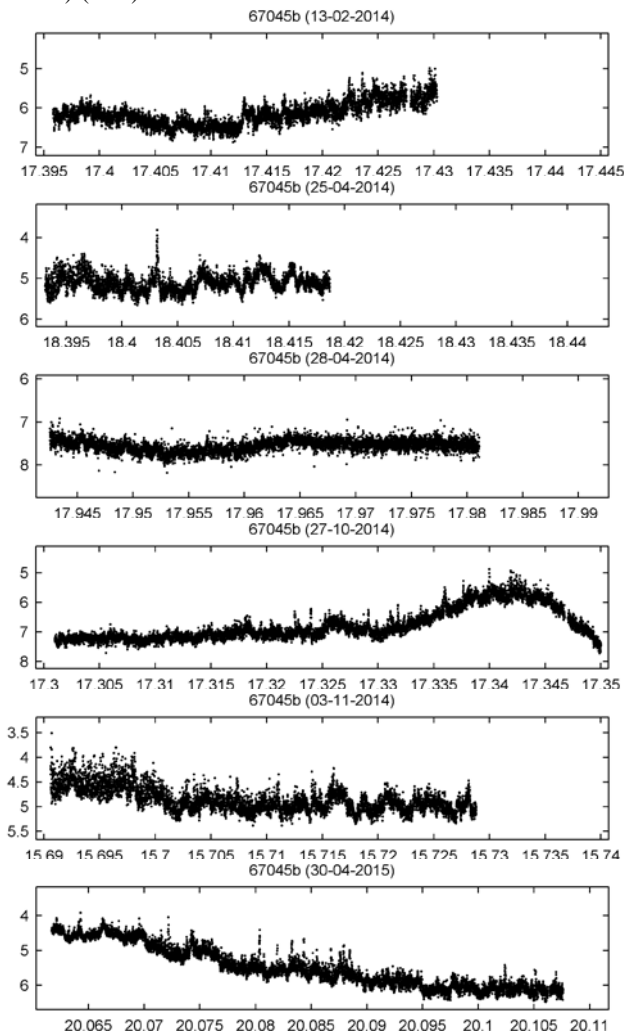
MIDAS 5 (STRONGBACK)
 NORAD ID: 271
 Int'l Code: 1962-010A
 Dimensions: cylinder 9m long 1.5m dia
 Initial orbit:
 Perigee: 2814 km
 Apogee: 3382 km
 Inclination: 86.68°
 Period: 153.03 min
 Eccentricity: 0.030
 Launch date: 1962-04-09
 Source: United States (US)





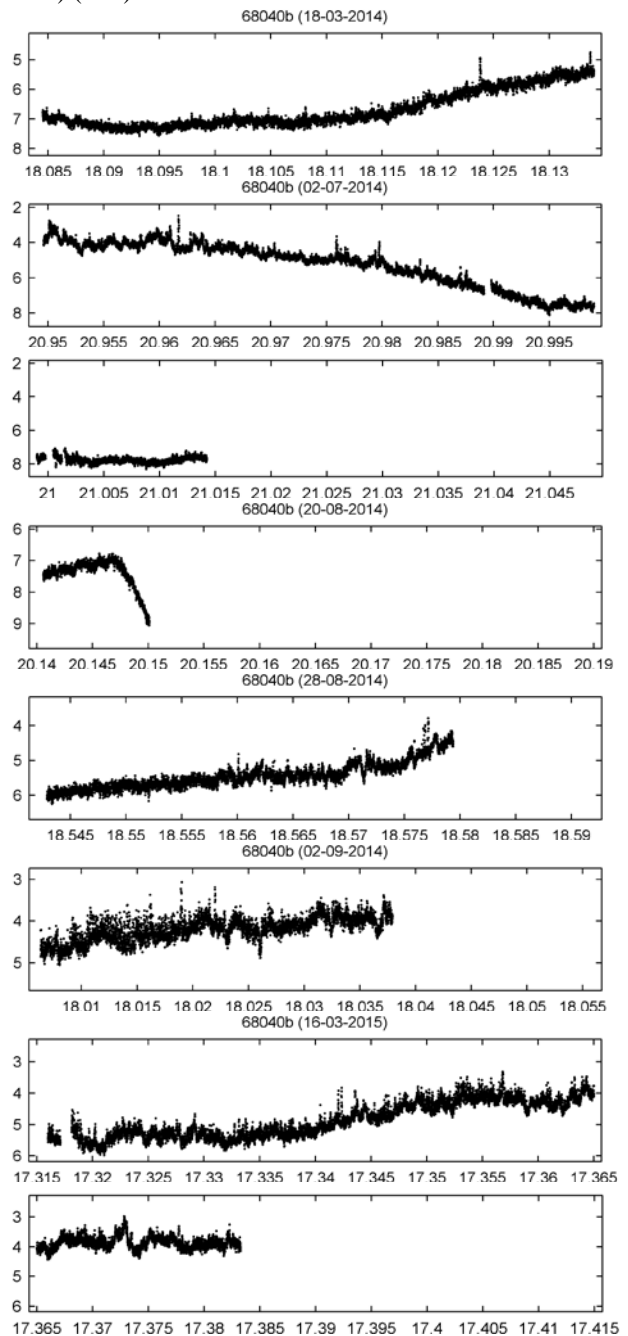
**SL-8 R/B
(Kosmos 11K65M 2nd stage)**

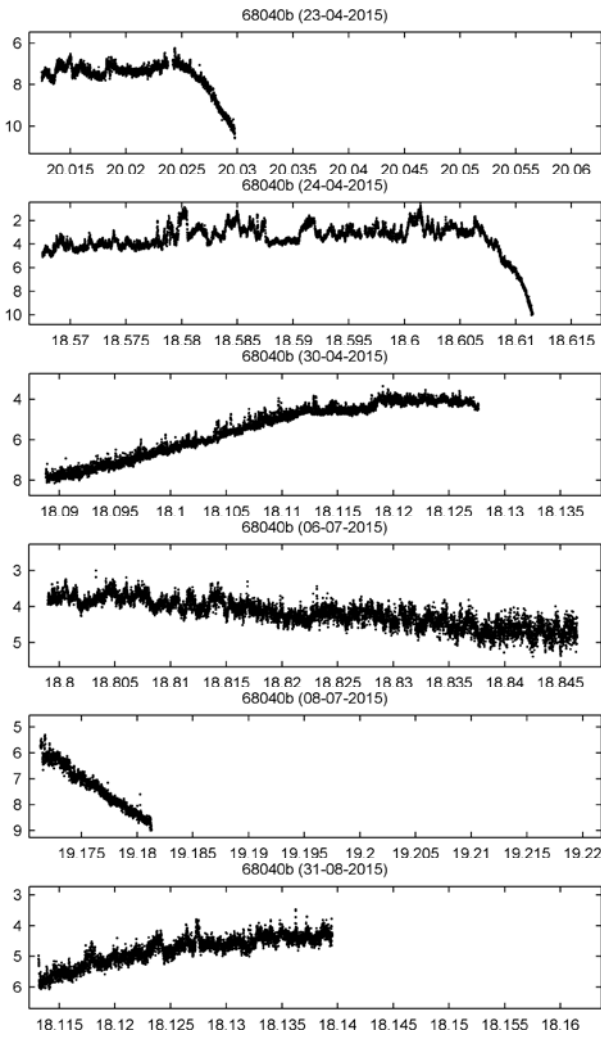
NORAD ID: 02802
 Int'l Code: 1967-045B
 Dimensions: cylinder 7.4m long, 2.4m dia
 Initial orbit:
 Perigee: 732 km
 Apogee: 847 km
 Inclination: 74.01°
 Period: 100.59 min
 Eccentricity: 0.008
 Launch date: 1967-05-15
 Source: Commonwealth of Independent States (former USSR) (CIS)



**SL-8 R/B (S3M) (11K65M) (2nd stage)
(COSMOS 220 ROCKET)**

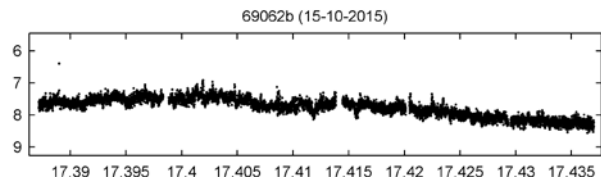
NORAD ID: 03230
 Int'l Code: 1968-040B
 Dimensions: cylinder 7.4m long, 2.4m dia
 Initial orbit:
 Perigee: 678 km
 Apogee: 759 km
 Inclination: 74.05°
 Period: 99.17 min
 Eccentricity: 0.006
 Launch date: 1968-05-07
 Source: Commonwealth of Independent States (former USSR) (CIS)





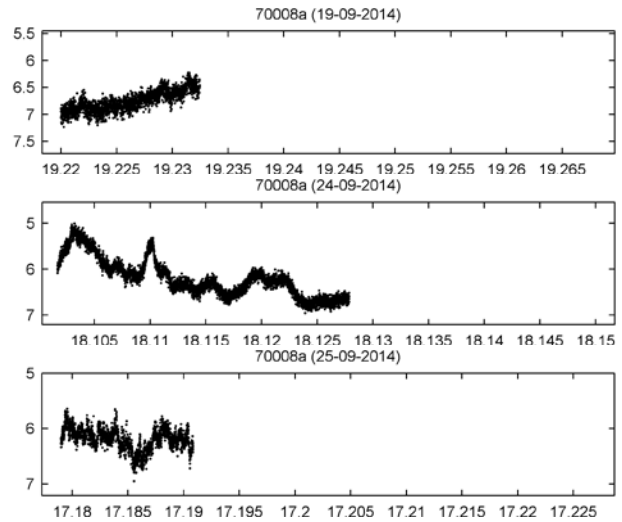
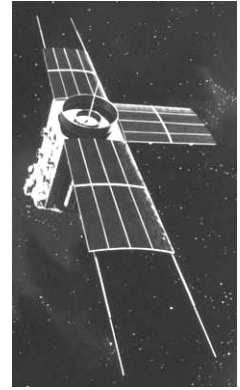
THOR BURNER 2 R/B

NORAD ID: 04048
 Int'l Code: 1969-062B
 Dimensions: 12-faced frustum
 1.64 m long, 1.31 m to 1.10 m dia
 Initial orbit:
 Perigee: 788 km
 Apogee: 856 km
 Inclination: 98.80°
 Period: 101.36 min
 Eccentricity: 0.005
 Launch date: 1969-07-23
 Source: United States (US)



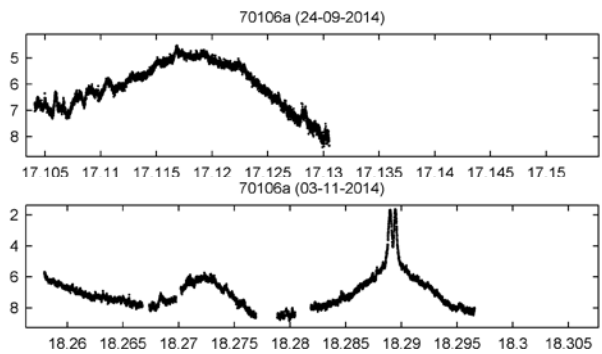
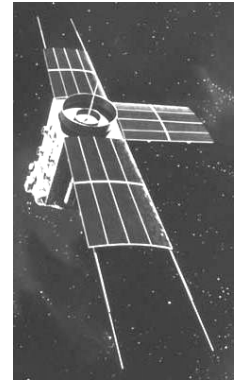
ITOS 1 (TIROS-M, NOAA 1)

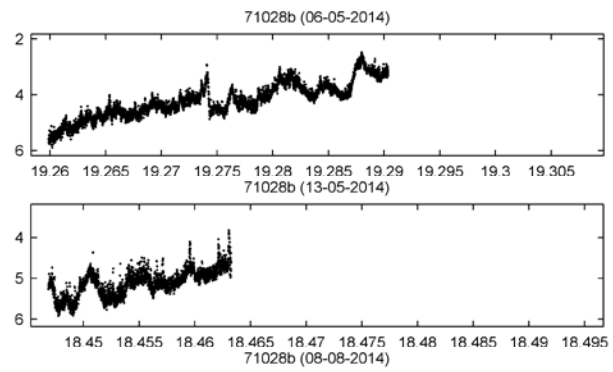
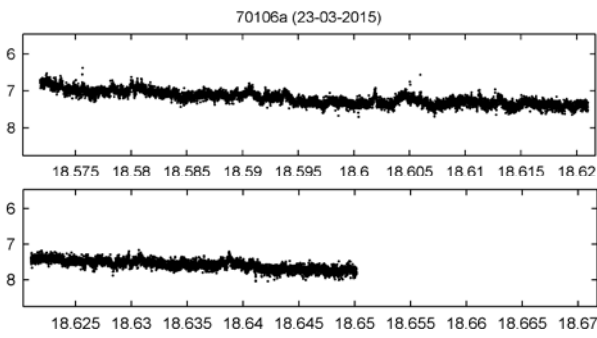
NORAD ID: 04320
 Int'l Code: 1970-008A
 Dimensions: box + 3 panels
 1.02m square x 1.22m long
 Initial orbit:
 Perigee: 1436 km
 Apogee: 1482 km
 Inclination: 102°
 Period: 115.1 min
 Eccentricity: 0.003
 Launch date: 1970-01-23
 Source: United States (US)



NOAA 1 (ITOS, TIROS-M)

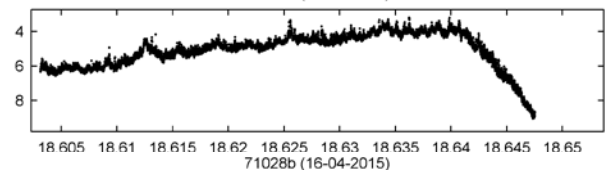
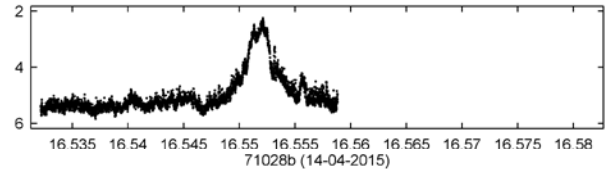
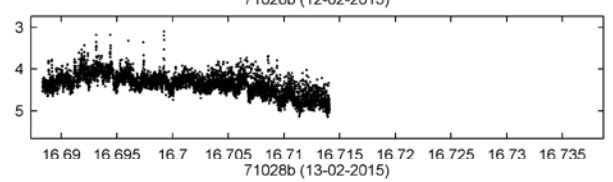
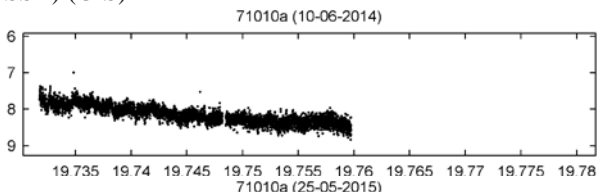
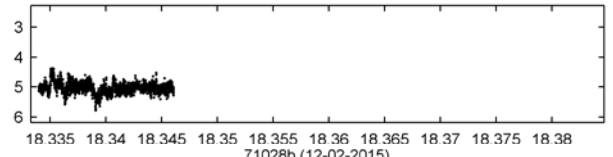
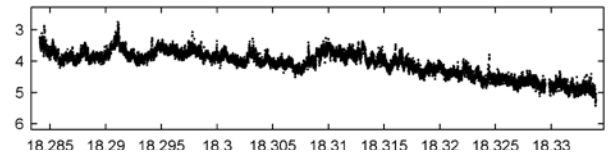
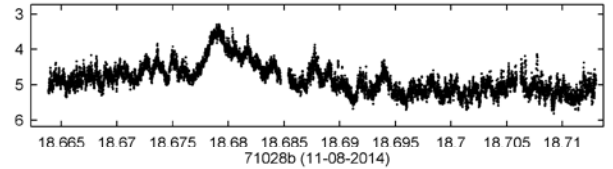
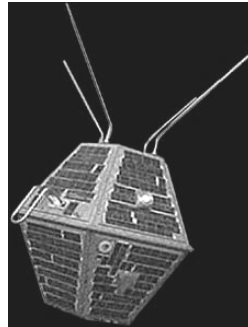
NORAD ID: 04793
 Int'l Code: 1970-106A
 Dimensions: box
 1.02m square x 1.25m long
 Initial orbit:
 Perigee: 1429 km
 Apogee: 1473 km
 Inclination: 101.94°
 Period: 114.93 min
 Eccentricity: 0.003
 Launch date: 1970-12-11
 Source: United States (US)





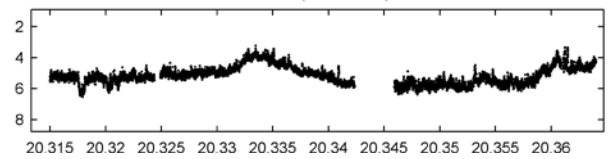
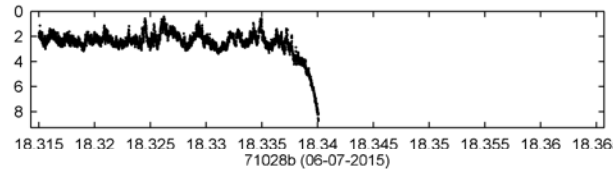
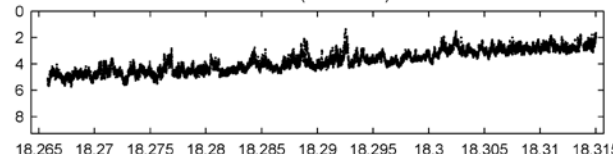
**COSMOS 394
DS-P1-M (TYULPAN, LIRA,
11F631)**

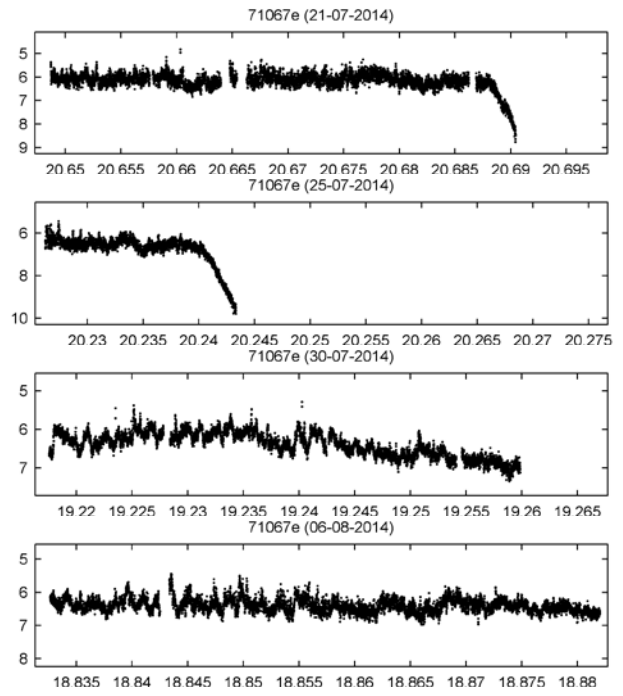
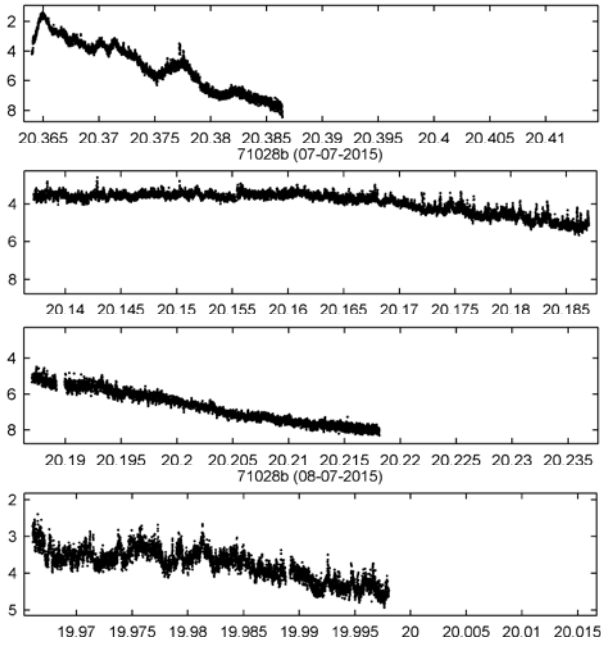
NORAD ID: 04922
Int'l Code: 1971-010A
Dimensions: cylinder? 4m long?
2m dia?
Initial orbit:
Perigee: 572 km
Apogee: 614 km
Inclination: 65.84°
Period: 96.54 min
Eccentricity: 0.003
Launch date: 1971-02-09
Source: Commonwealth of Independent States (former USSR) (CIS)



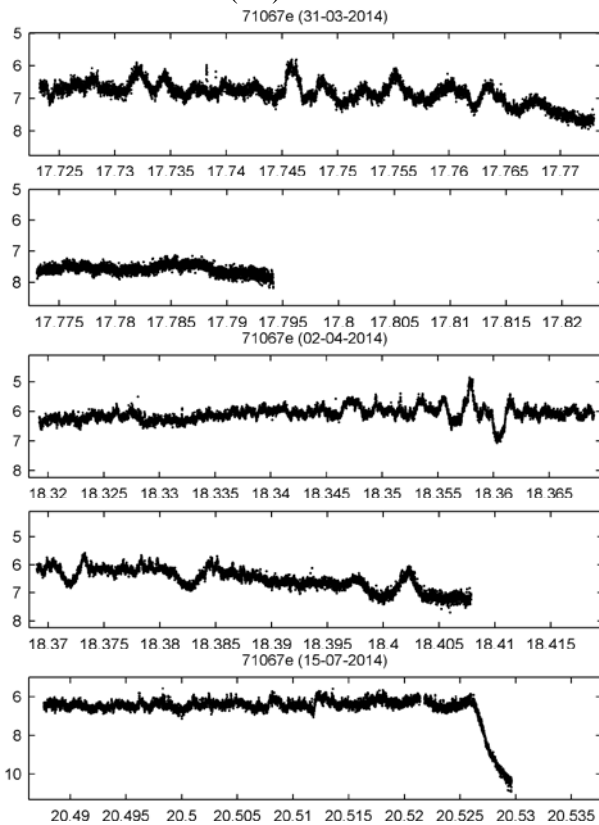
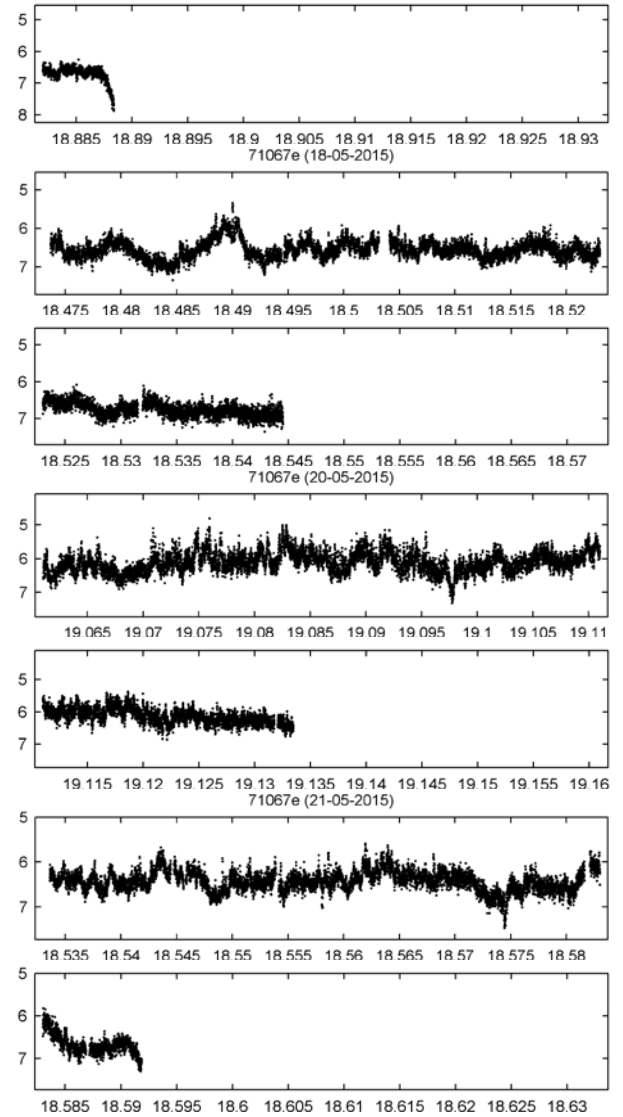
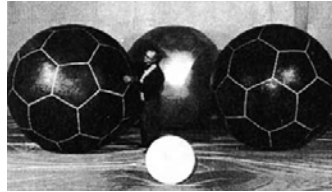
**SL-3 R/B (VOSTOK-2M (8A92M))
(Block E 3rd stag)**

NORAD ID: 5118
Int'l Code: 1971-028B
Dimensions: cylinder 3.8m long,
2.6m dia
Initial orbit:
Perigee: 616 km
Apogee: 749 km
Inclination: 81.25°
Period: 98.43 min
Eccentricity: 0.009
Launch date: 1971-04-07
Source: Commonwealth of Independent States (former USSR) (CIS)

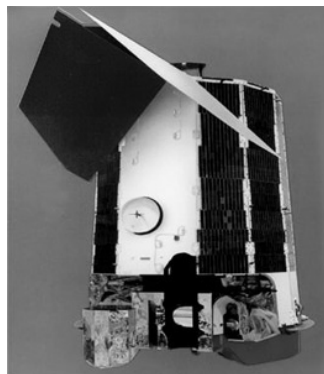




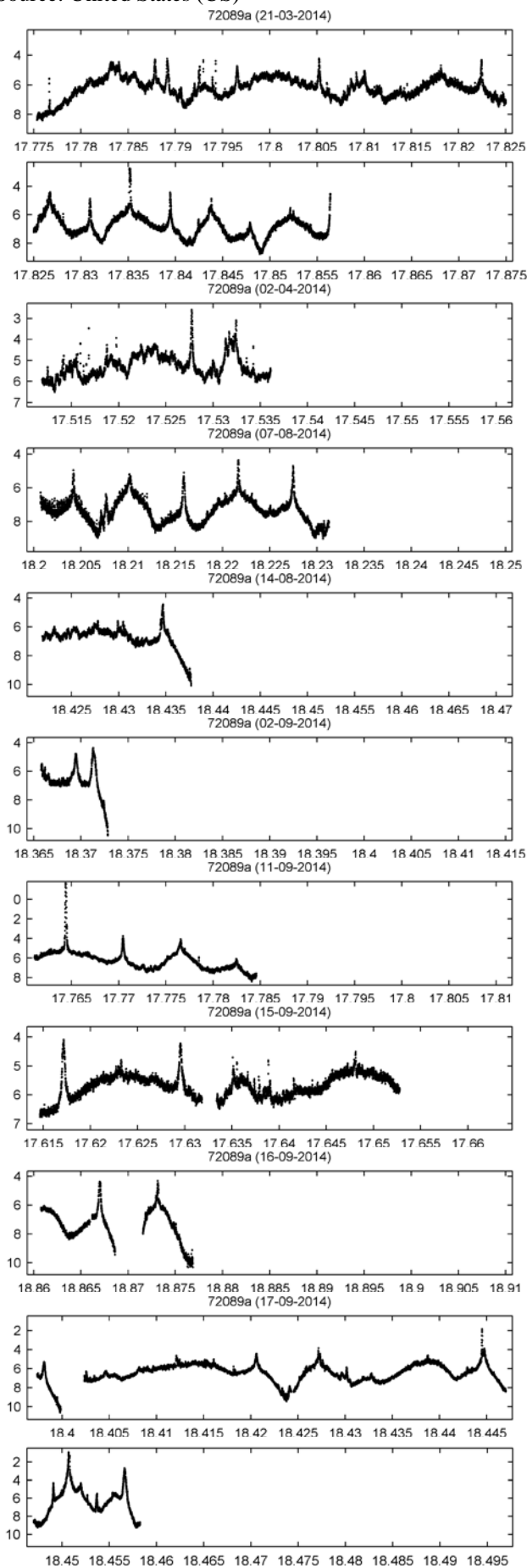
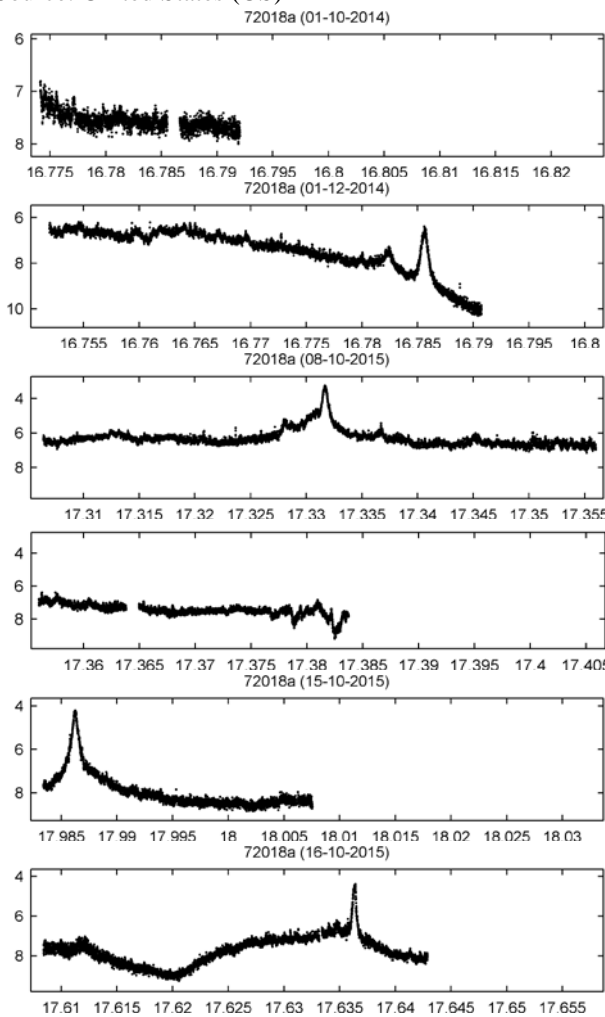
RIGIDSPHERE 2
(LCS 4) (Grid Sphere 1)
 NORAD ID: 05398
 Int'l Code: 1971-67 E
 Dimensions: sphere
 (magnesium) 1.12m dia
 Initial orbit:
 Perigee: 795 km
 Apogee: 913 km
 Inclination: 87.62°
 Period: 102.03 min
 Eccentricity: 0.008
 Launch date: 1971-08-07
 Source: United States (US)



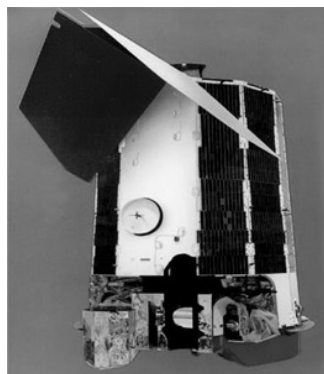
OPS 5058 (DMSP 5B F2)
(DSAP-5B F2)
 NORAD ID: 05903
 Int'l Code: 1972-018A
 Dimensions: 12-sided frustum 1.64m long, 1.31m to 1.10m dia
 Initial orbit:
 Perigee: 803 km
 Apogee: 885 km
 Inclination: 98.8°
 Period: 101.83 min
 Eccentricity: 0.006
 Launch date: 1972-03-24
 Source: United States (US)

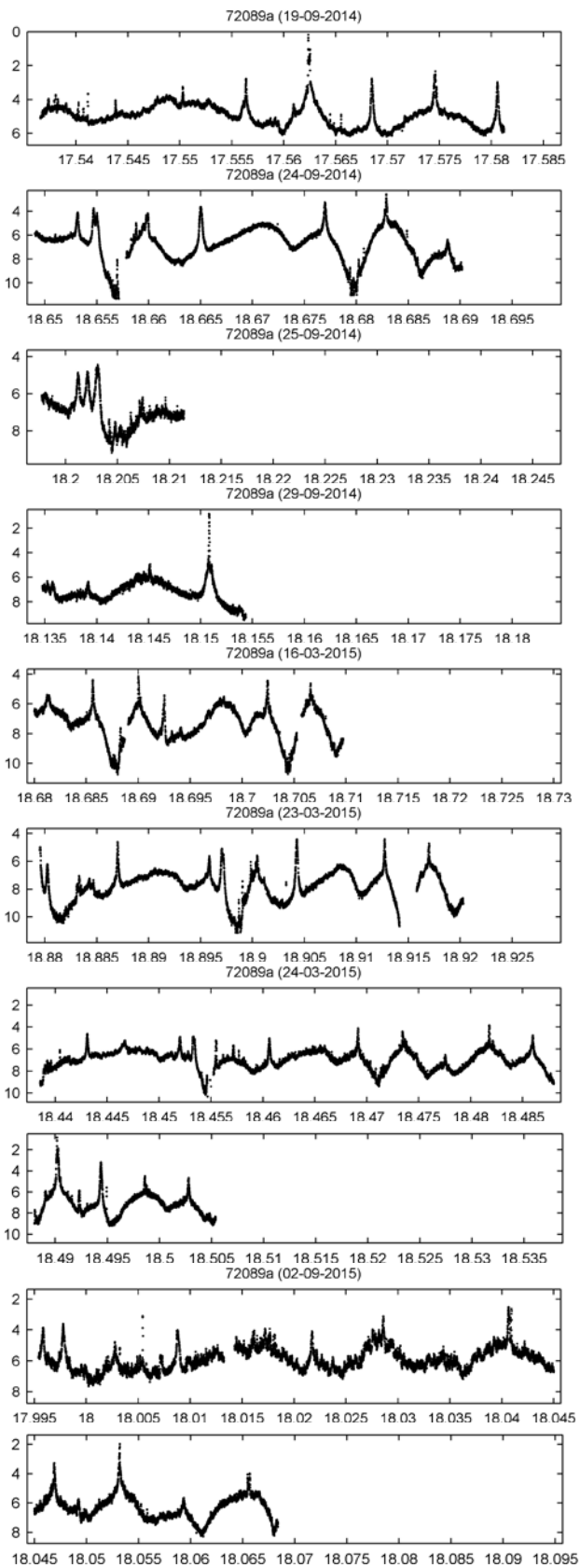


Source: United States (US)

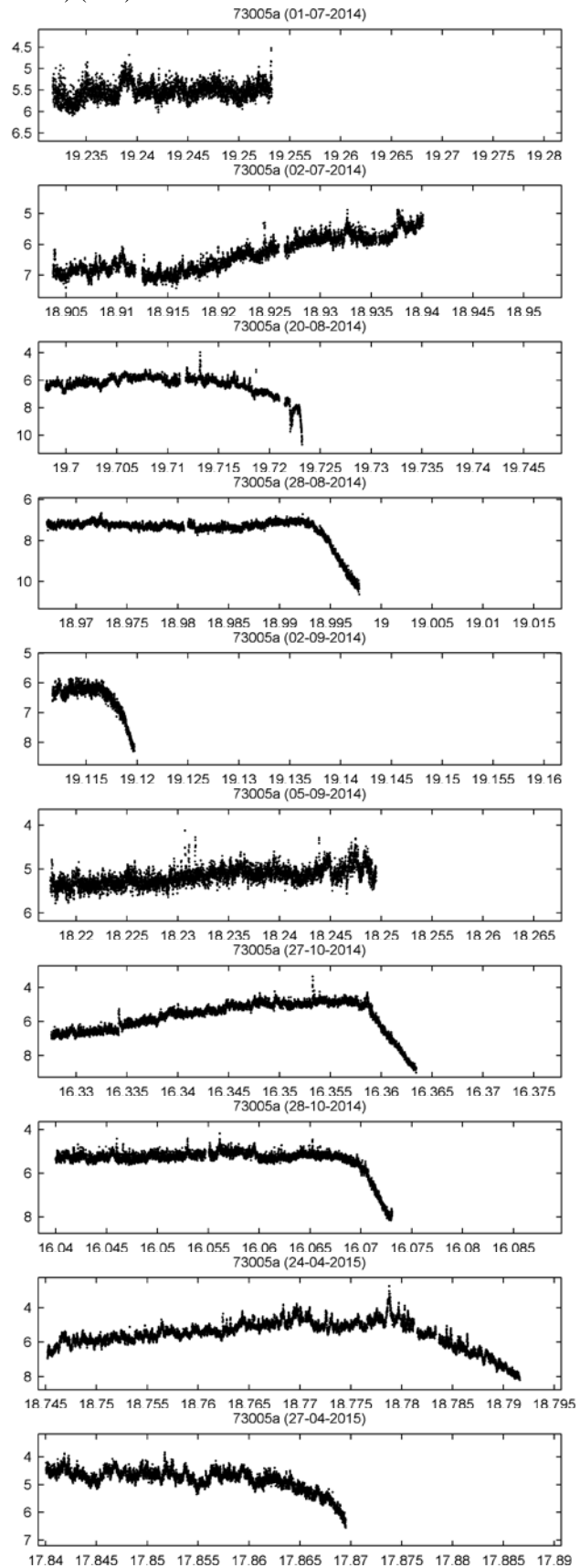


OPS 7323 (DMSP 5B F3)
(DSAP-5B F3)
 NORAD ID: 06275
 Int'l Code: 1972-089A
 Dimensions: 12-sided frustum 1.64m long, 1.31m to 1.10m dia
 Initial orbit:
 Perigee: 813 km
 Apogee: 872 km
 Inclination: 98.65°
 Period: 101.8 min
 Eccentricity: 0.004
 Launch date: 1972-11-09



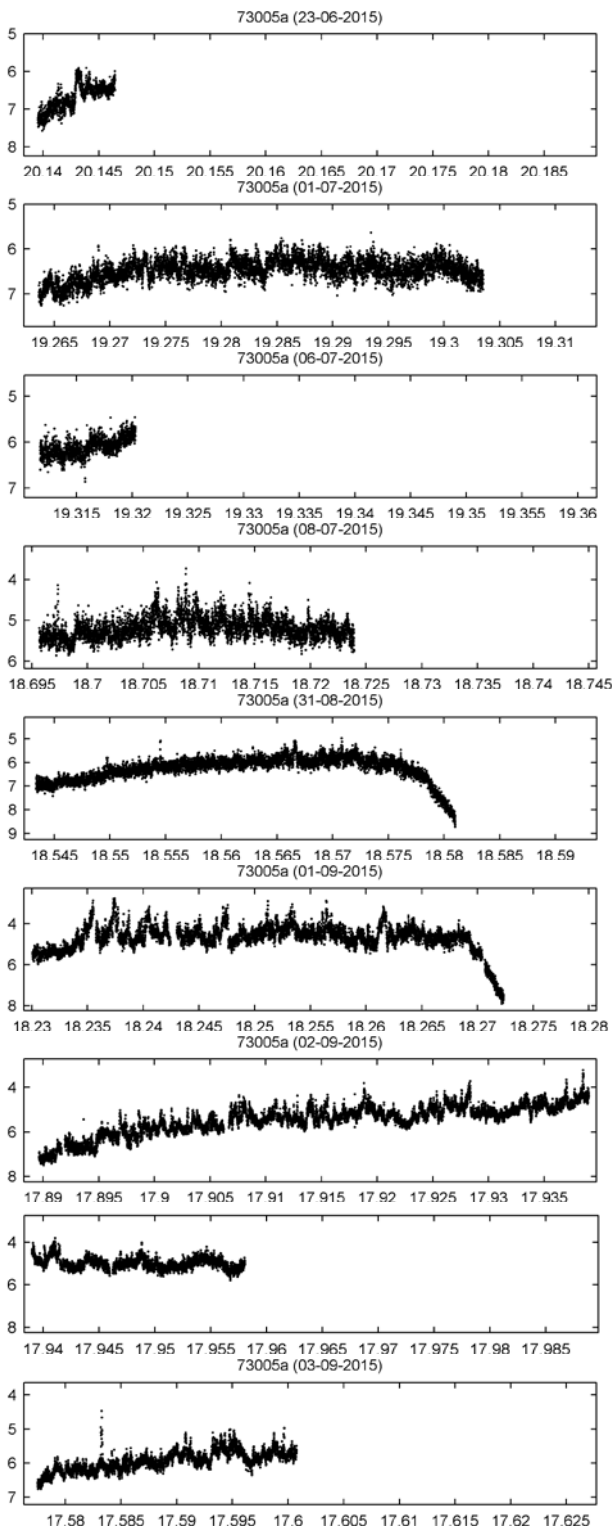


Inclination: 50.66°
 Period: 96.51 min
 Eccentricity: 0.003
 Launch date: 1973-01-26
 Source: Commonwealth of Independent States (former USSR) (CIS)

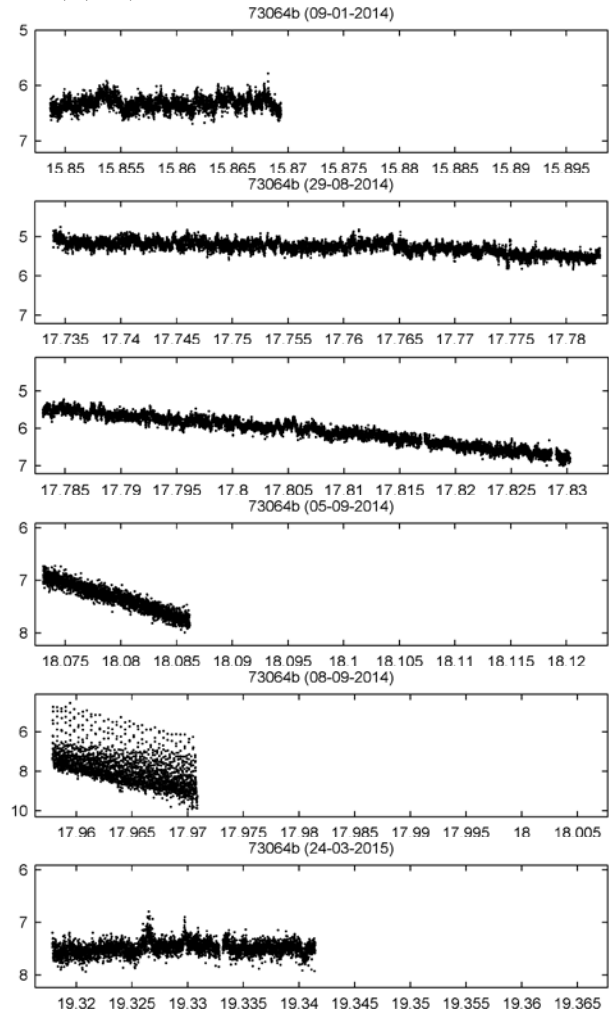


COSMOS 546 (Zaliv-GVM #2)

NORAD ID: 06350
 Int'l Code: 1973-005 A
 Dimensions:
 Initial orbit:
 Perigee: 575 km
 Apogee: 614 km



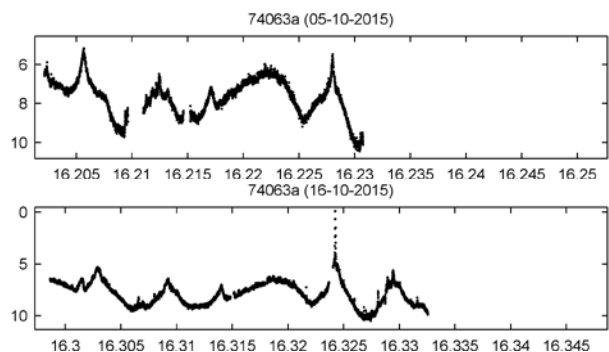
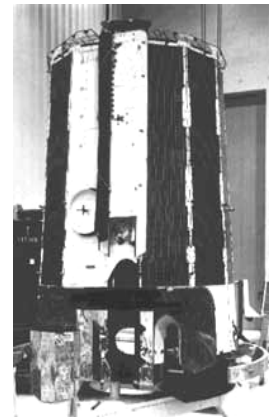
Source: Commonwealth of Independent States (former USSR) (CIS)

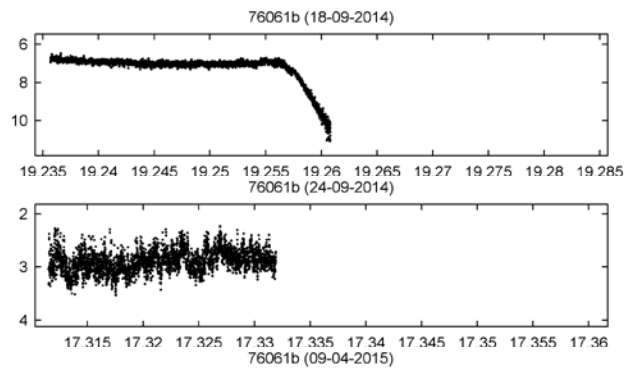
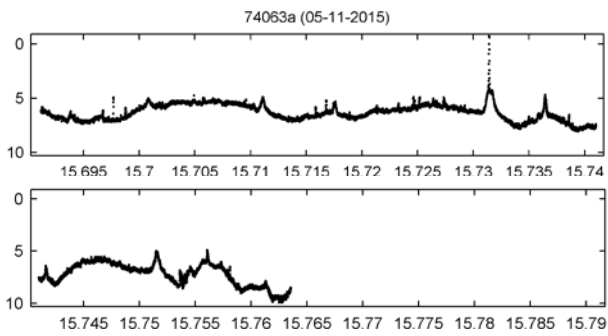


**SL-8 R/B (S3M) (11K65M)(2nd stage)
(COSMOS 585 ROCKET)**
 NORAD ID: 06826
 Int'l Code: 1973-064B
 Dimensions: cylinder 7.4m long, 2.4m dia
 Initial orbit:
 Perigee: 1375 km
 Apogee: 1395 km
 Inclination: 73.97°
 Period: 113.49 min
 Eccentricity: 0.001
 Launch date: 1973-09-08

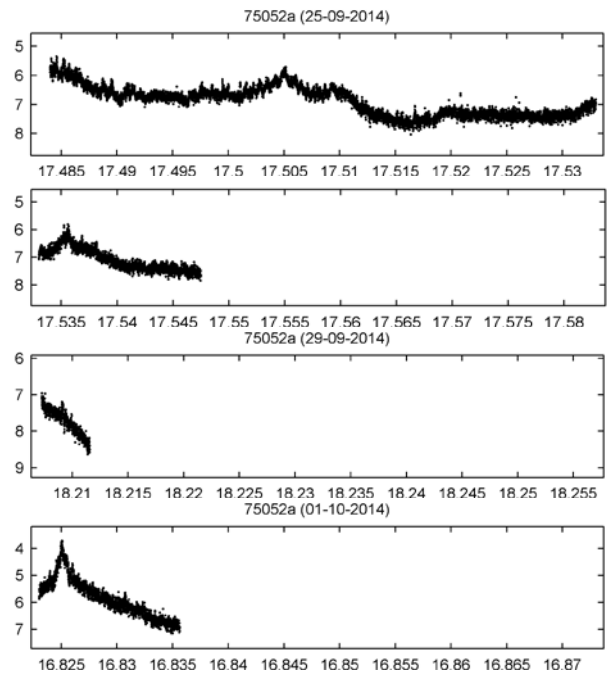
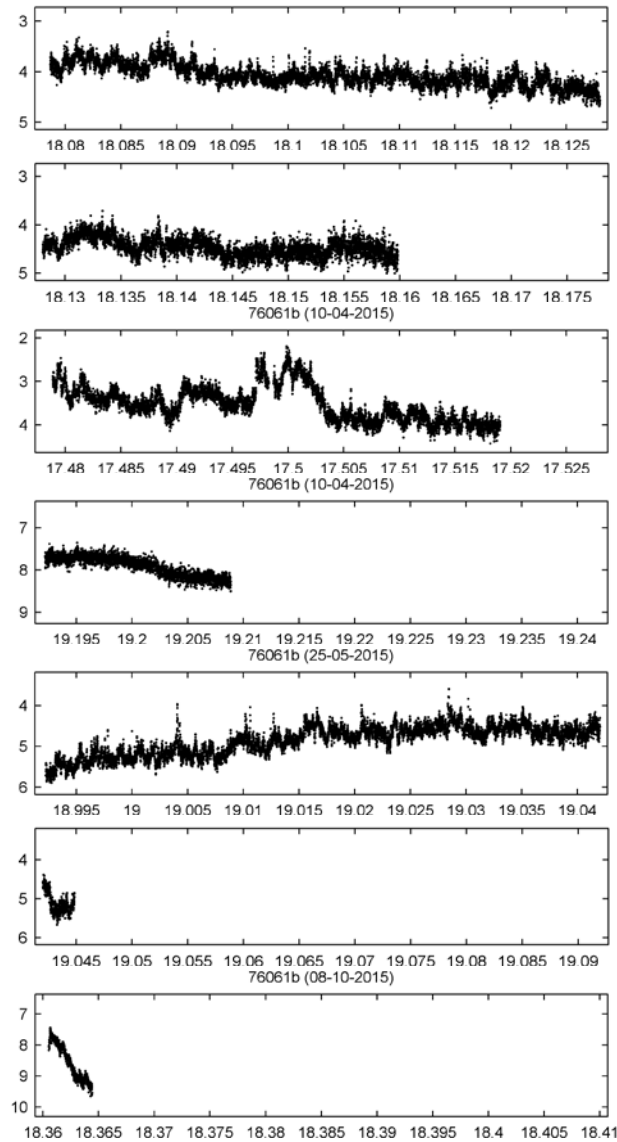
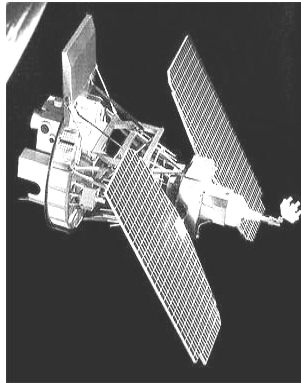


**OPS 6983 (DMSP 5C F1)
(DMSP 9532)**
 NORAD ID: 7411
 Int'l Code: 1974-063A
 Dimensions: 12-sided frustum
 1.64m long, 1.31m to 1.10m dia
 Initial orbit:
 Perigee: 806 km
 Apogee: 875 km
 Inclination: 98.86°
 Period: 101.76 min
 Eccentricity: 0.005
 Launch date: 1974-08-09
 Source: United States (US)





NIMBUS 6 (NIMBUS F)
 NORAD ID: 07924
 Int'l Code: 1975-052A
 Dimensions: conical skeleton 3m long 1.45m dia
 Initial orbit:
 Perigee: 1092 km
 Apogee: 1104 km
 Inclination: 99.96°
 Period: 107.30 min
 Eccentricity: 0.0007
 Launch date: 1975-06-12
 Source: United States (US)



**SL-8 R/B (S3M) (11K65M)(2nd stage)
 (COSMOS 836 ROCKET)**
 NORAD ID: 08924
 Int'l Code: 1976-061B
 Dimensions: cylinder 7.4m long, 2.4m dia
 Initial orbit:
 Perigee: 784 km
 Apogee: 815 km
 Inclination: 74.07°
 Period: 100.88 min
 Eccentricity: 0.002
 Launch date: 1976-01-28
 Source: Commonwealth of Independent States (former USSR) (CIS)



COSMOS 886
 NORAD ID: 09634
 Int'l Code: 1976-126A
 Dimensions: cylinder? 4m long? 2m dia?
 Initial orbit:
 Perigee: 594 km
 Apogee: 2295 km
 Inclination: 65.845°
 Period: 114.79 min
 Eccentricity: 0.109
 Launch date: 1976-12-27



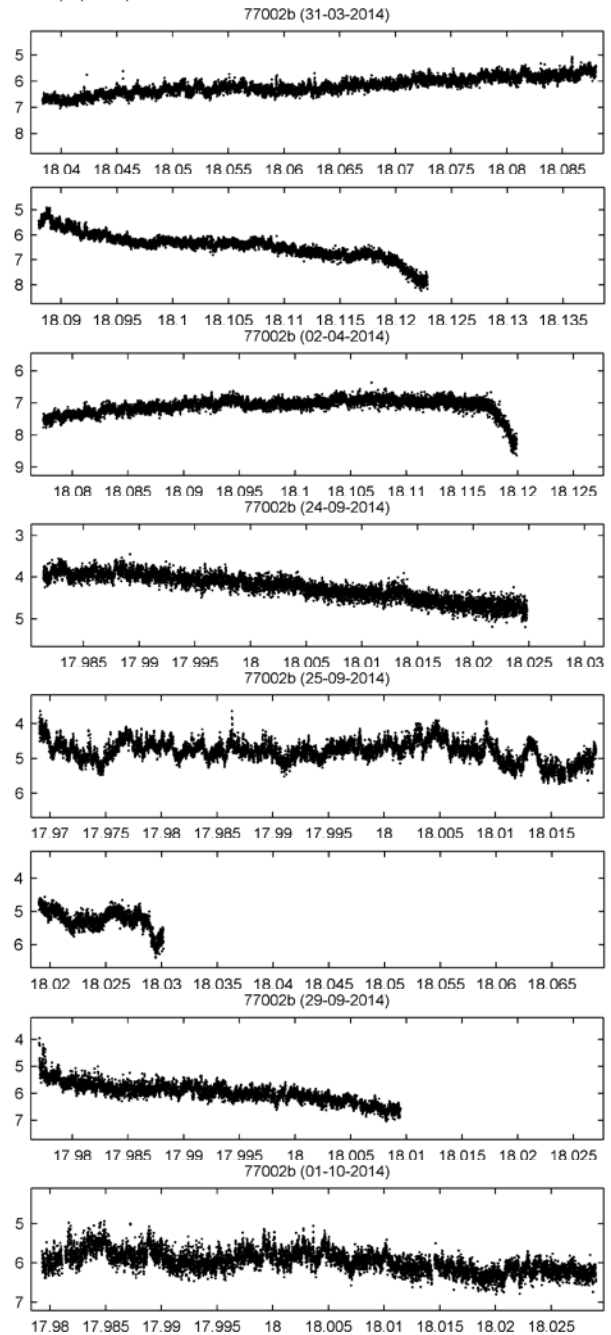
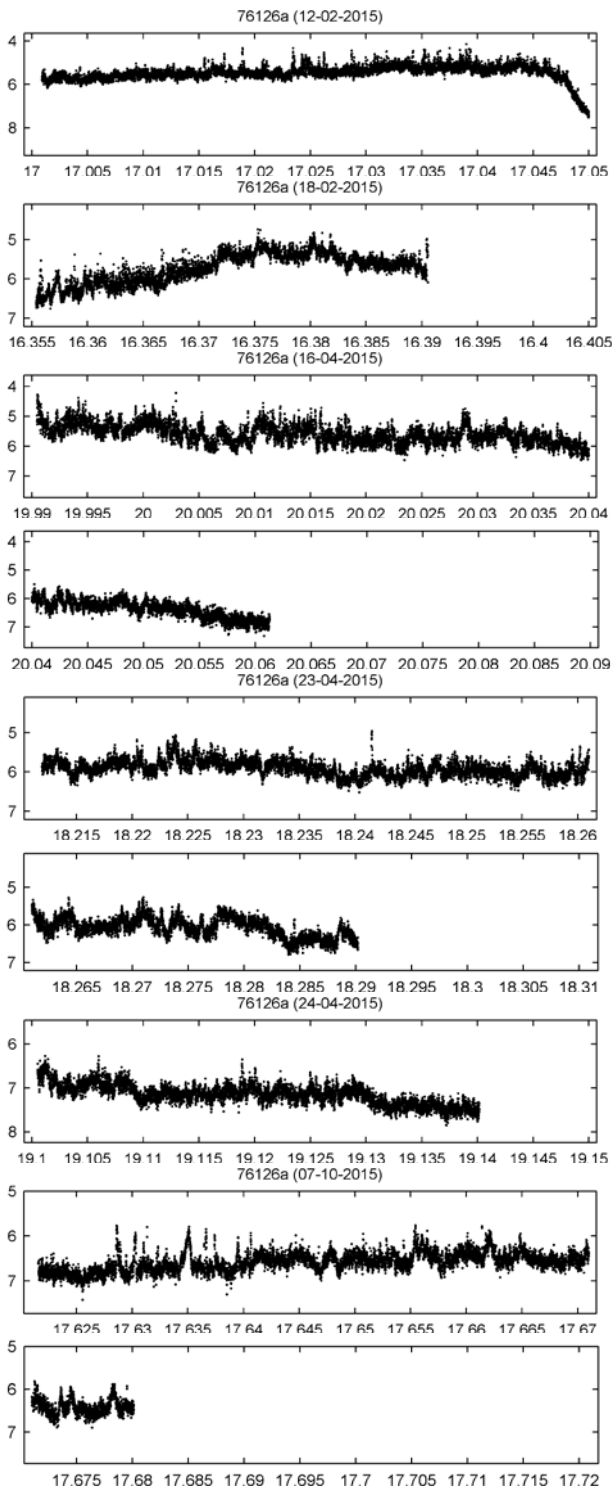
Source: Commonwealth of Independent States (former USSR) (CIS)

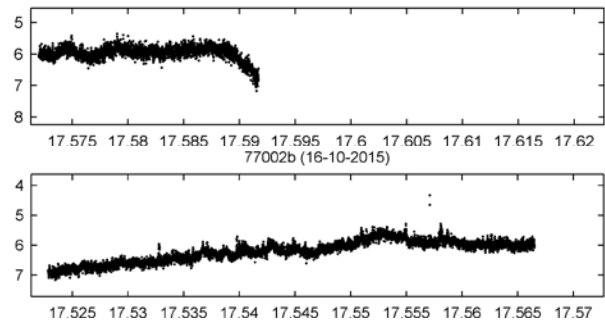
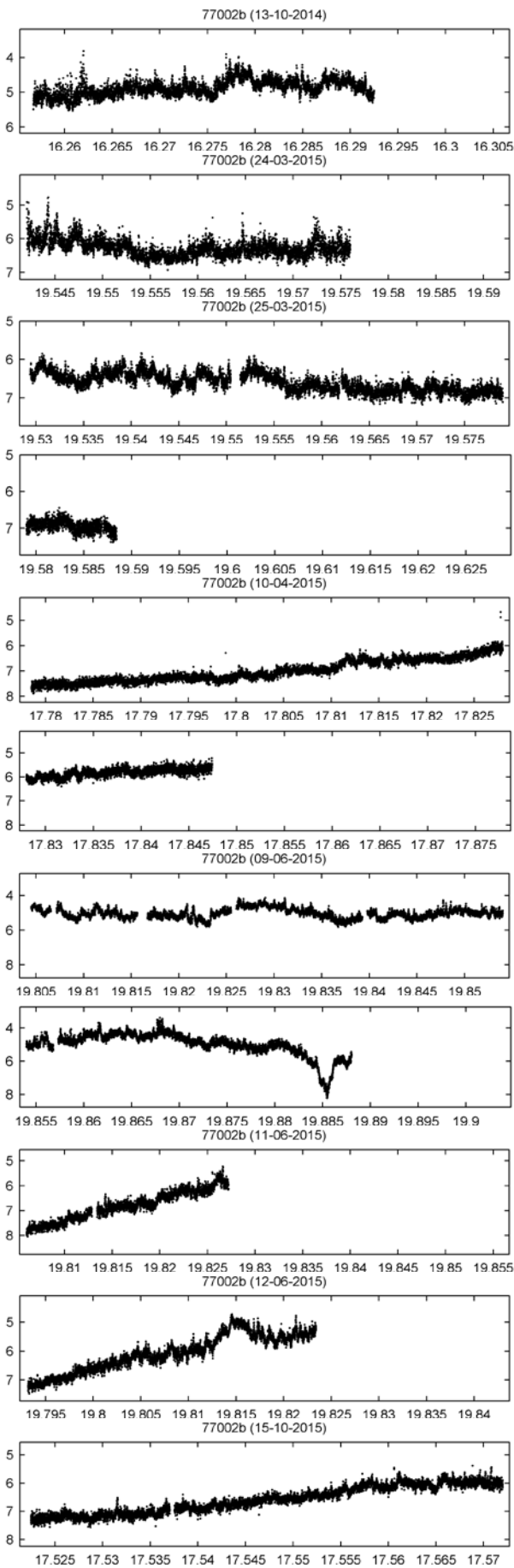
SL-3 R/B (8A92ME)
VOSTOK-2M (Block E 3rd stage)
(METEOR-2 02 ROCKET)

NORAD ID: 09662
 Int'l Code: 1977-002B
 Dimensions: cylinder 3.8m long,
 2.6m dia
 Initial orbit:
 Perigee: 862 km
 Apogee: 942 km
 Inclination: 81.28°
 Period: 103.05 min
 Eccentricity: 0.005
 Launch date: 1977-01-06



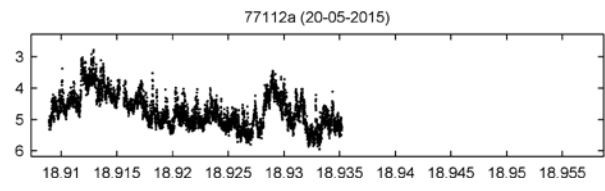
Source: Commonwealth of Independent States (former USSR) (CIS)





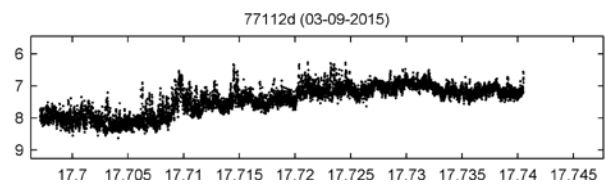
OPS 8781 (NOSS-1 2)

NORAD ID: 10502
 Int'l Code: 1977-112A
 Dimensions:
 Initial orbit:
 Perigee: 1054 km
 Apogee: 1169 km
 Inclination: 63.43°
 Period: 107.50 min
 Eccentricity: 0.008
 Launch date: 1977-12-08
 Source: United States (US)



SS 1 (SSU 4)

NORAD ID: 10529
 Int'l Code: 1977-112D
 Dimensions: box 0.3m x 0.9m x 2.4m
 Initial orbit:
 Perigee: 1054 km
 Apogee: 1169 km
 Inclination: 63.44°
 Period: 107.50 min
 Eccentricity: 0.008
 Launch date: 1977-12-08
 Source: United States (US)

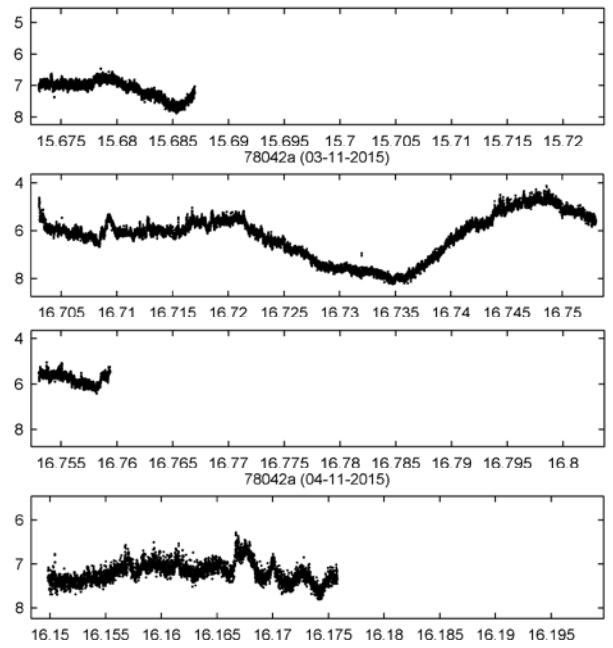
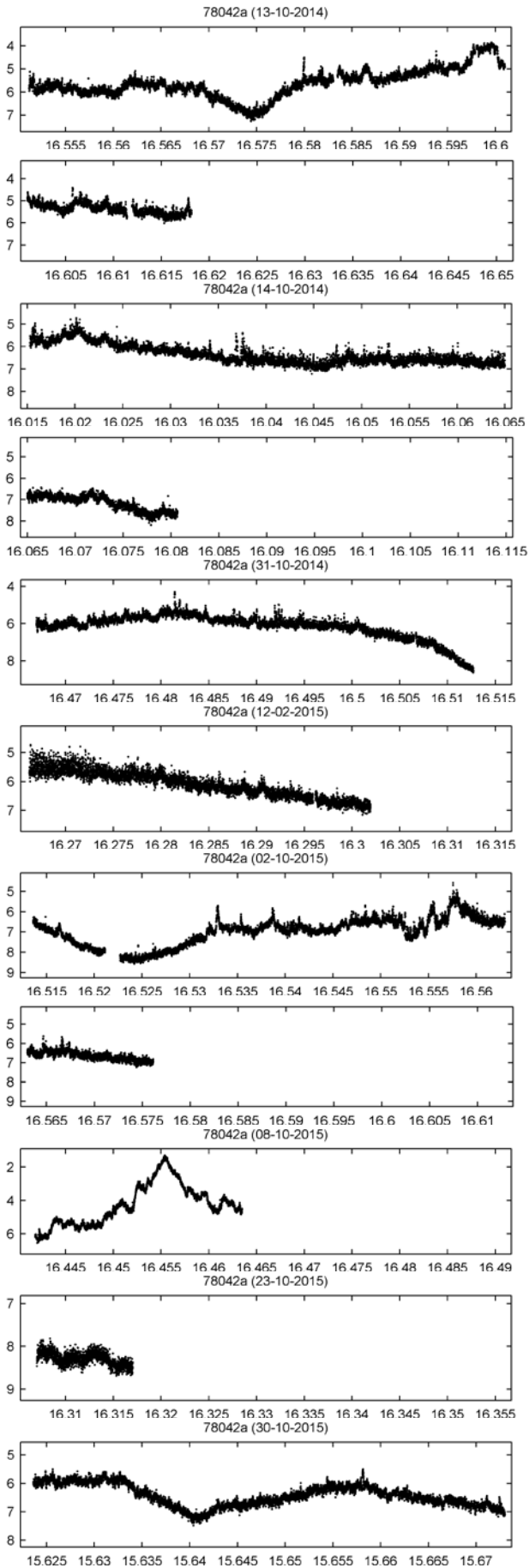


OPS 6182 (DMSP 5D-1 F2) (AMS 3)

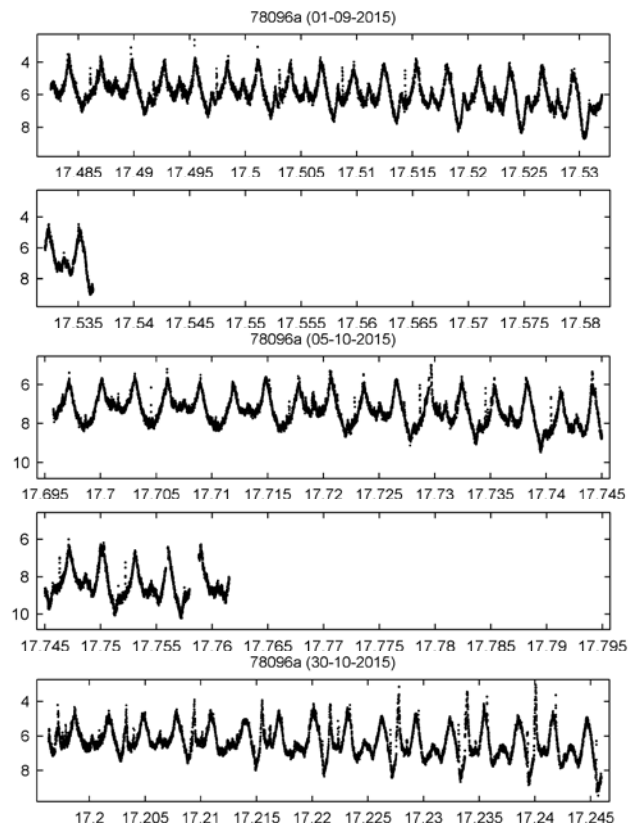
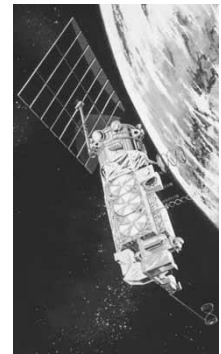
NORAD ID: 10820
 Int'l Code: 1978-042A
 Dimensions:
 Initial orbit: irregular 6.40m long,
 1.68m dia
 Perigee: 820 km
 Apogee: 835 km
 Inclination: 98.71°
 Period: 101.47 min
 Eccentricity: 0.001
 Launch date: 1978-05-01

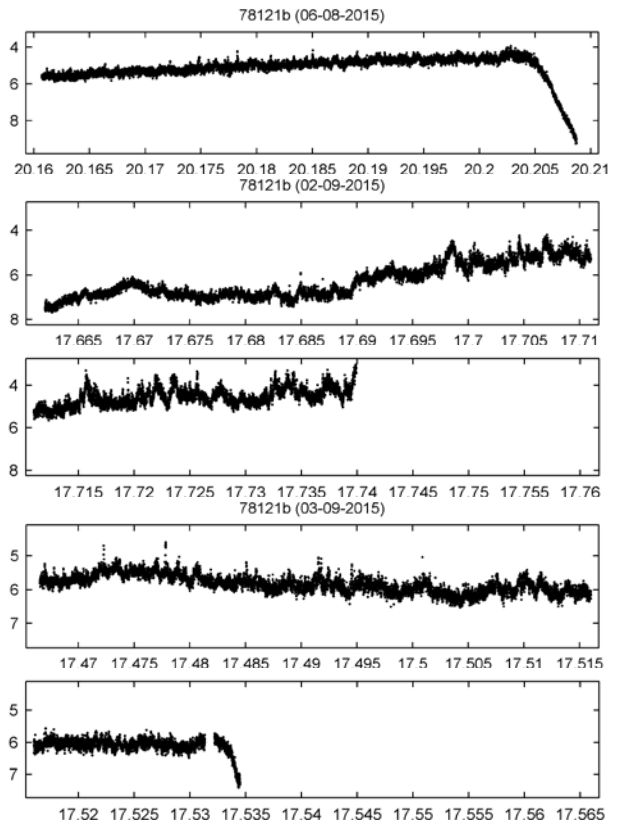
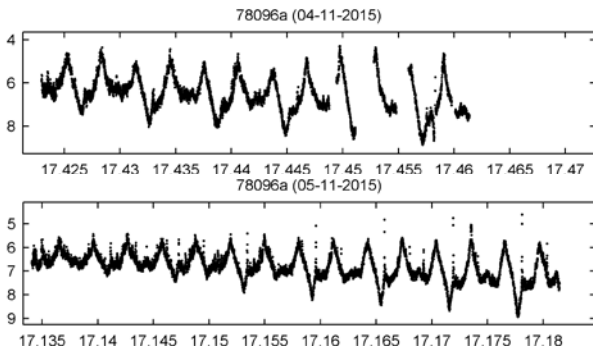


Source: United States (US)



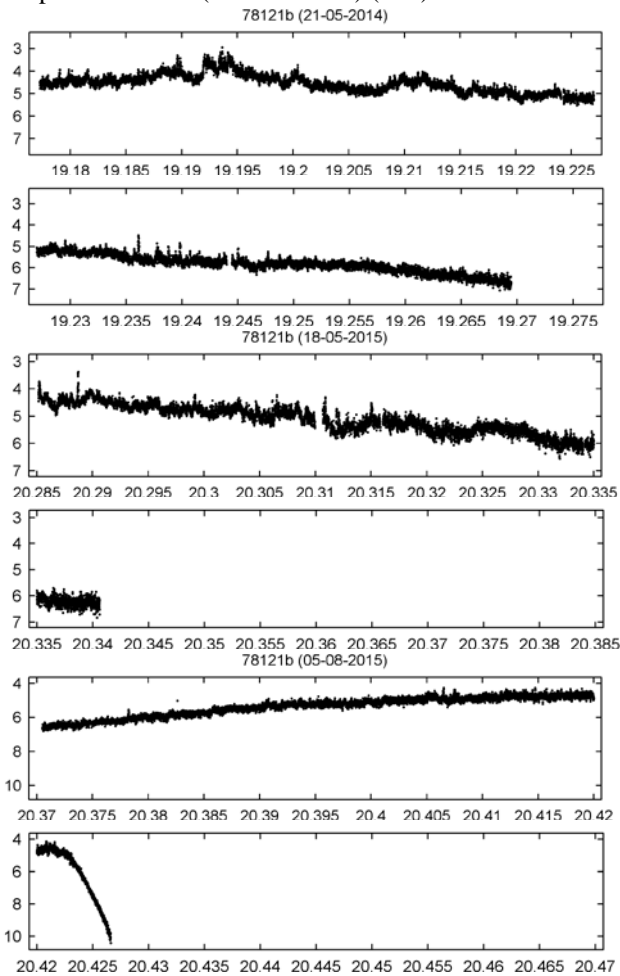
TIROS N
 NORAD ID: 11060
 Int'l Code: 1978-096A
 Dimensions: cylinder 3.71 m long
 1.88 m dia
 Initial orbit:
 Perigee: 850 km
 Apogee: 866 km
 Inclination: 98.91°
 Period: 102.12 min
 Eccentricity: 0.001
 Launch date: 1978-10-13
 Source: United States (US)





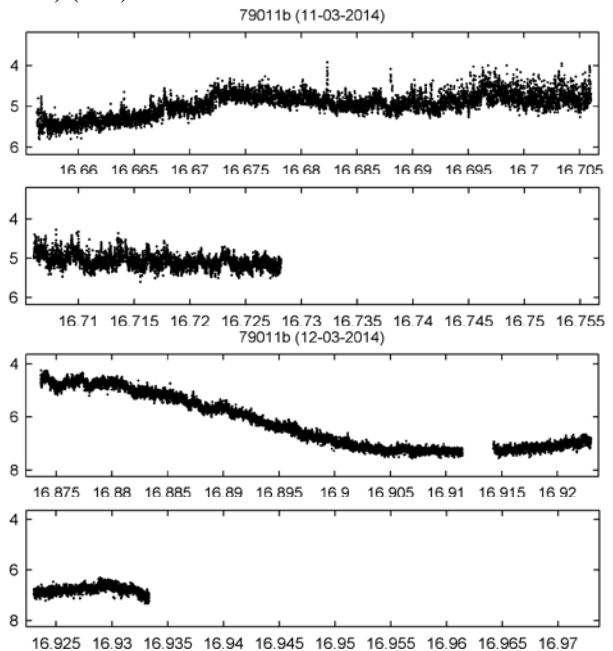
**SL-3 R/B (8A92ME)
Vostok-2M (Block E 3rd stage)
(COSMOS 1066 ROCKET)**

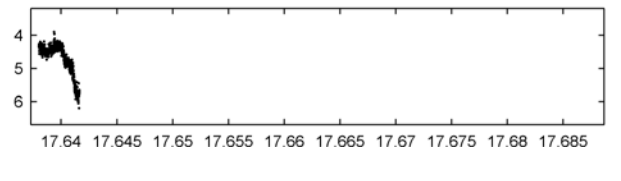
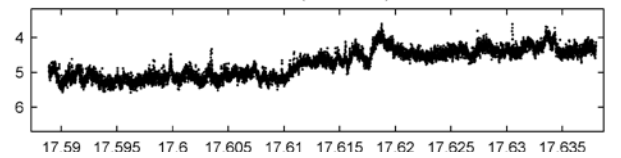
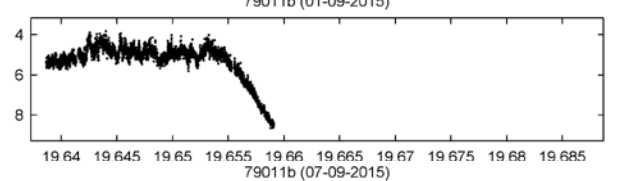
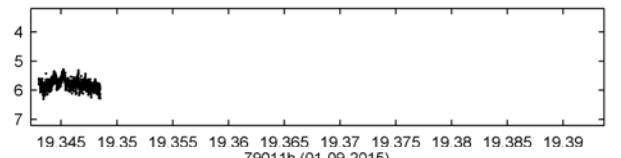
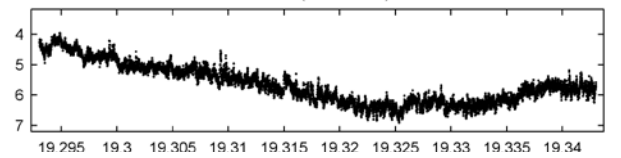
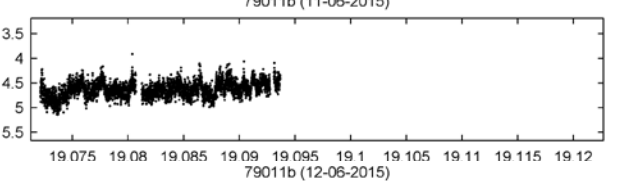
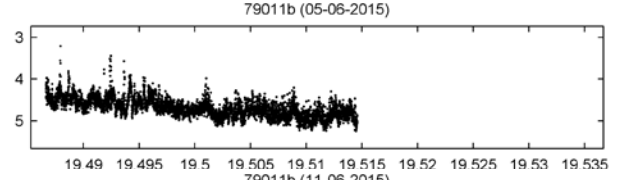
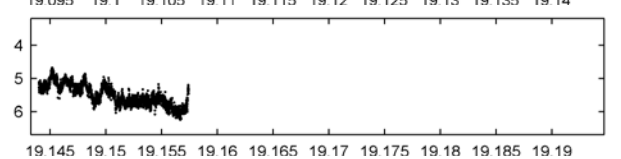
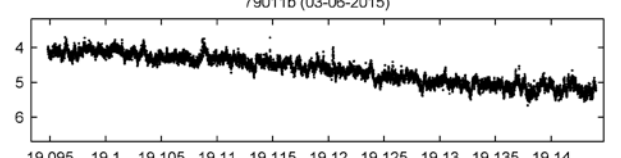
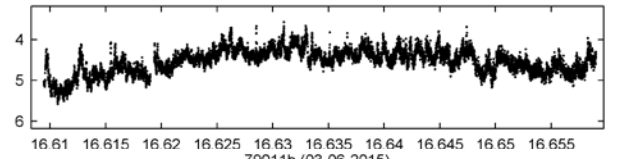
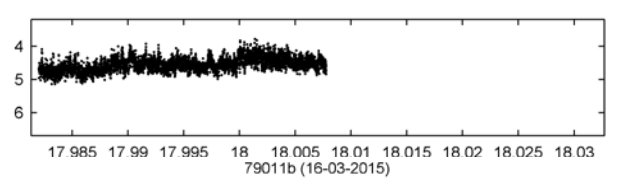
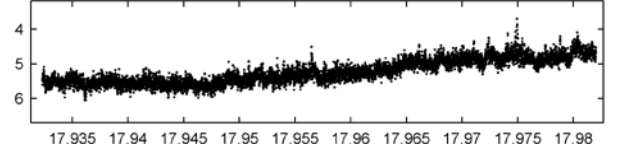
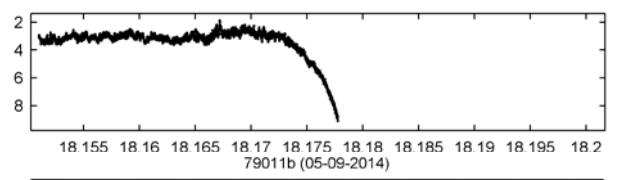
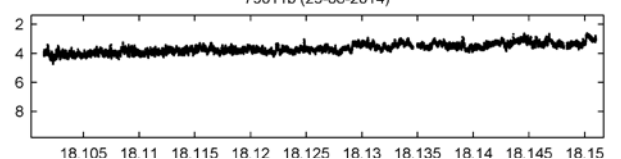
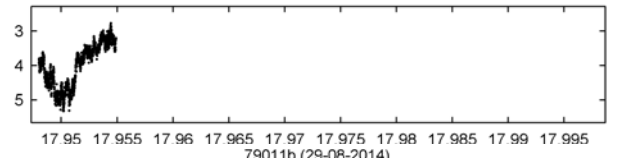
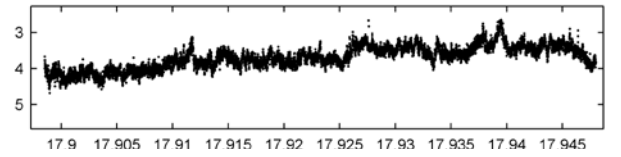
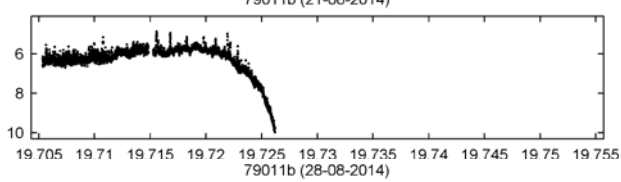
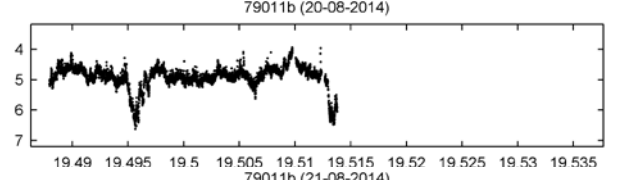
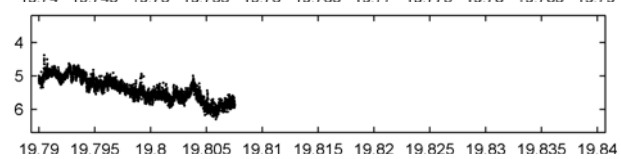
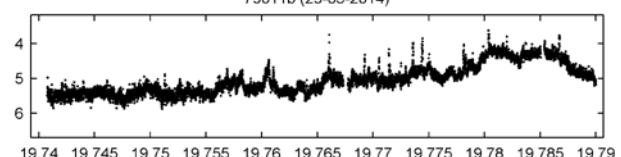
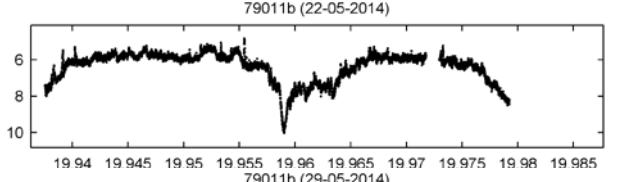
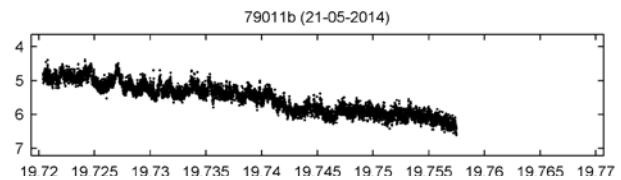
NORAD ID: 11166
Int'l Code: 1978-121B
Dimensions: cylinder 3.8m long,
2.6m dia
Initial orbit:
Perigee: 816 km
Apogee: 898 km
Inclination: 81.25°
Period: 102.10 min
Eccentricity: 0.006
Launch date: 1978-12-23
Source: Commonwealth of
Independent States (former USSR) (CIS)



**SL-14 R/B (S5M) (2nd stage)
(COSMOS 1076 ROCKET)**

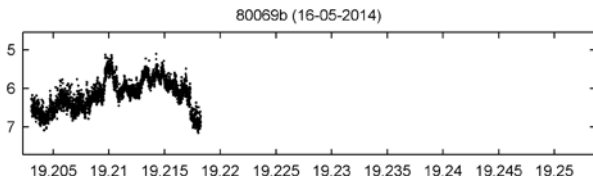
NORAD ID: 11267
Int'l Code: 1979-011B
Dimensions: cylinder 7.4m long, 2.4m dia
Initial orbit:
Perigee: 635 km
Apogee: 664 km
Inclination: 82.54°
Period: 97.75 min
Eccentricity: 0.002
Launch date: 1979-02-12
Source: Commonwealth of Independent States (former
USSR) (CIS)





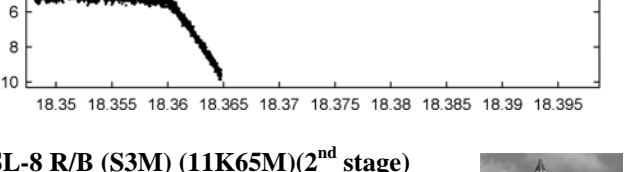
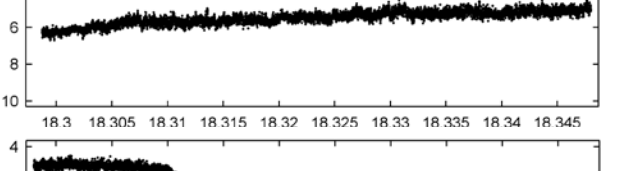
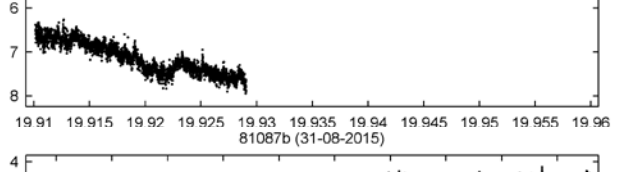
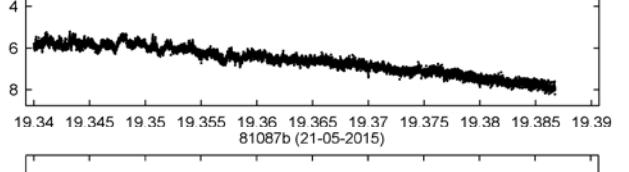
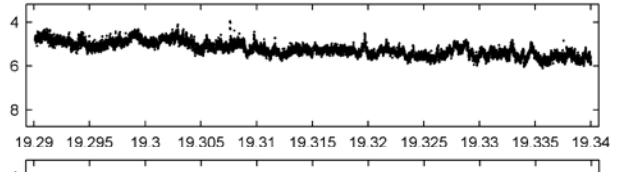
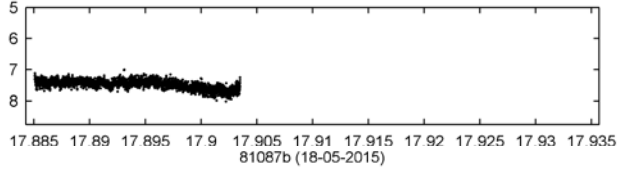
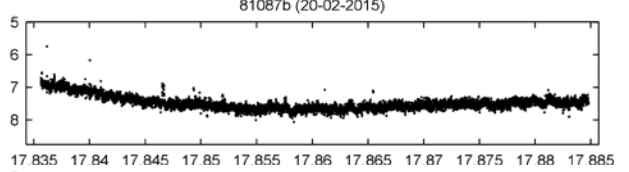
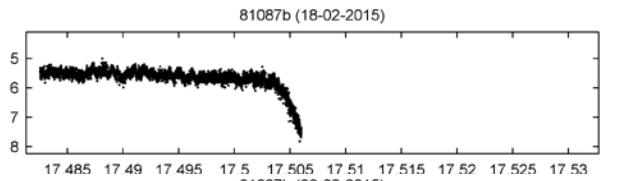
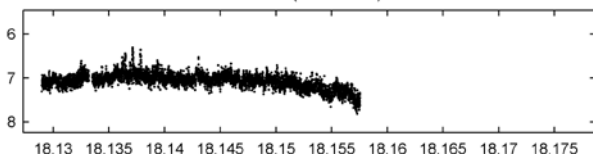
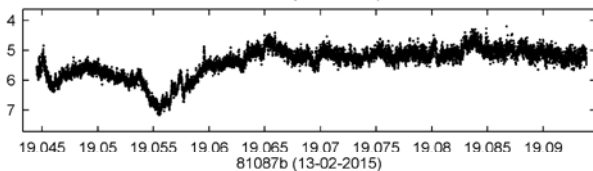
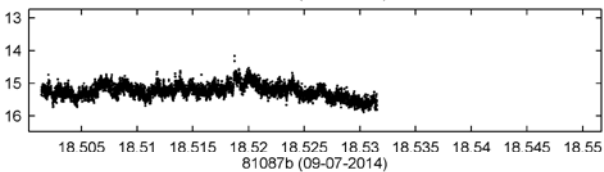
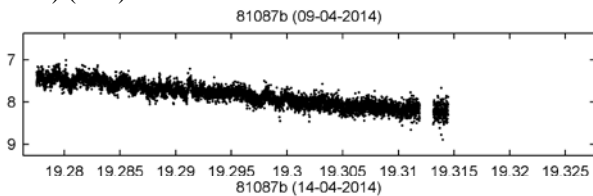
SL-3 R/B (Block E 3rd stage)

NORAD ID: 11933
 Int'l Code: 1980-069B
 Dimensions: cylinder 3.8m long
 2.6m dia
 Initial orbit:
 Perigee: 592 km
 Apogee: 686 km
 Inclination: 81.22°
 Period: 97.53 min
 Eccentricity: 0.007
 Launch date: 1980-08-15
 Decay date: 2014-05-22
 Source: Commonwealth of
 Independent States (former USSR) (CIS)



SL-8 R/B (S3M) (11K65M)(2nd stage)

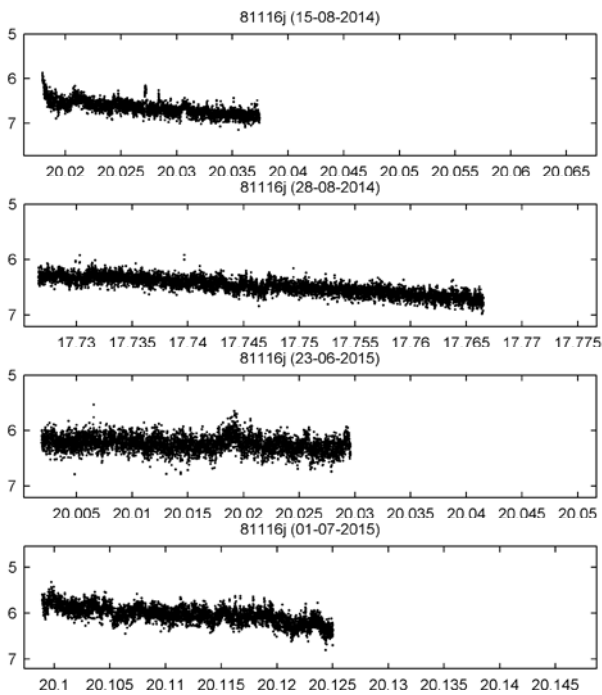
(COSMOS 1304 ROCKET)
 NORAD ID: 12804
 Int'l Code: 1981-087B
 Dimensions: cylinder 7.4m long, 2.4m dia
 Initial orbit:
 Perigee: 909 km
 Apogee: 974 km
 Inclination: 82.93°
 Period: 103.89 min
 Eccentricity: 0.004
 Launch date: 1981-09-04
 Source: Commonwealth of Independent States (former
 USSR) (CIS)



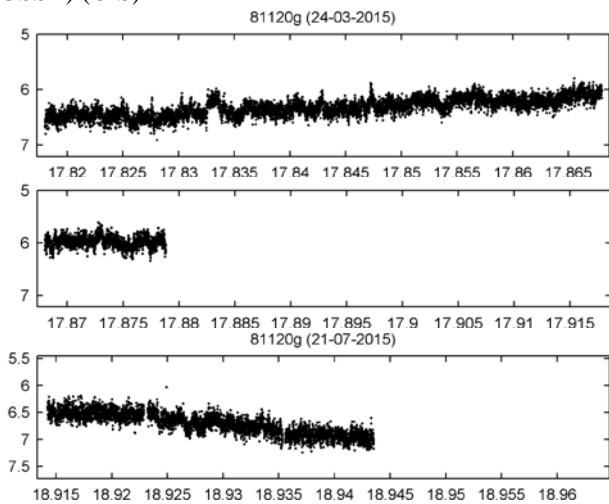
SL-8 R/B (S3M) (11K65M)(2nd stage)

(COSMOS 1320-1327 ROCKET)
 NORAD ID: 12983
 Int'l Code: 1981-116J
 Dimensions: cylinder 7.4m long, 2.4m dia
 Initial orbit:
 Perigee: 1483 km
 Apogee: 1670 km
 Inclination: 73.98°
 Period: 117.69 min
 Eccentricity: 0.012
 Launch date: 1981-11-28
 Source: Commonwealth of Independent States (former
 USSR) (CIS)



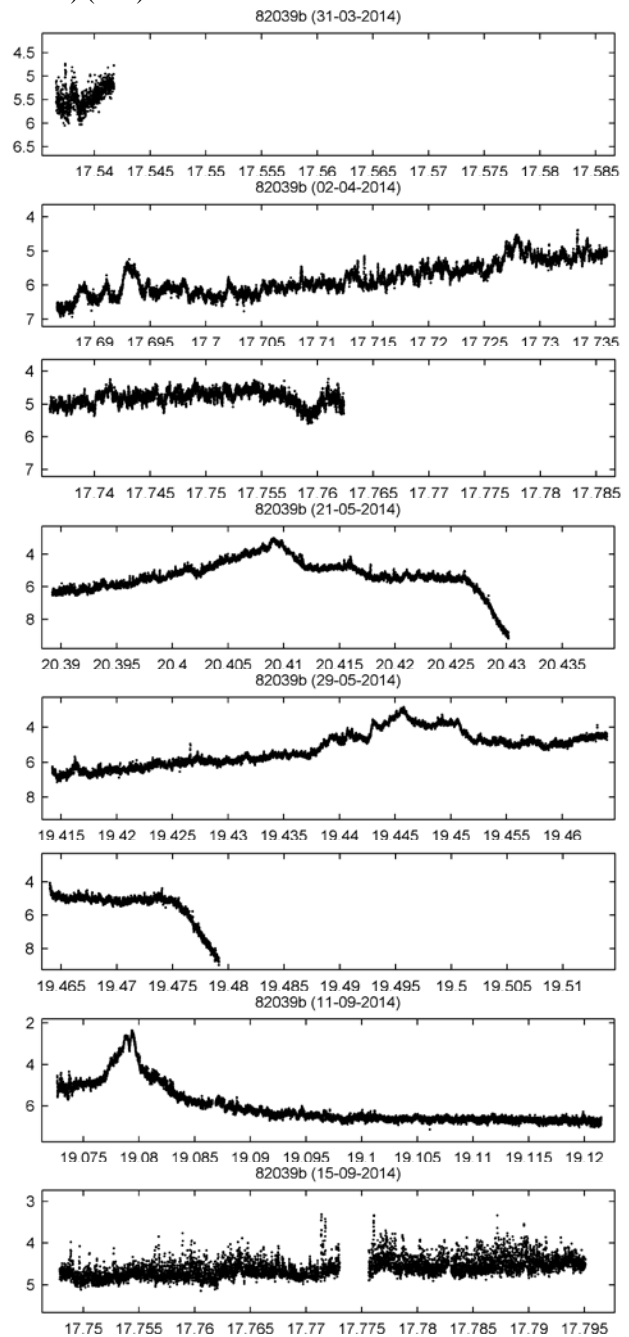


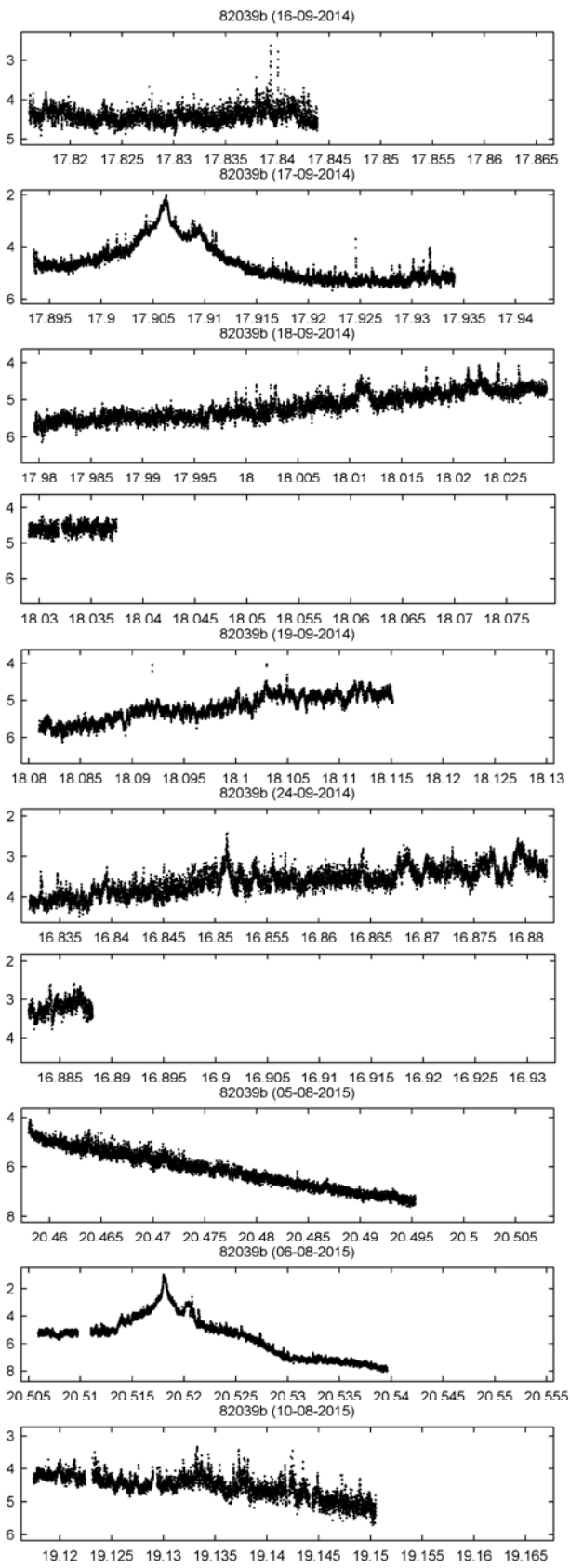
**SL-8 R/B (S3M) (11K65M)(2nd stage)
(RADIO SPORT 3-8 ROCKET)**
 NORAD ID: 13003
 Int'l Code: 1981-120G
 Dimensions: cylinder 7.4m long, 2.4m dia
 Initial orbit:
 Perigee: 1663 km
 Apogee: 1785 km
 Inclination: 82.96°
 Period: 120.95 min
 Eccentricity: 0.007
 Launch date: 1981-12-17
 Source: Commonwealth of Independent States (former USSR) (CIS)



**SL-3 R/B (8A92ME)
Vostok-2M (Block E 3rd stage)
(COSMOS 1356 ROCKET)**

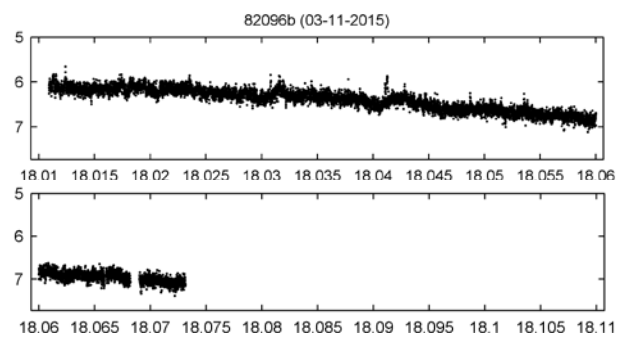
NORAD ID: 13154
 Int'l Code: 1982-039B
 Dimensions: cylinder 3.8m long,
 2.6m dia
 Initial orbit:
 Perigee: 618 km
 Apogee: 698 km
 Inclination: 81.21°
 Period: 97.92 min
 Eccentricity: 0.006
 Launch date: 1982-05-05
 Source: Commonwealth of Independent States (former USSR) (CIS)





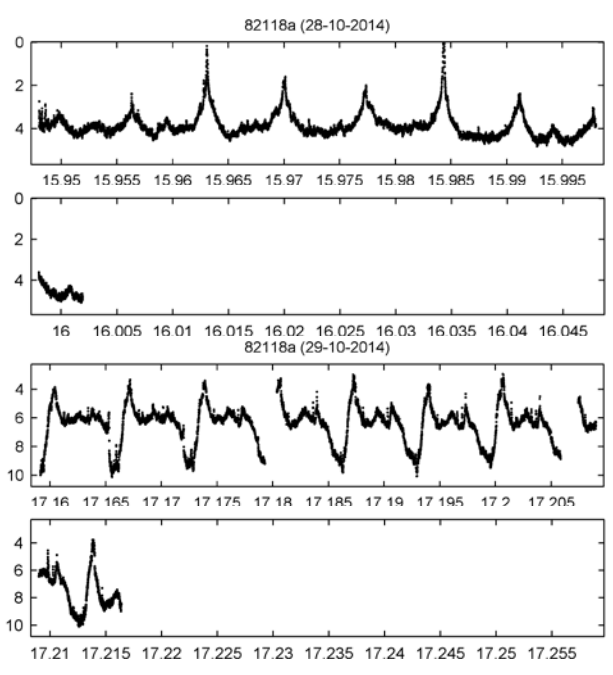
SL-14 R/B (3rd stage)

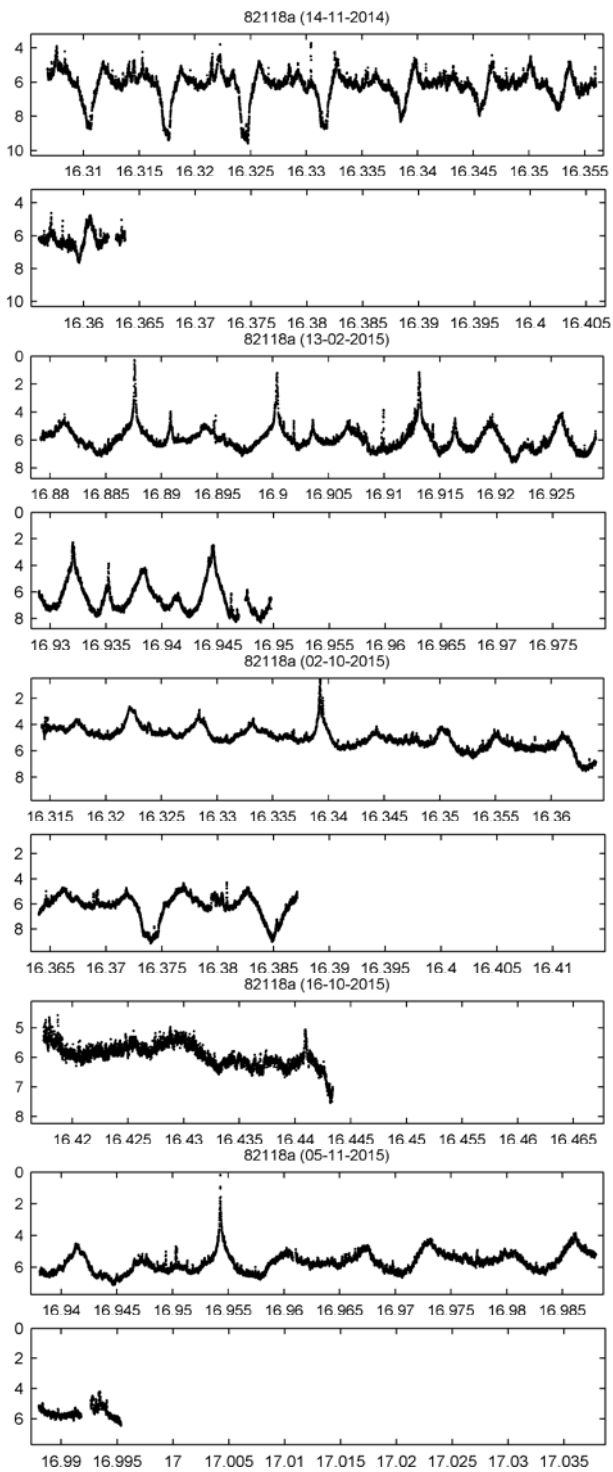
NORAD ID: 13590
 Int'l Code: 1982-096B
 Dimensions: cylinder 7.4 m long, 2.4 m dia
 Initial orbit:
 Perigee: 1493 km
 Apogee: 1501 km
 Inclination: 82.62°
 Period: 115.94 min
 Eccentricity: 0.001
 Launch date: 1982-09-24
 Source: Commonwealth of Independent States (former USSR) (CIS)



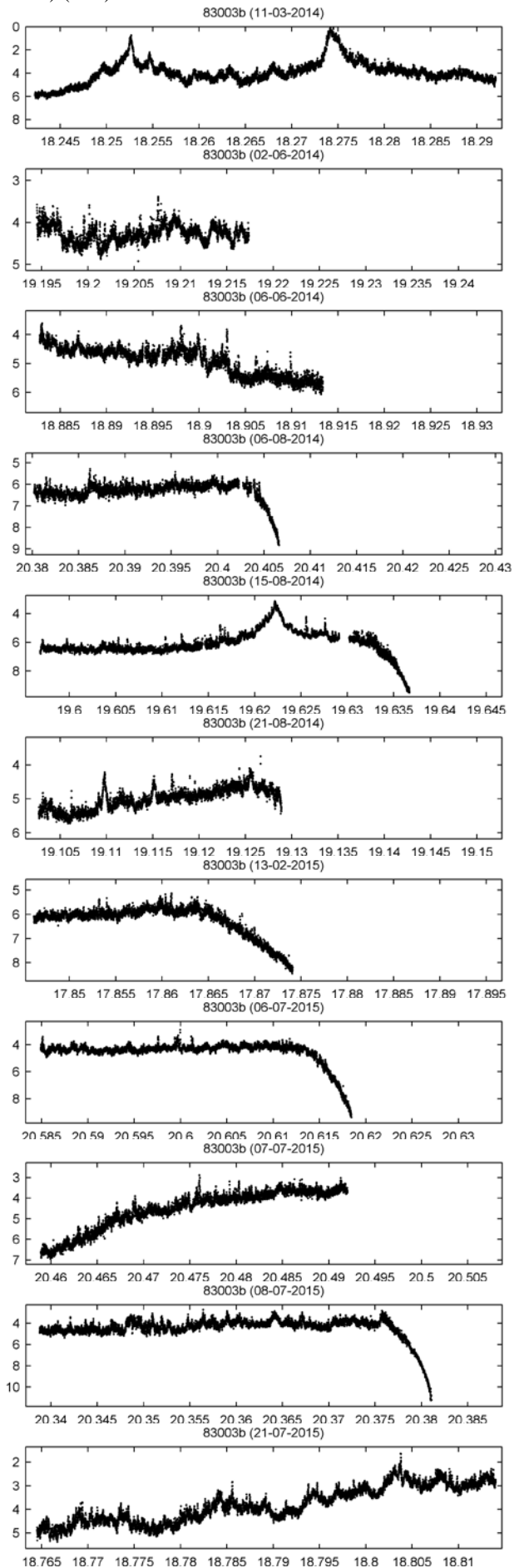
OPS 9845 (DMSP 5D-2 F6)

NORAD ID: 13736
 Int'l Code: 1982-118A
 Dimensions: irregular 6.40m long?
 1.68m dia?
 Initial orbit:
 Perigee: 816 km
 Apogee: 827 km
 Inclination: 98.72°
 Period: 101.36 min
 Eccentricity: 0.001
 Launch date: 1982-12-21
 Source: United States (US)



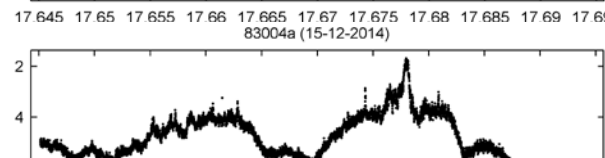
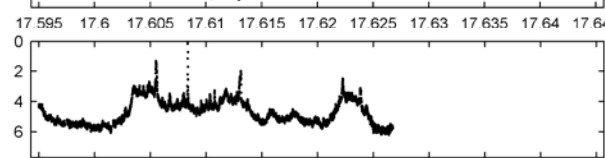
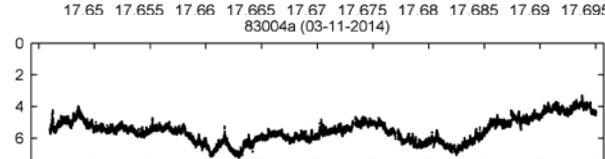
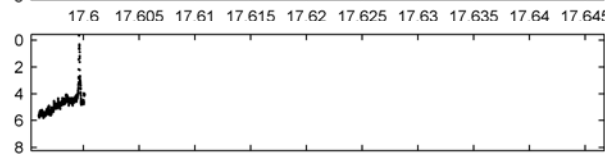
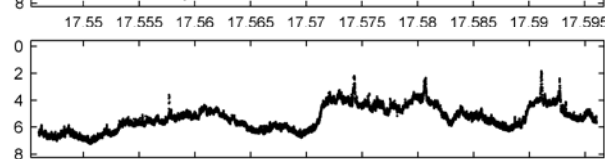
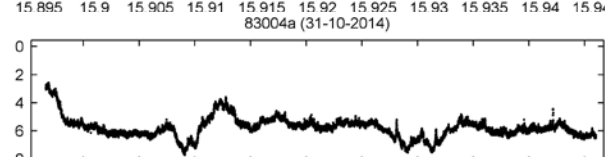
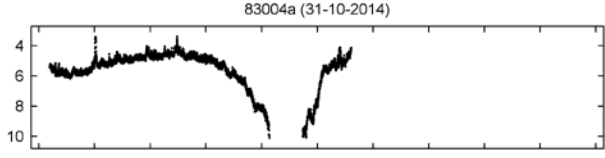
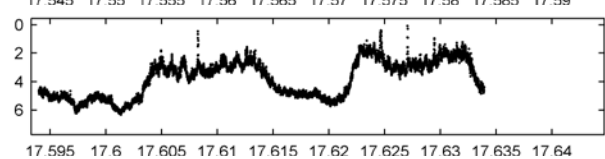
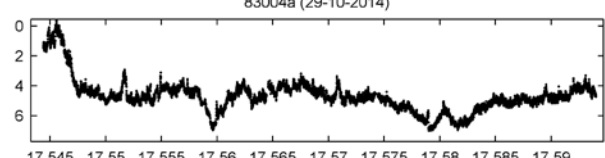
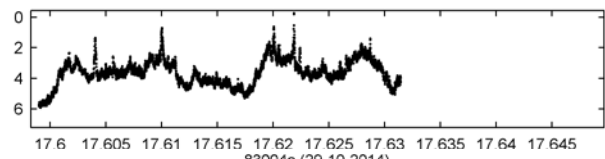
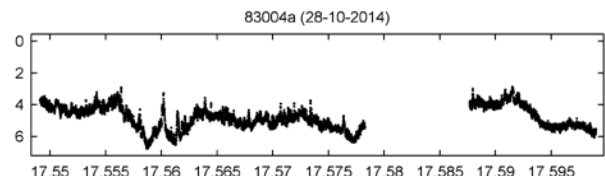
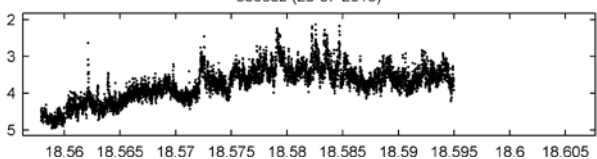
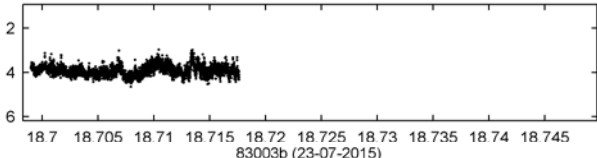
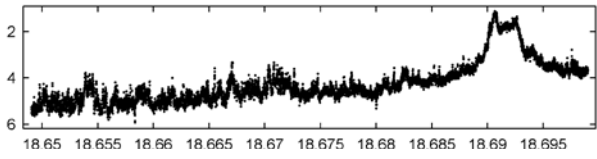
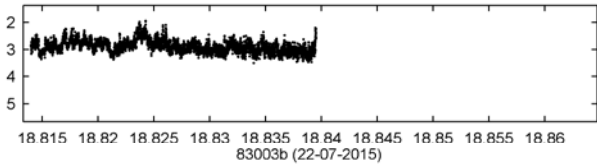


Source: Commonwealth of Independent States (former USSR) (CIS)



SL-3 R/B (8A92ME)
Vostok-2M (Block E 3rd stage)
(COSMOS 1437 ROCKET)
 NORAD ID: 13771
 Int'l Code: 1983-003B
 Dimensions: cylinder 3.8m long,
 2.6m dia
 Initial orbit:
 Perigee: 605 km
 Apogee: 685 km
 Inclination: 81.17°
 Period: 97.65 min
 Eccentricity: 0.006
 Launch date: 1983-01-20





IRAS

NORAD ID: 13777

Int'l Code: 1983-004A

Dimensions: cylinder + panel

3.60m long 2.05m dia

Initial orbit:

Perigee: 896 km

Apogee: 913 km

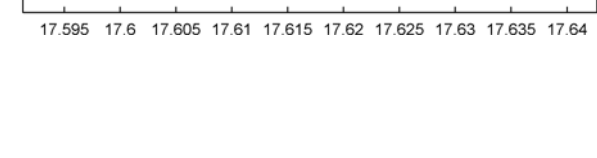
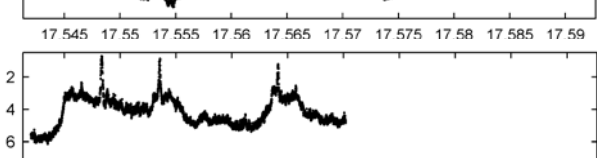
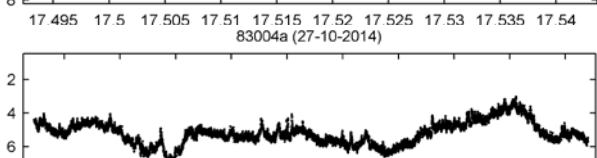
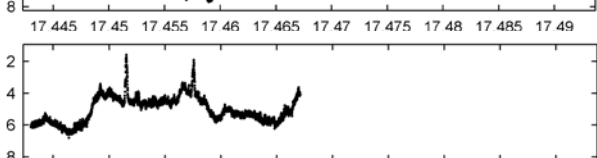
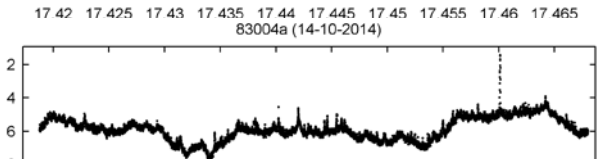
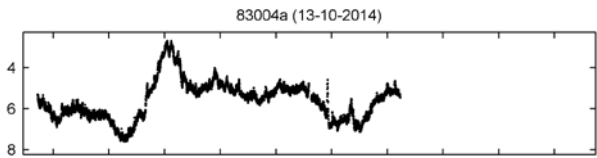
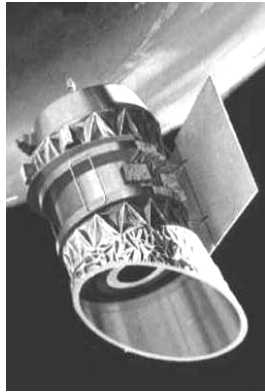
Inclination: 99.1°

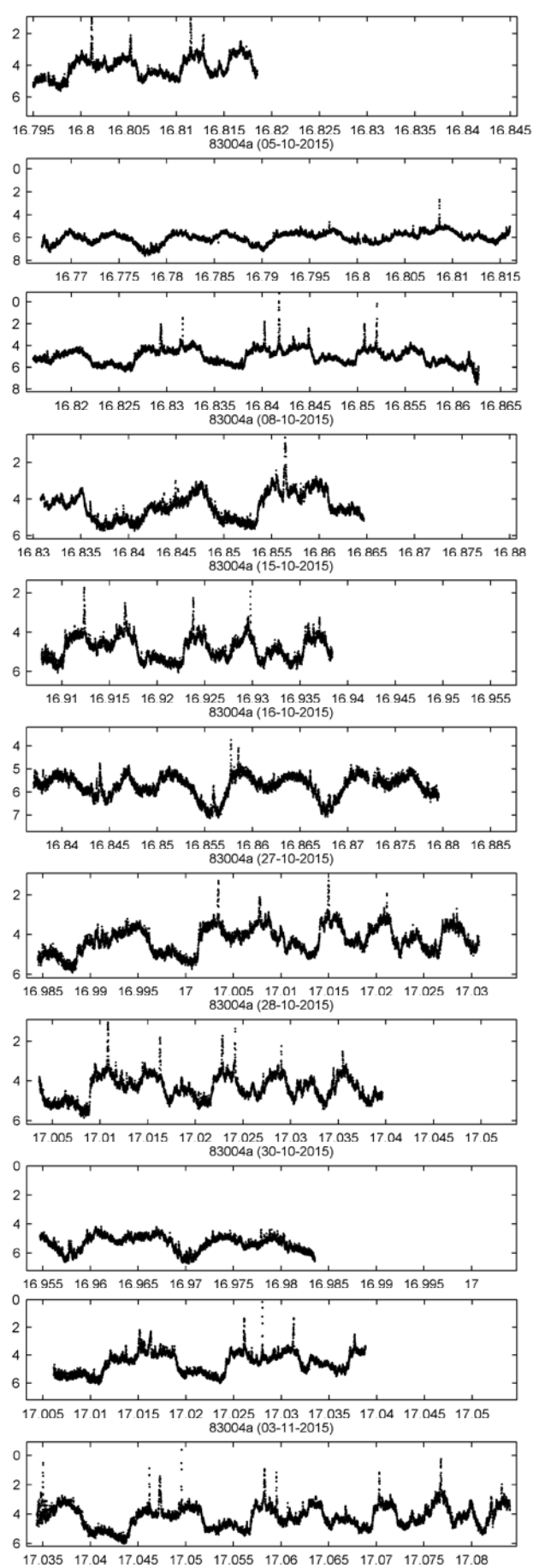
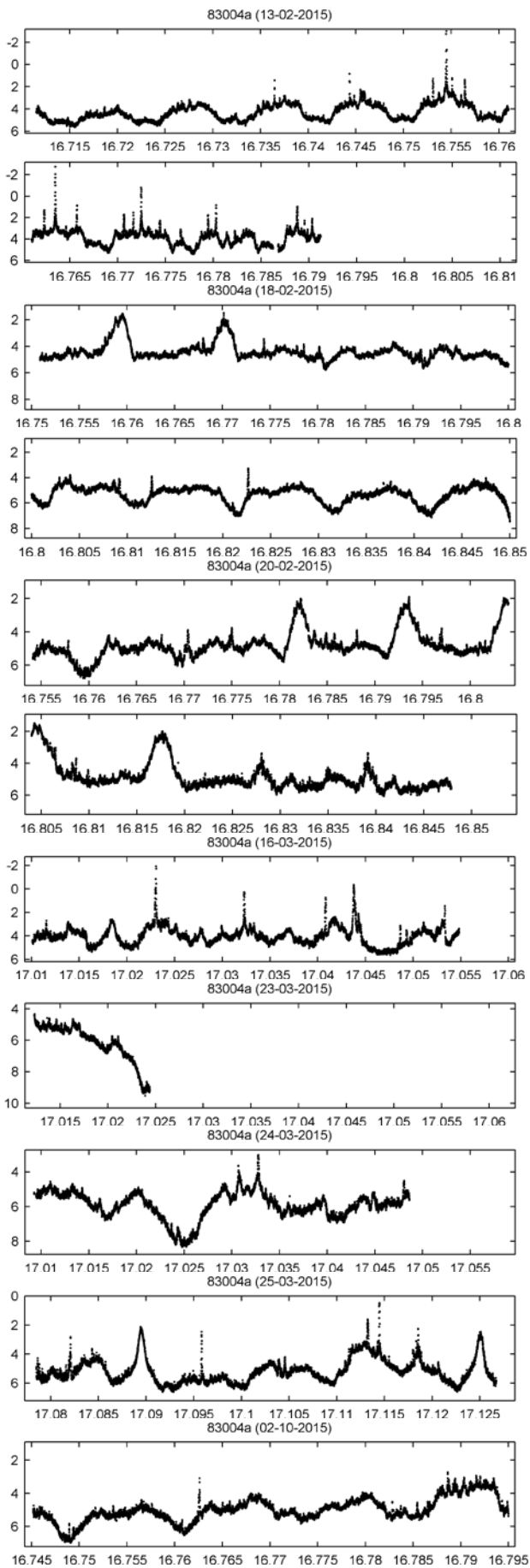
Period: 103.11 min

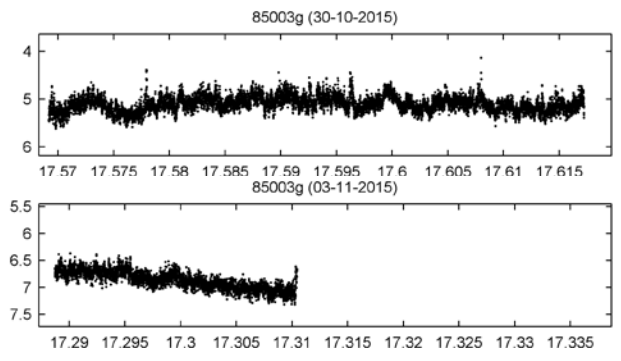
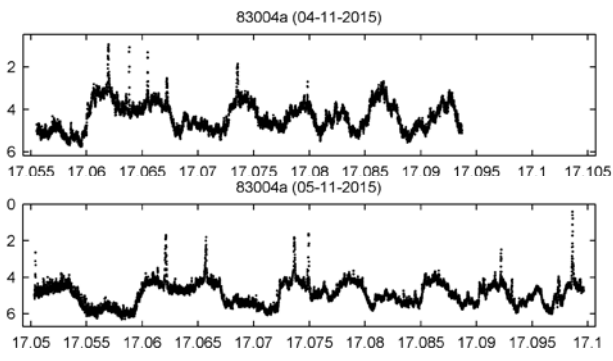
Eccentricity: 0.001

Launch date: 1983-01-26

Source: United States (US)







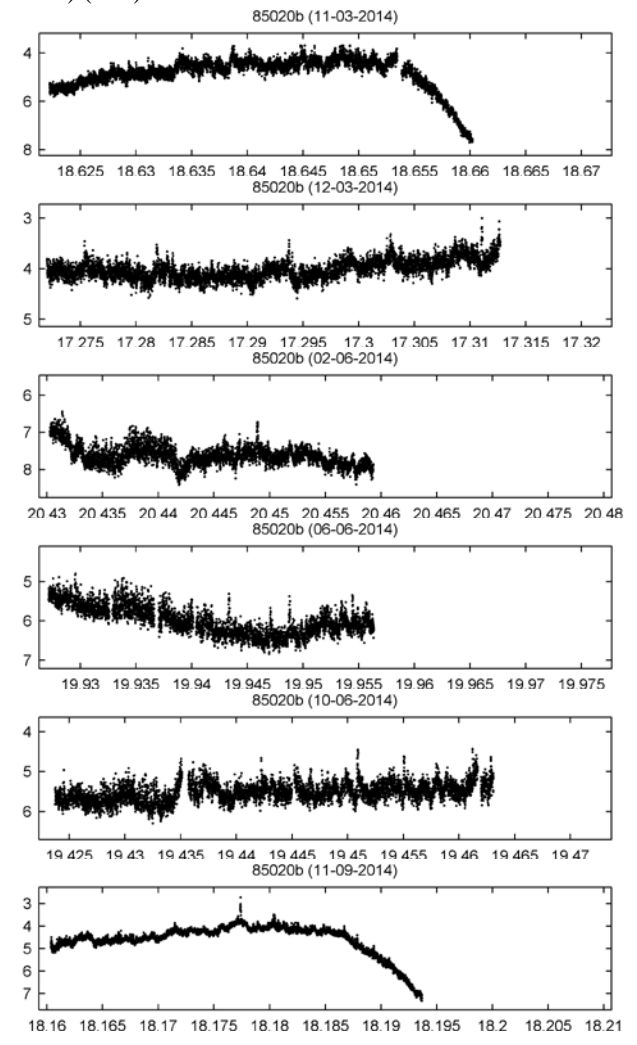
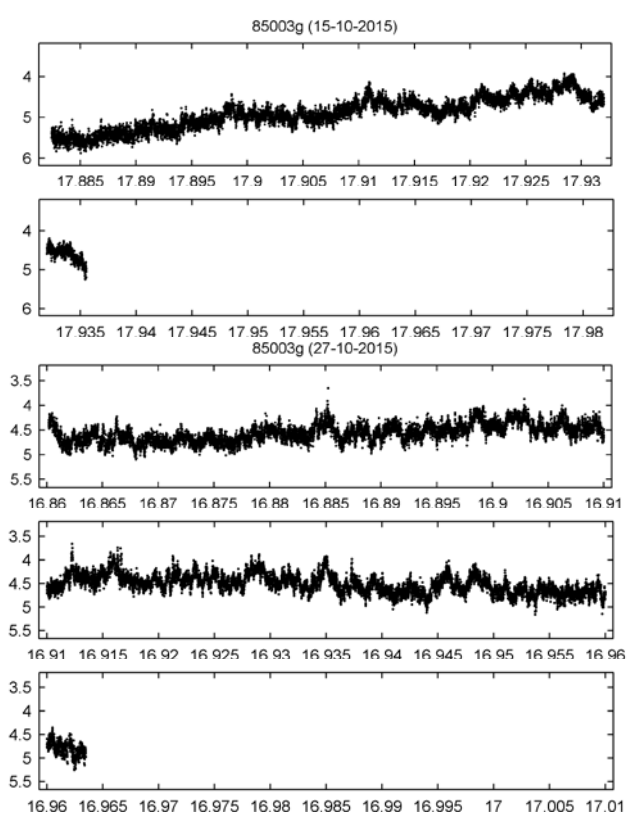
SL-14 R/B
(Cosmos 1617 3rd stage)

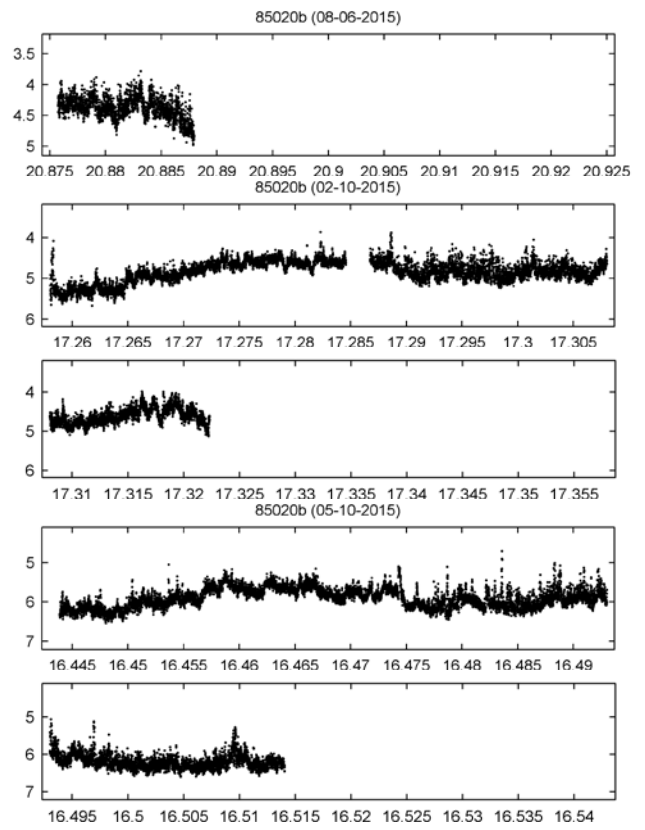
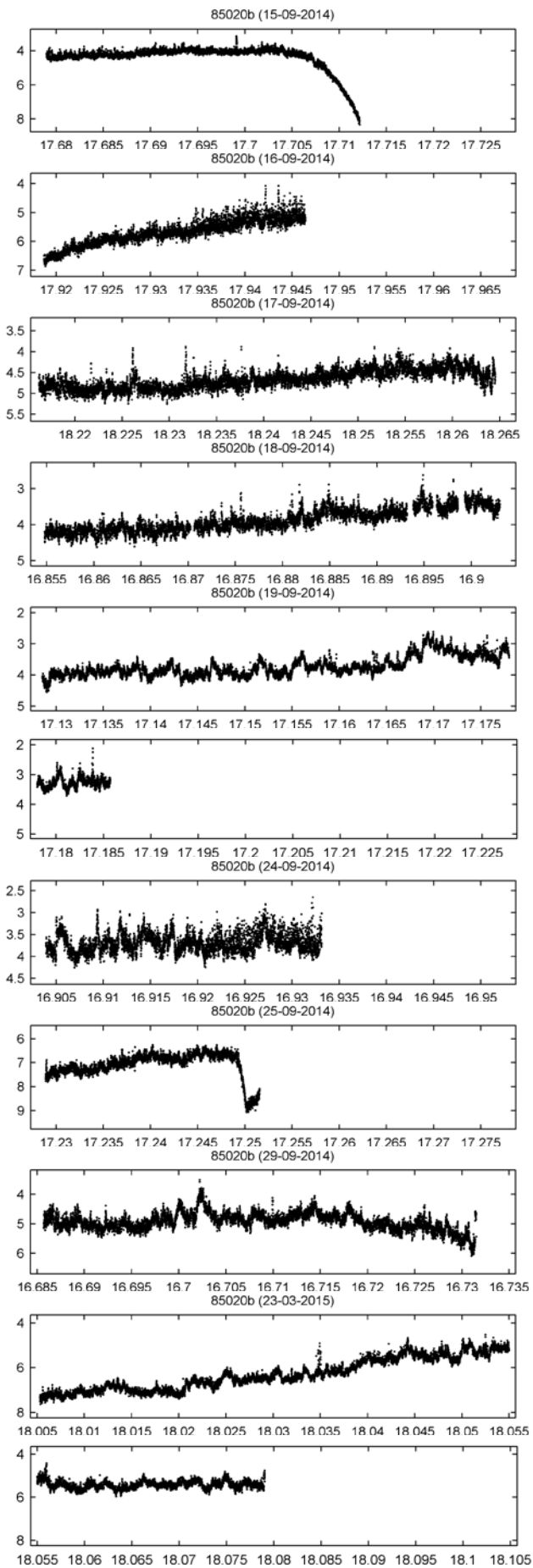
NORAD ID: 15475
 Int'l Code: 1985-003G
 Dimensions: cylinder 7.4 m long 2.4 m dia
 Initial orbit:
 Perigee: 1414 km
 Apogee: 1473 km
 Inclination: 82.61°
 Period: 114.79 min
 Eccentricity: 0.004
 Launch date: 1985-01-15
 Source: Commonwealth of Independent States (former USSR) (CIS)



SL-14 R/B (S5M) (3rd stage)
(COSMOS 1633 ROCKET)

NORAD ID: 15593
 Int'l Code: 1985-020B
 Dimensions: cylinder 7.4m long, 2.4m dia
 Initial orbit:
 Perigee: 635 km
 Apogee: 656 km
 Inclination: 82.54°
 Period: 97.7 min
 Eccentricity: 0.001
 Launch date: 1985-03-05
 Source: Commonwealth of Independent States (former USSR) (CIS)



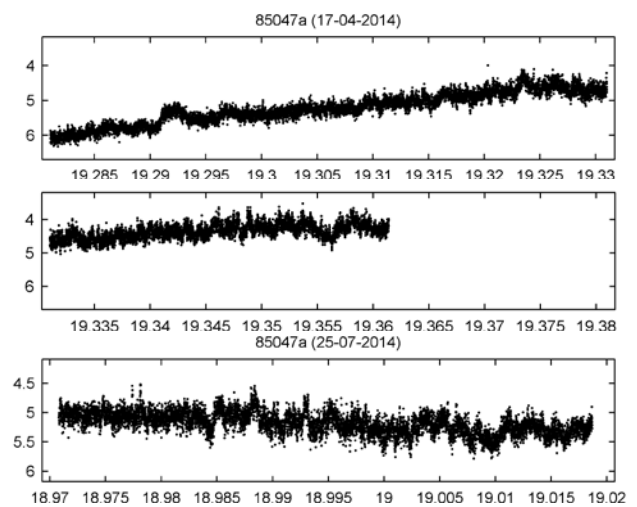
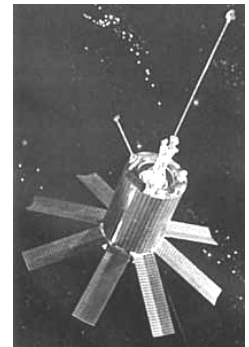


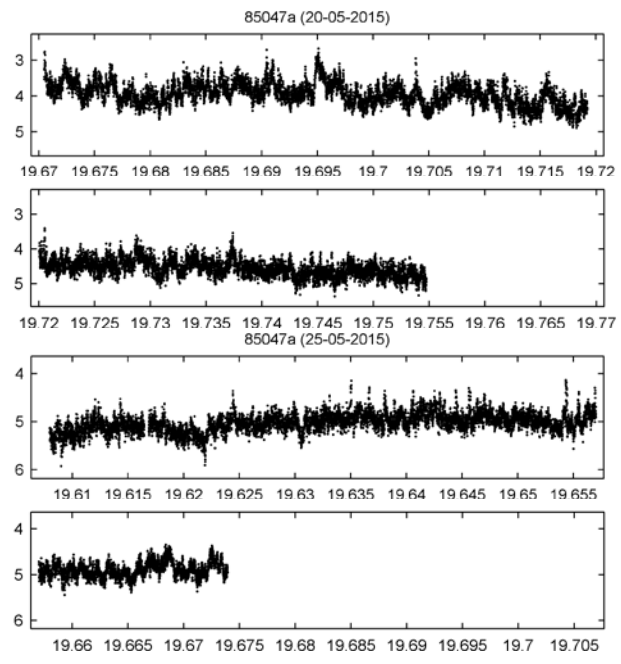
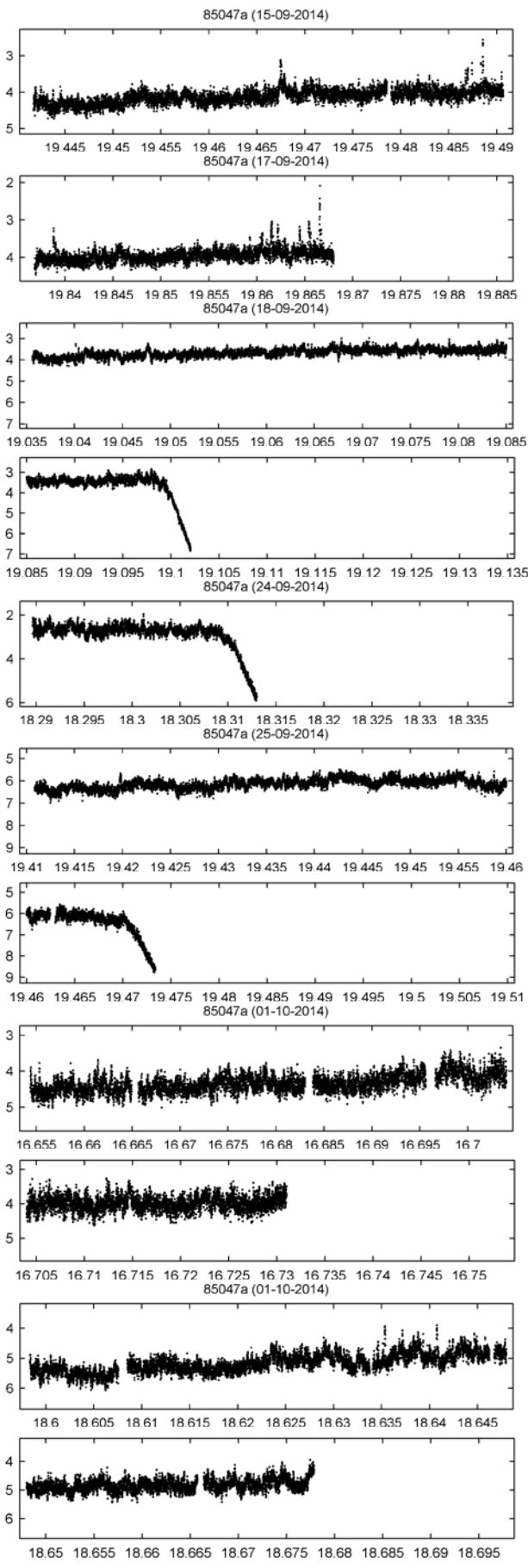
**COSMOS 1660
GEO-IK (MUSSON, 11F666)**

NORAD ID: 15821
Int'l Code: 1985-047A

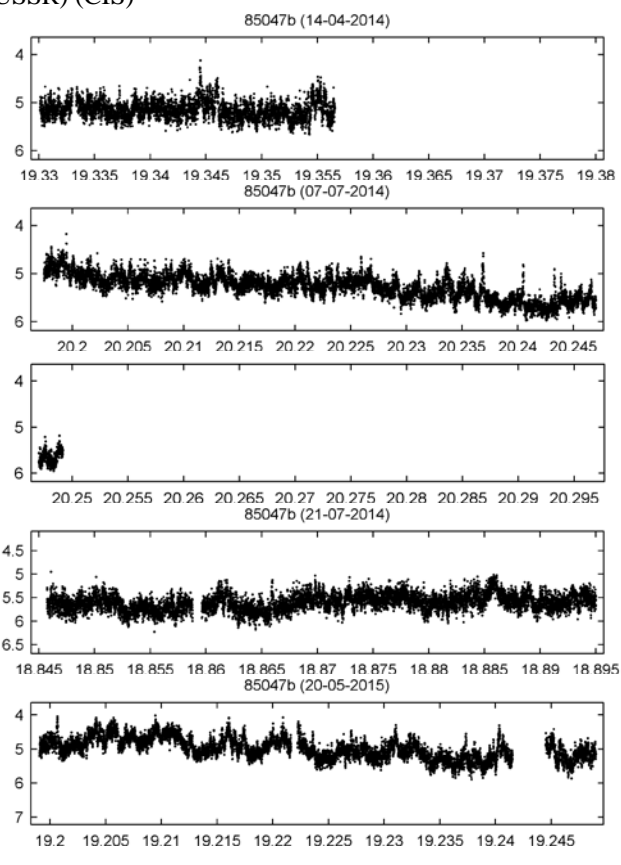
Dimensions:
Initial orbit:
Perigee: 1482 km
Apogee: 1526 km
Inclination: 73.63°
Period: 116.11 min
Eccentricity: 0.003

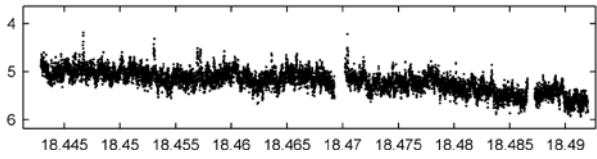
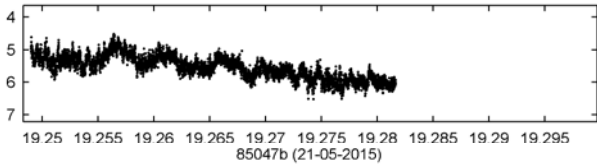
Launch date: 1985-06-14
Source: Commonwealth of Independent States (former USSR) (CIS)





SL-14 R/B (S5M) (3rd stage)
(COSMOS 1660 ROCKET)
 NORAD ID: 15822
 Int'l Code: 1985-047B
 Dimensions: cylinder 7.4m long, 2.4m dia
 Initial orbit:
 Perigee: 1481 km
 Apogee: 1522 km
 Inclination: 73.63°
 Period: 116.06 min
 Eccentricity: 0.003
 Launch date: 1985-06-14
 Source: Commonwealth of Independent States (former USSR) (CIS)





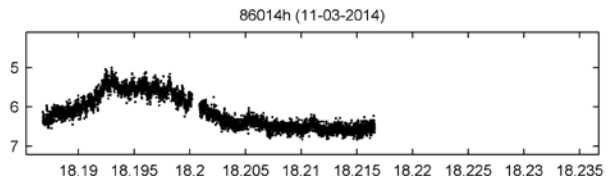
SL-14 R/B

NORAD ID: 16144
 Int'l Code: 1985-094G
 Dimensions: cylinder 7.4 m long 2.4 m dia
 Initial orbit:
 Perigee: 1417 km
 Apogee: 1470 km
 Inclination: 82.61°
 Period: 114.80 min
 Eccentricity: 0.003
 Launch date: 1985-10-09
 Source: Commonwealth of Independent States (former USSR) (CIS)



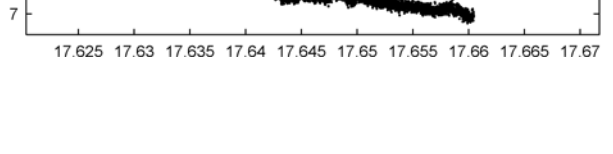
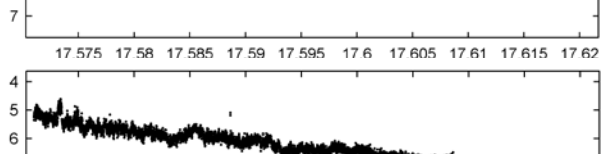
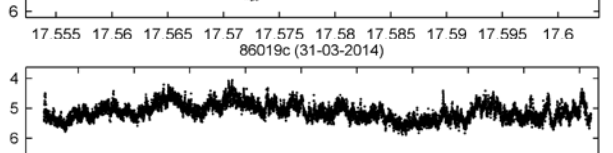
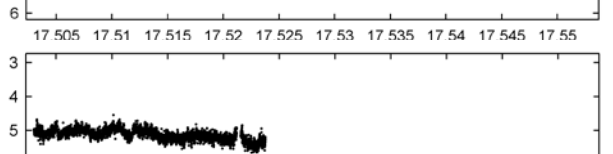
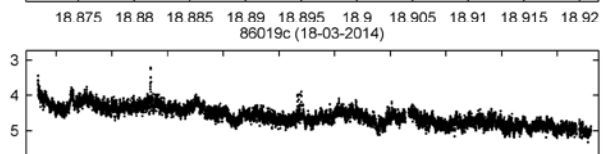
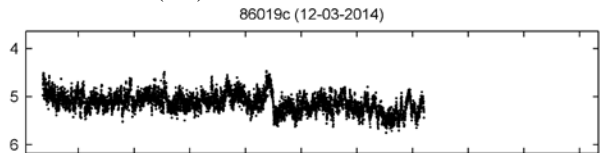
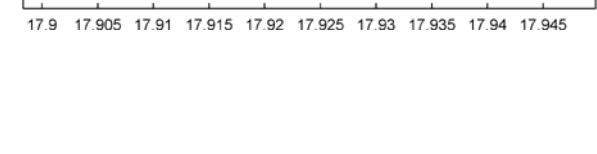
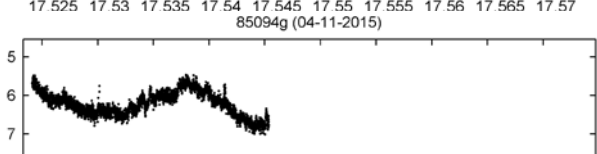
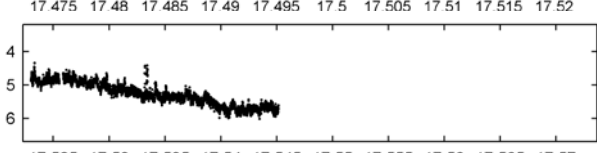
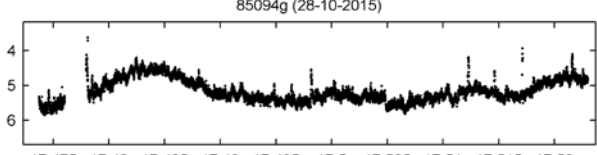
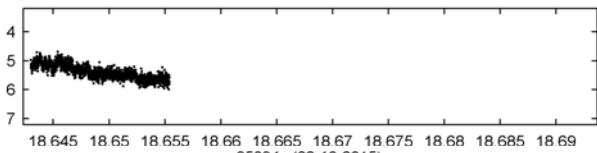
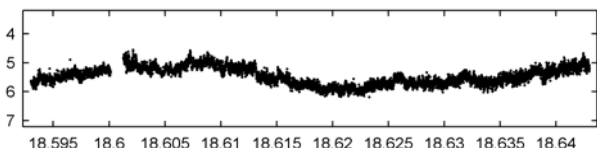
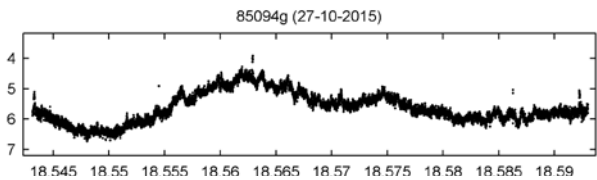
NOSS 8C (USA 18)

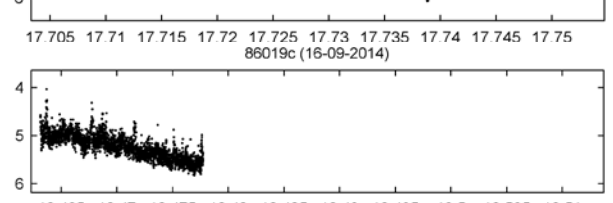
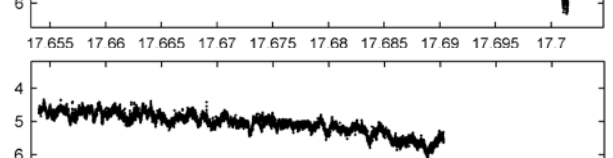
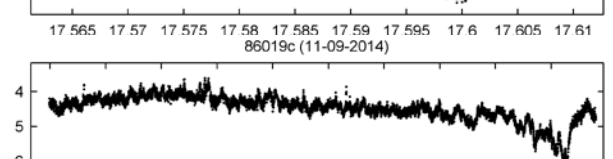
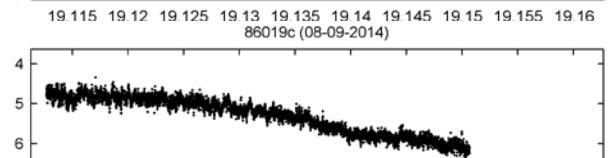
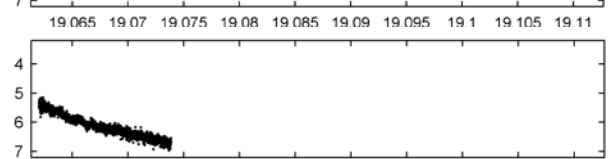
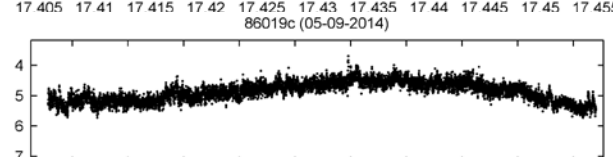
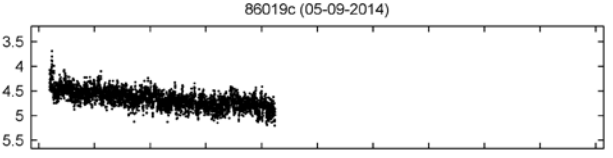
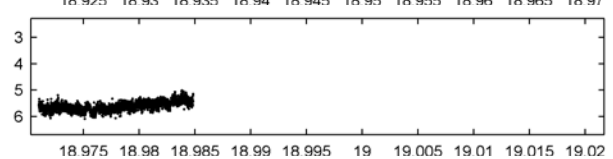
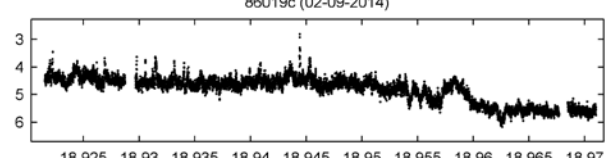
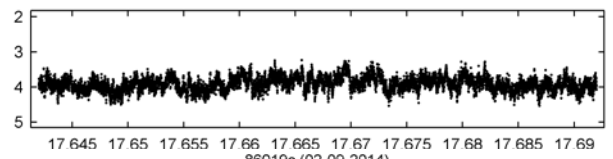
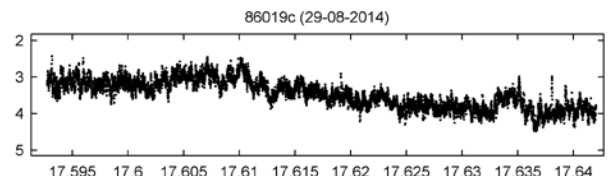
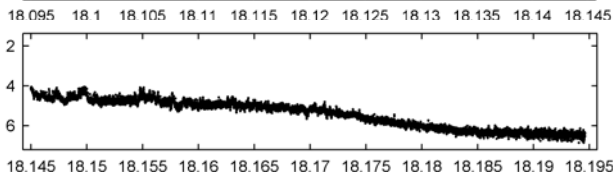
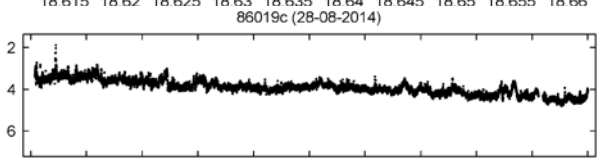
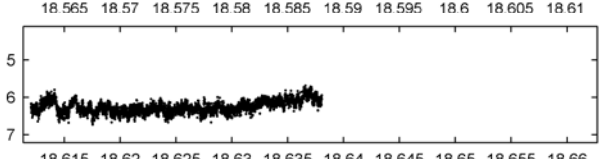
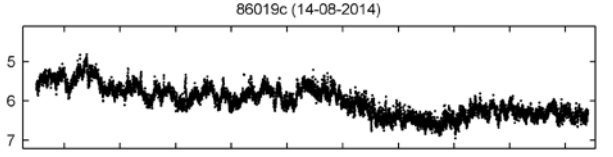
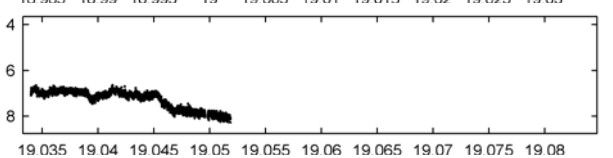
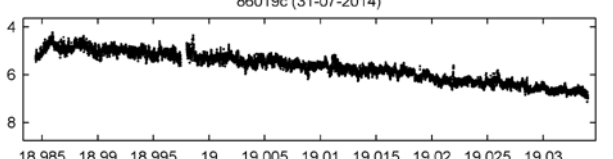
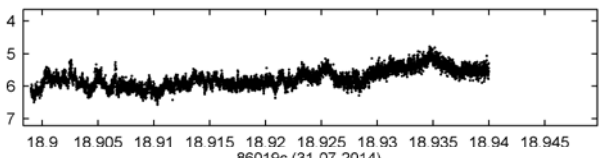
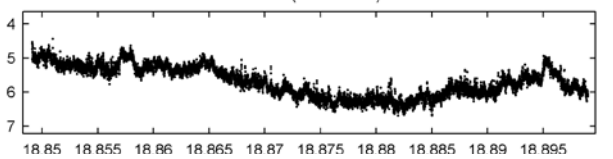
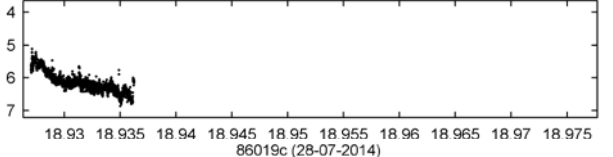
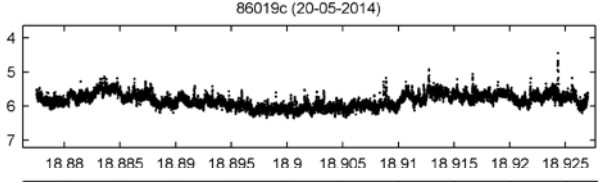
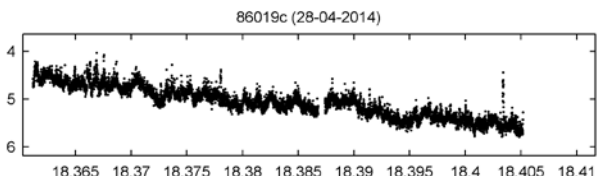
NORAD ID: 16631
 Int'l Code: 1986-014H
 Dimensions:
 Initial orbit: 1990-05-03
 Perigee: 1015 km
 Apogee: 1202 km
 Inclination: 63.4°
 Period: 107.44 min
 Eccentricity: 0.0125
 Launch date: 1986-02-09
 Source: United States (US)

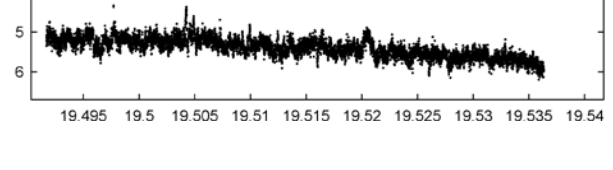
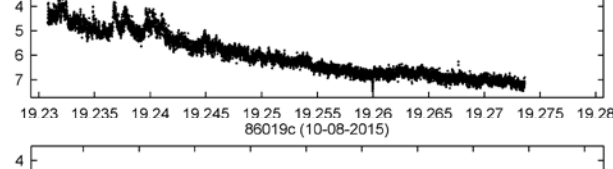
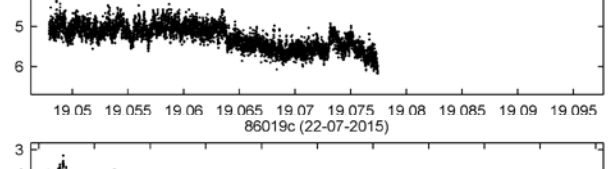
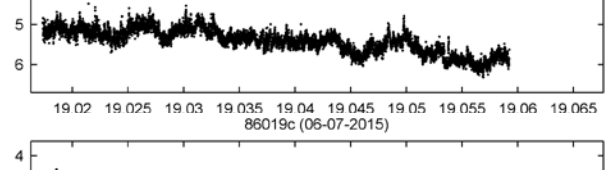
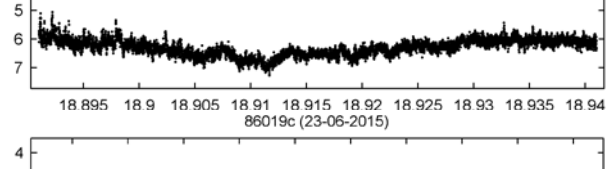
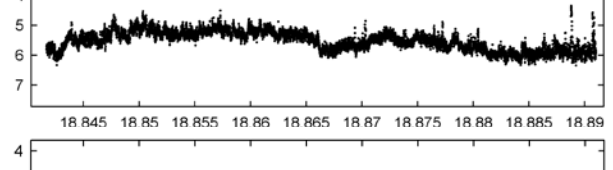
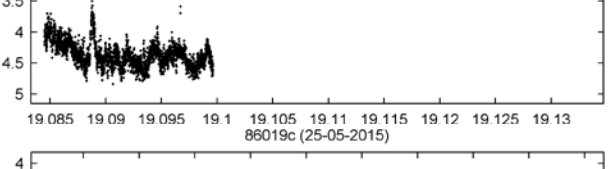
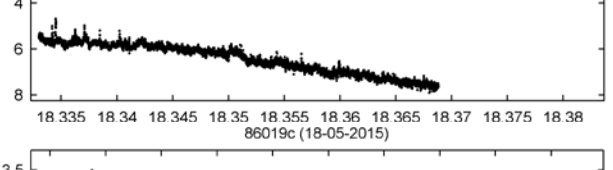
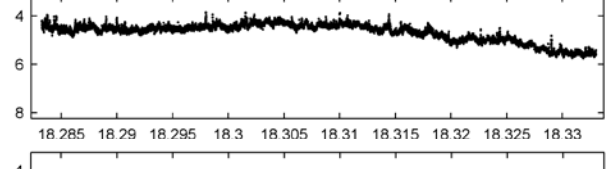
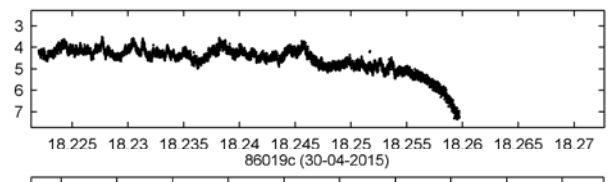
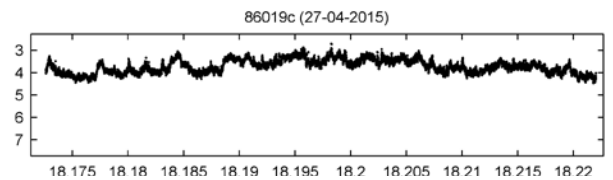
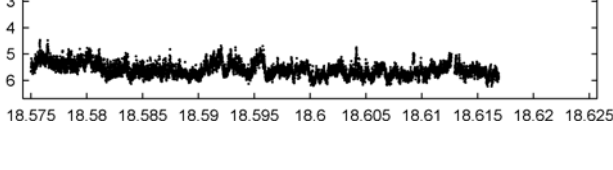
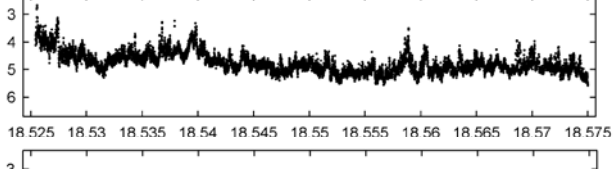
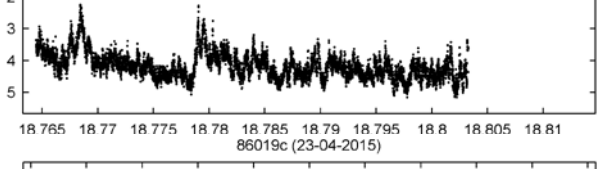
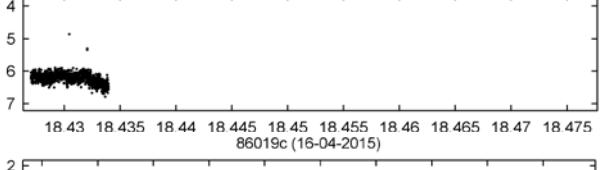
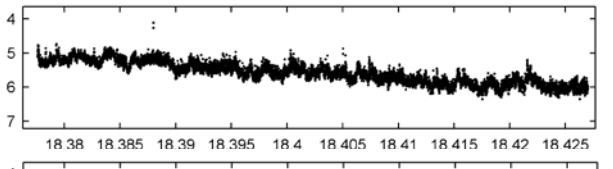
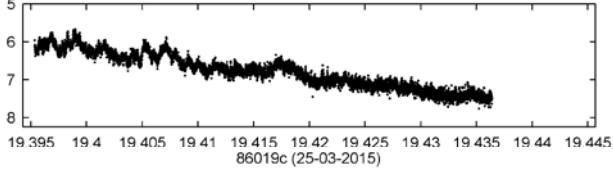
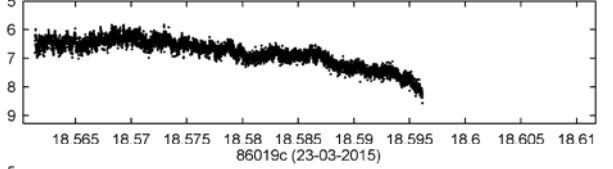
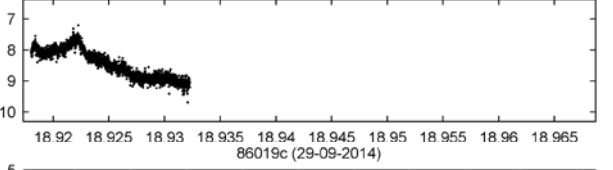
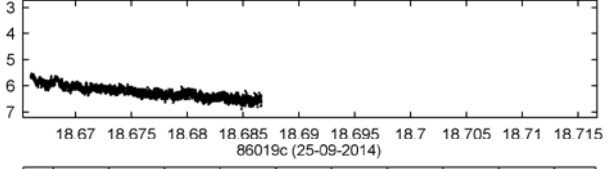
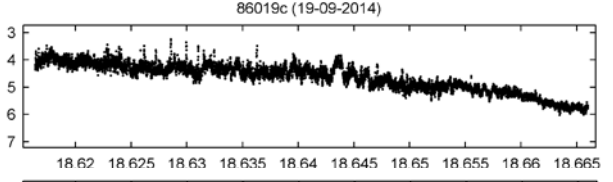
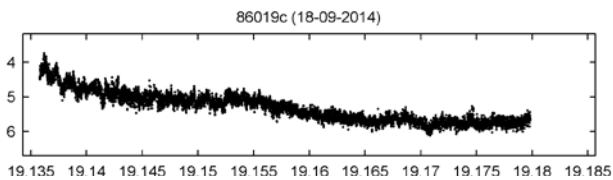


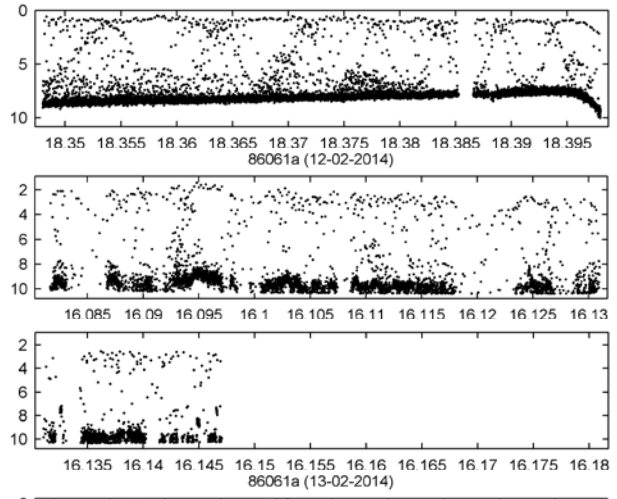
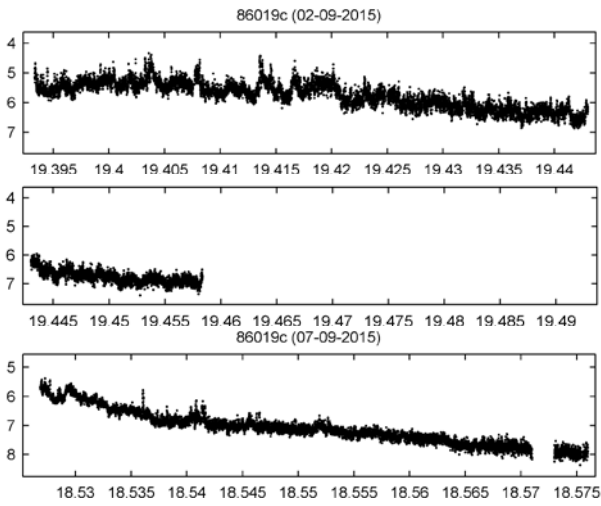
**ARIANE 1 R/B (H8 third stage)
 (SPOT 1, Viking ROCKET)**

NORAD ID: 16615
 Int'l Code: 1986-019C
 Dimensions: cylinder 8.6m long, 2.6m dia
 Initial orbit:
 Perigee: 799 km
 Apogee: 833 km
 Inclination: 98.72°
 Period: 101.27 min
 Eccentricity: 0.002
 Launch date: 1986-02-22
 Source: France (FR)

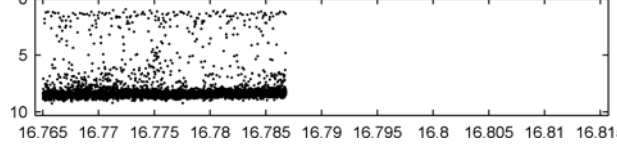
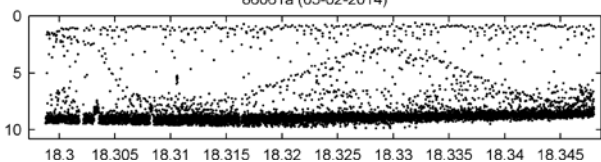
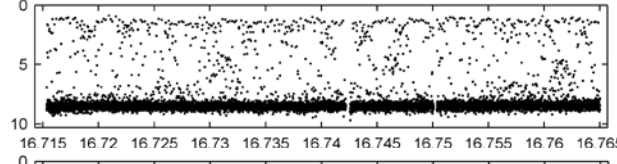
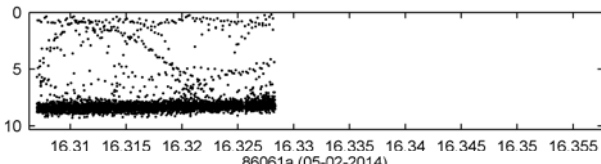
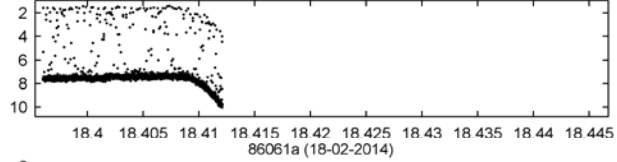
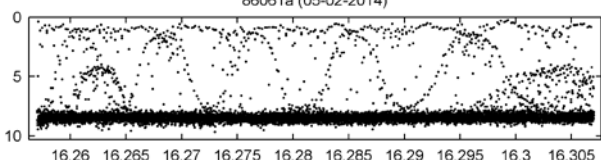
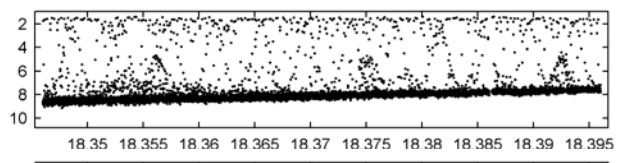
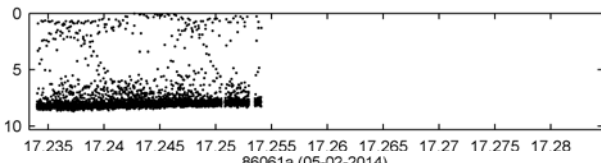
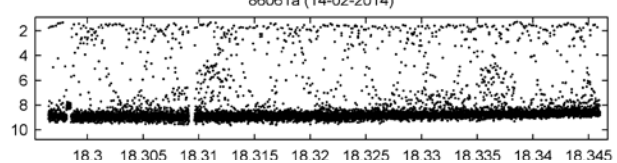
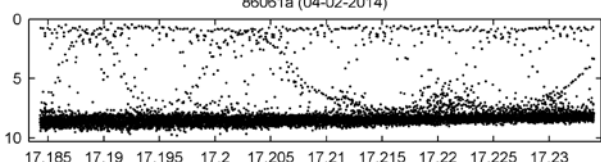
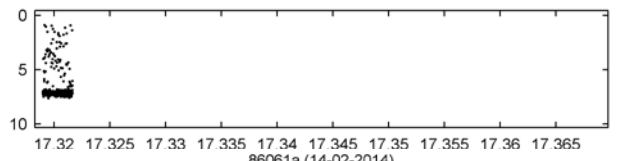
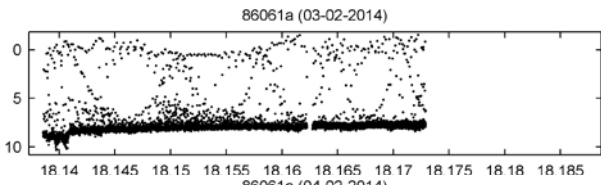
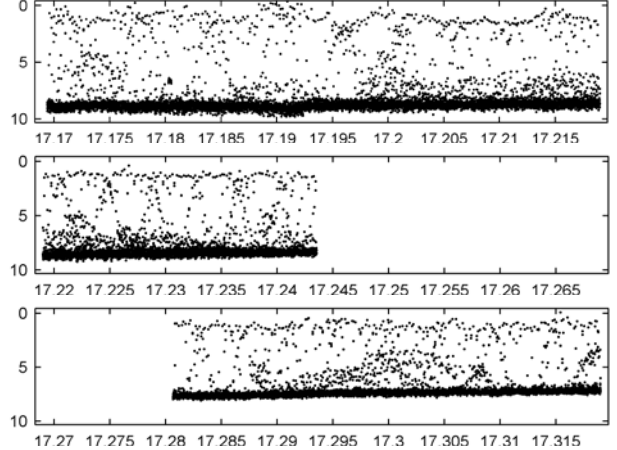


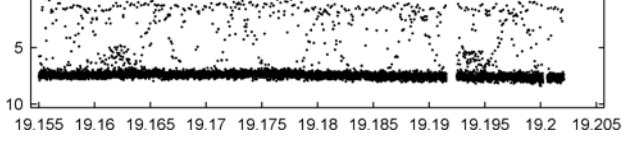
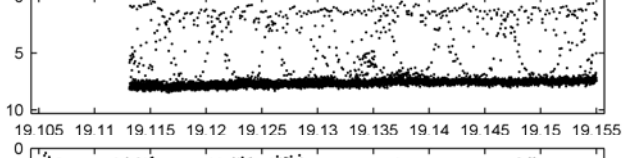
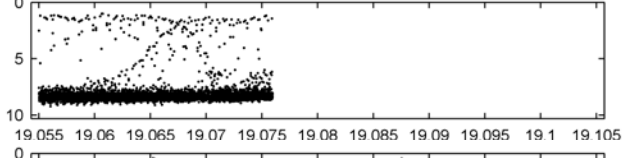
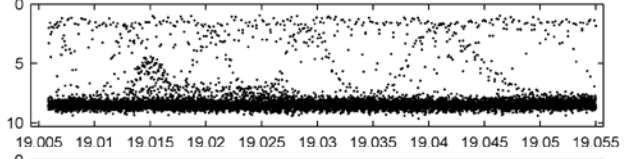
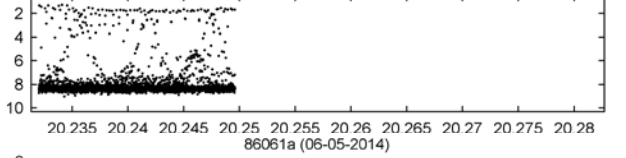
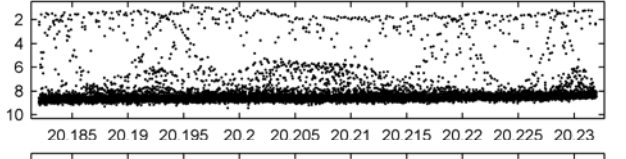
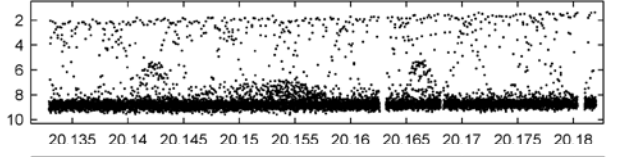
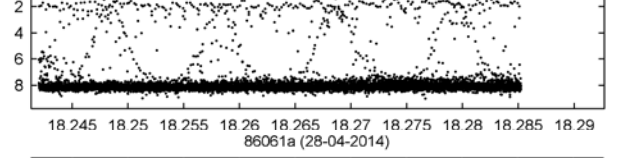
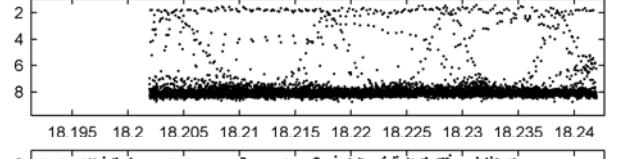
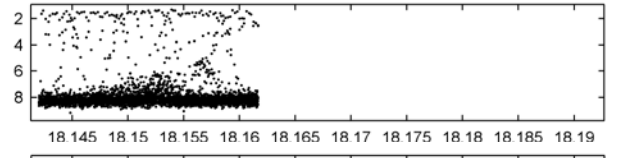
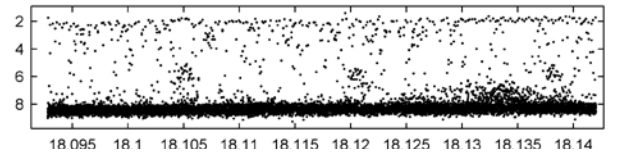
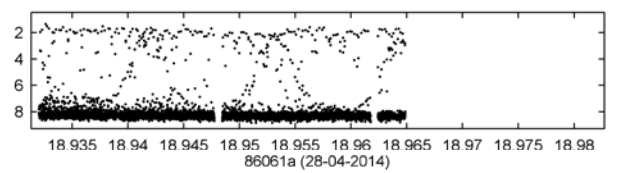
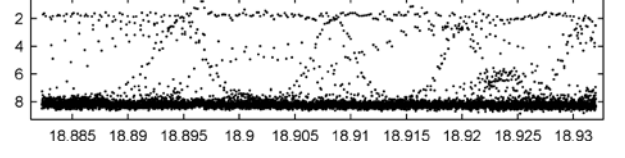
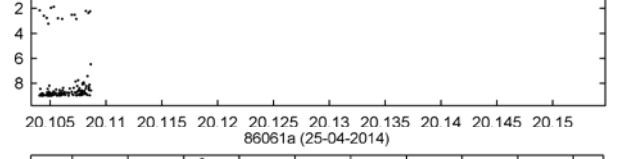
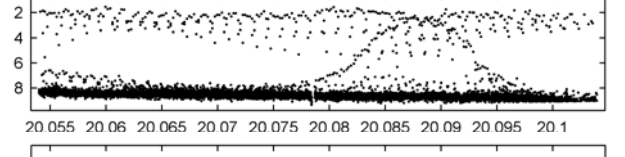
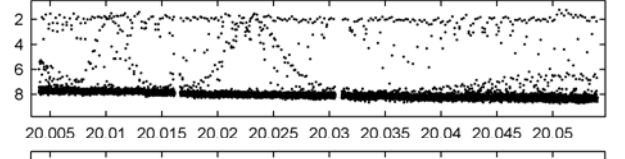
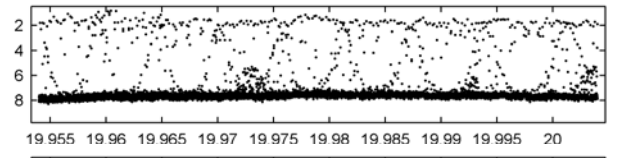
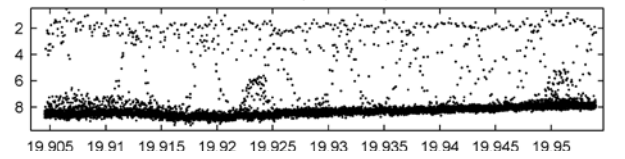
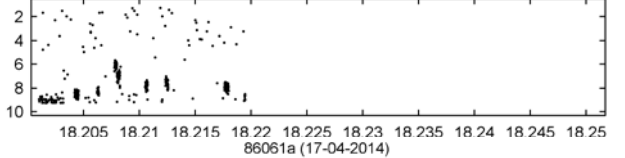
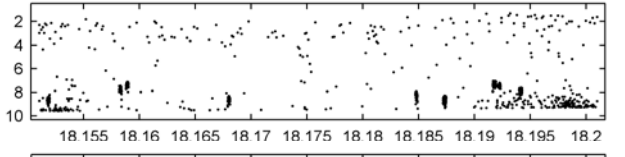
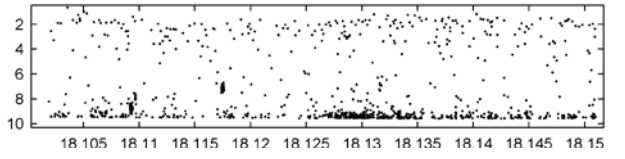
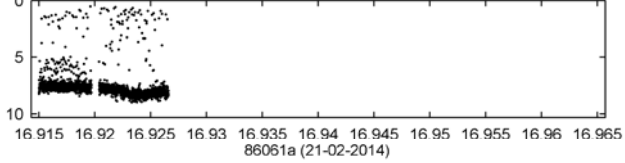
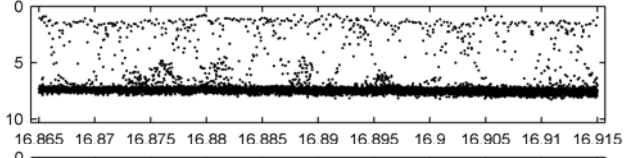
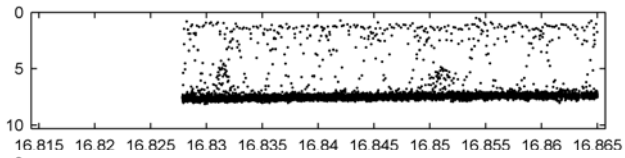


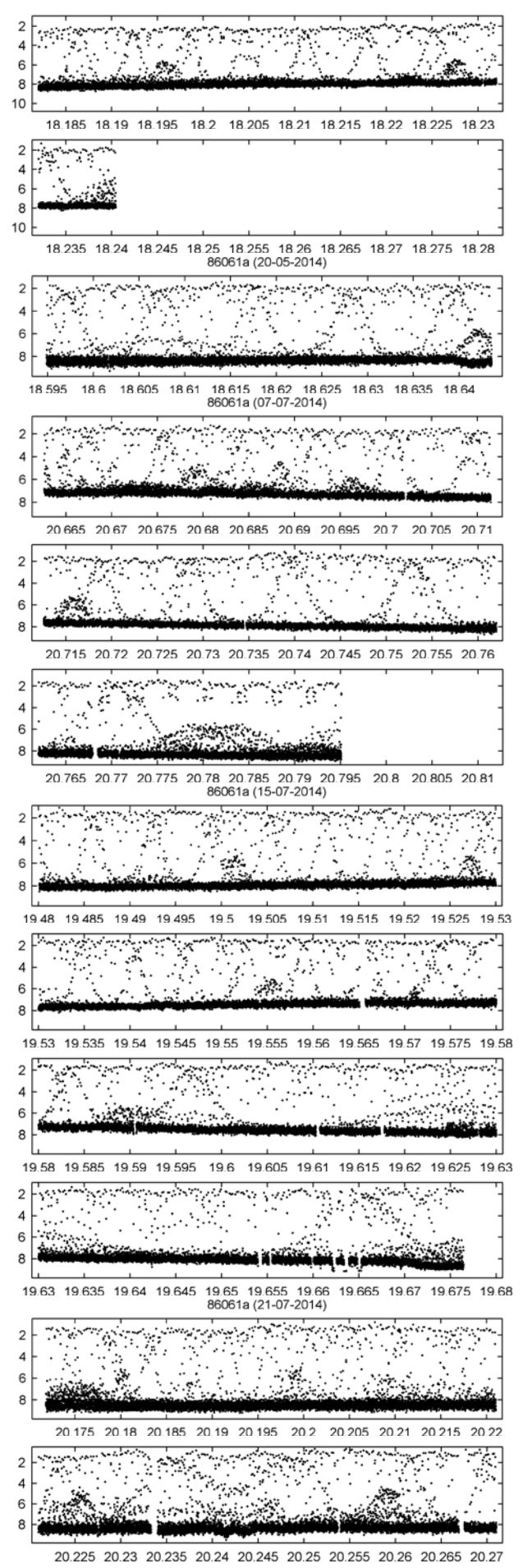
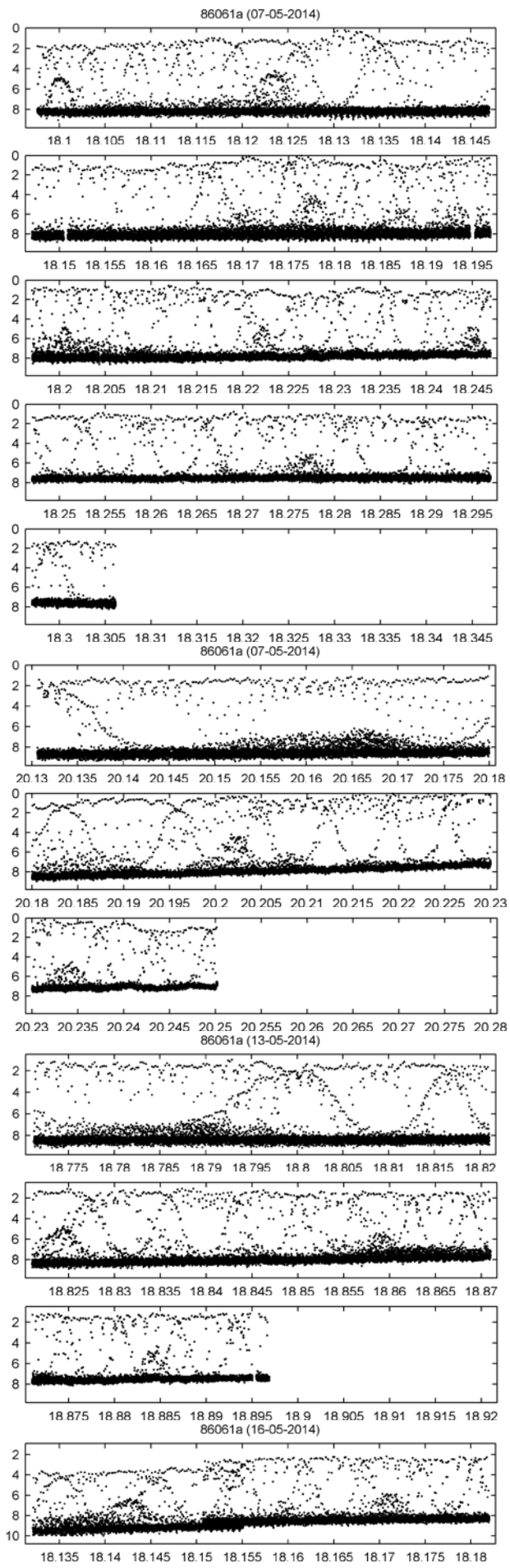


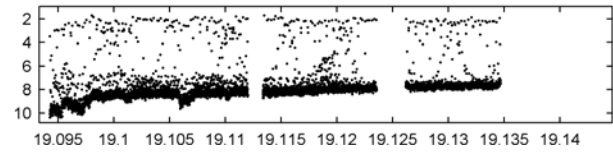
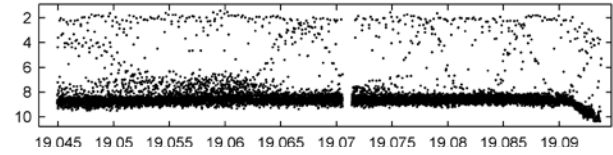
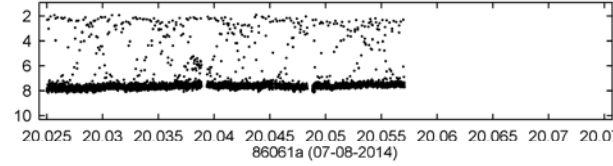
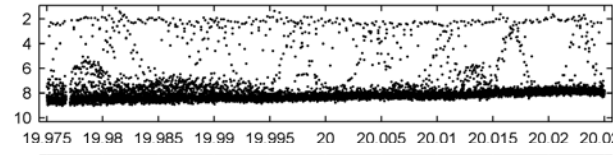
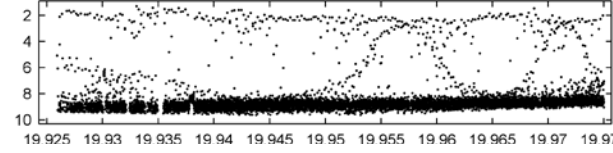
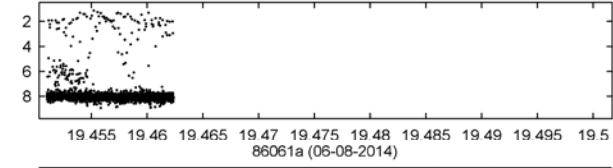
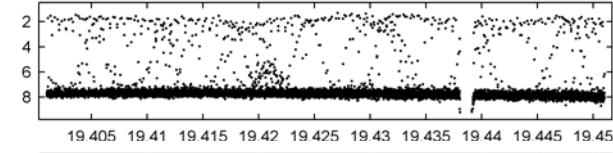
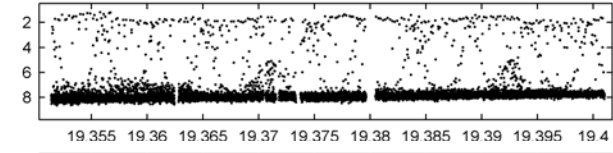
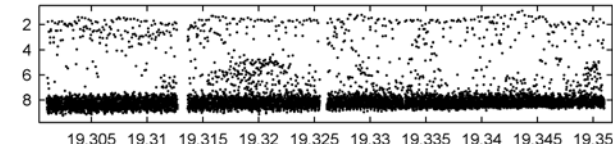
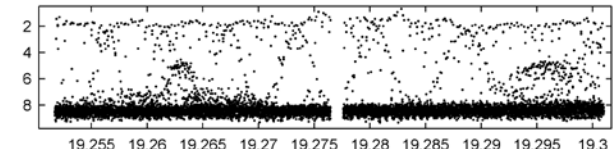
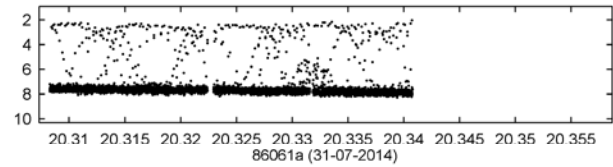
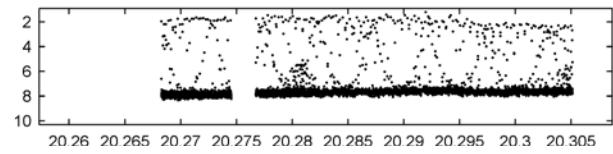
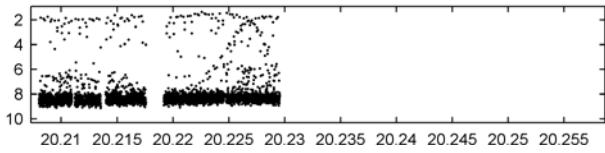
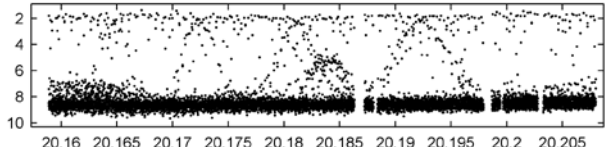
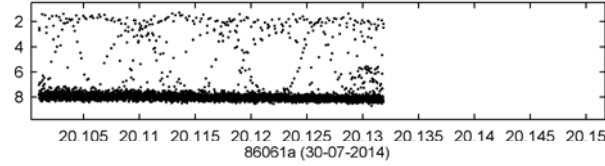
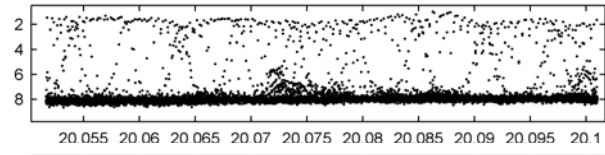
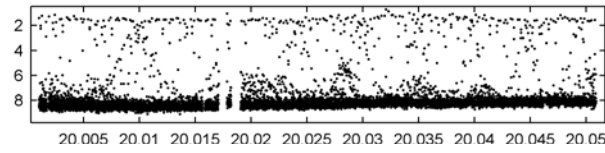
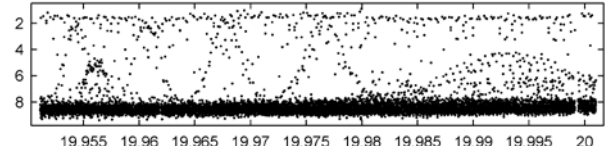
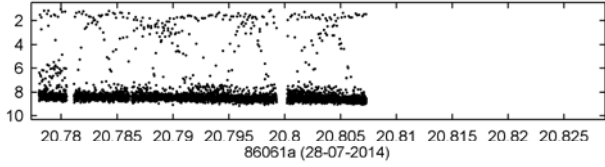
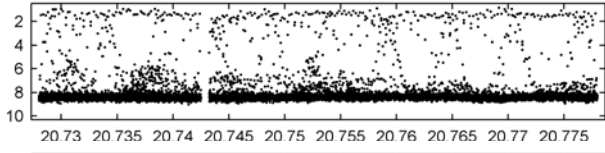
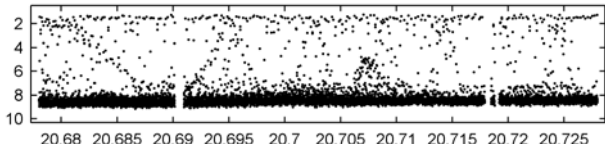
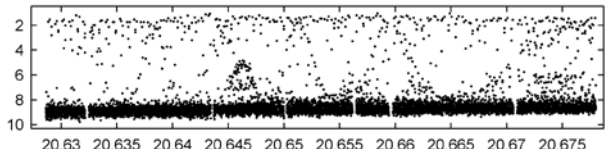
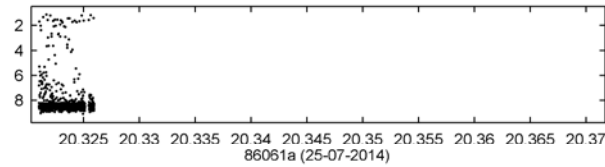
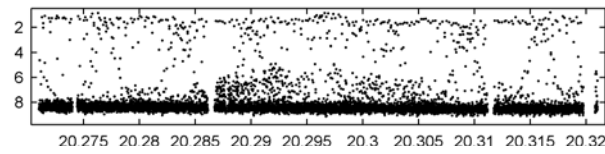


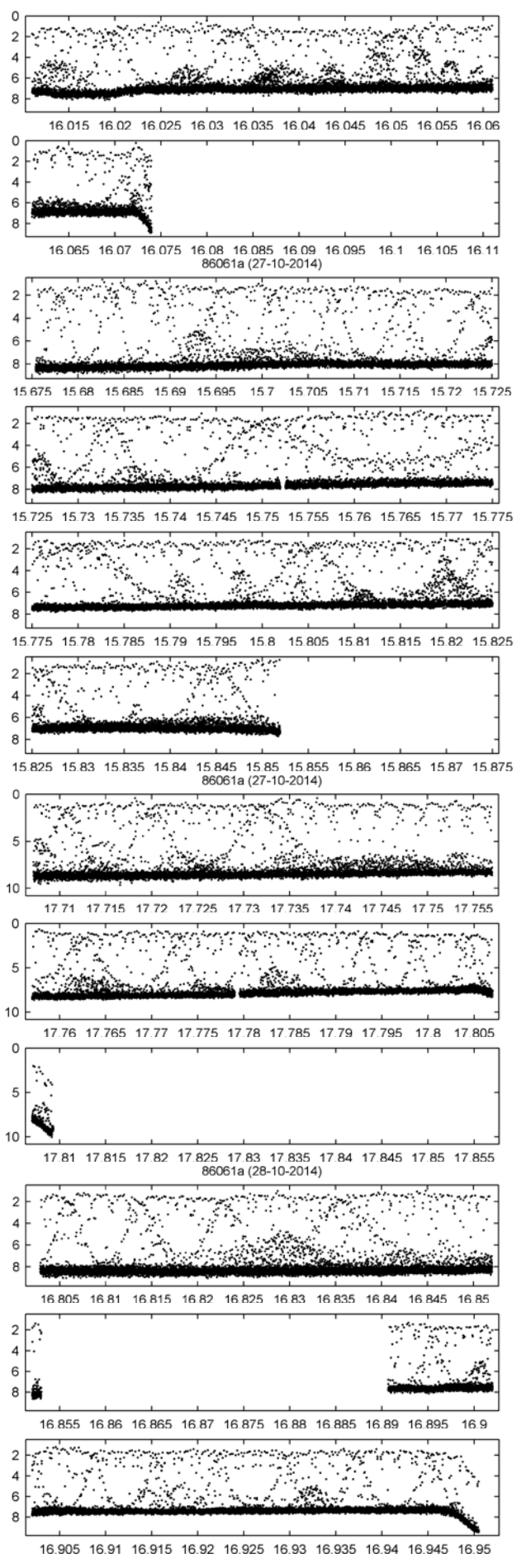
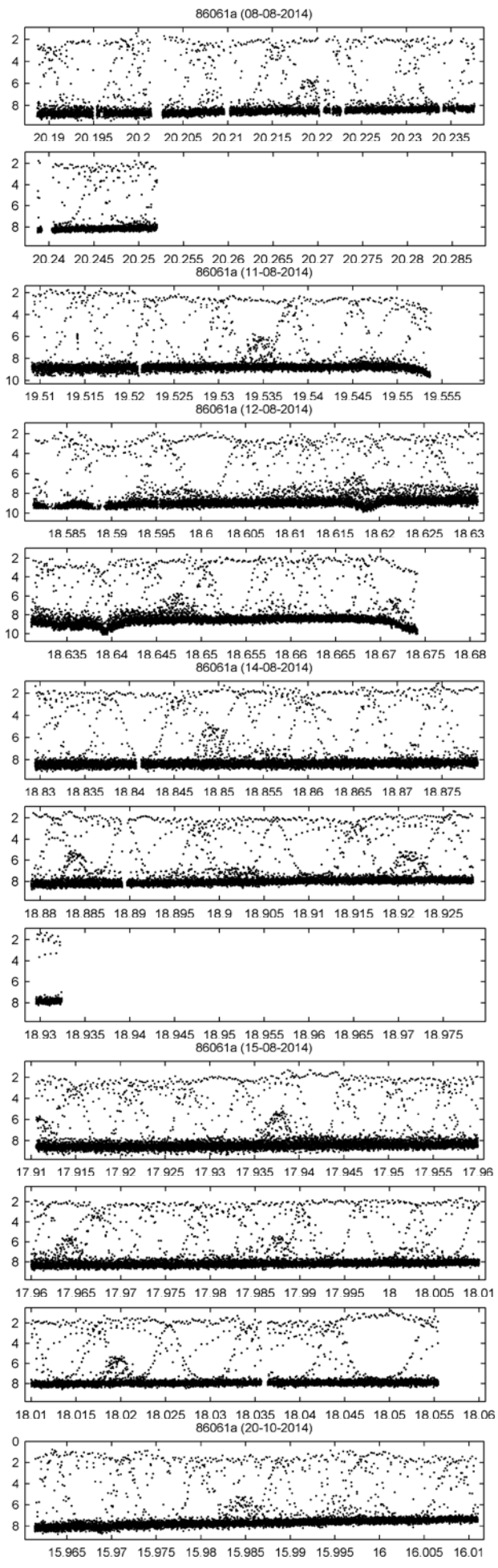
AJISAI (EGP) (EGS)
 NORAD ID: 16908
 Int'l Code: 1986-061A
 Dimensions: sphere 2.15m dia
 Initial orbit:
 Perigee: 1479 km
 Apogee: 1497 km
 Inclination: 50.01°
 Period: 115.66 min
 Eccentricity: 0.001
 Launch date: 1986-08-12
 Source: Japan (JPN)

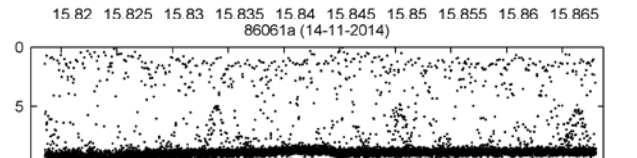
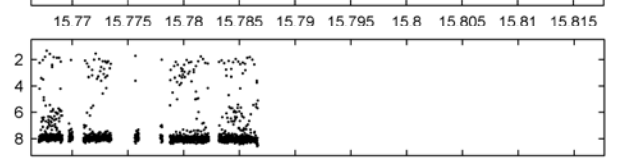
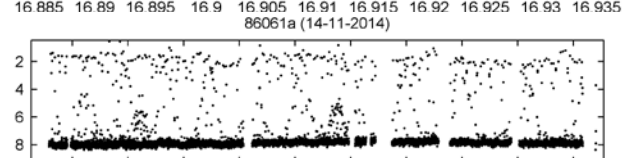
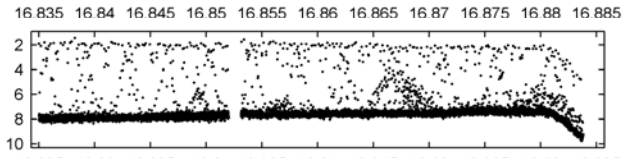
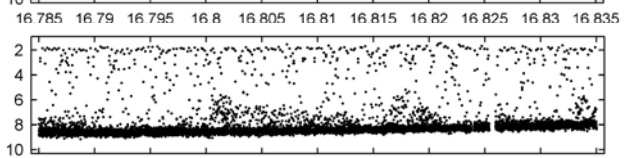
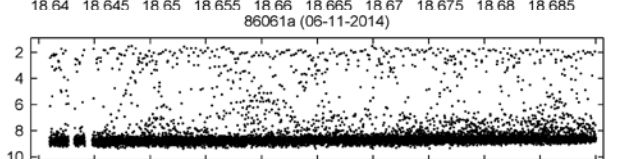
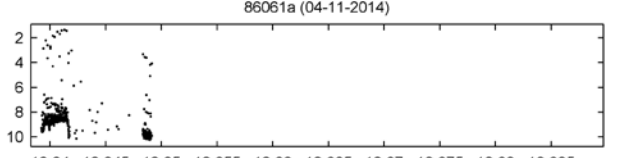
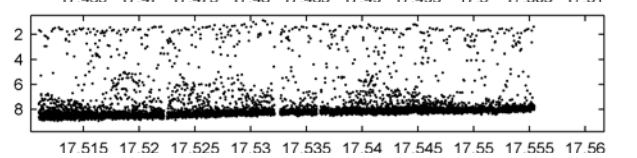
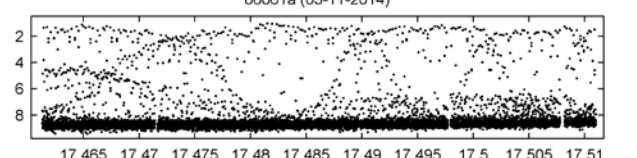
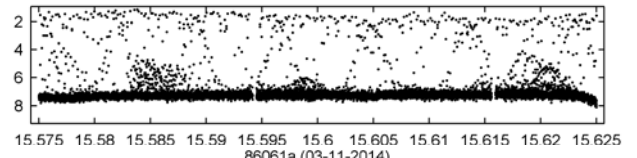
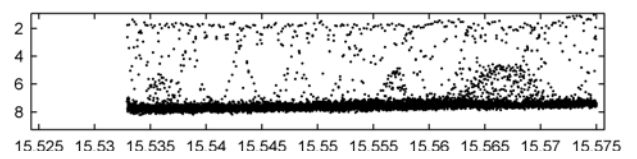
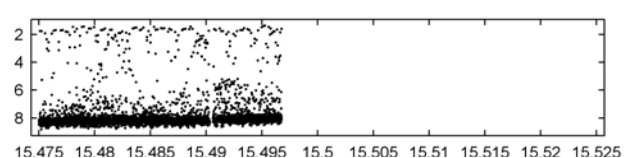
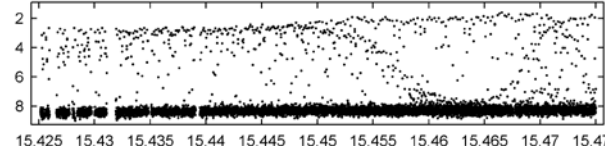
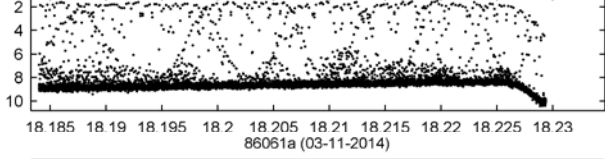
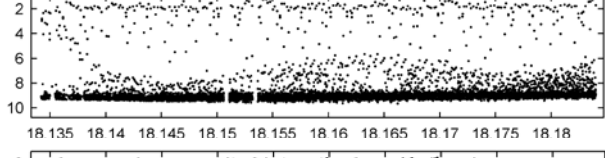
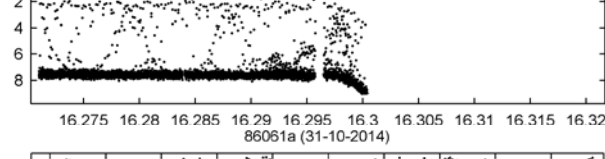
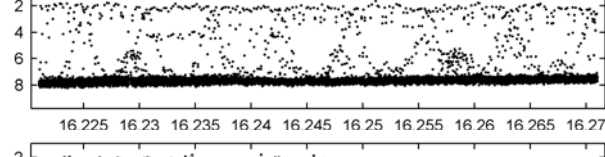
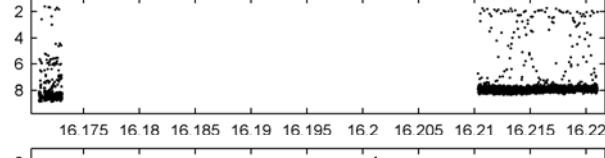
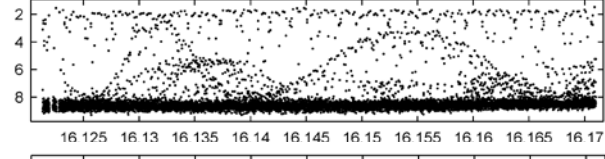
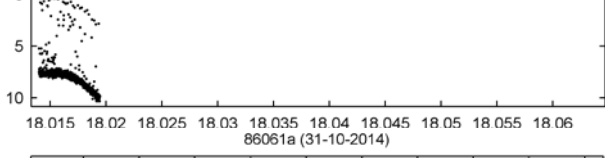
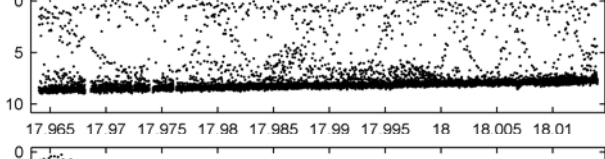
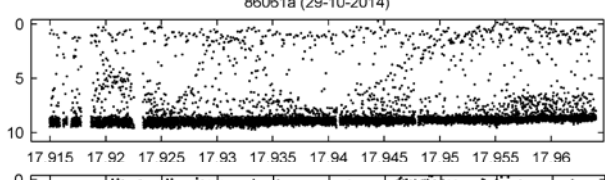
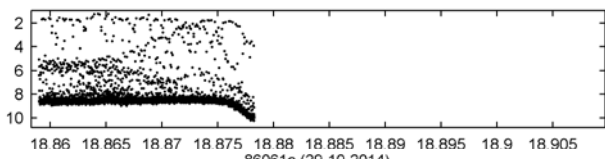
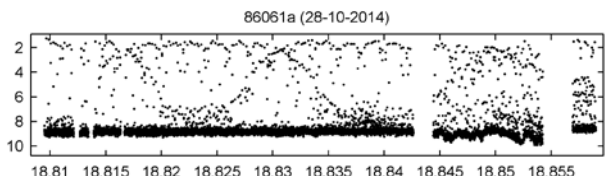






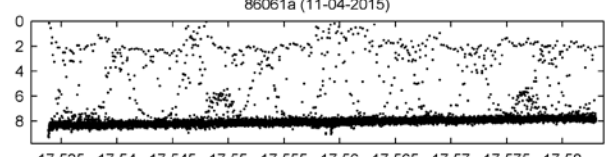
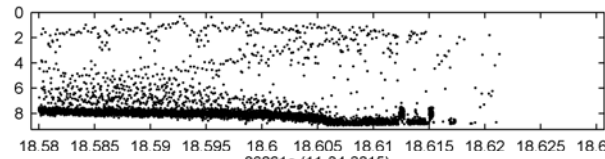
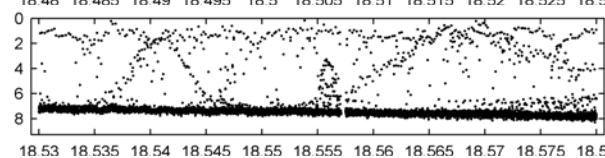
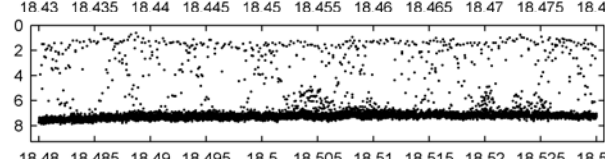
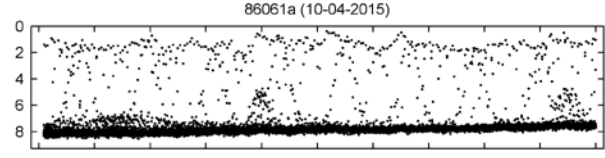
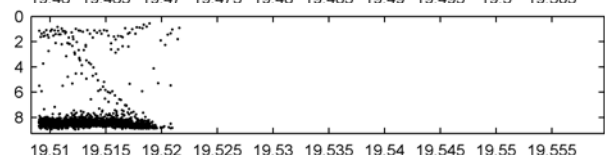
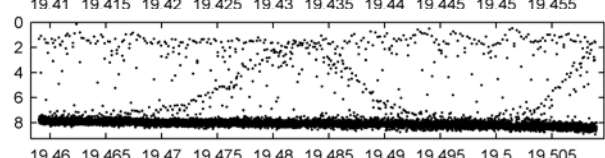
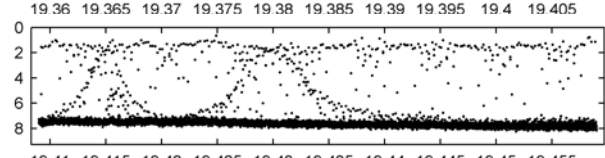
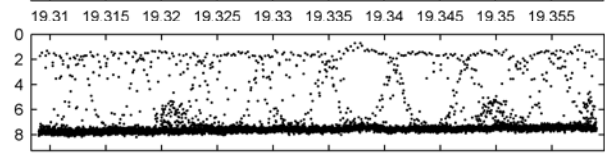
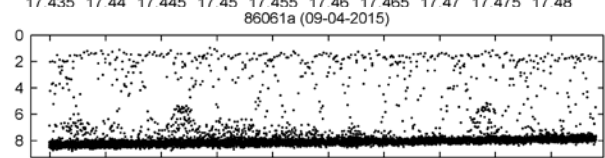
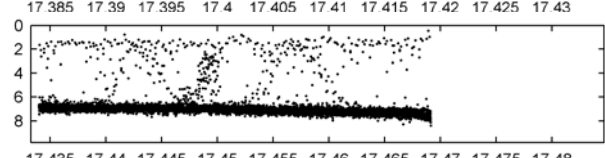
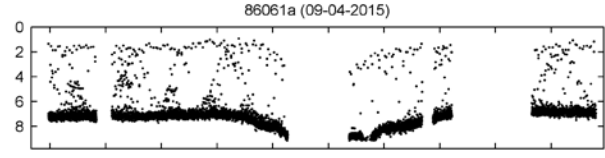
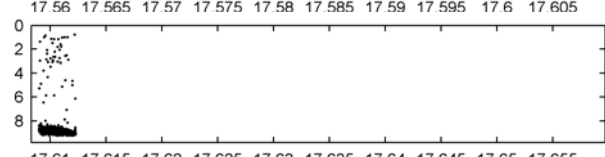
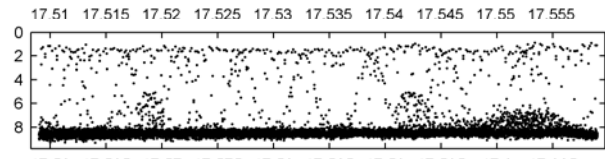
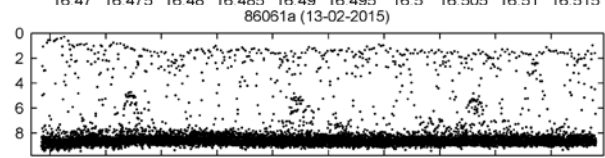
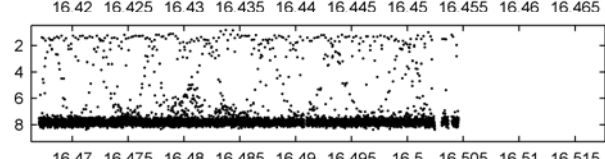
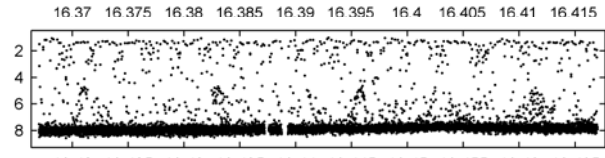
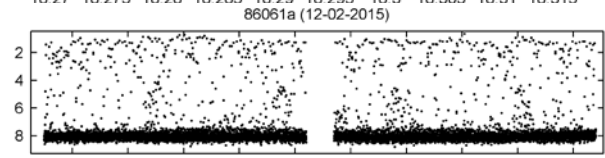
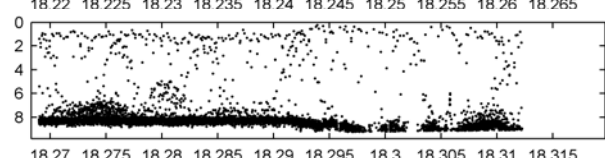
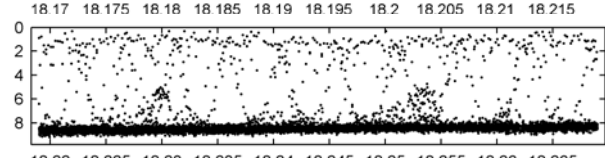
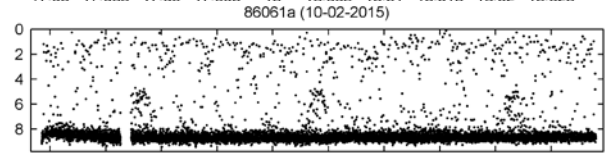
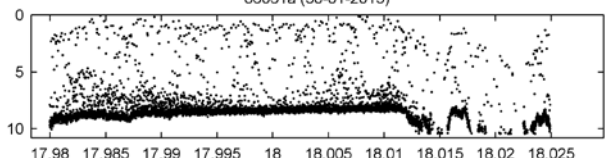
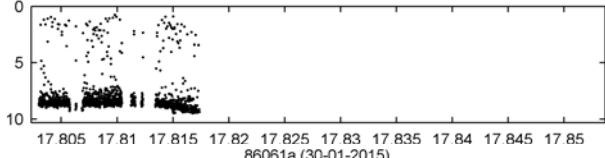
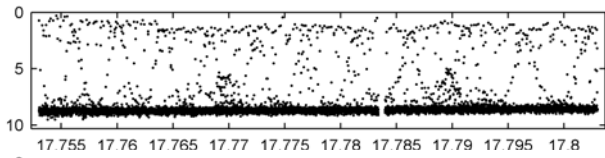


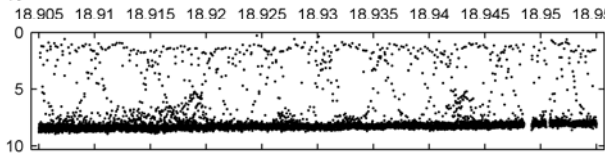
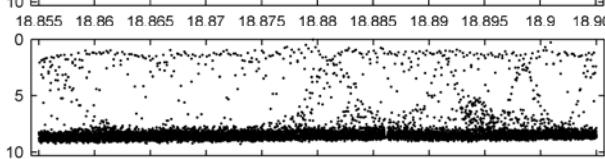
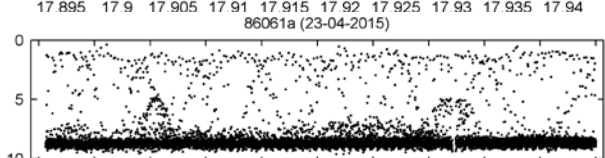
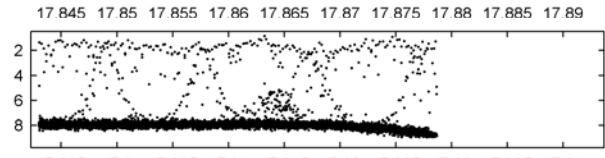
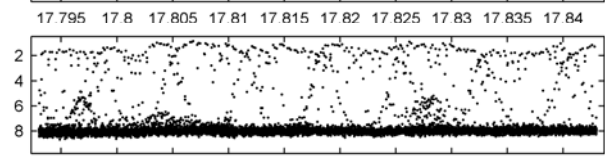
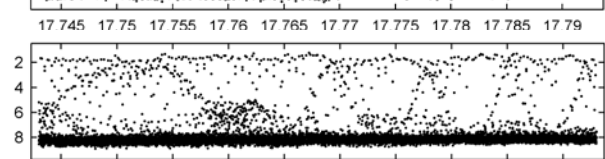
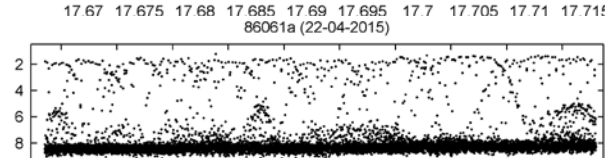
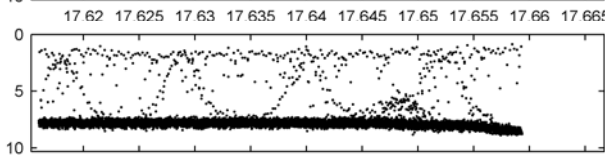
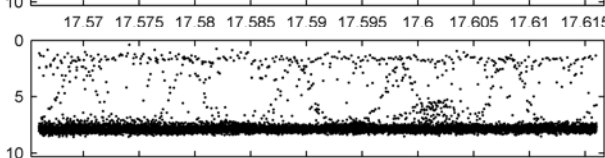
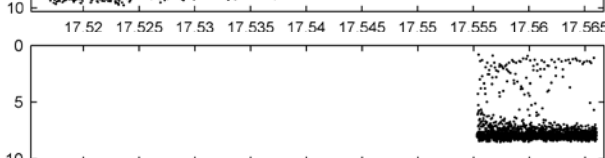
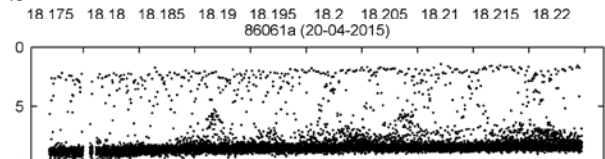
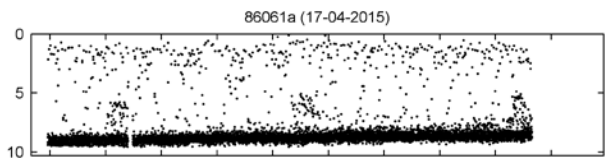
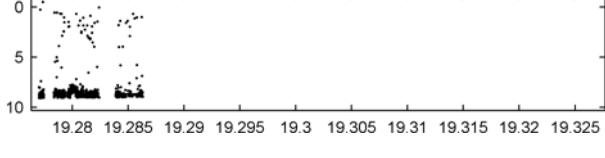
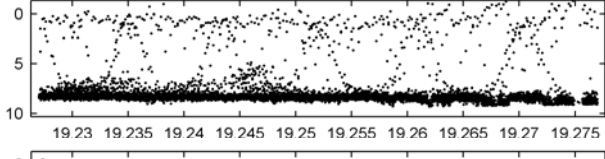
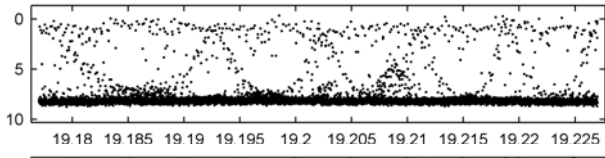
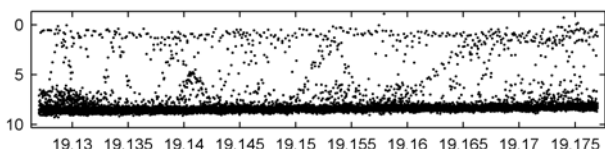
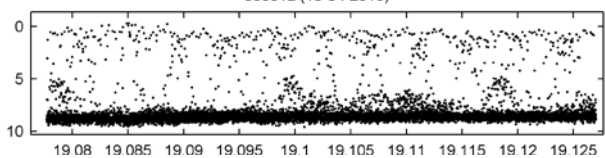
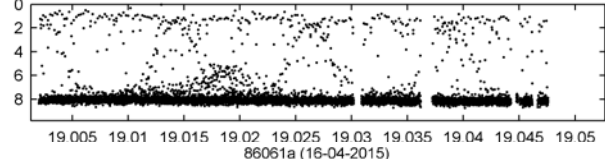
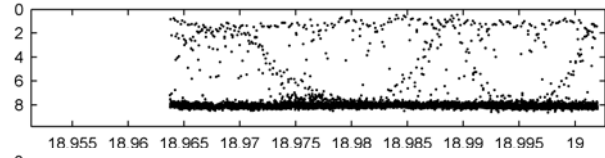
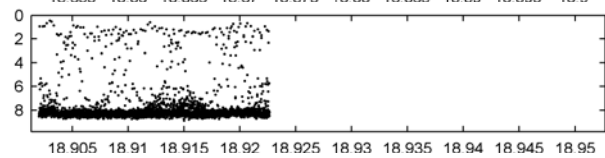
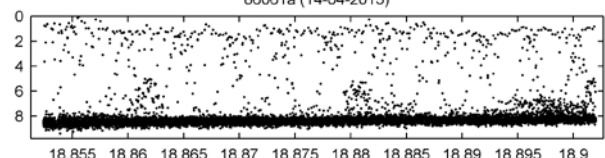
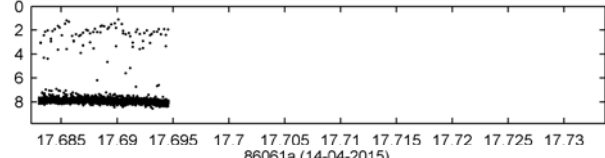
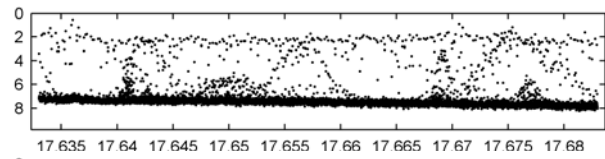
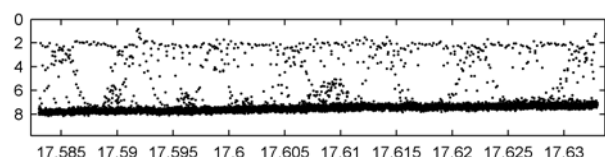


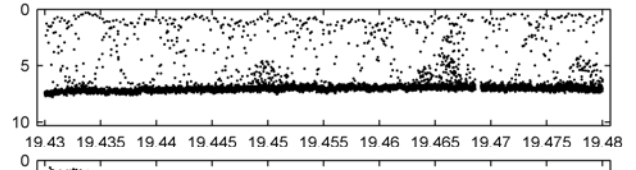
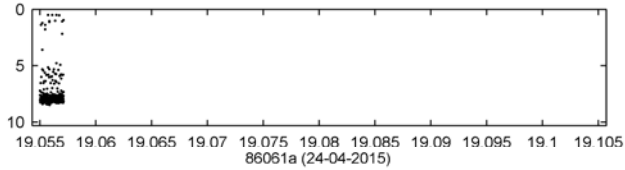
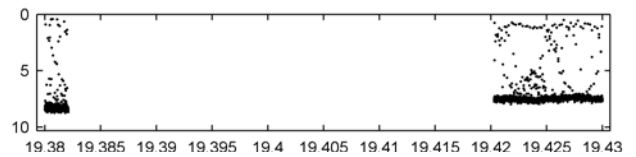
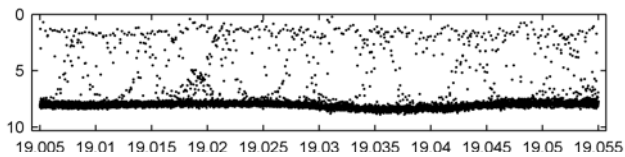


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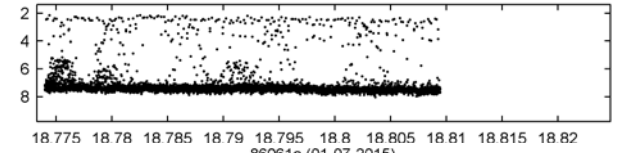
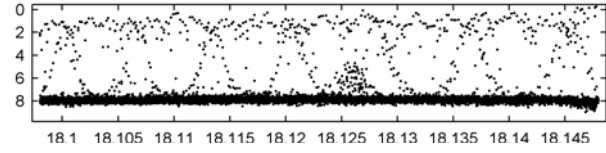
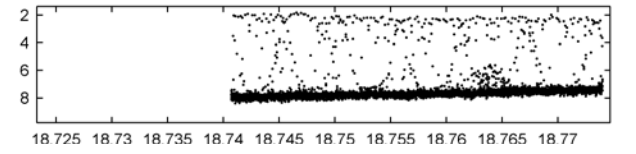
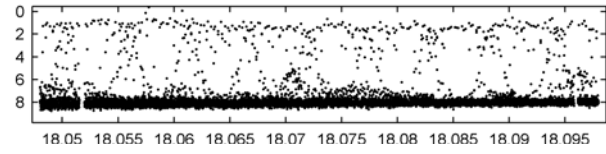
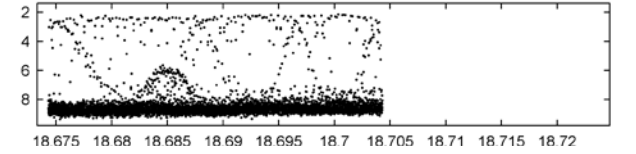
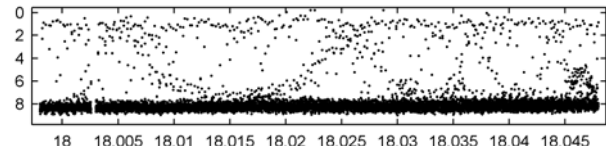
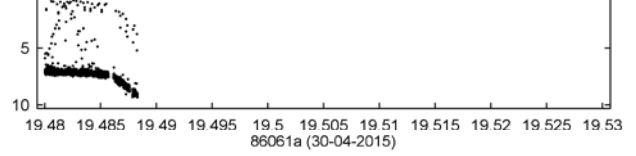
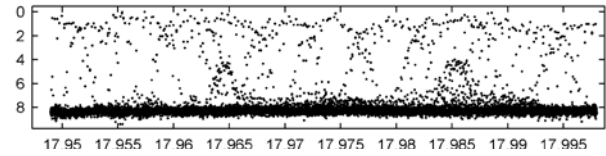




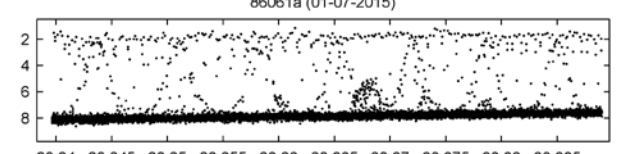
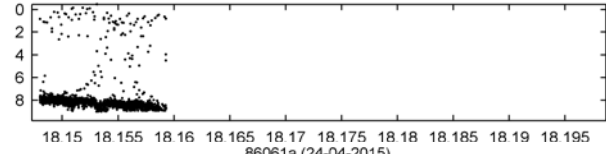


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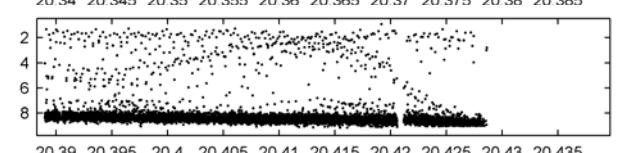
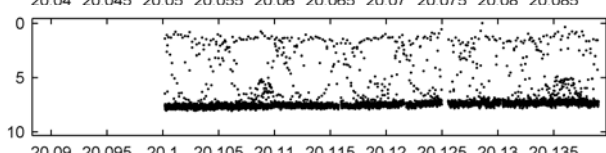
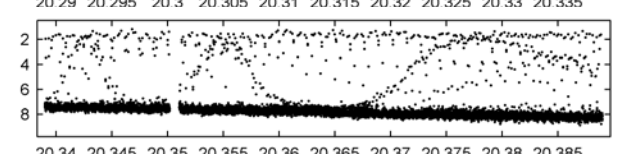
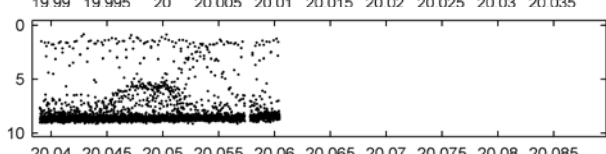
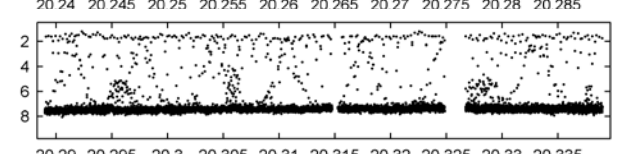
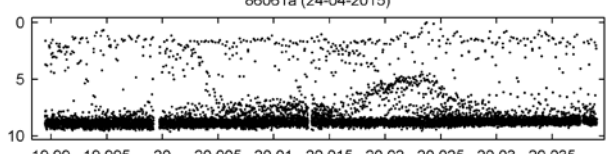
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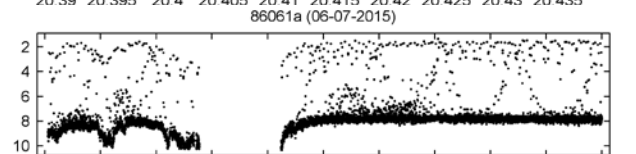
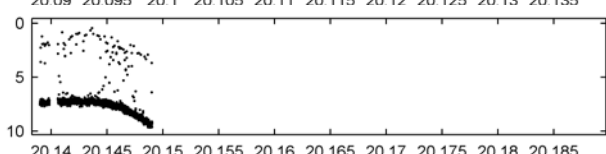
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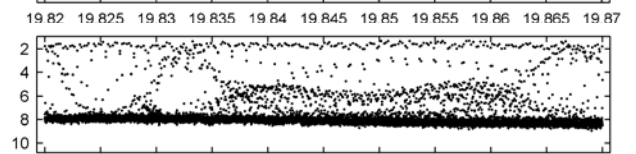
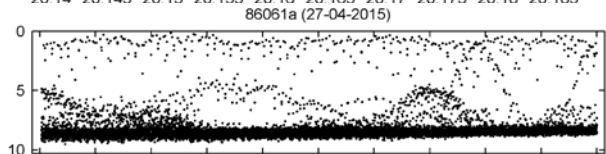
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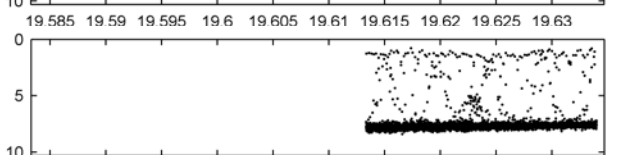
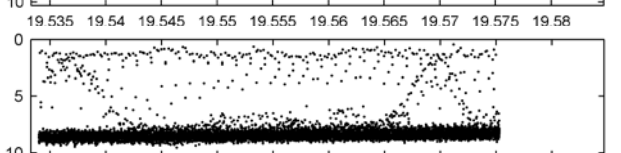
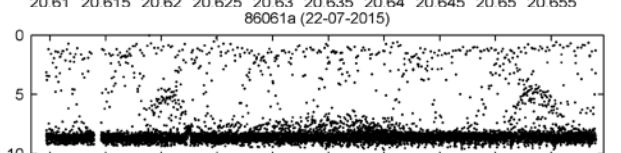
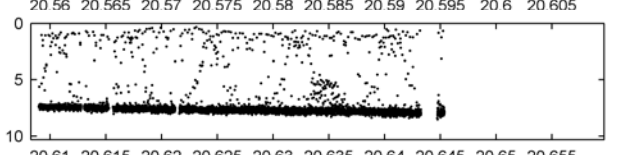
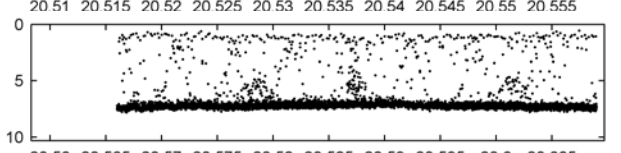
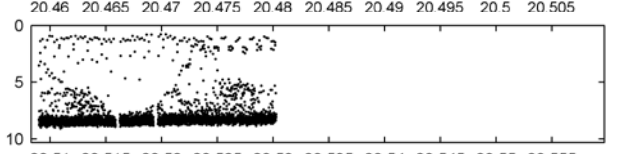
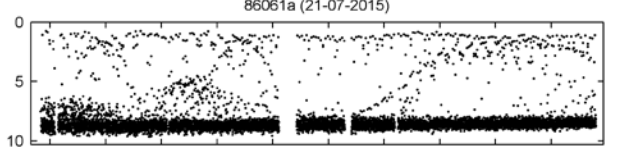
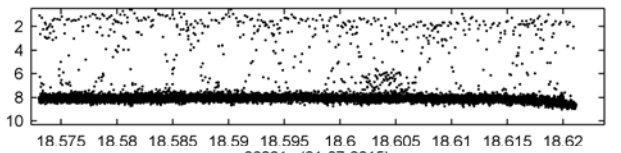
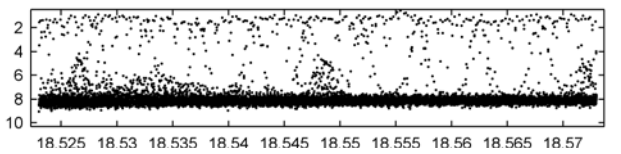
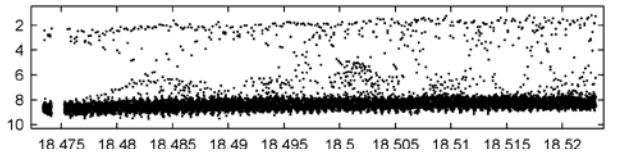
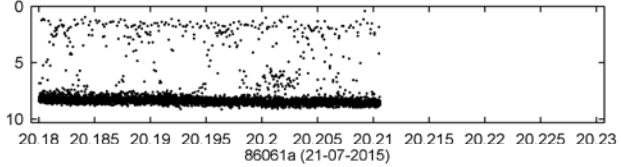
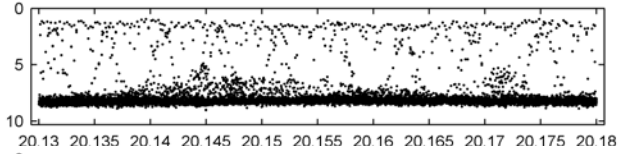
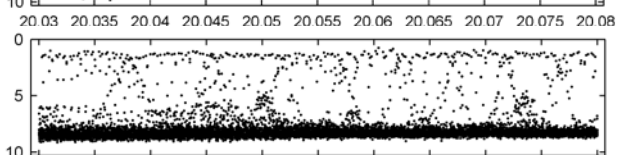
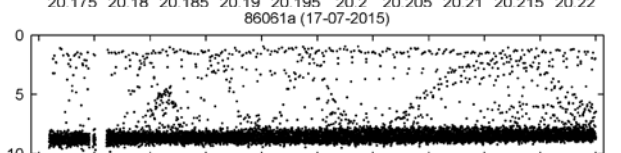
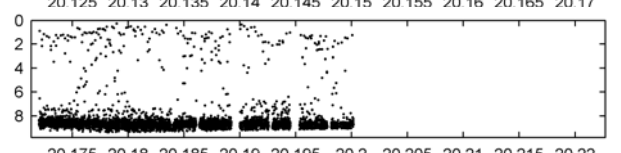
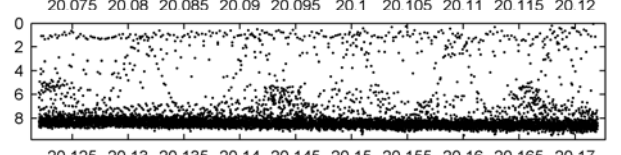
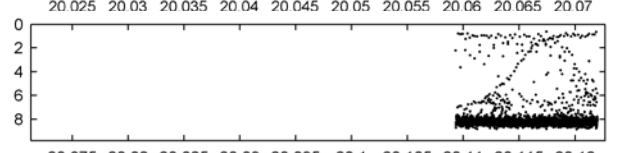
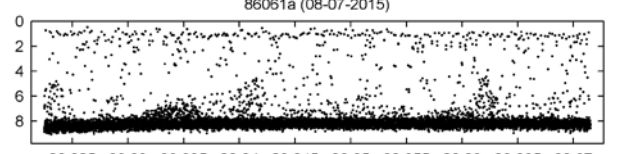
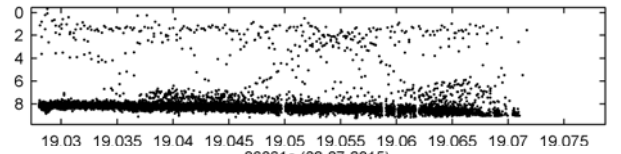
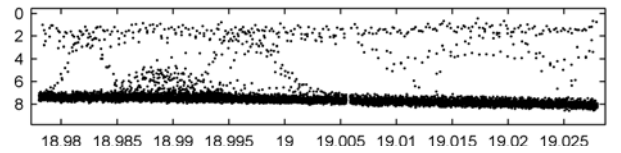
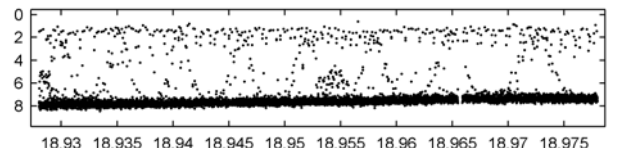
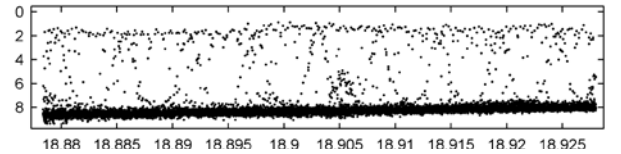
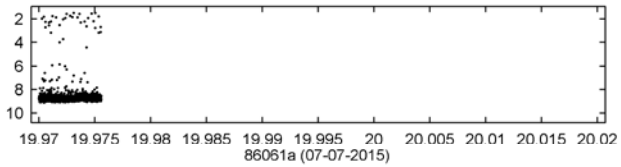
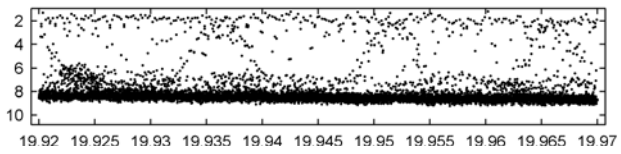


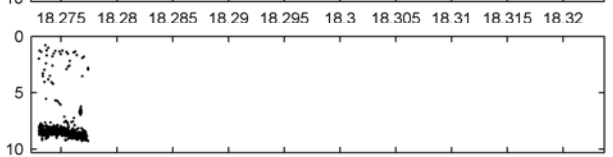
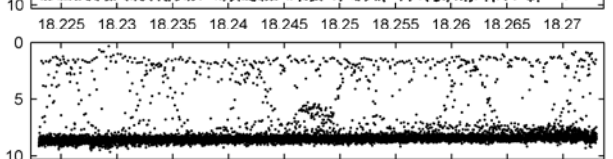
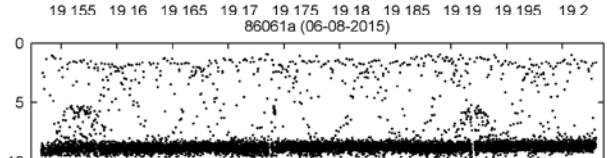
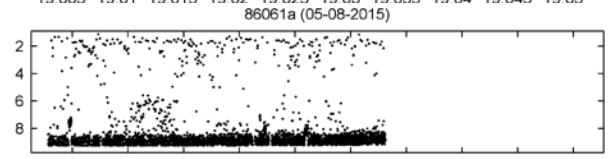
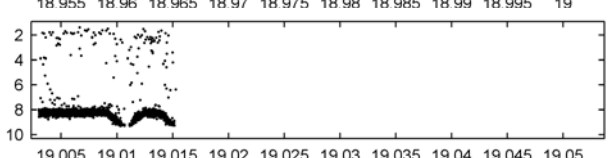
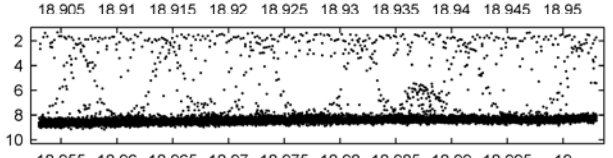
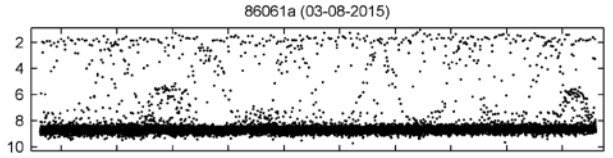
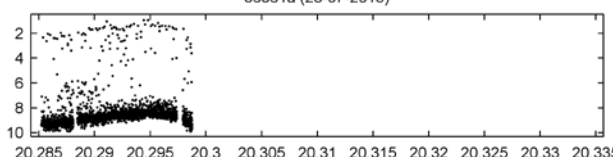
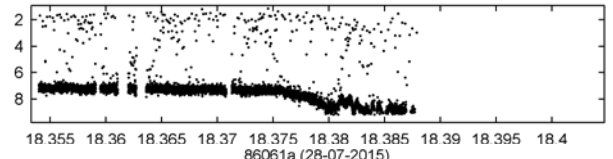
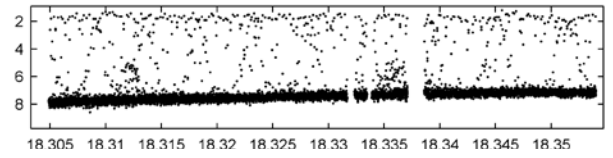
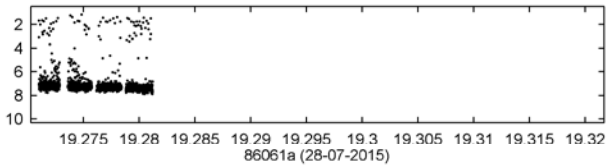
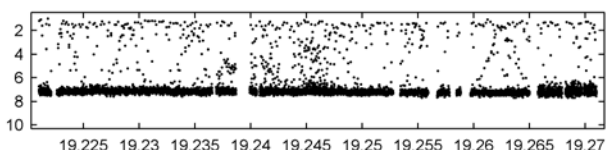
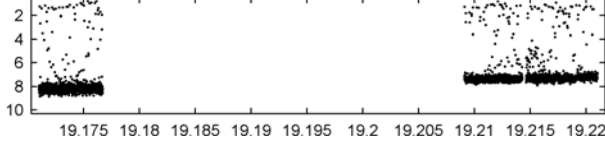
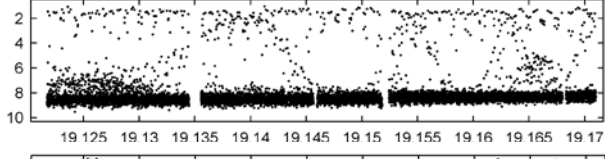
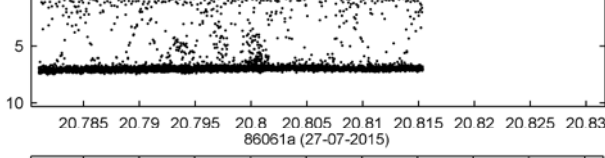
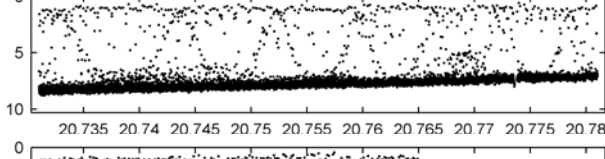
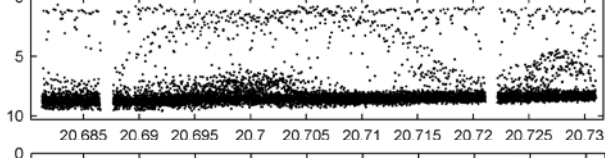
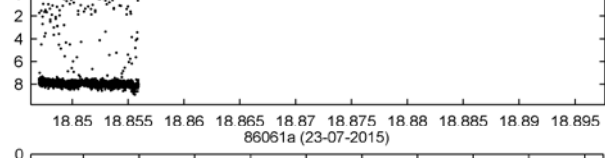
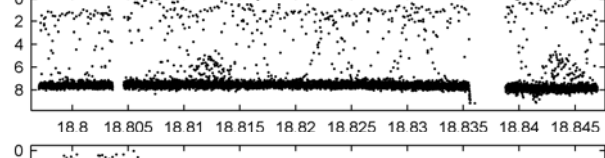
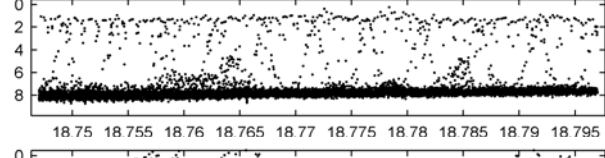
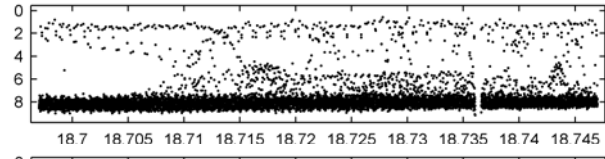
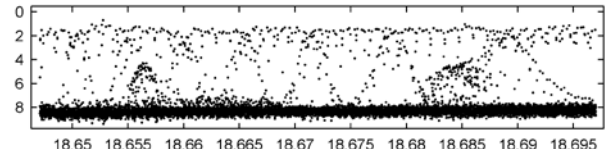
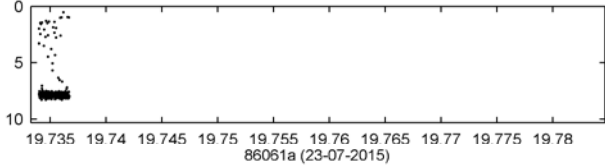
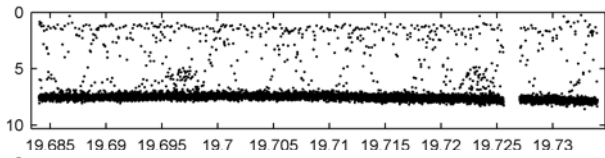
86061a (06-07-2015)

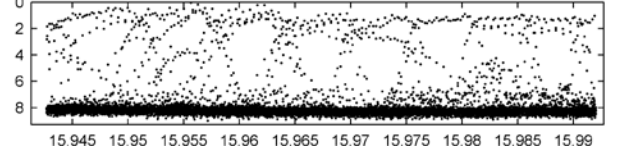
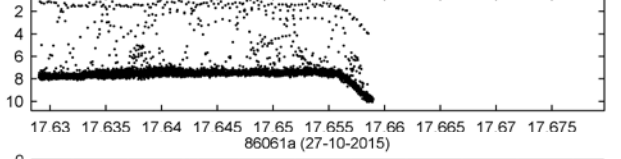
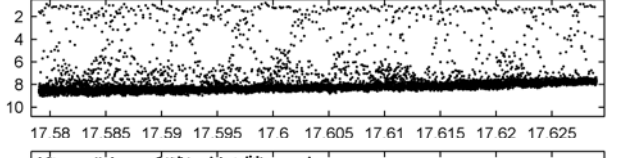
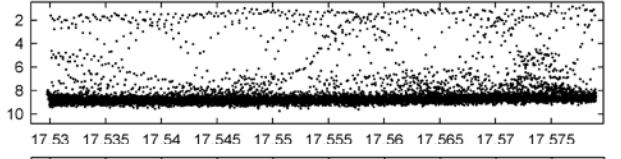
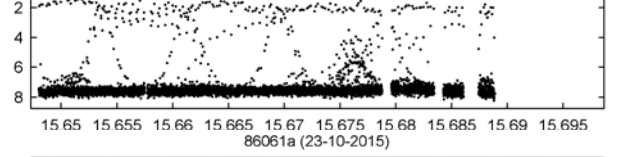
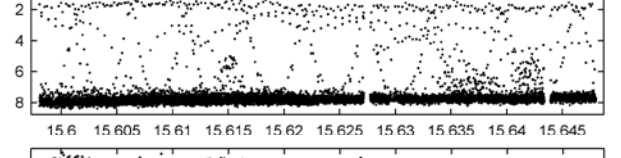
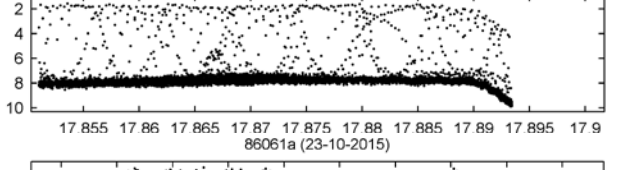
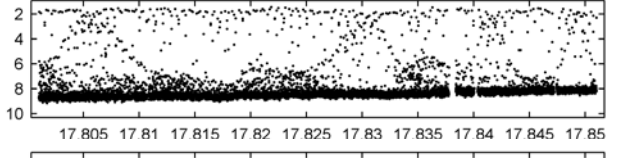
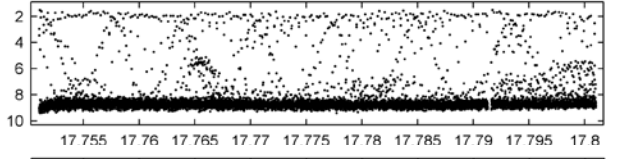
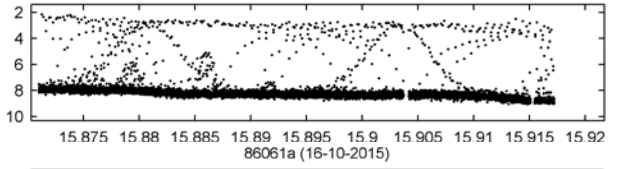
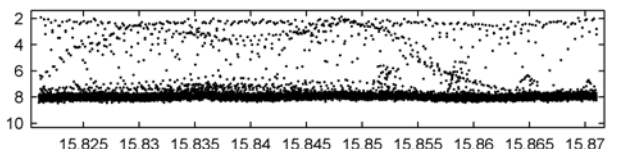
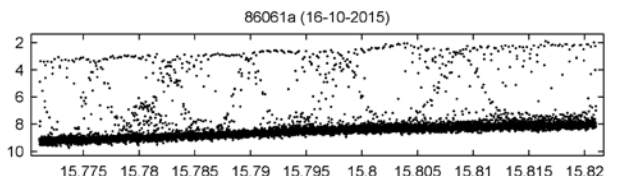
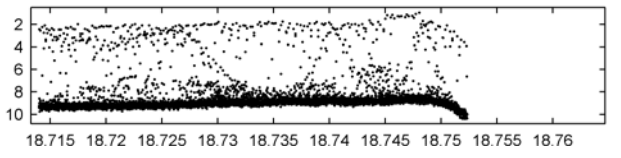
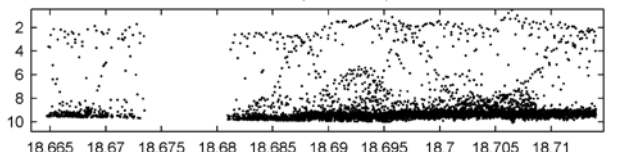
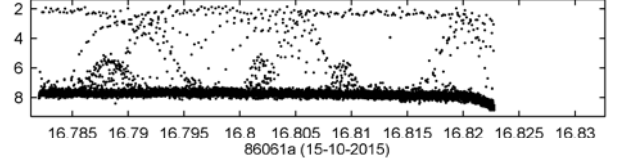
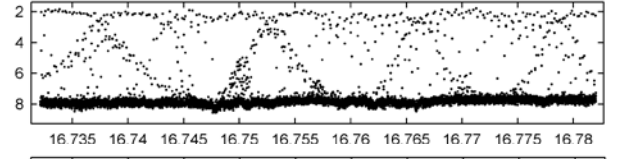
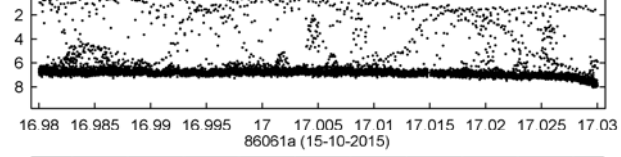
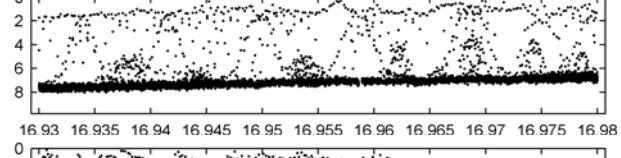
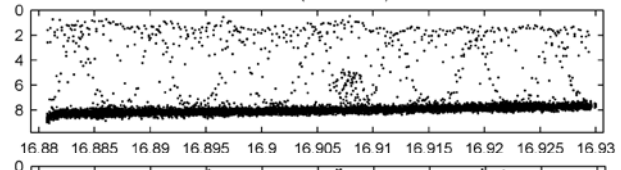
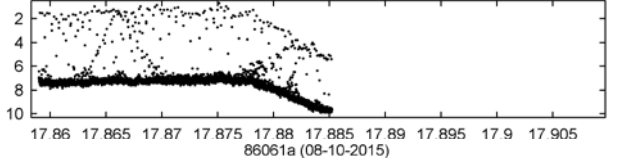
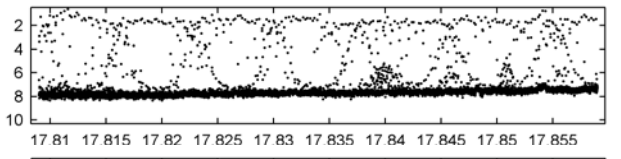
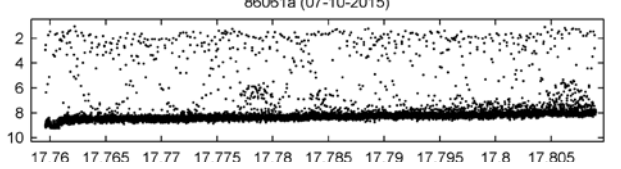
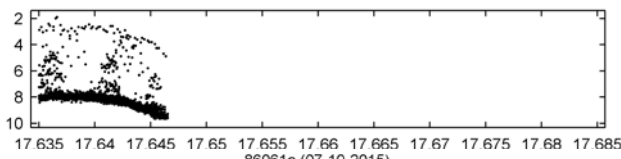
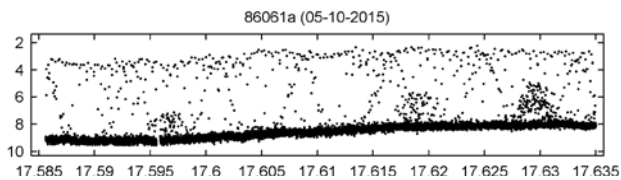


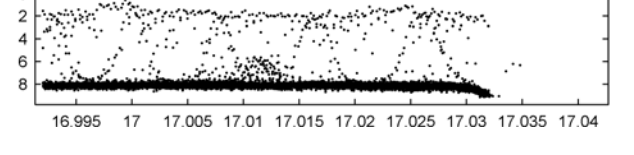
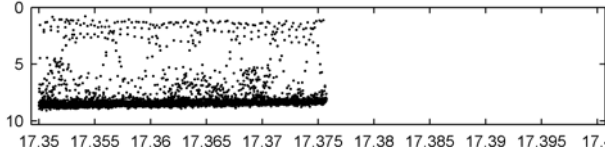
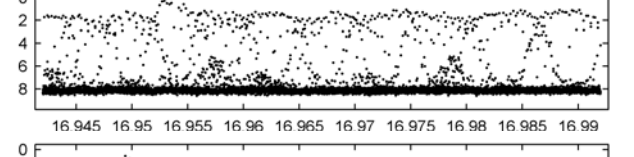
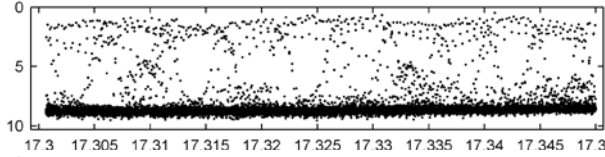
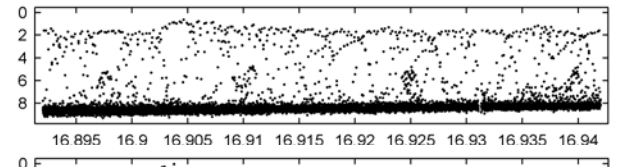
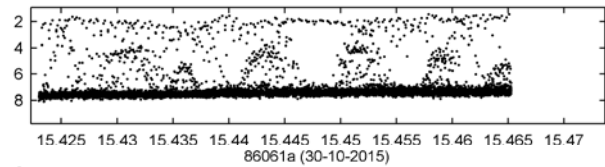
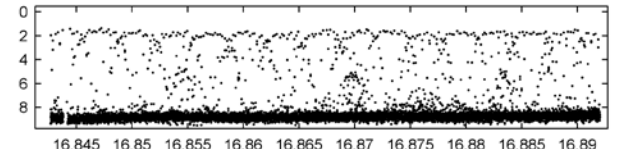
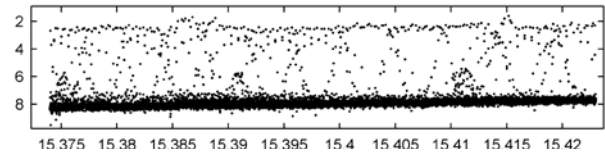
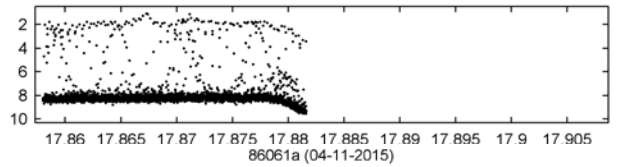
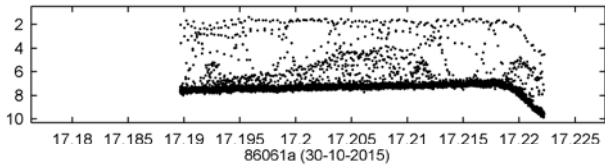
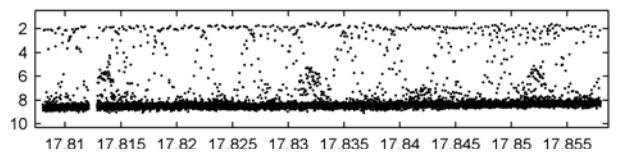
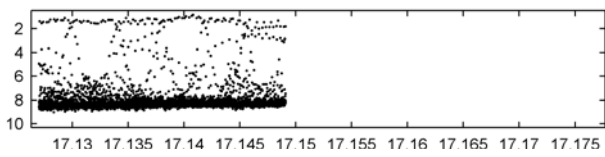
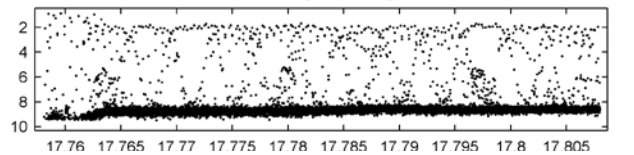
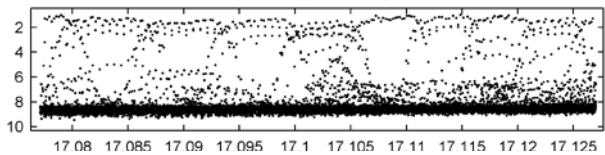
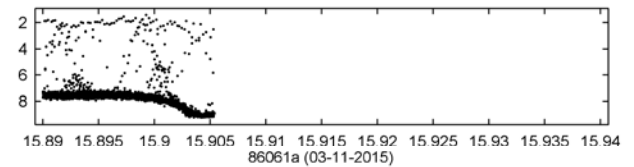
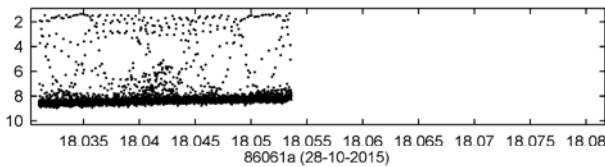
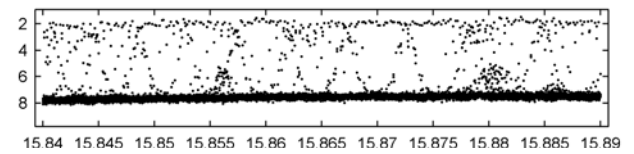
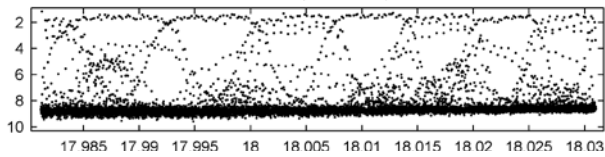
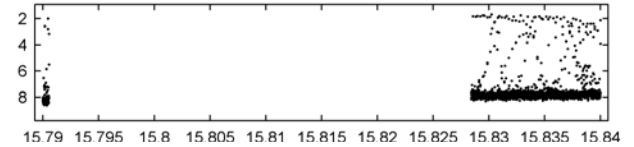
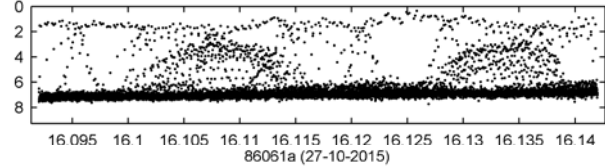
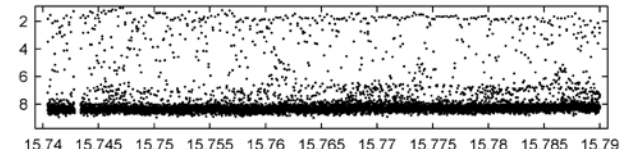
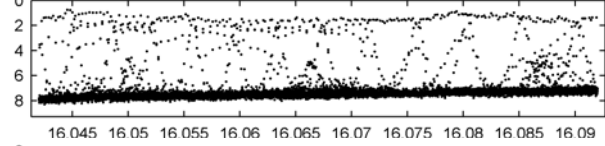
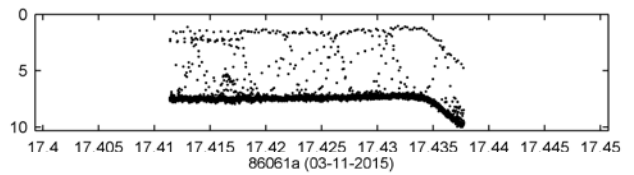
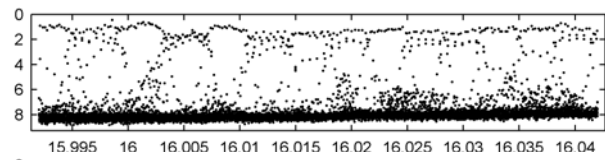
86061a (27-04-2015)

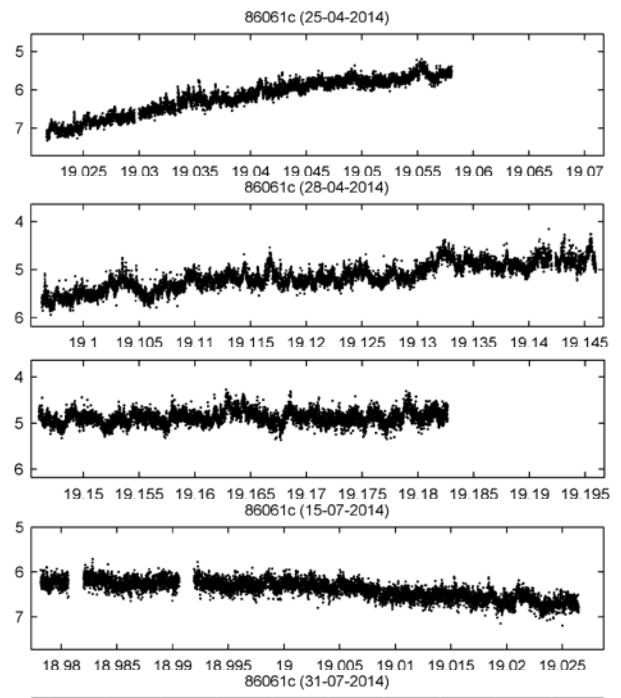
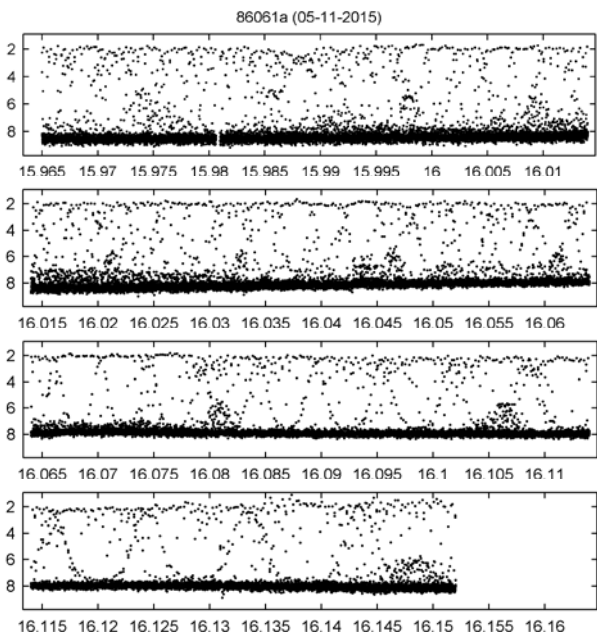




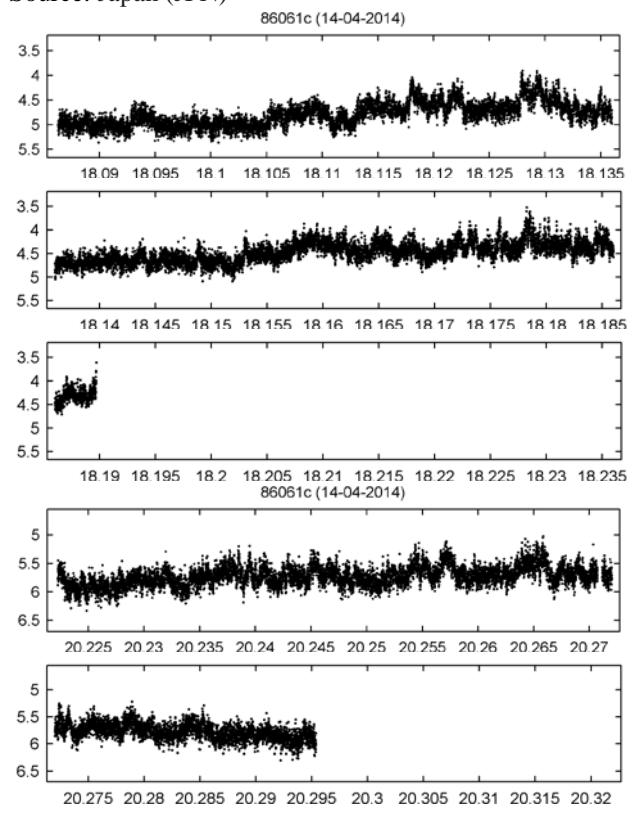
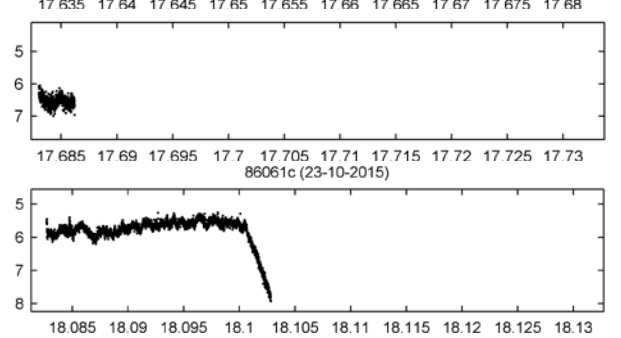
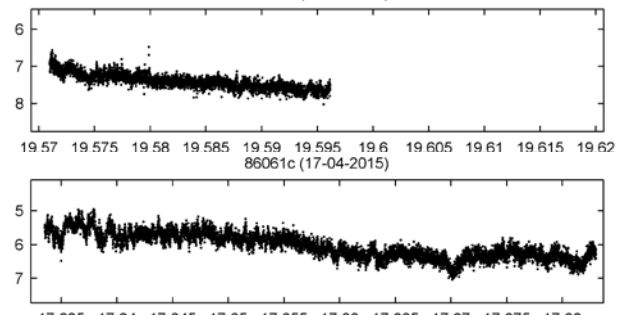
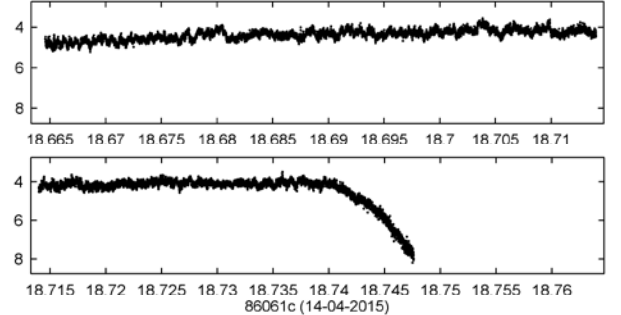








H-1 R/B (MABES (JINDAI))
2nd stage
 NORAD ID: 16910
 Int'l Code: 1986-061C
 Dimensions: cylinder 13.54m long,
 2.49m dia
 Initial orbit:
 Perigee: 1484 km
 Apogee: 1594 km
 Inclination: 50.00°
 Period: 116.78 min
 Eccentricity: 0.007
 Launch date: 1986-08-12
 Source: Japan (JPN)

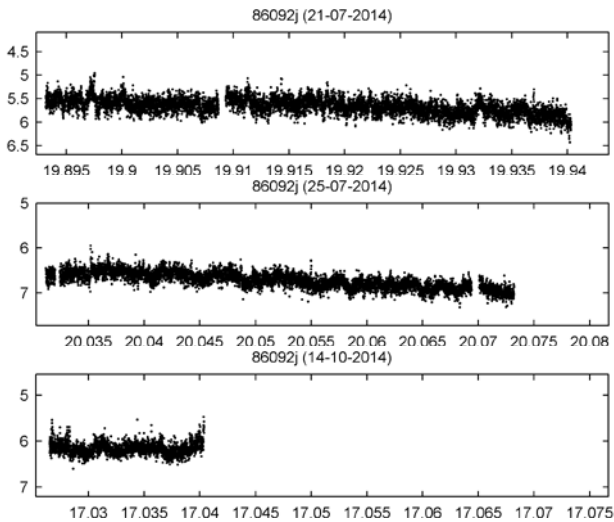
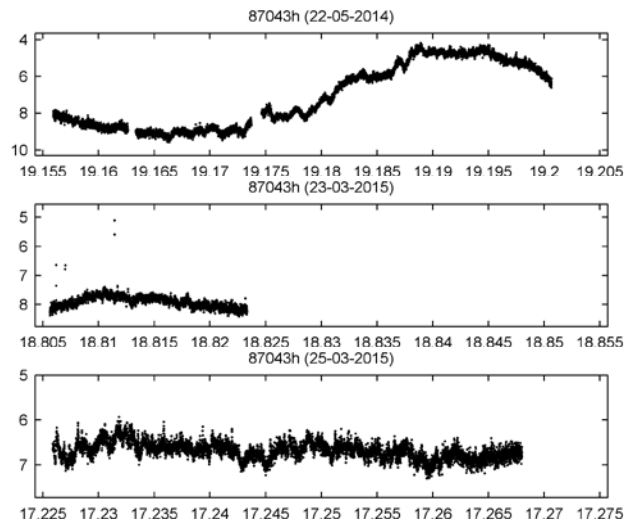


**SL-8 R/B (S3M) (2nd stage)
(COSMOS 1794-1801 ROCKET)**

NORAD ID: 17146
 Int'l Code: 1986-092J
 Dimensions: cylinder 7.4m long, 2.4m dia
 Initial orbit:
 Perigee: 1471 km
 Apogee: 1685 km
 Inclination: 74.01°
 Period: 117.75 min
 Eccentricity: 0.013
 Launch date: 1986-11-21
 Source: Commonwealth of Independent States (former USSR) (CIS)



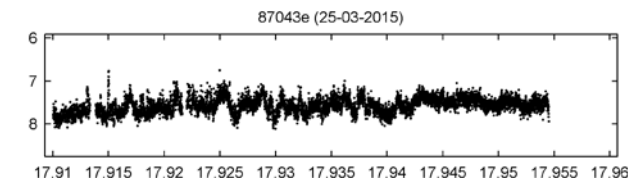
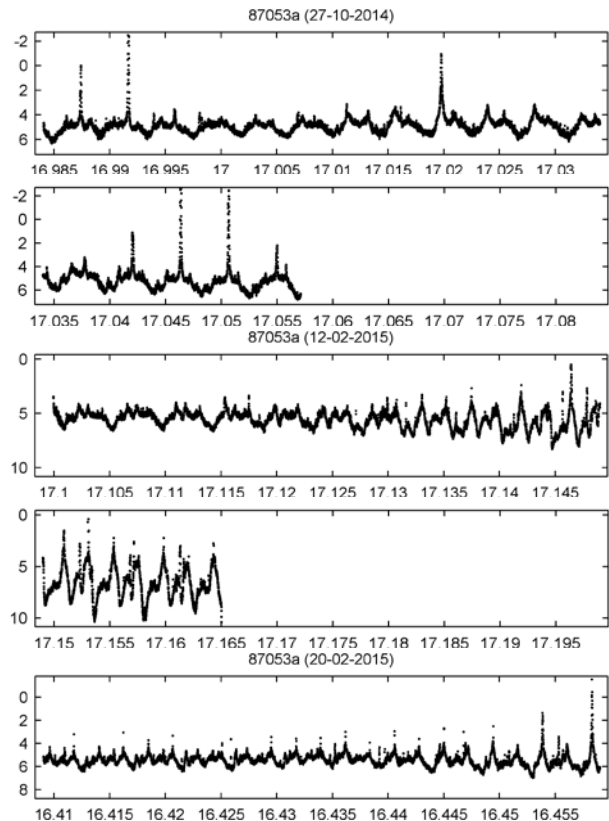
Launch date: 1987-05-15
 Source: United States (US)



DMSP 5D-2 F8 (USA 26)
 NORAD ID: 18123
 Int'l Code: 1987-053A
 Dimensions: cylinder 6.4m span, 6.4m long, 1.68m dia?
 Initial orbit:
 Perigee: 840 km
 Apogee: 859 km
 Inclination: 98.84°
 Period: 101.98 min
 Eccentricity: 0.001
 Launch date: 1987-06-20
 Source: United States (US)

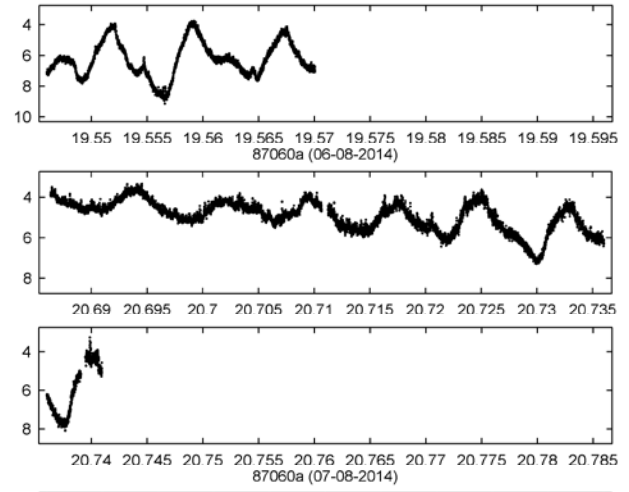
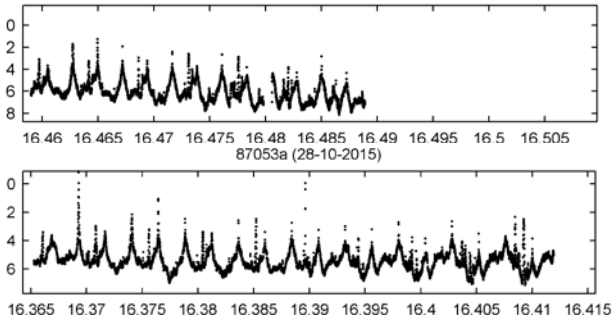


NOSS 9A (USA 23)
 NORAD ID: 18009
 Int'l Code: 1987-043E
 Dimensions:
 Initial orbit:
 Perigee: 1045 km
 Apogee: 1179 km
 Inclination: 62.9°
 Period: 107.8 min
 Eccentricity: 0.009
 Launch date: 1987-05-15
 Source: United States (US)



NOSS 9C (USA 25)
 NORAD ID: 18025
 Int'l Code: 1987-043H
 Dimensions:
 Initial orbit:
 Perigee: 1045 km
 Apogee: 1179 km
 Inclination: 62.9°
 Period: 107.8 min
 Eccentricity: 0.009





COSMOS 1867 ((PLASMA-A 2)

NORAD ID: 18187

Int'l Code: 1987-060A

Dimensions:

Initial orbit:

Perigee: 786 km

Apogee: 801 km

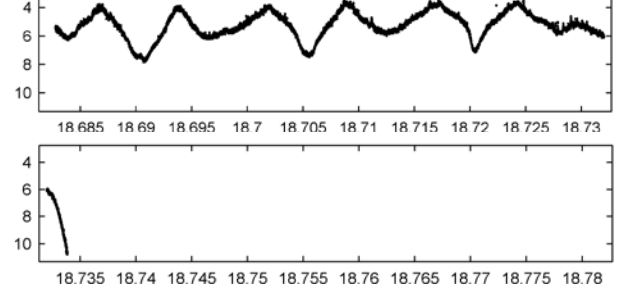
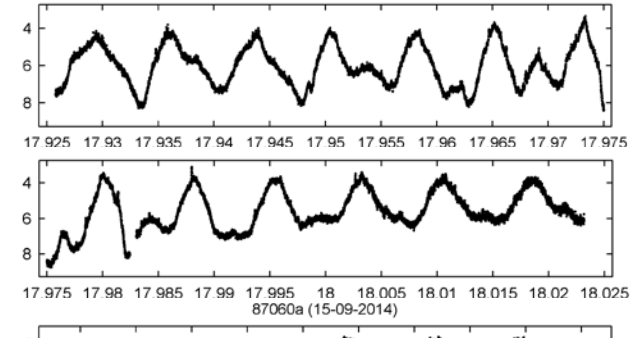
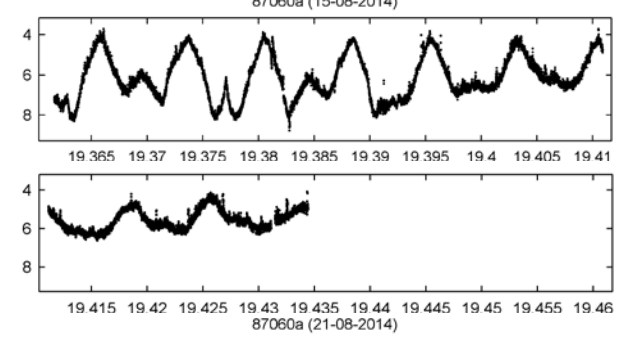
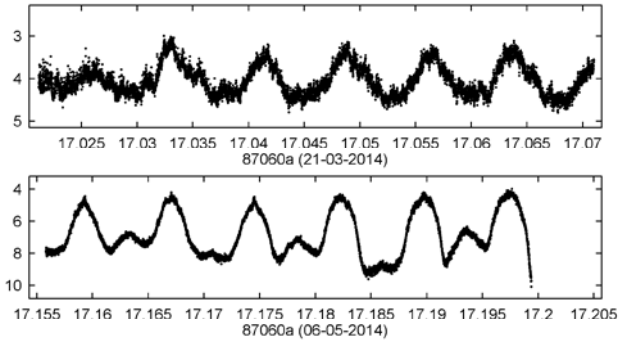
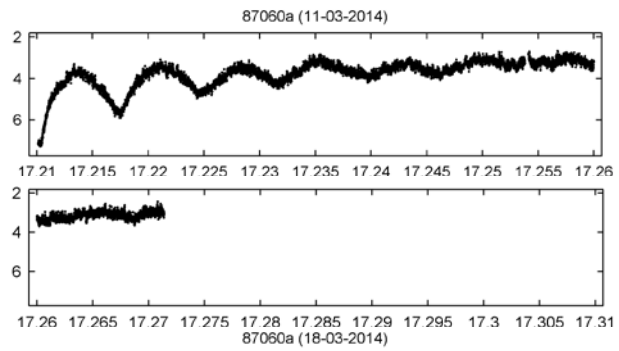
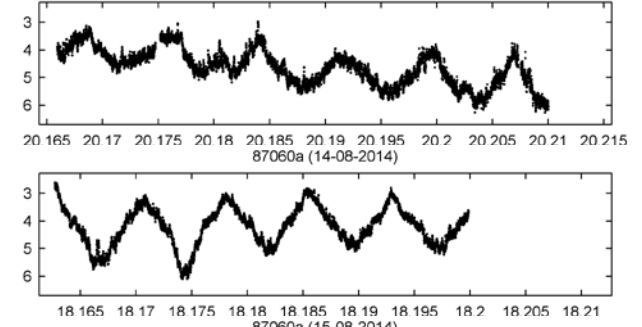
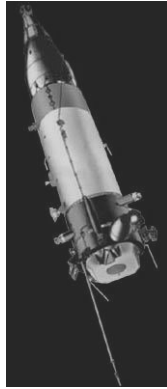
Inclination: 65.00°

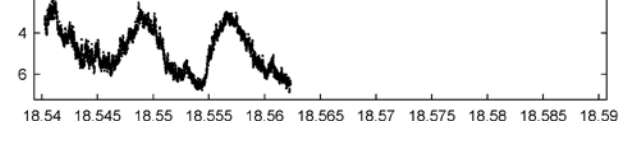
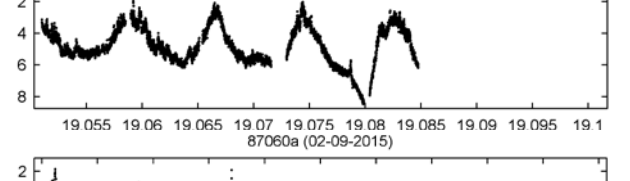
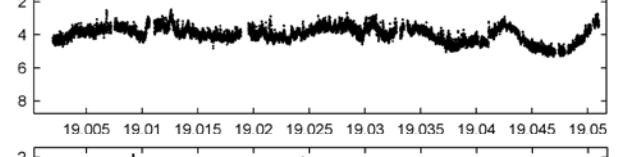
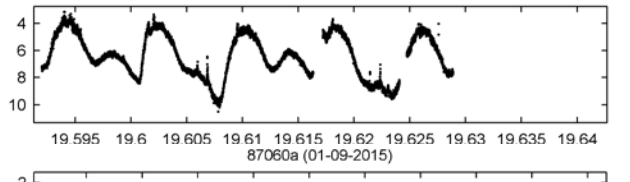
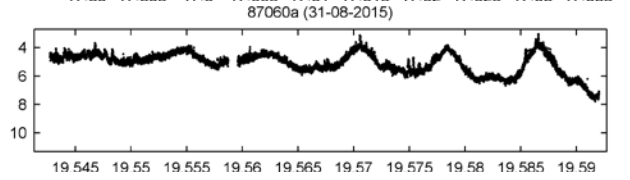
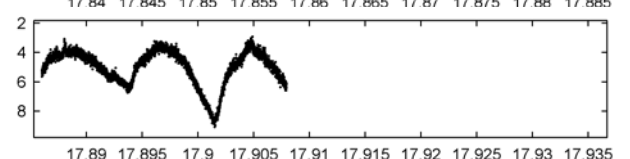
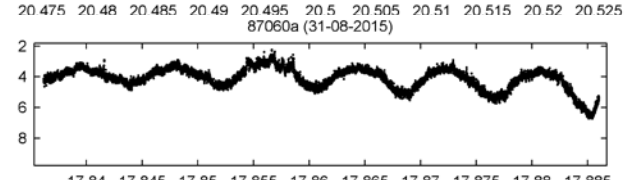
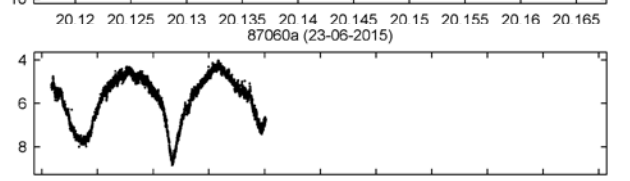
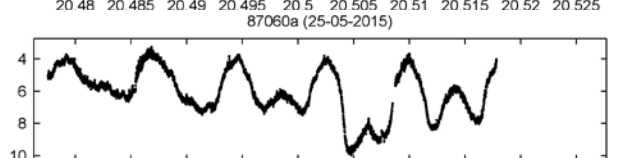
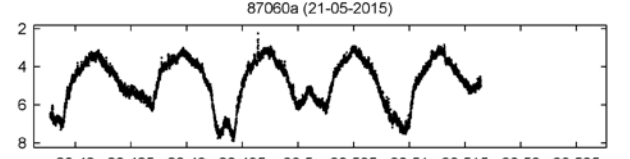
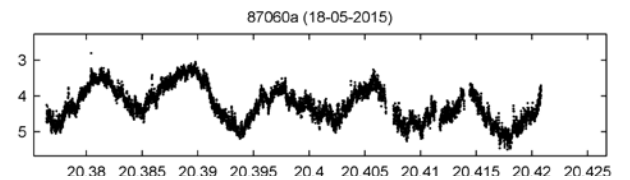
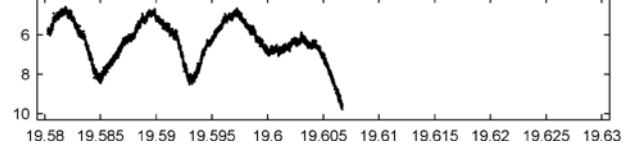
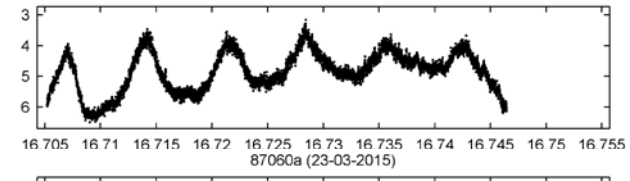
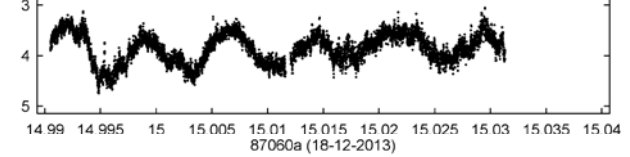
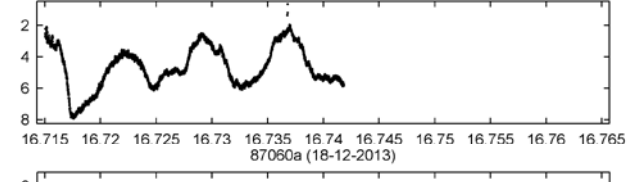
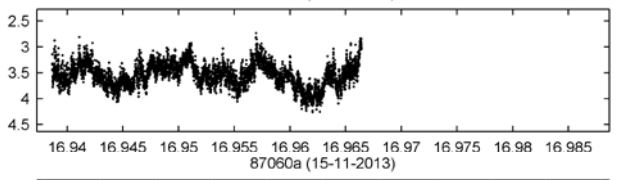
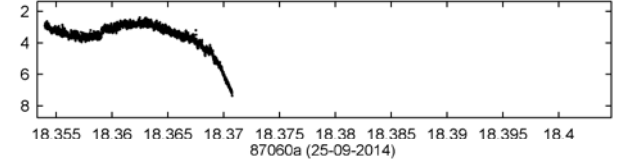
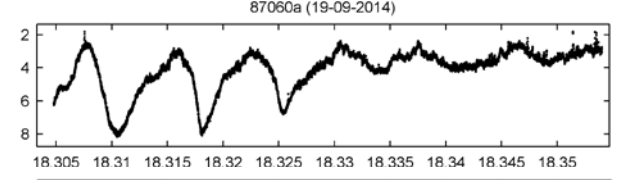
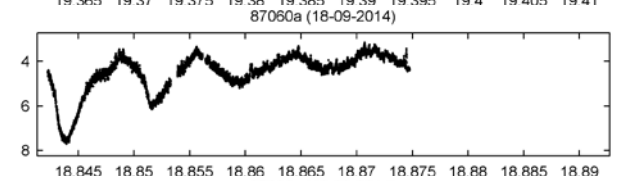
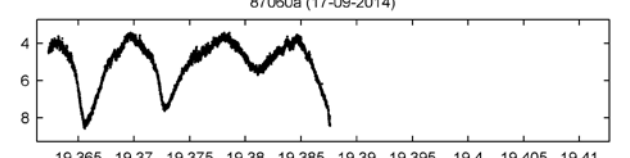
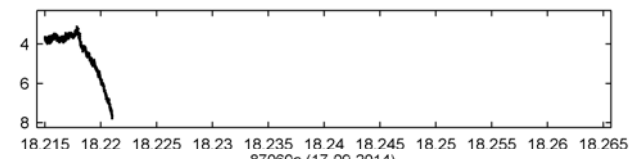
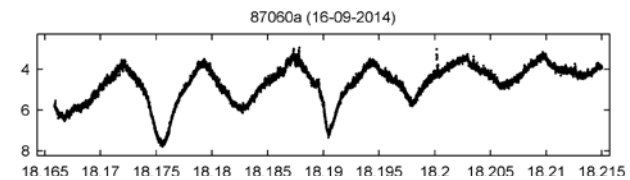
Period: 100.74 min

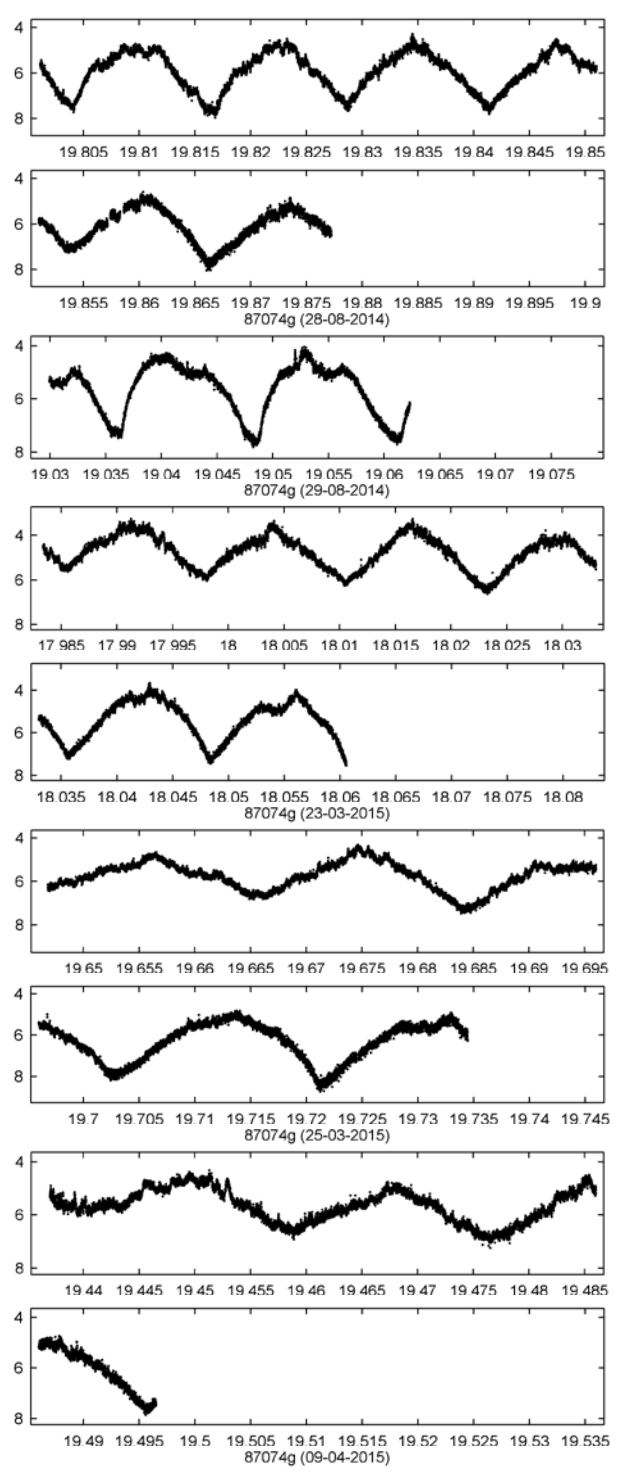
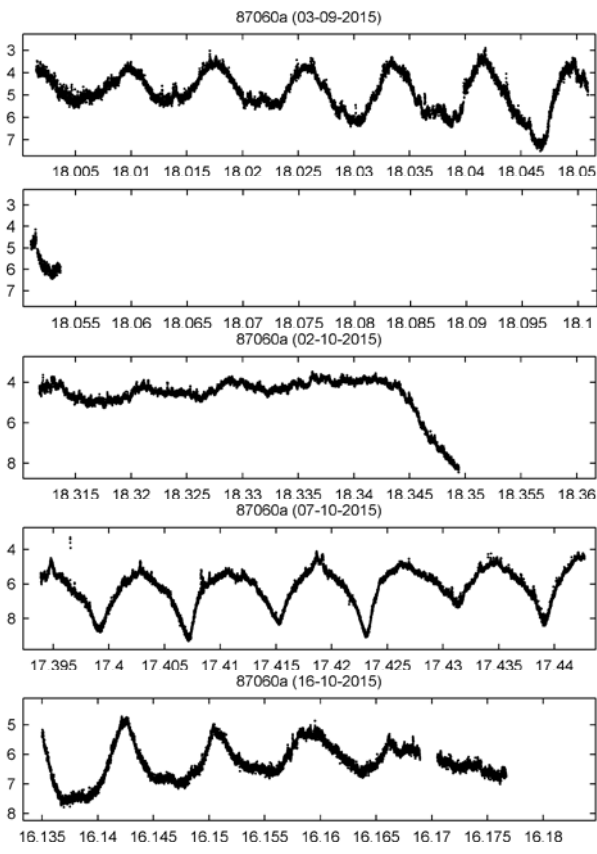
Eccentricity: 0.001

Launch date: 1987-07-10 manoeuvrable

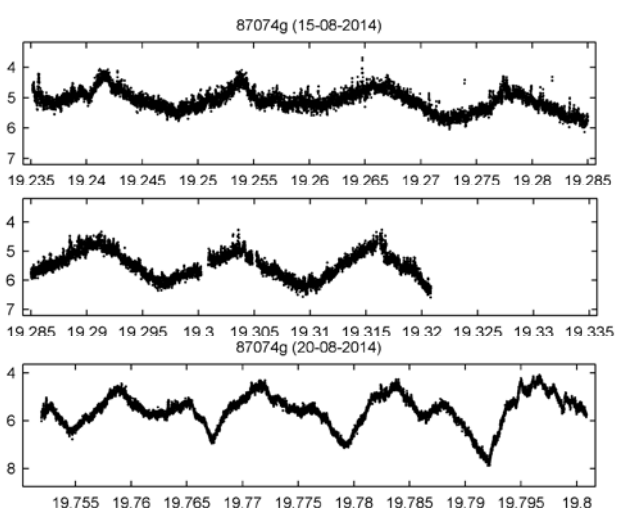
Source: Commonwealth of Independent States (former USSR) (CIS)







SL-14 R/B (S5M) (3rd stage)
(COSMOS 1875-1880 ROCKET)
 NORAD ID: 18340
 Int'l Code: 1987-074G
 Dimensions: cylinder 7.4m long, 2.4m dia
 Initial orbit:
 Perigee: 1410 km
 Apogee: 1473 km
 Inclination: 82.58°
 Period: 114.76 min
 Eccentricity: 0.004
 Launch date: 1987-09-07
 Source: Commonwealth of Independent States (former USSR) (CIS)



**SL-14 R/B (S5M) (2nd stage)
(METEOR-2 17 ROCKET)**

NORAD ID: 18821

Int'l Code: 1988-005B

Dimensions: cylinder 7.4m long, 2.4m dia

Initial orbit:

Perigee: 938 km

Apogee: 957 km

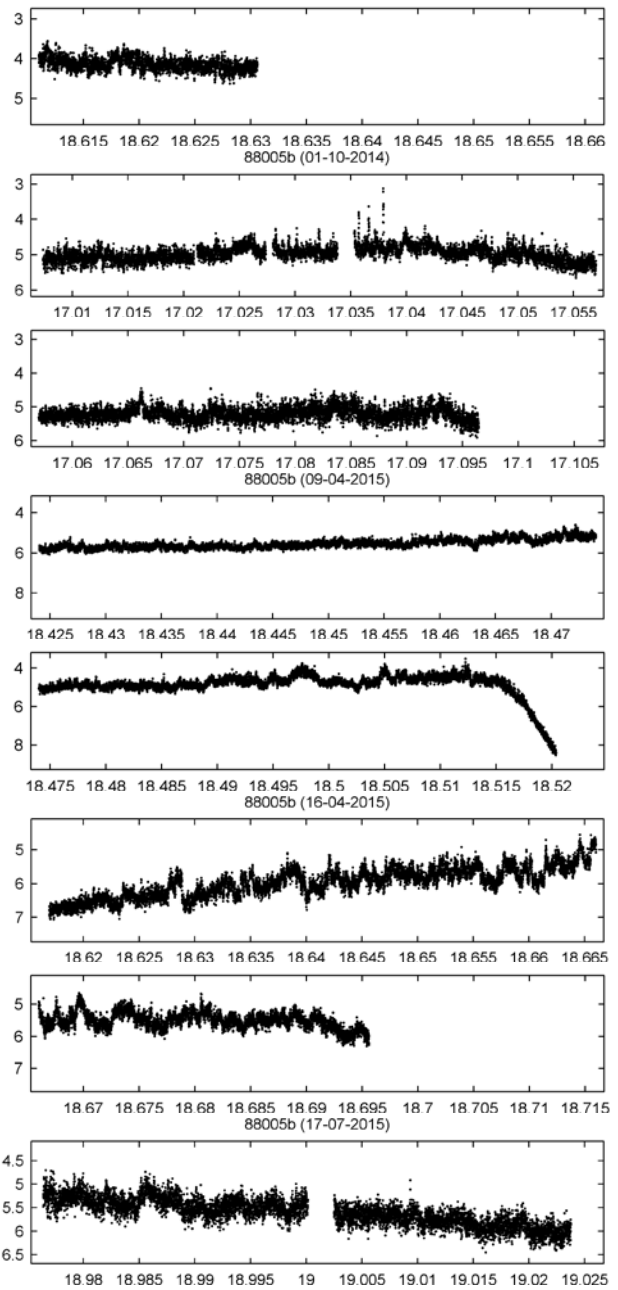
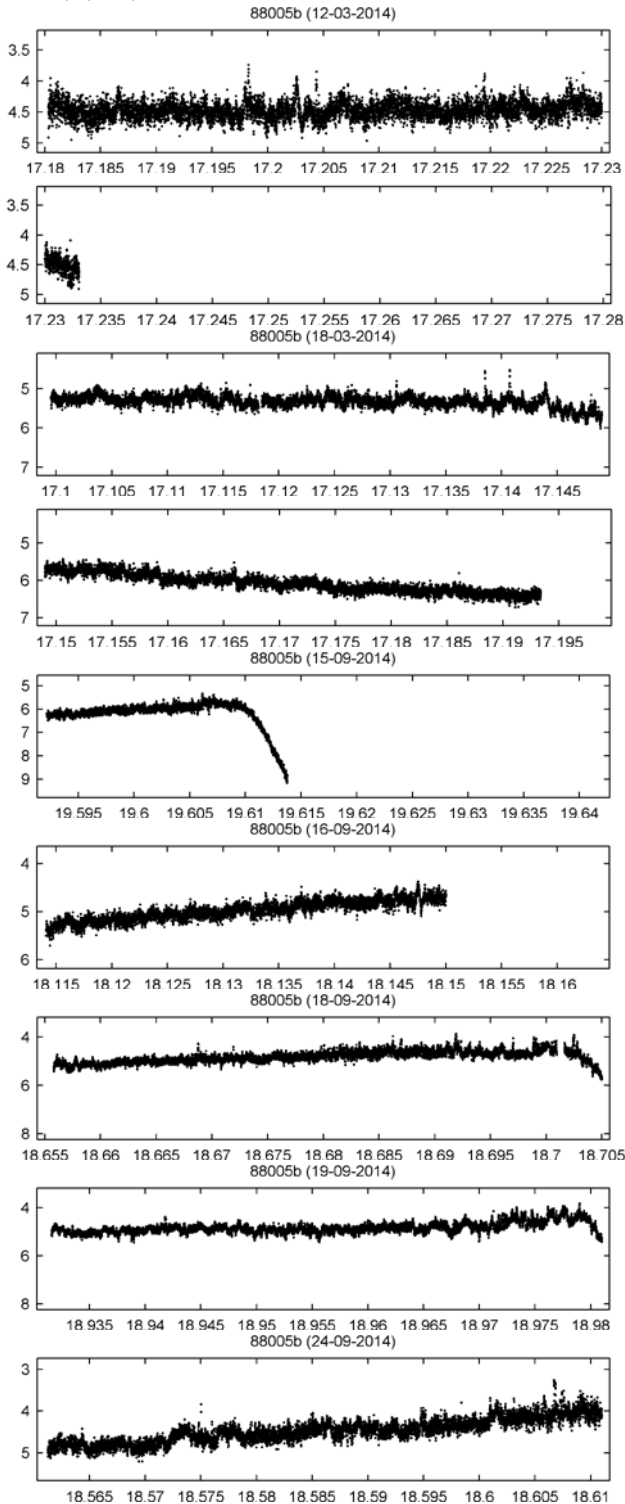
Inclination: 82.55°

Period: 104.06 min

Eccentricity: 0.001

Launch date: 1988-01-30

Source: Commonwealth of Independent States (former USSR) (CIS)



IRS 1A

NORAD ID: 18960

Int'l Code: 1988-021A

Dimensions: box + panels

Initial orbit:

Perigee: 871 km

Apogee: 913 km

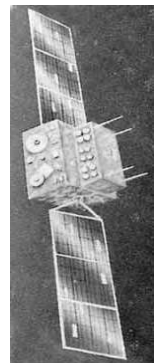
Inclination: 99.02°

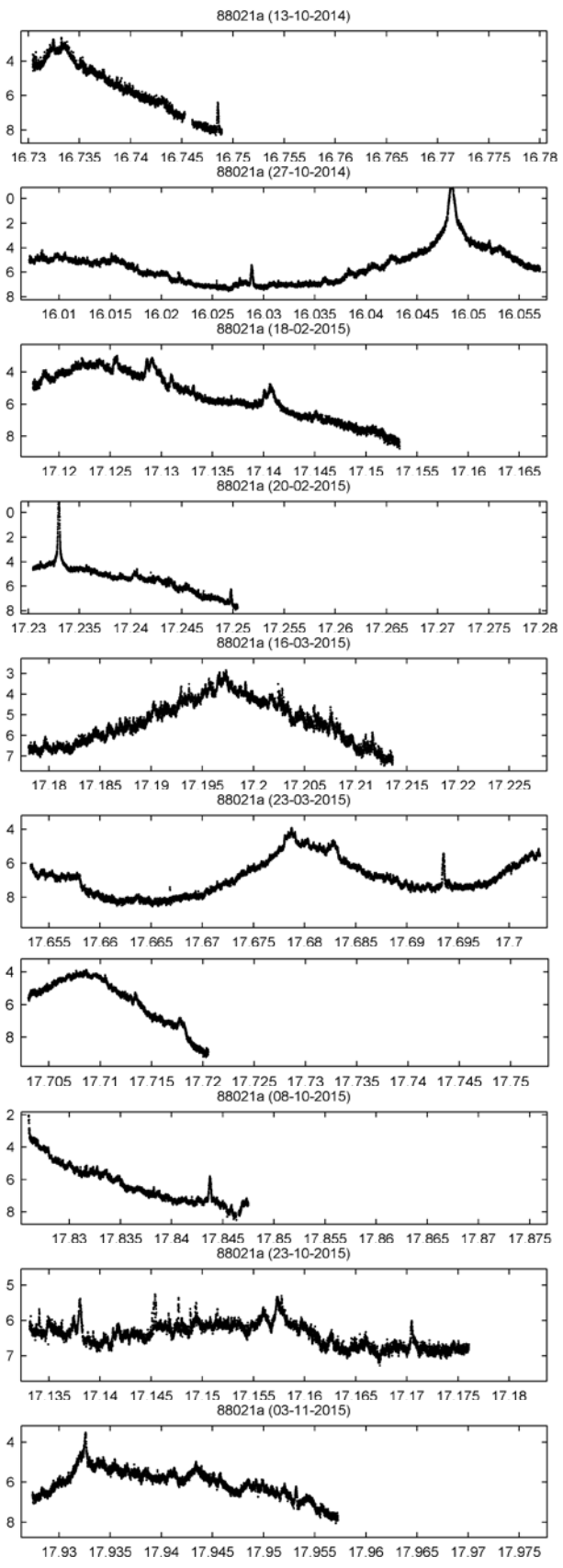
Period: 102.87 min

Eccentricity: 0.003

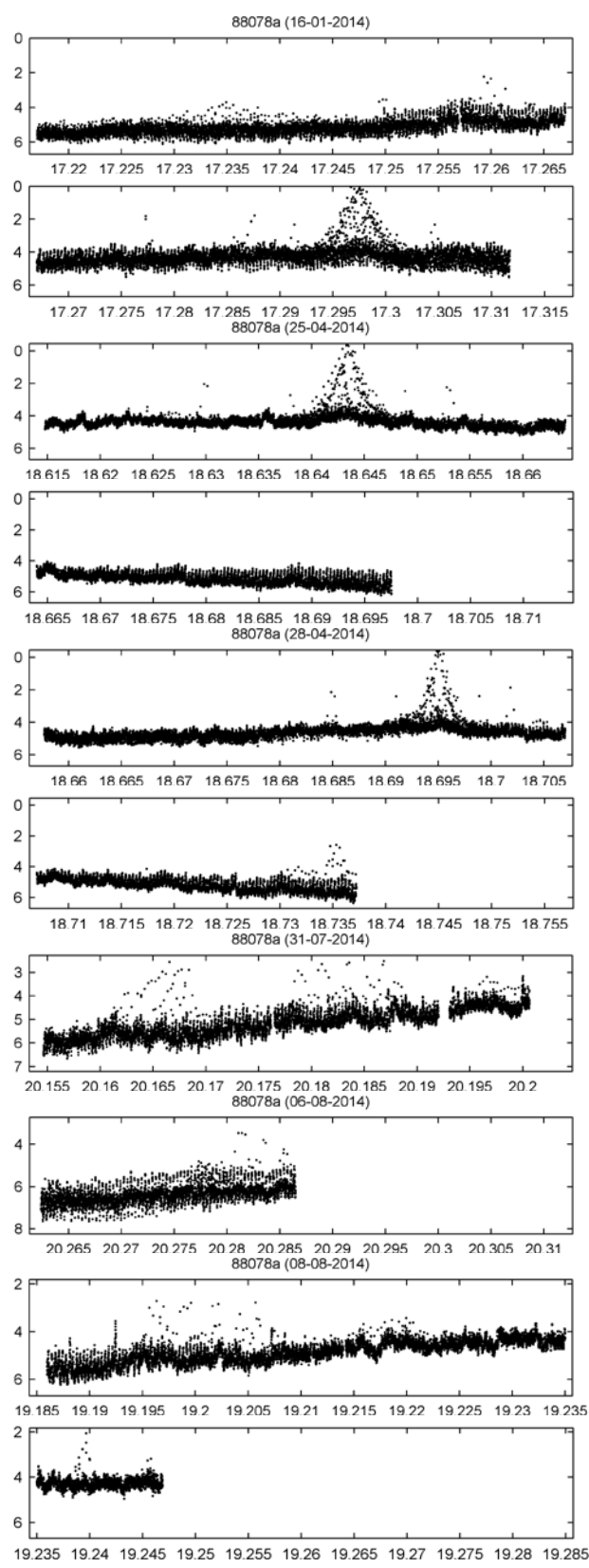
Launch date: 1988-03-17

Source: India (IND)

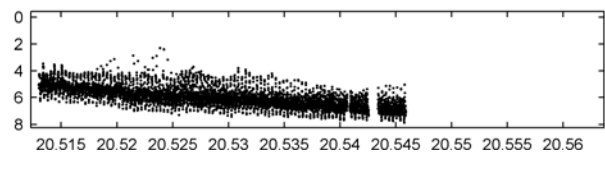
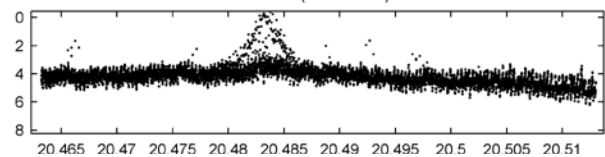
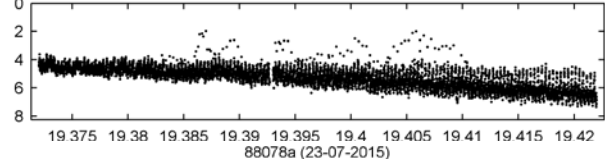
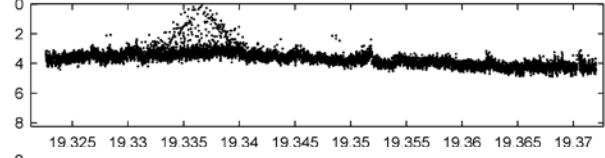
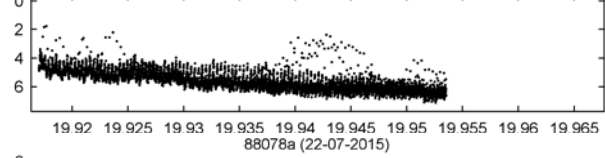
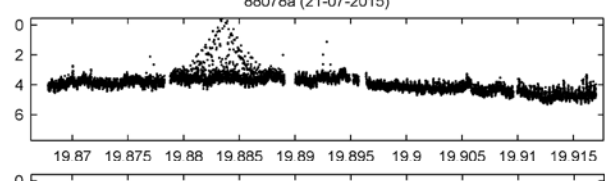
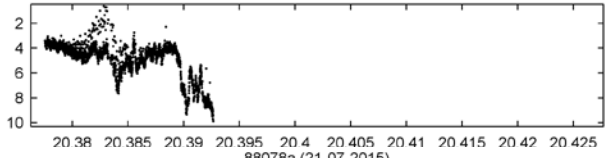
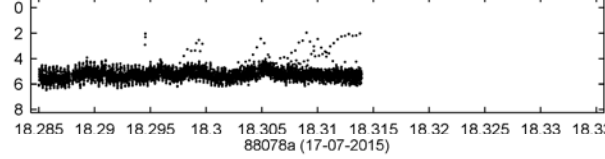
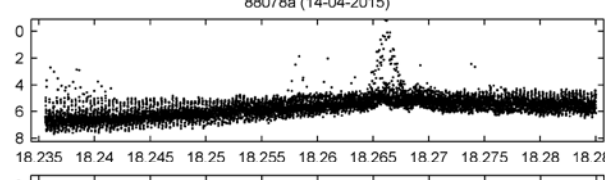
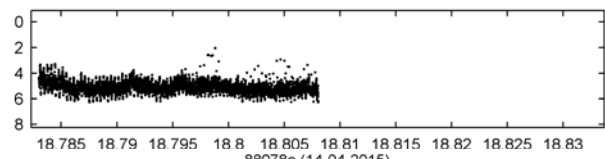
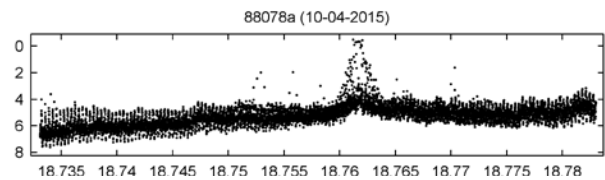
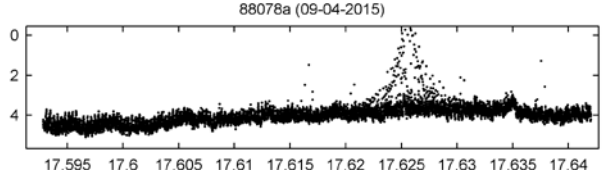
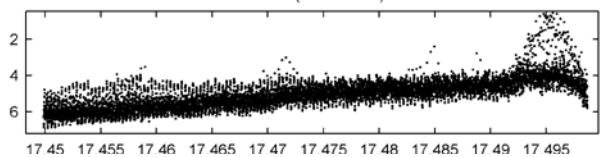
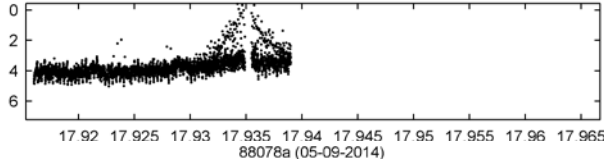
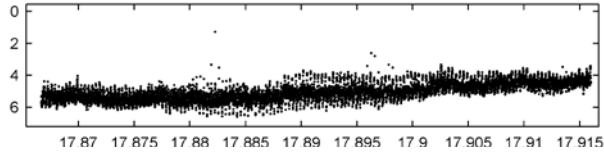
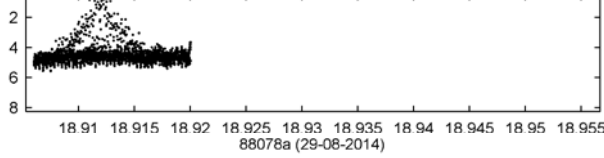
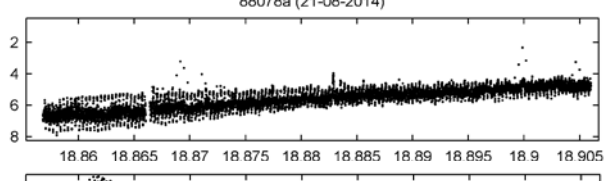
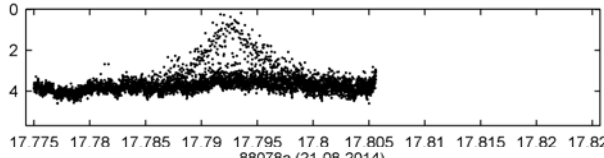
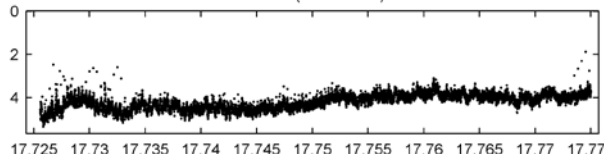
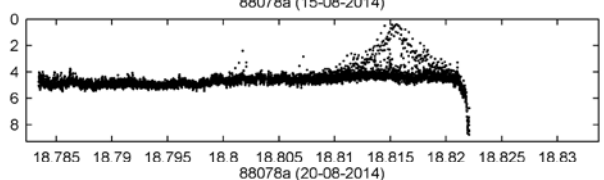
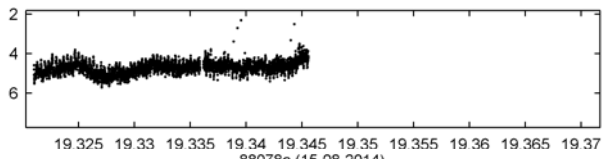
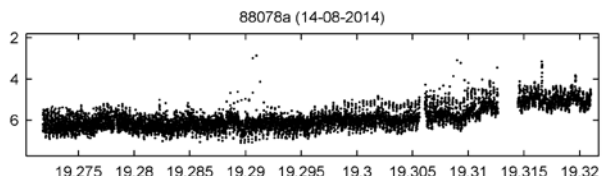


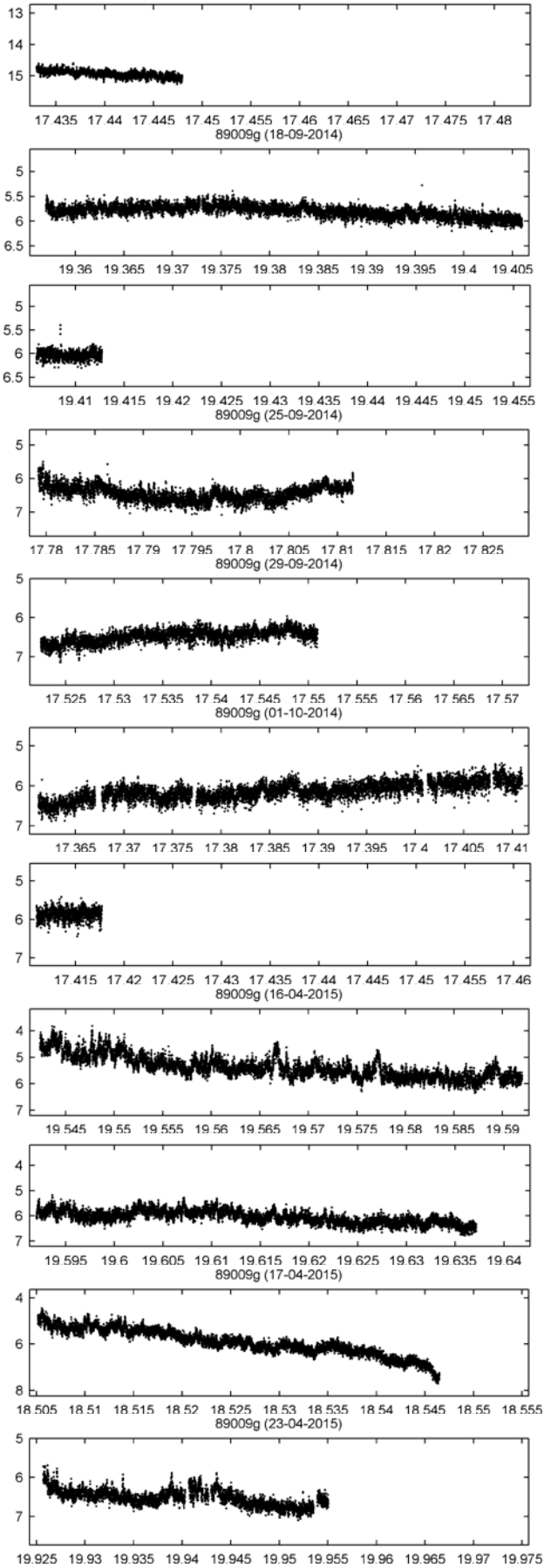


Inclination: 85.0°
 Period: 89.3 min
 Eccentricity: 0.008
 Launch date: 1988-09-05
 Source: United States (US)



USA 32
 NORAD ID: 19460
 Int'l Code: 1988-078A
 Dimensions:
 Initial orbit:
 Perigee: 185 km
 Apogee: 292 km





SPOT 2

NORAD ID: 20436

Int'l Code: 1990-005A

Dimensions: box

1.84m x 1.84m x 4.73m

Initial orbit:

Perigee: 825 km

Apogee: 826 km

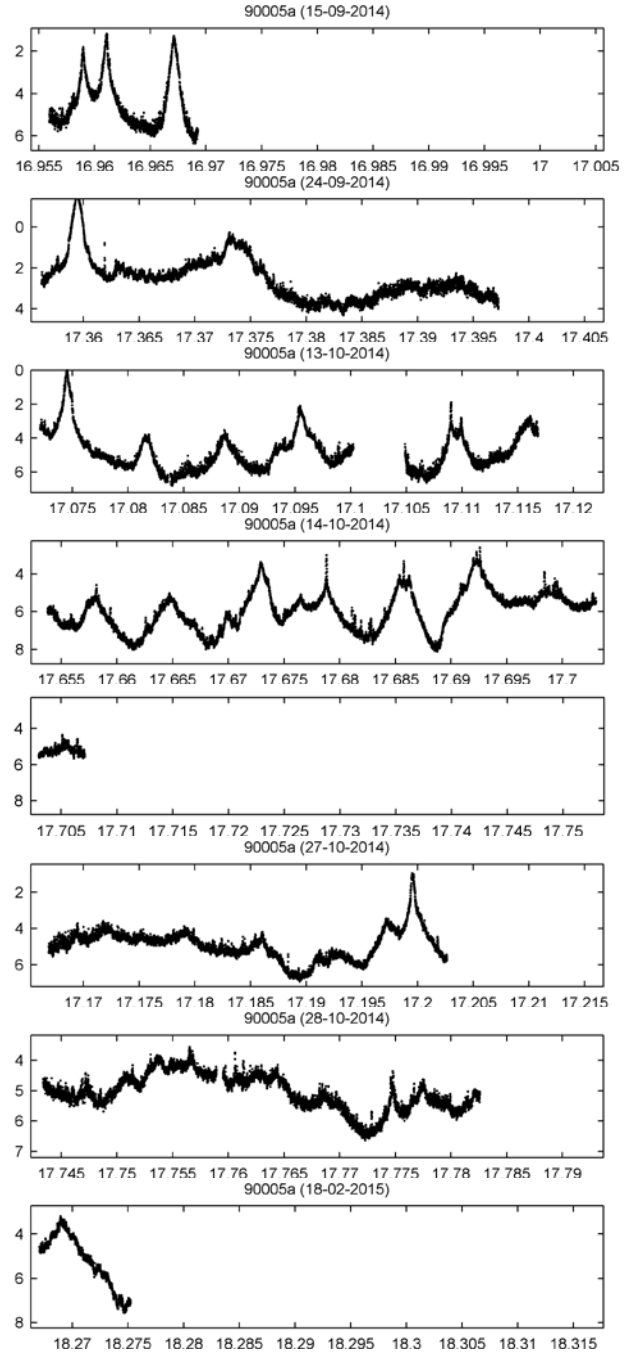
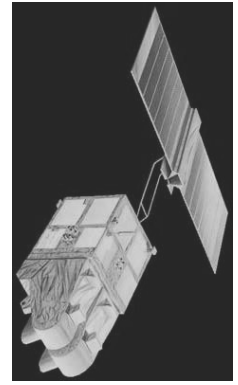
Inclination: 98.72°

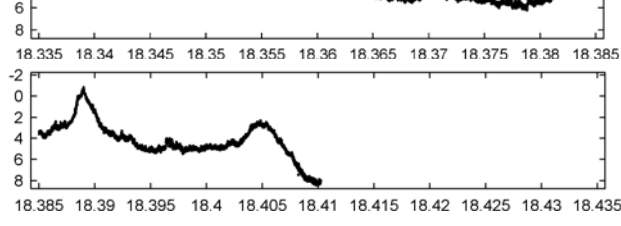
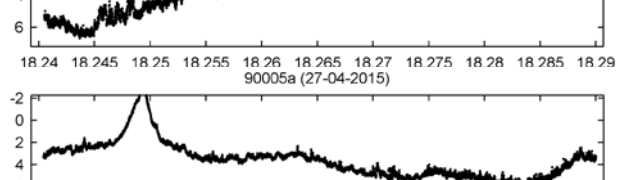
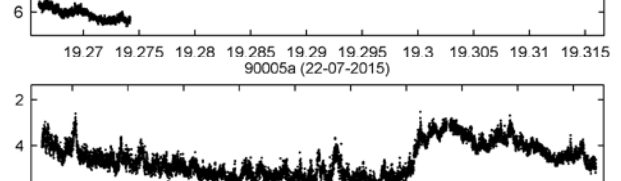
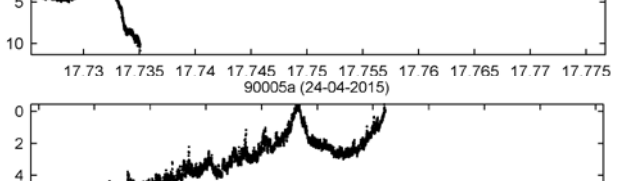
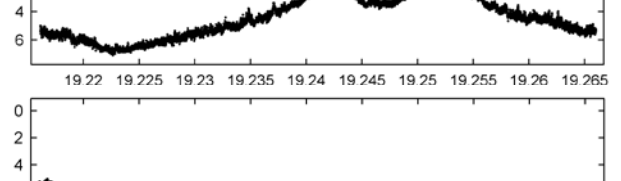
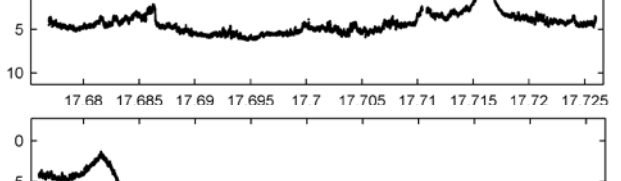
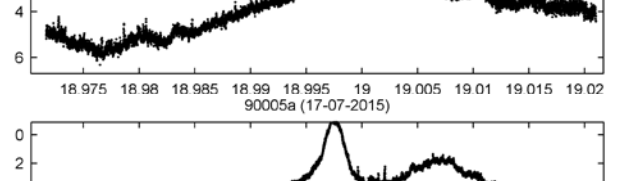
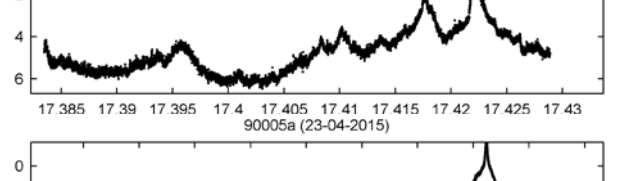
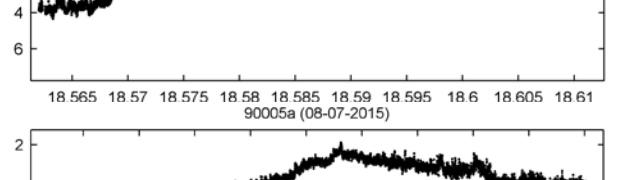
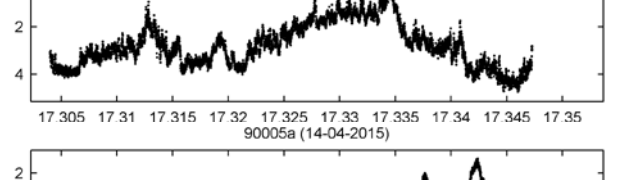
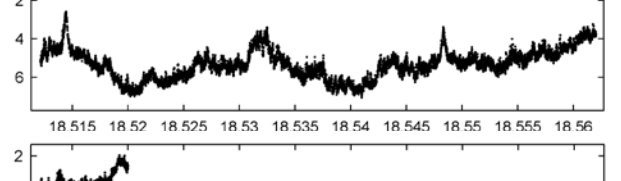
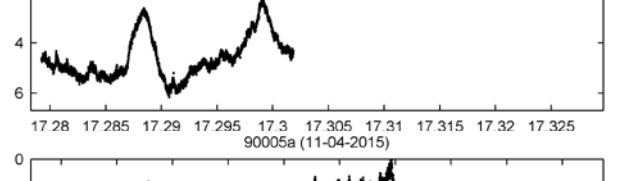
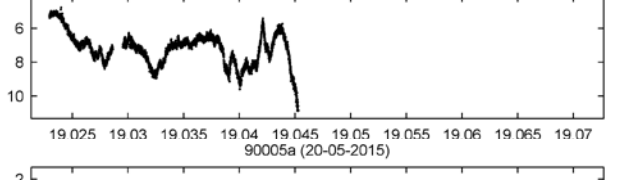
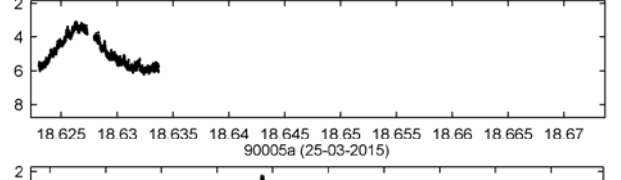
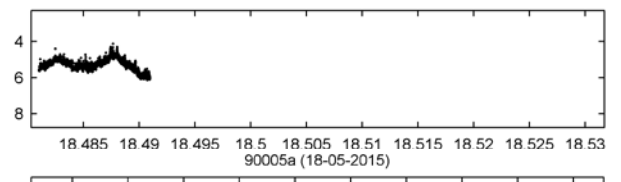
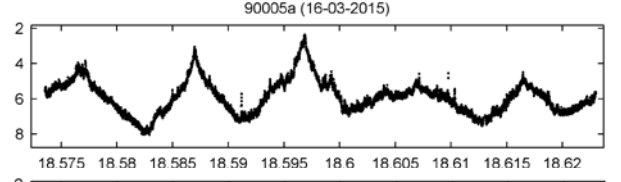
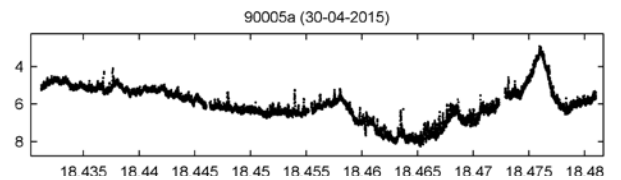
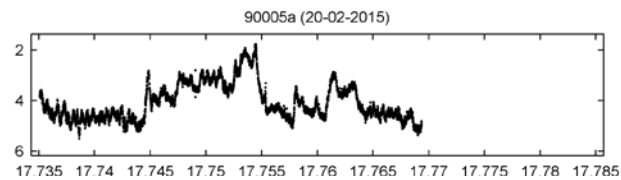
Period: 101.46 min

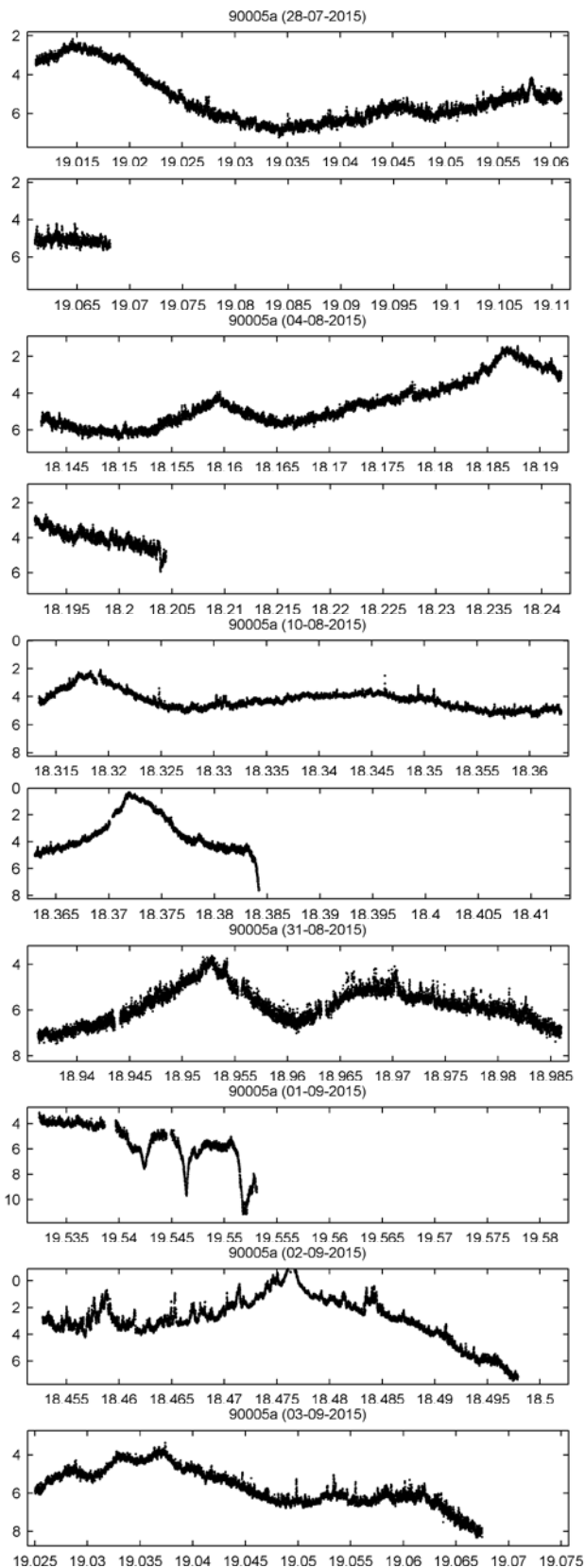
Eccentricity: 0.0001

Launch date: 1990-01-22

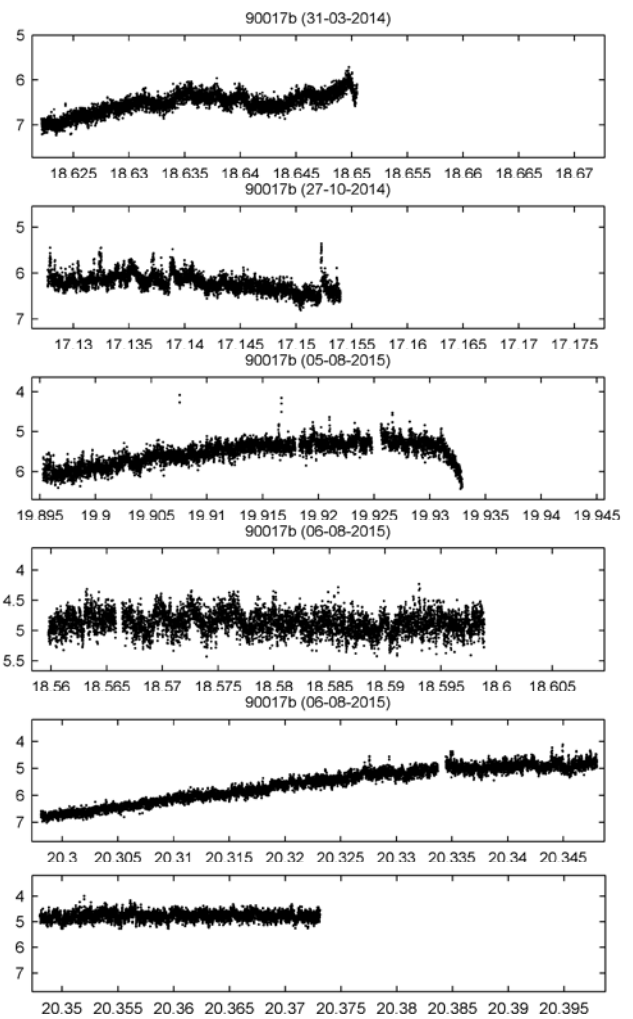
Source: France (FR)



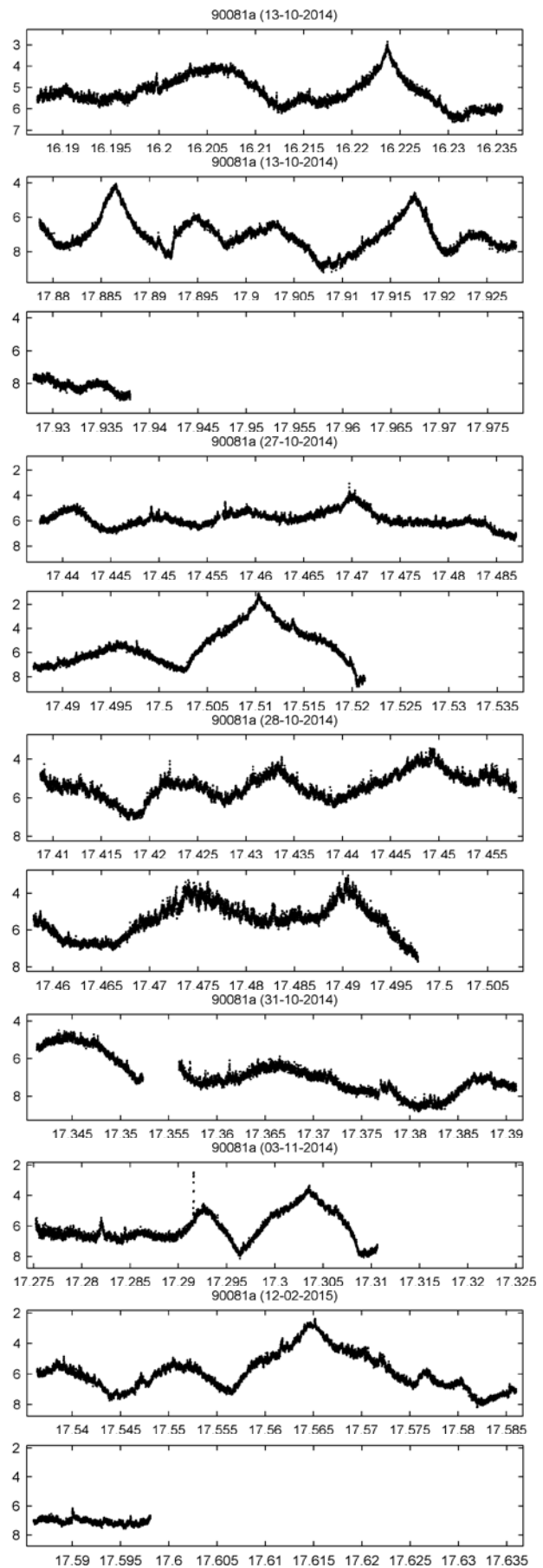
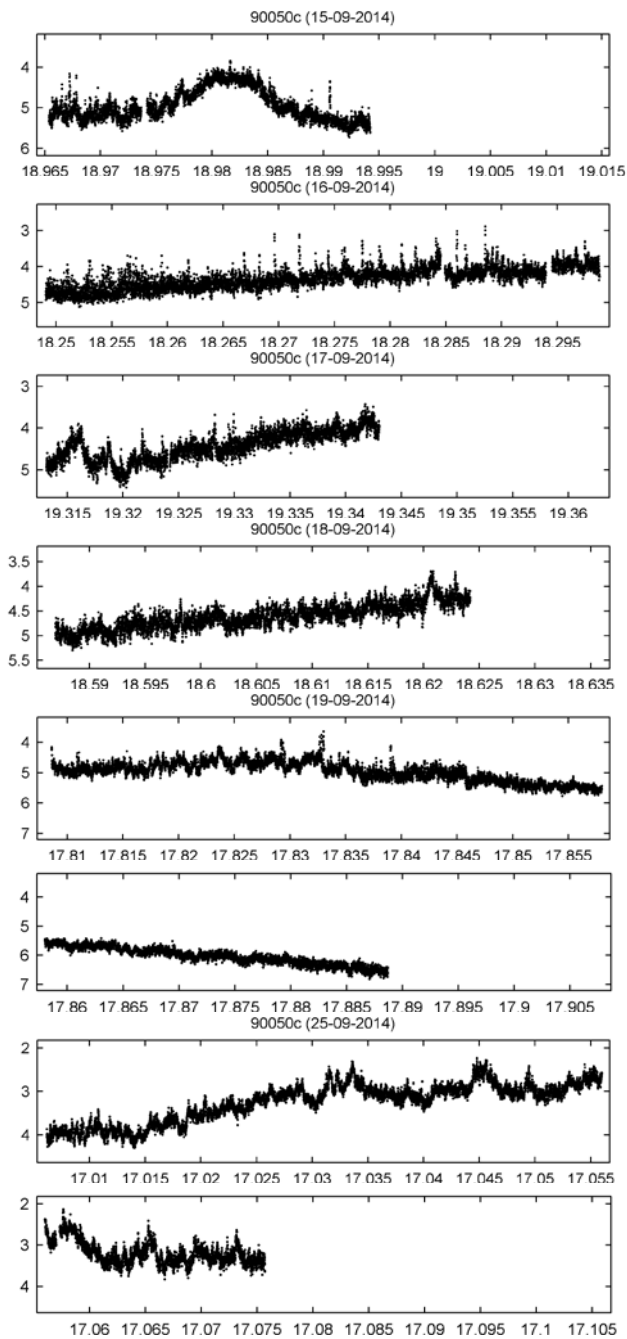




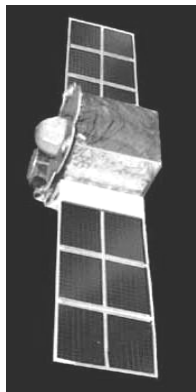
SL-8 R/B (S3M) (2nd stage)
(NADEZHDA 2 ROCKET)
 NORAD ID: 20509
 Int'l Code: 1990-017B
 Dimensions: cylinder 7.4m long, 2.4m dia
 Initial orbit:
 Perigee: 956 km
 Apogee: 1010 km
 Inclination: 82.95°
 Period: 104.81 min
 Eccentricity: 0.004
 Launch date: 1990-02-27
 Source: Commonwealth of Independent States (former USSR) (CIS)

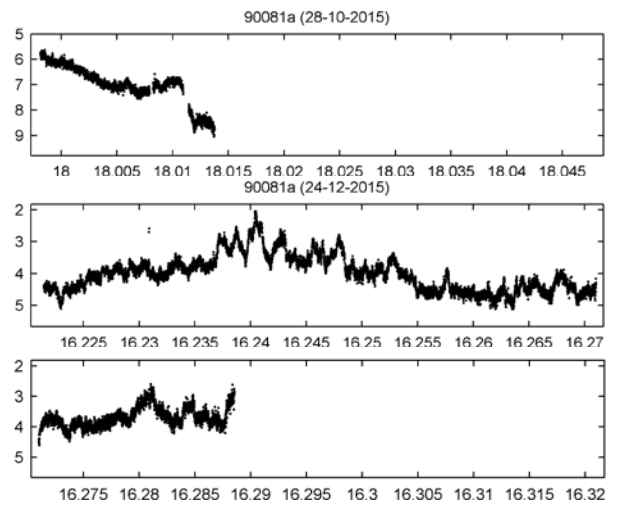
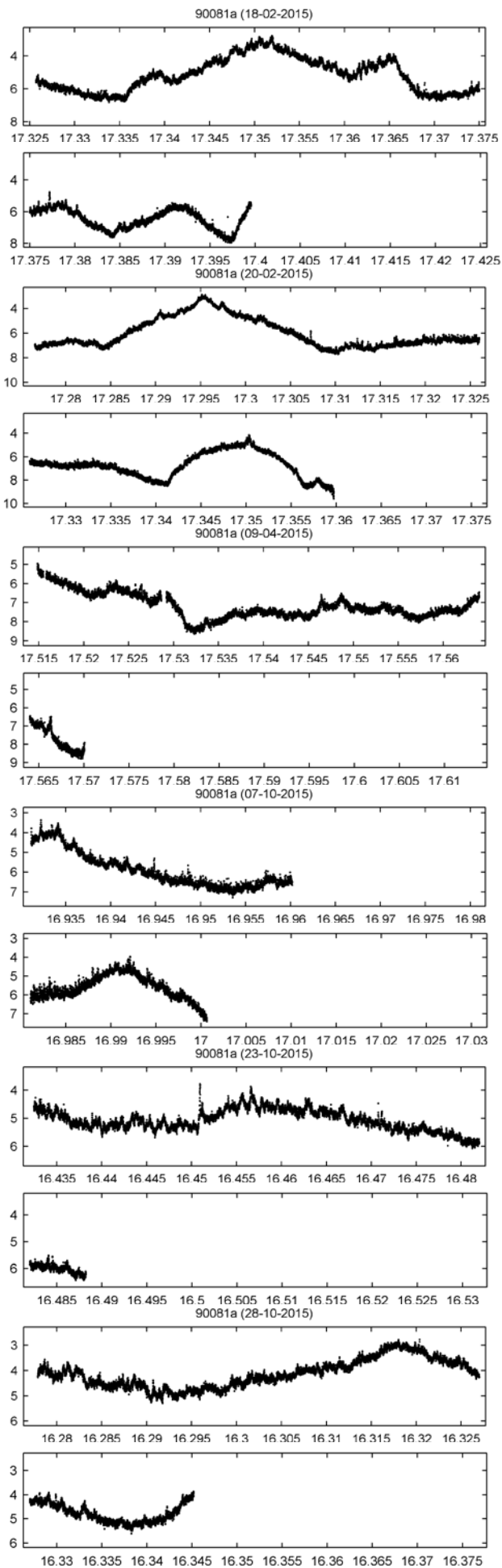


NOSS 2-1B (USA 61)
 NORAD ID: 20691
 Int'l Code: 1990-050C
 Dimensions:
 Initial orbit: 1990-12-05
 Perigee: 1071 km
 Apogee: 1146 km
 Inclination: 63.4°
 Period: 107.44 min
 Eccentricity: 0.005
 Launch date: 1990-06-08
 Source: United States (US)

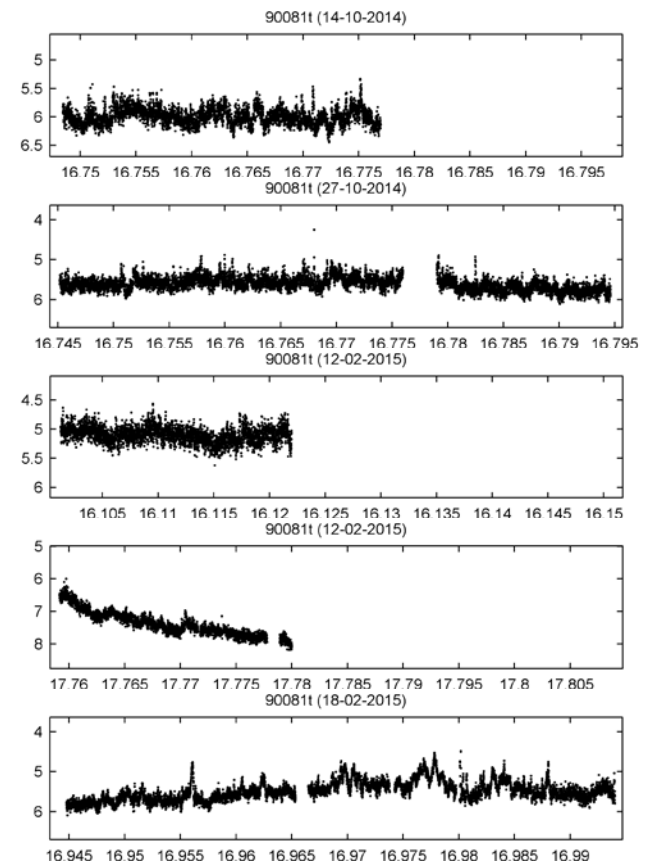


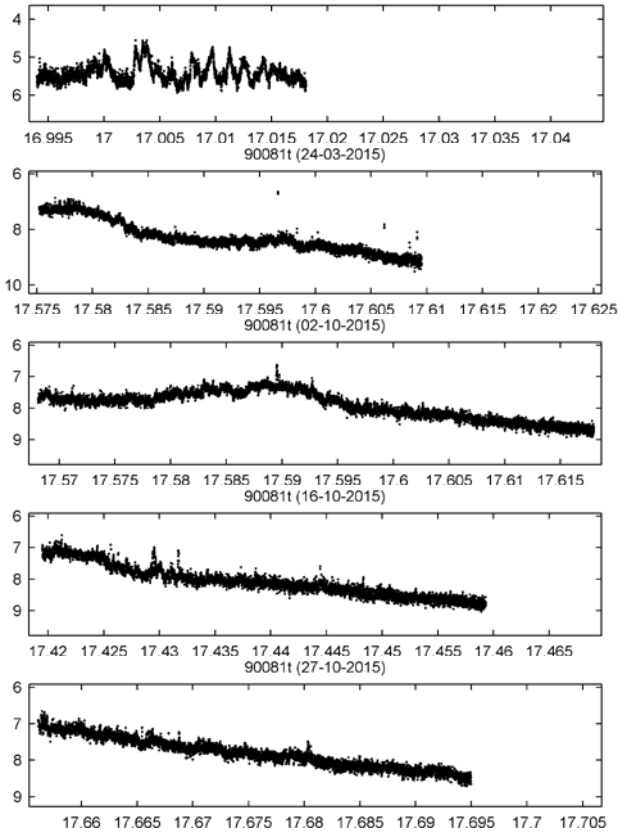
FENGYUN 1B (China 30)
 NORAD ID: 20788
 Int'l Code: 1990-081A
 Dimensions: box + 2 vanes
 1.4m wide 1.2m high 8.6m span
 Initial orbit:
 Perigee: 885 km
 Apogee: 900 km
 Inclination: 98.94°
 Period: 102.88 min
 Eccentricity: 0.001
 Launch date: 1990-09-03
 Source: People's Republic of China (PRC)



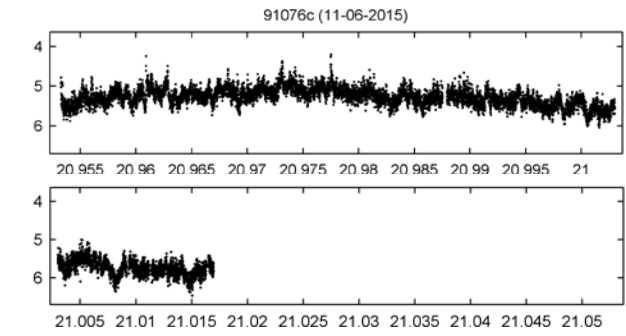
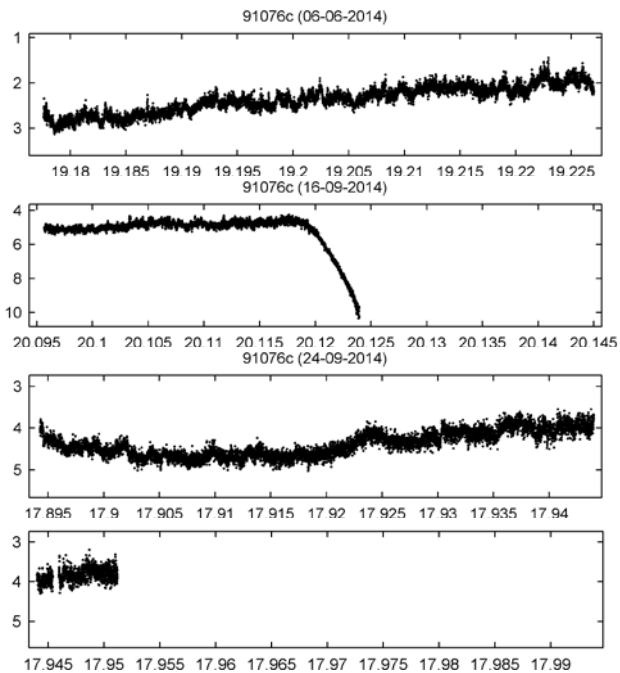


CZ-4 DEB (Fragments)
FENGYUN 1B (China 30)
 NORAD ID: 20855
 Int'l Code: 1990-081T
 Dimensions:
 Initial orbit:
 Perigee: 847.4 km
 Apogee: 881.2 km
 Inclination: 98.9°
 Period: 102.2 min
 Eccentricity: 0.002
 Launch date: 1990-09-03
 Source: People's Republic of China (PRC)

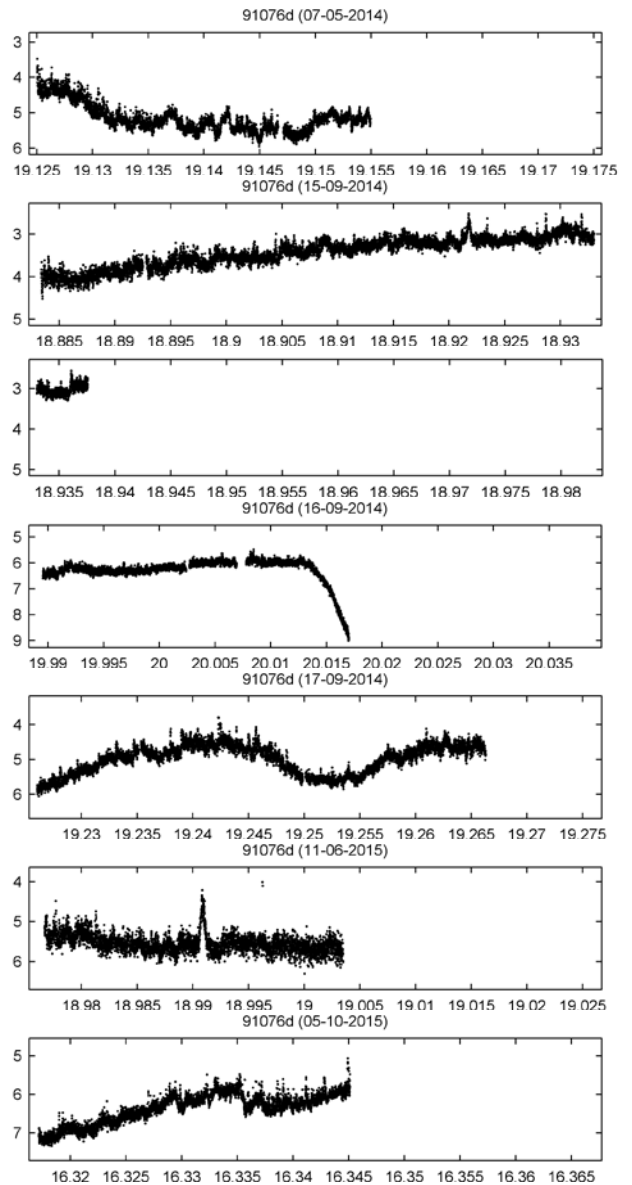


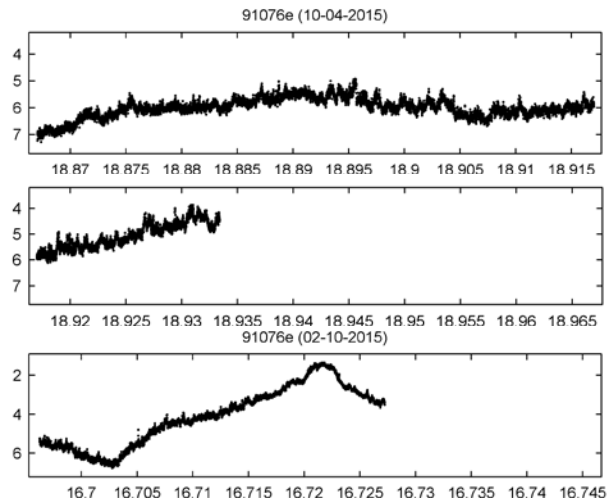
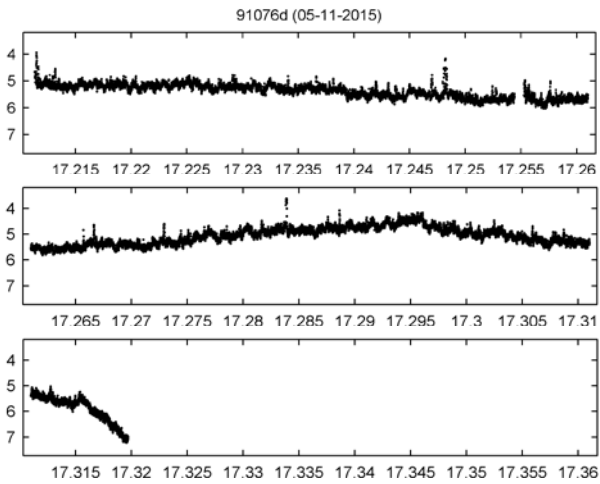


NOSS-2 2A (USA 74)
 NORAD ID: 21799
 Int'l Code: 1991-076C
 Dimensions:
 Initial orbit:
 Perigee: 1053 km
 Apogee: 1165 km
 Inclination: 63.42°
 Period: 107.45 min
 Eccentricity: 0.007
 Launch date: 1991-11-08
 Source: United States (US)



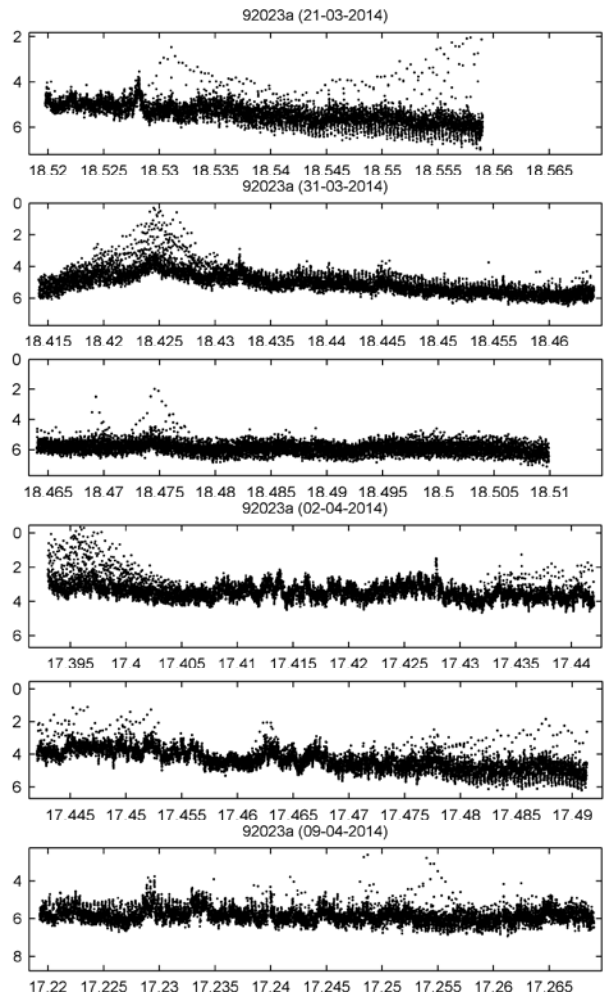
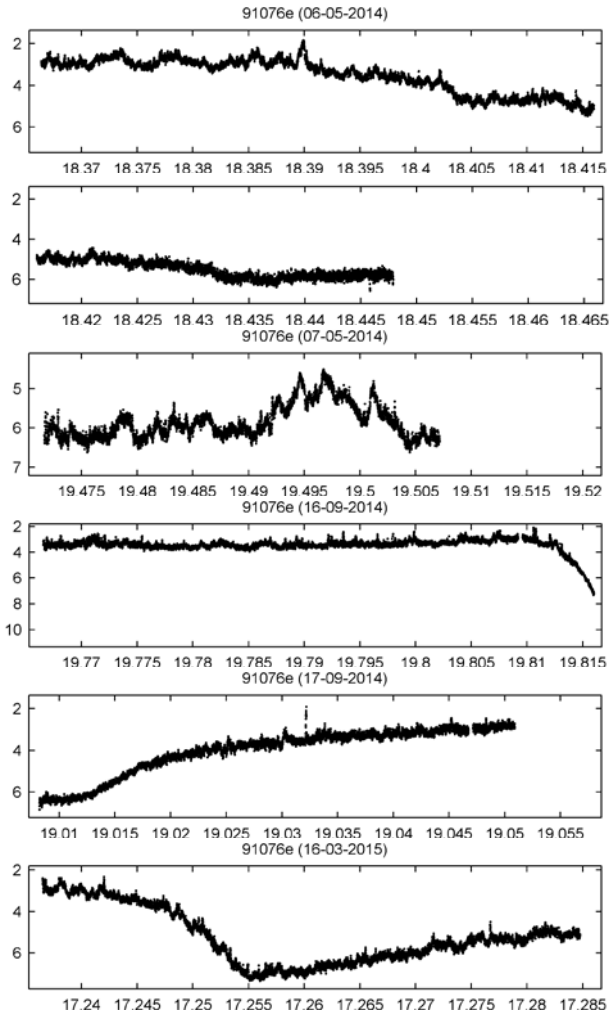
NOSS-2 2B (USA 76)
 NORAD ID: 21808
 Int'l Code: 1991-076D
 Dimensions:
 Initial orbit:
 Perigee: 1053 km
 Apogee: 1165 km
 Inclination: 63.42°
 Period: 107.45 min
 Eccentricity: 0.007
 Launch date: 1991-11-08
 Source: United States (US)

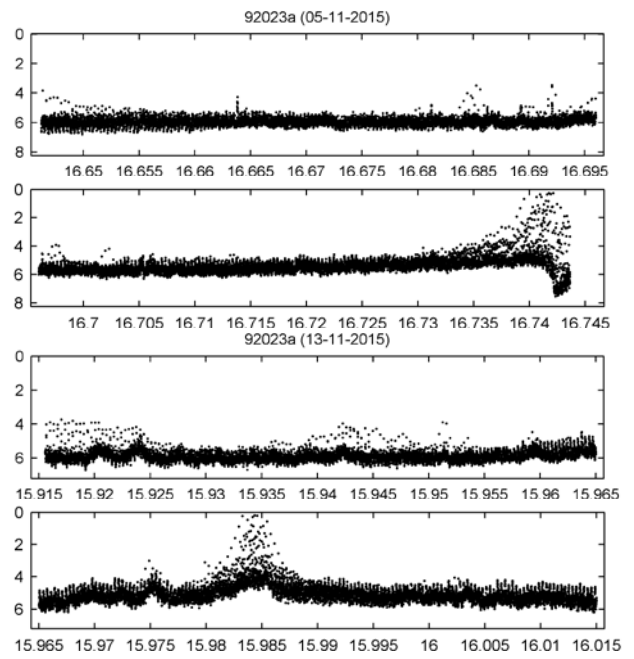
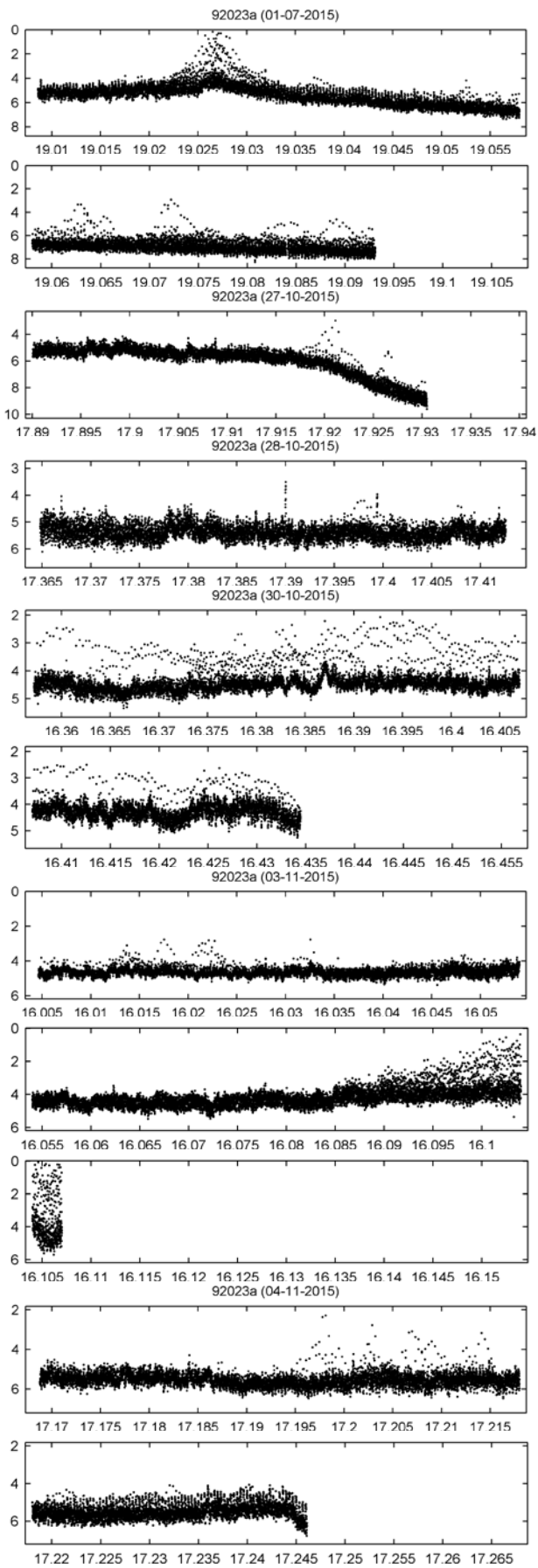




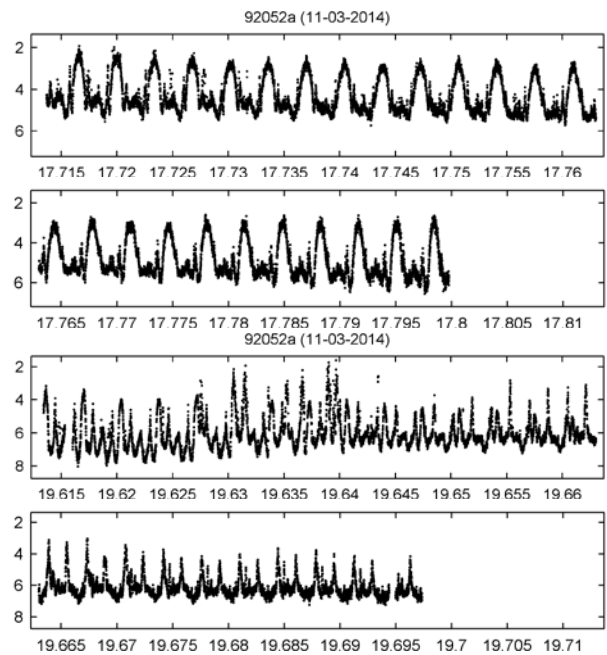
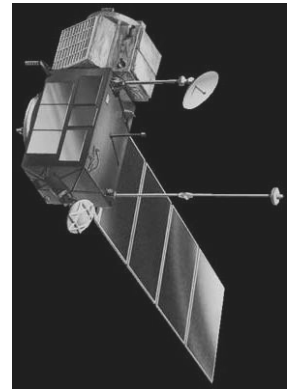
NOSS-2 2C (USA 77)
 NORAD ID: 21809
 Int'l Code: 1991-076E
 Dimensions:
 Initial orbit:
 Perigee: 1053 km
 Apogee: 1165 km
 Inclination: 63.42°
 Period: 107.45 min
 Eccentricity: 0.007
 Launch date: 1991-11-08
 Source: United States (US)

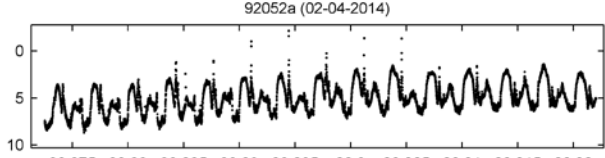
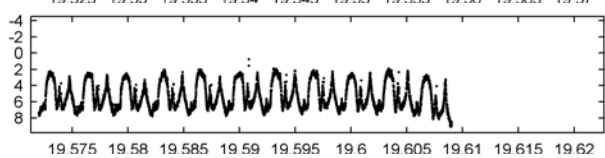
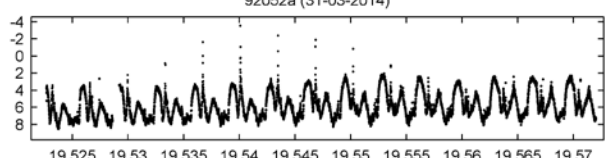
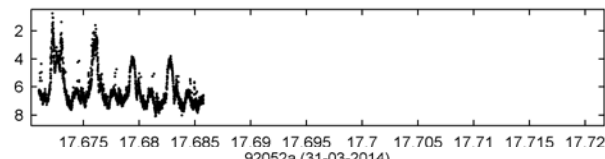
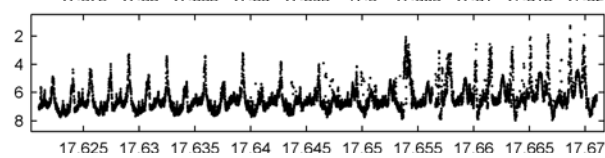
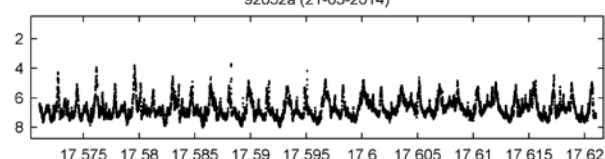
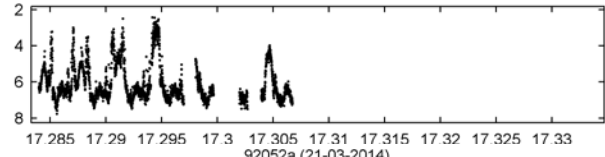
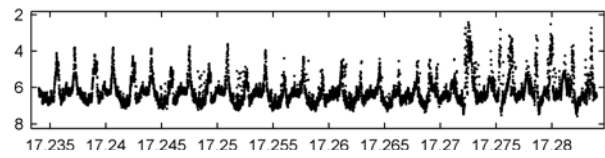
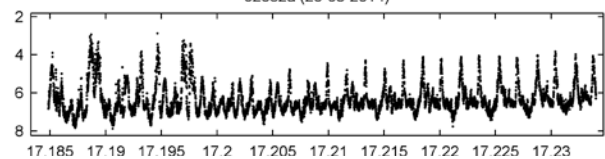
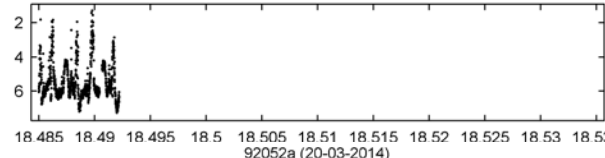
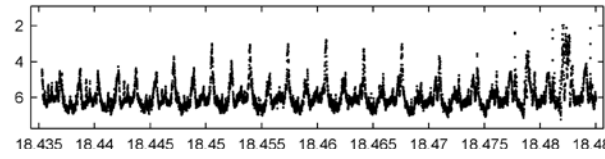
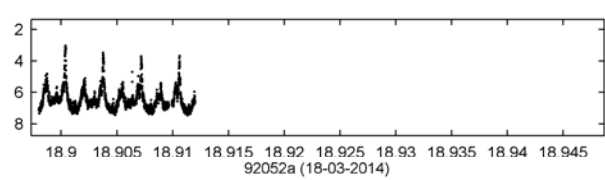
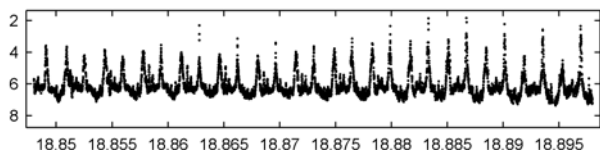
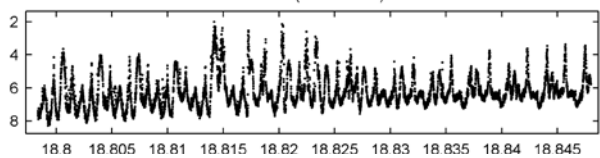
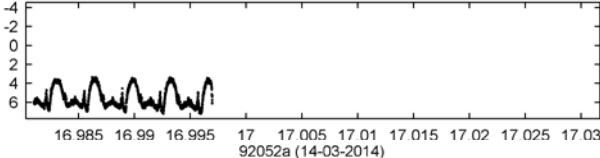
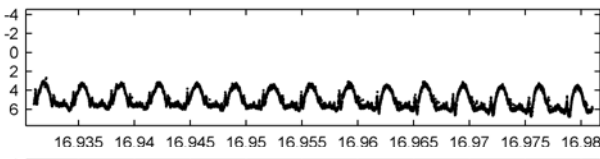
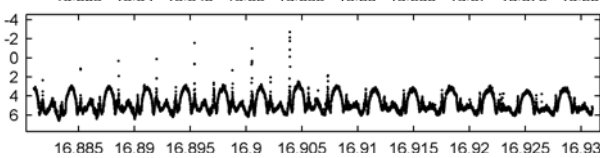
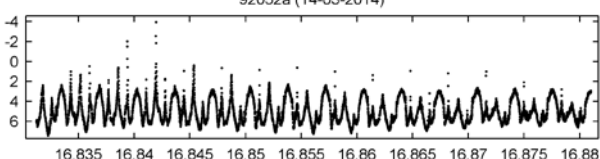
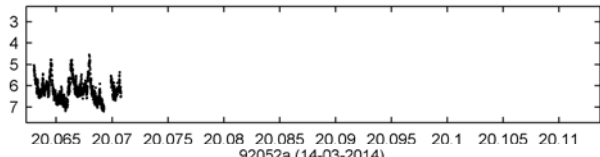
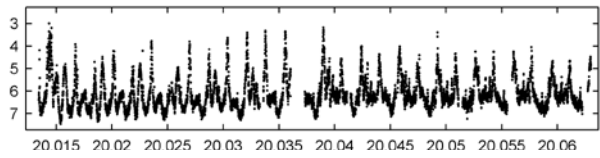
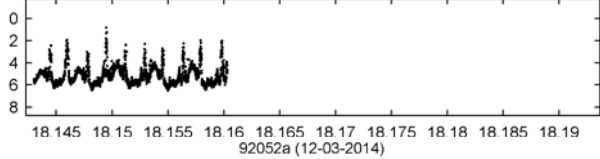
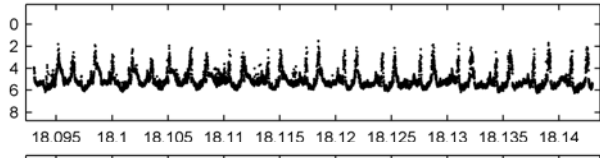
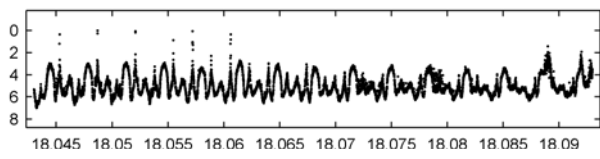
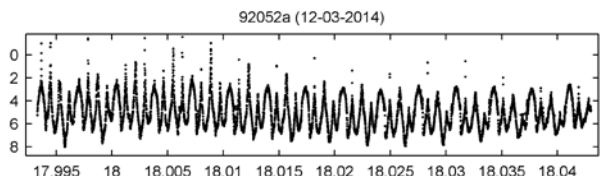
USA 81
 NORAD ID: 21949
 Int'l Code: 1992-023A
 Dimensions:
 Initial orbit:
 Perigee: 784 km
 Apogee: 805 km
 Inclination: 85.14°
 Period: 100.82 min
 Eccentricity: 0.002
 Launch date: 1992-04-25
 Source: United States (US)

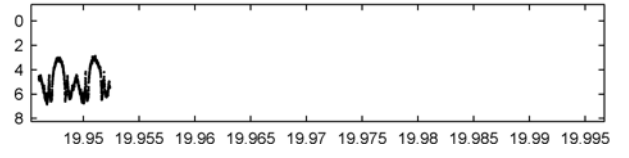
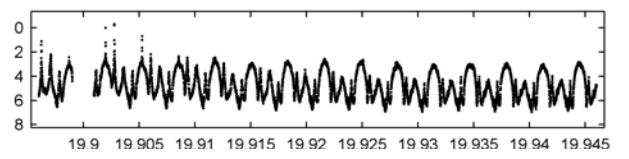
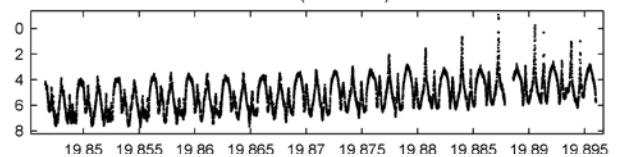
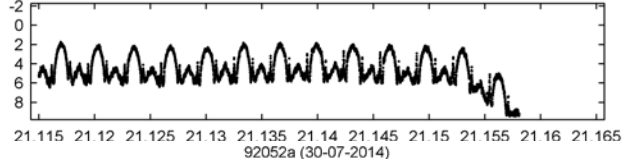
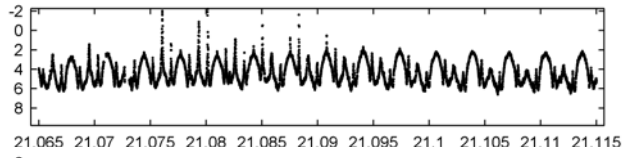
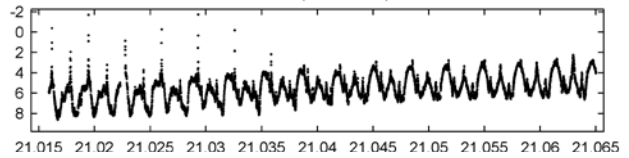
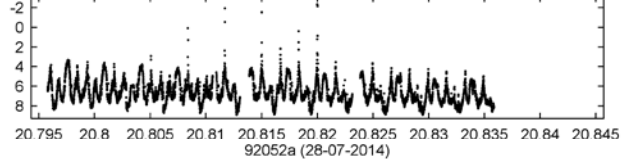
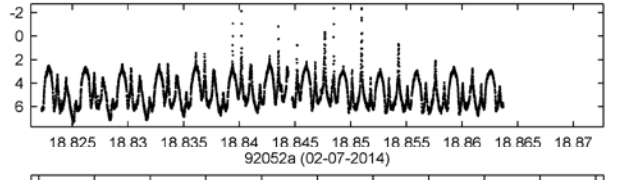
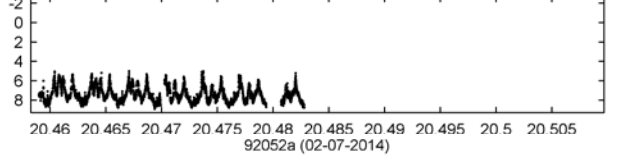
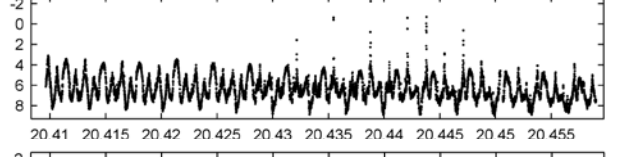
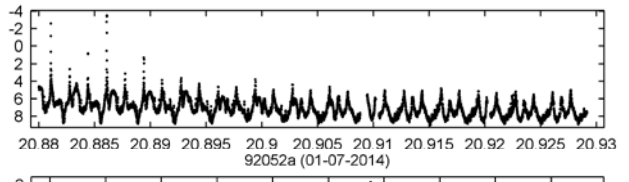
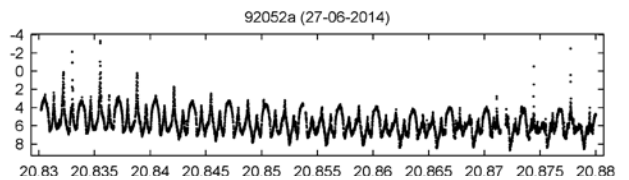
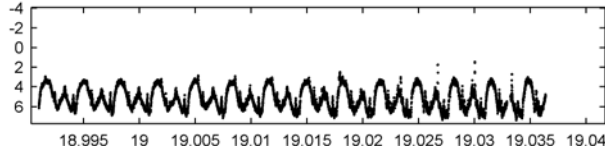
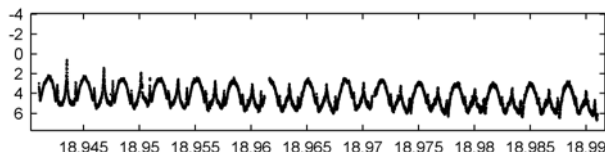
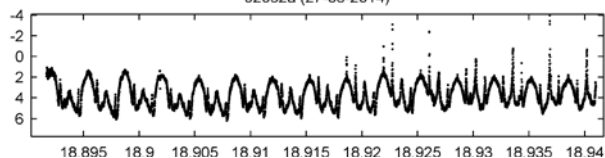
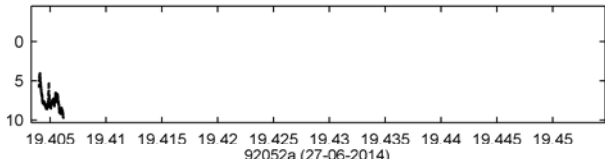
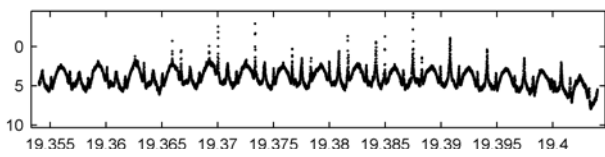
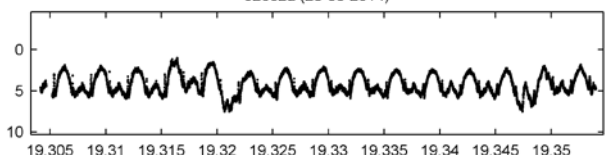
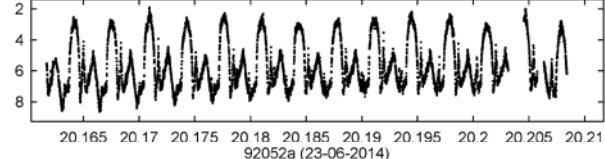
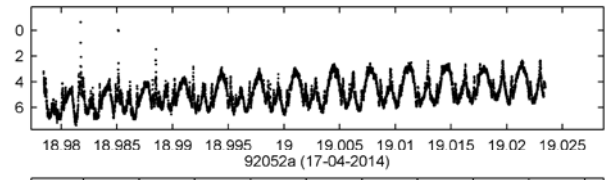
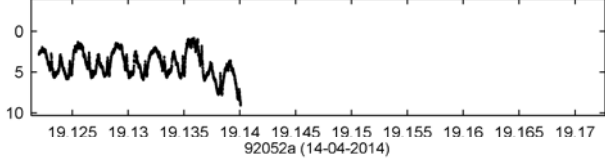
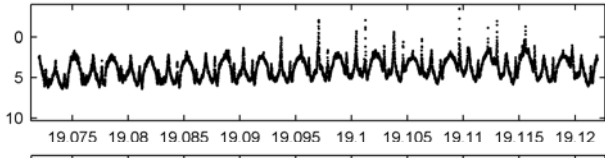
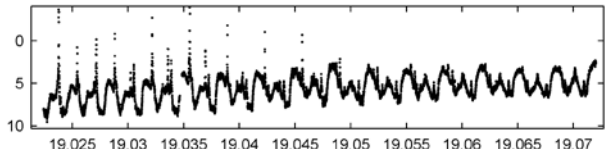
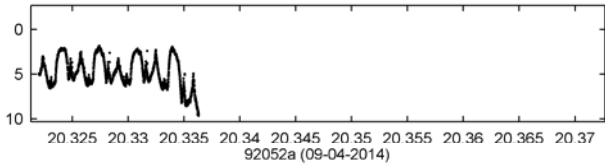


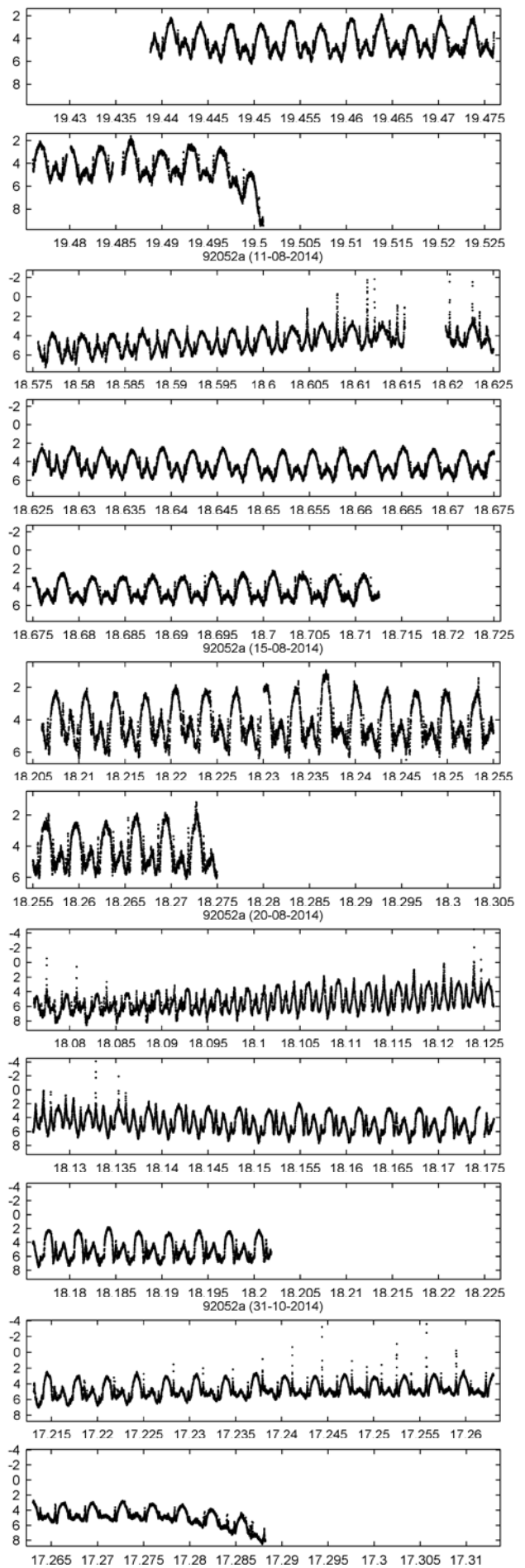
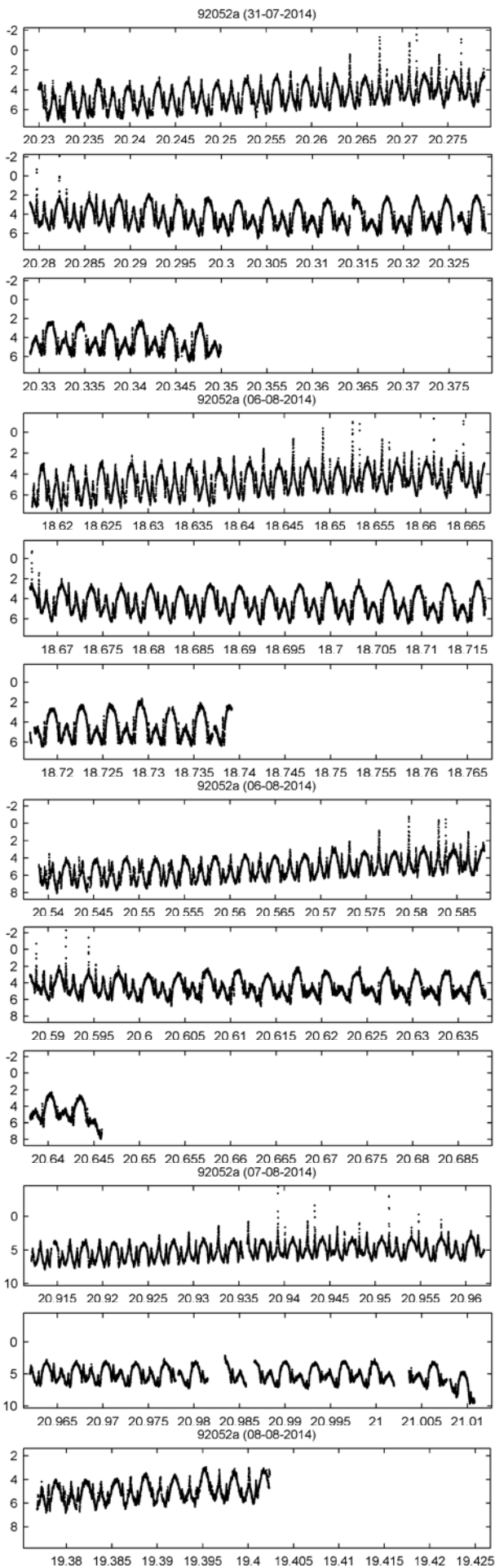


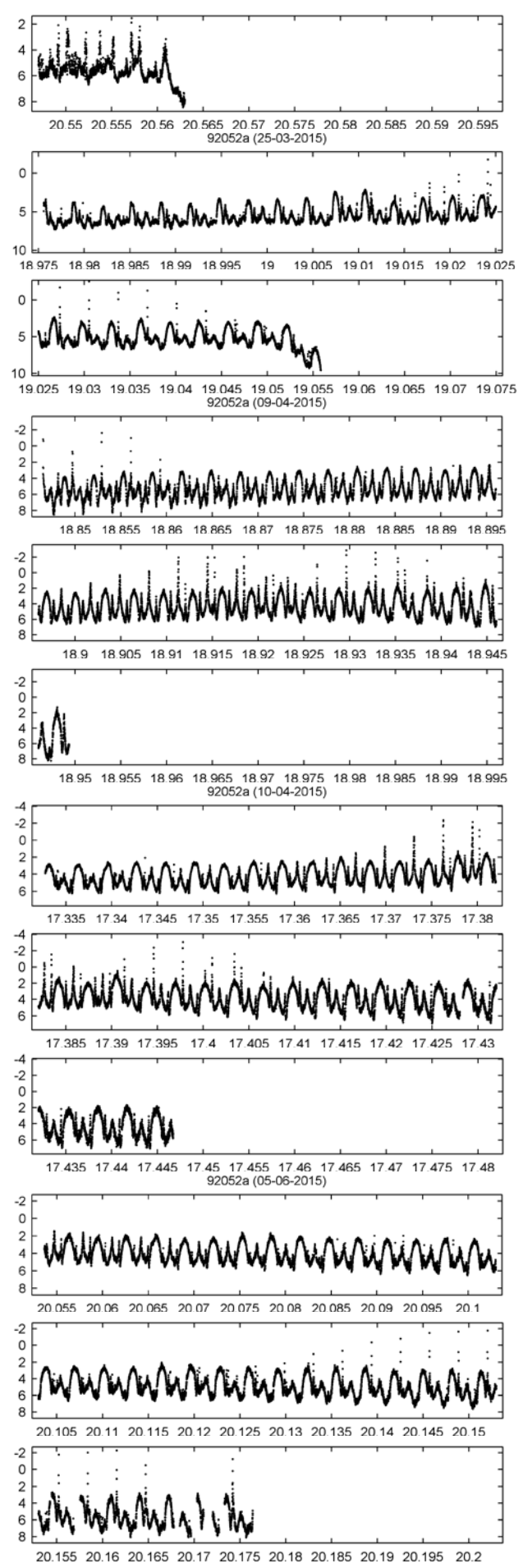
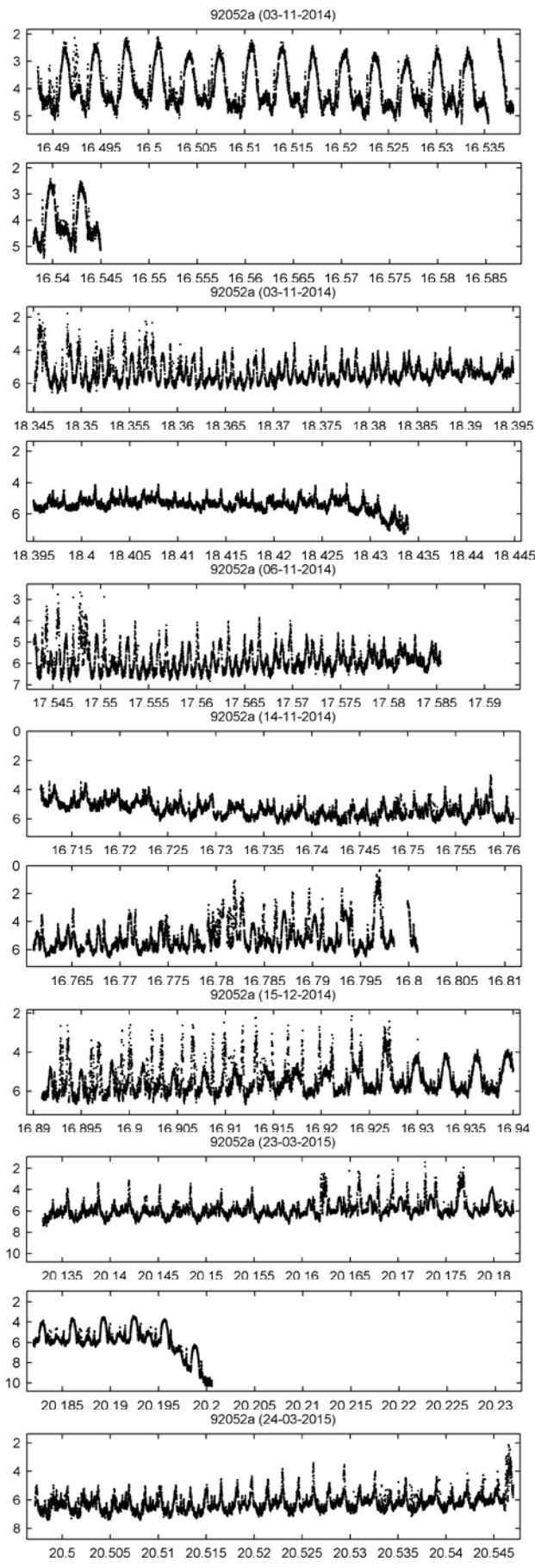
TOPEX/POSEIDON
 NORAD ID: 22076
 Int'l Code: 1992-052A
 Dimensions: box 4.15m x 2.19m x 1.45m, 8.7m span
 Initial orbit:
 Perigee: 1317 km
 Apogee: 1331 km
 Inclination: 66.08°
 Period: 112.13 min
 Eccentricity: 0.001
 Launch date: 1992-08-10
 Source: United States (US)

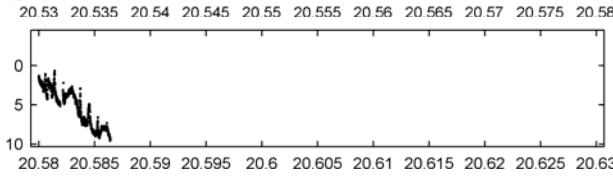
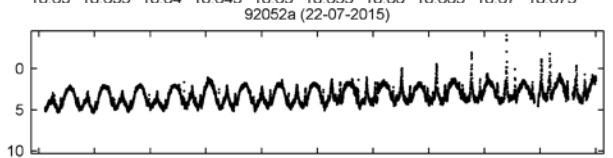
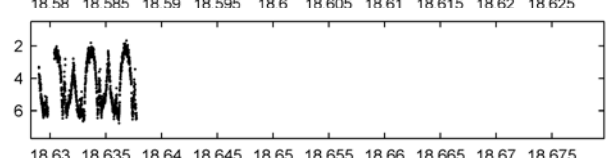
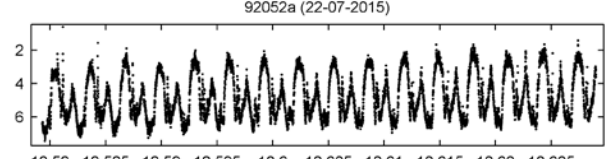
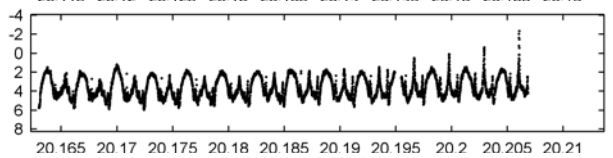
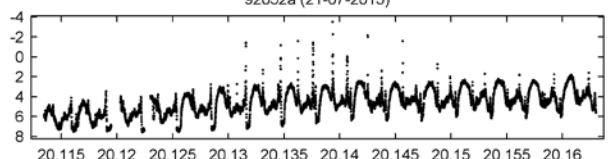
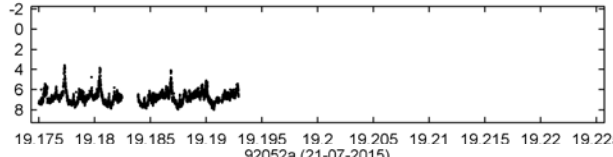
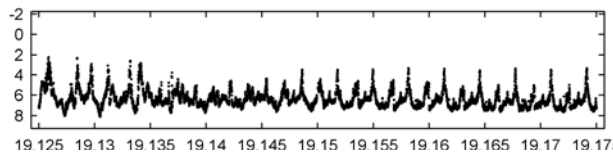
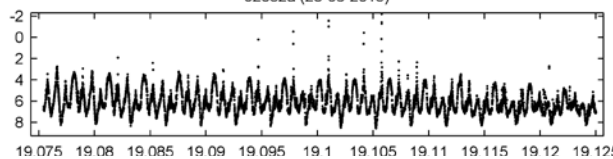
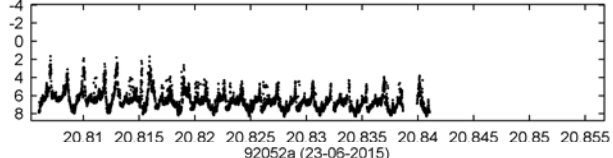
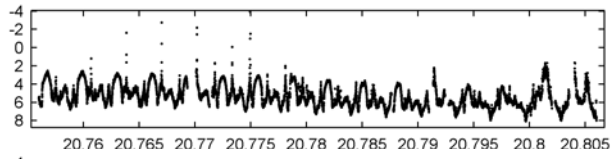
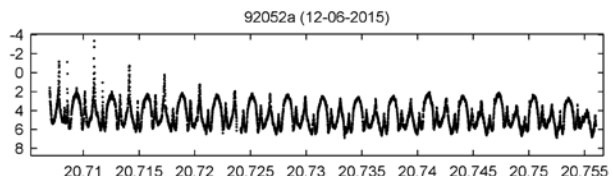
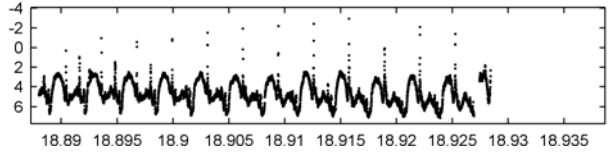
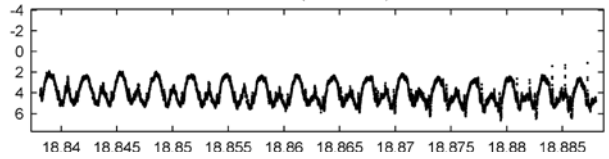
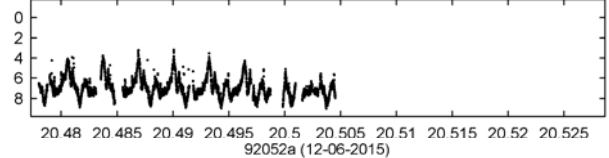
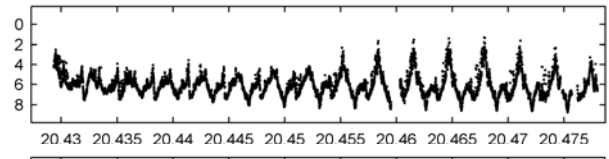
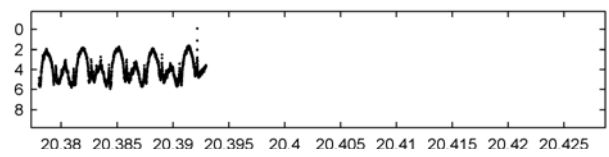
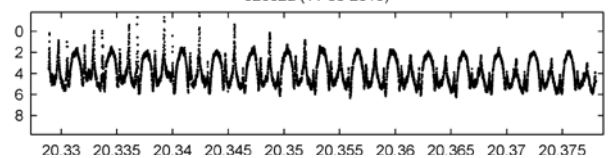
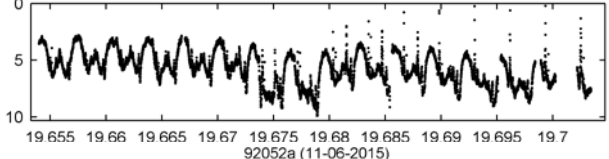
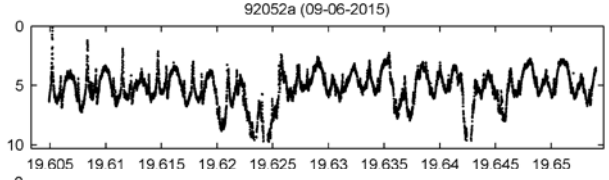
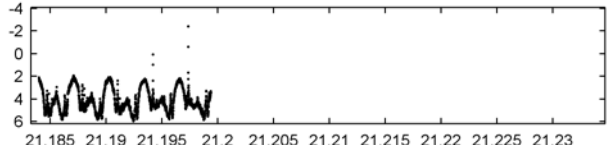
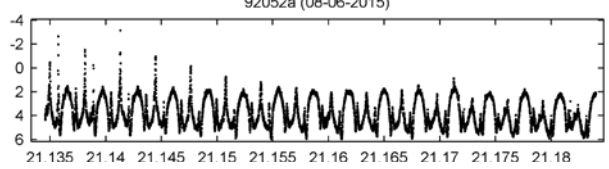
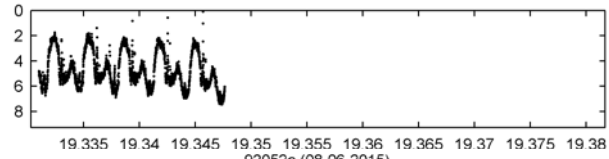
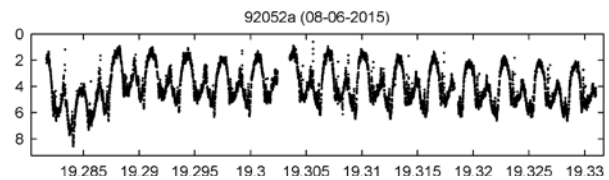


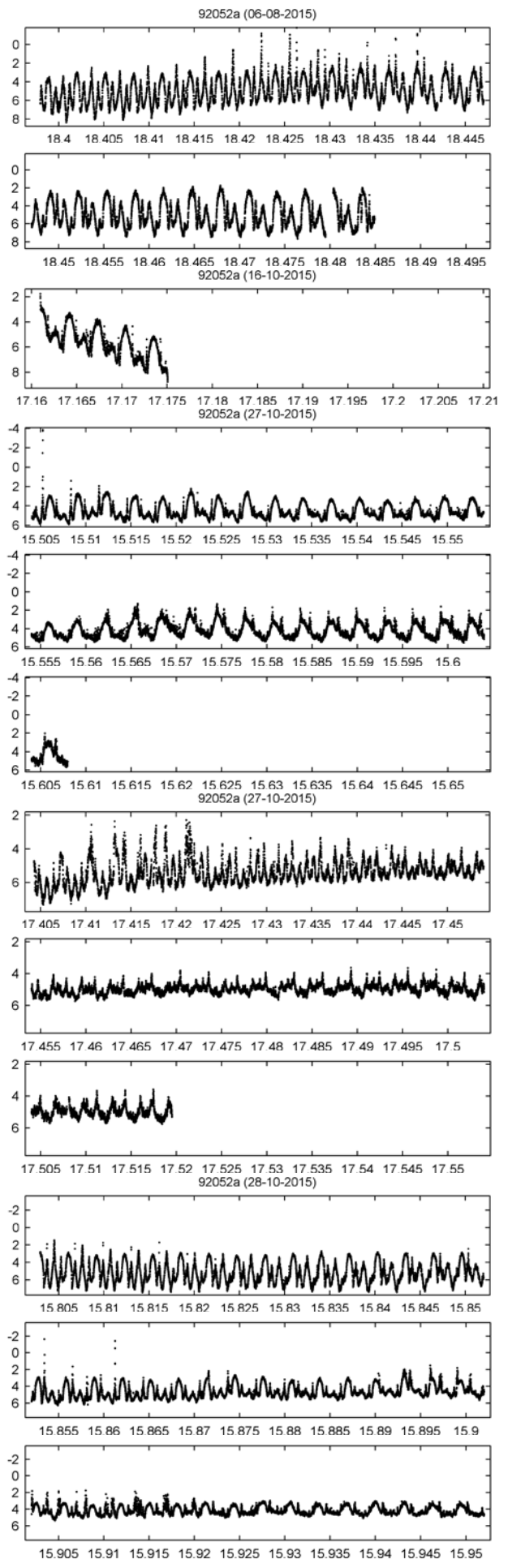
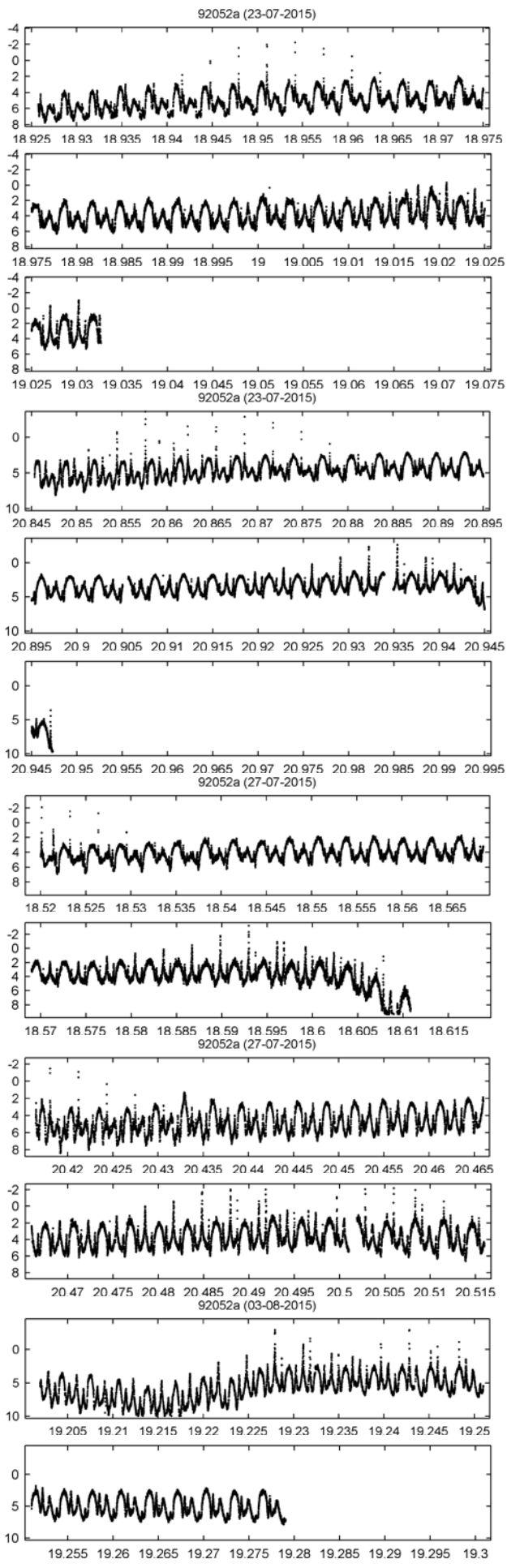


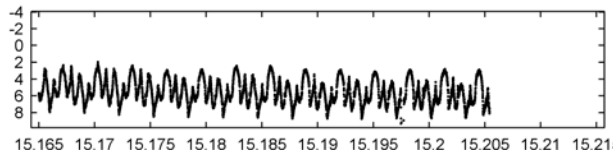
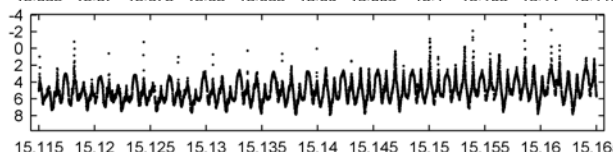
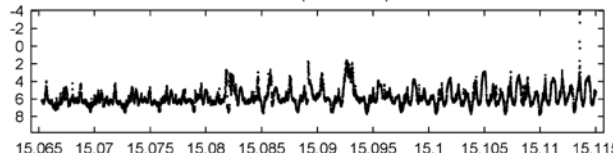
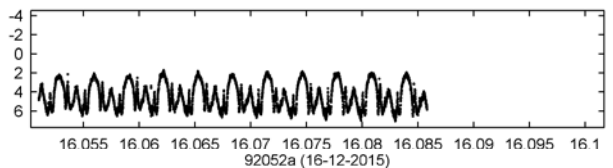
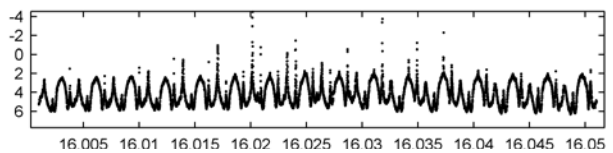
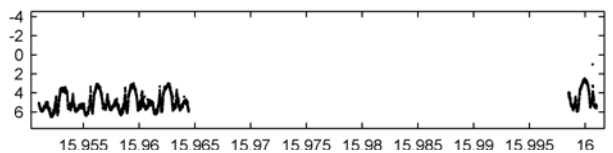
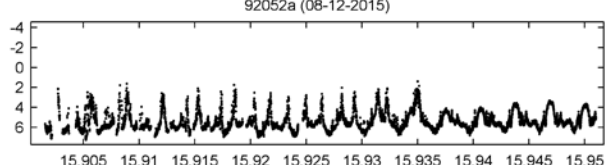
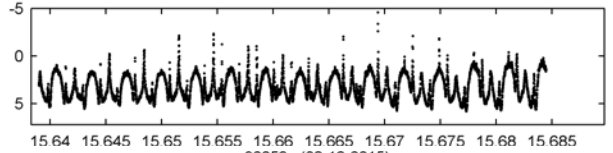
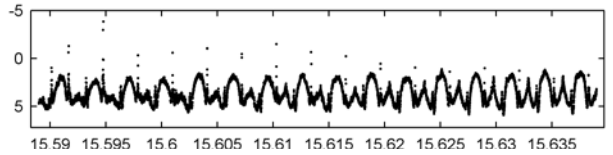
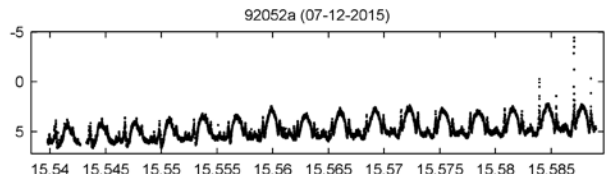
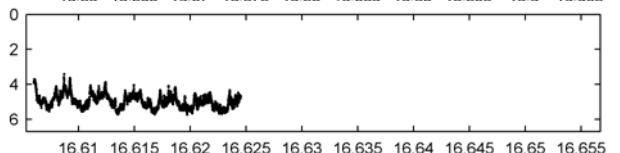
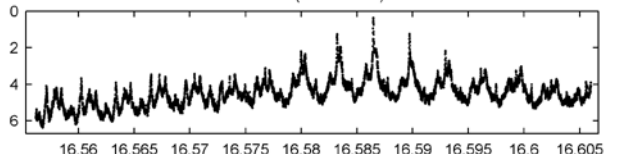
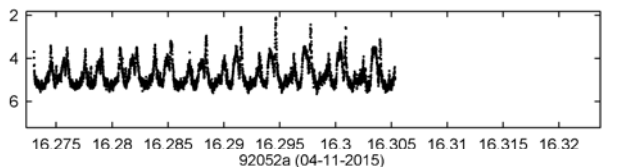
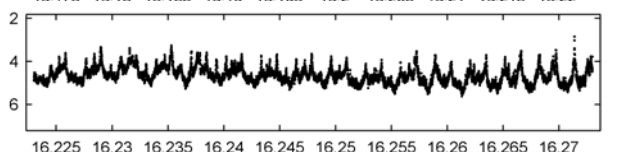
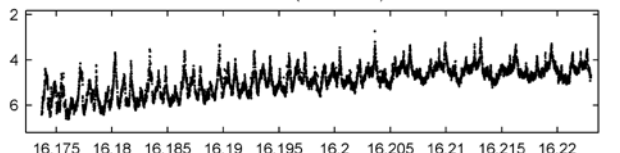
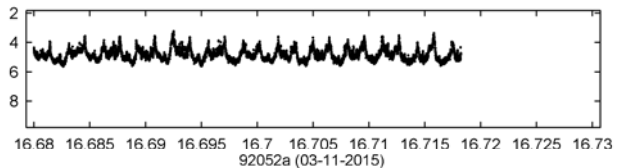
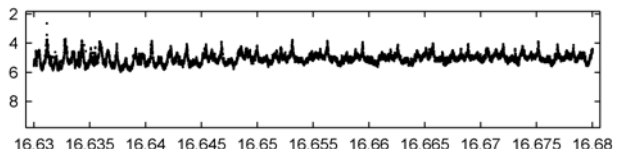
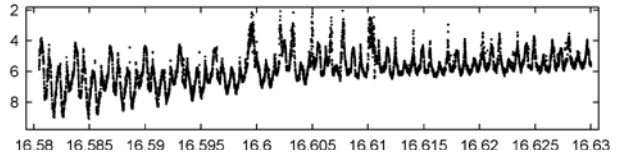
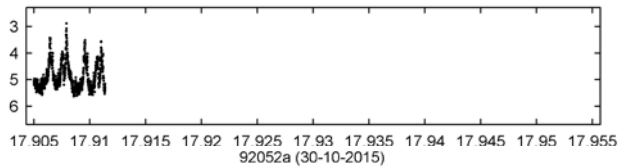
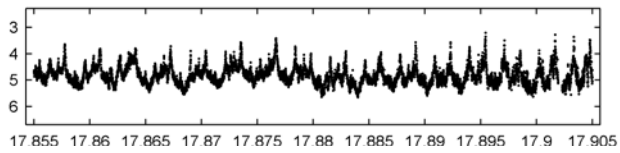
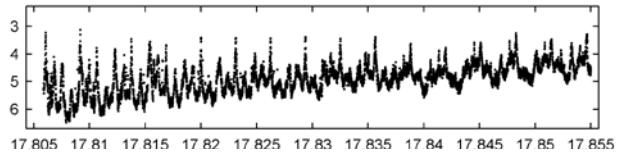
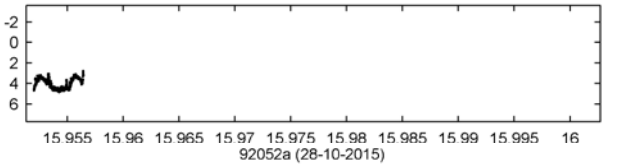












**ARIANE 42P H10 R/B (3rd stage)
(TOPEX/POSEIDON ROCKET)**

NORAD ID: 22079

Int'l Code: 1992-052D

Dimensions: cylinder 11.4m long, 2.6m dia

Initial orbit:

Perigee: 1301 km

Apogee: 1401 km

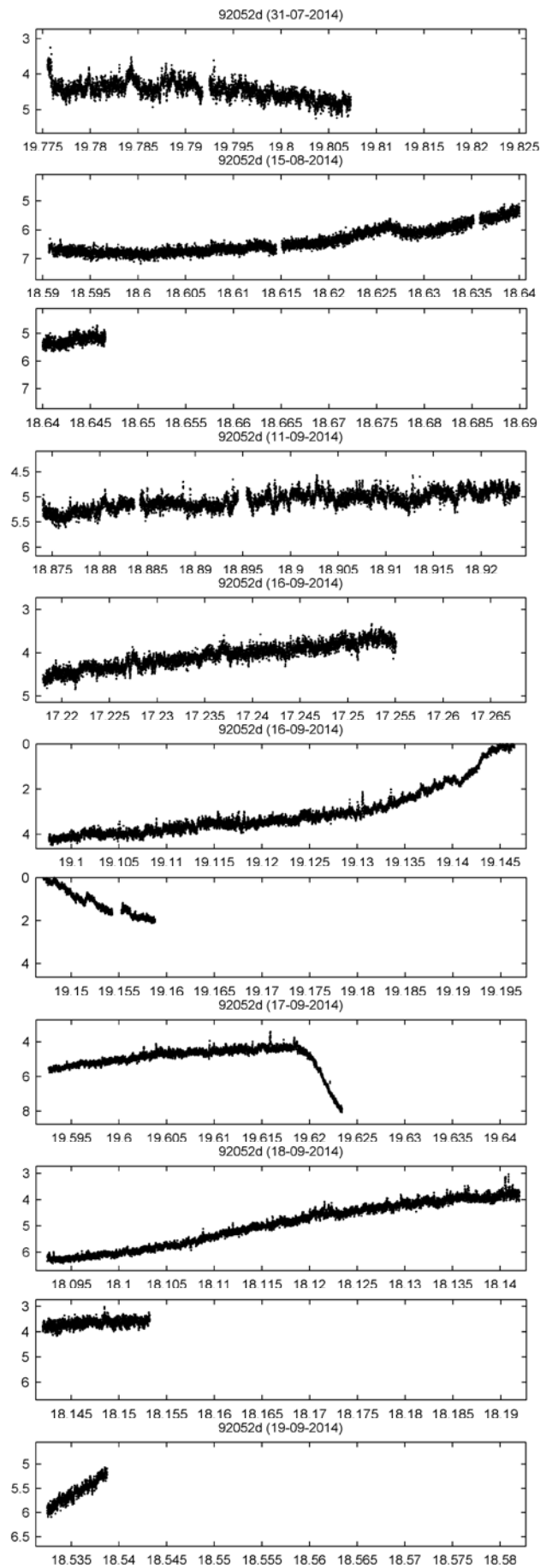
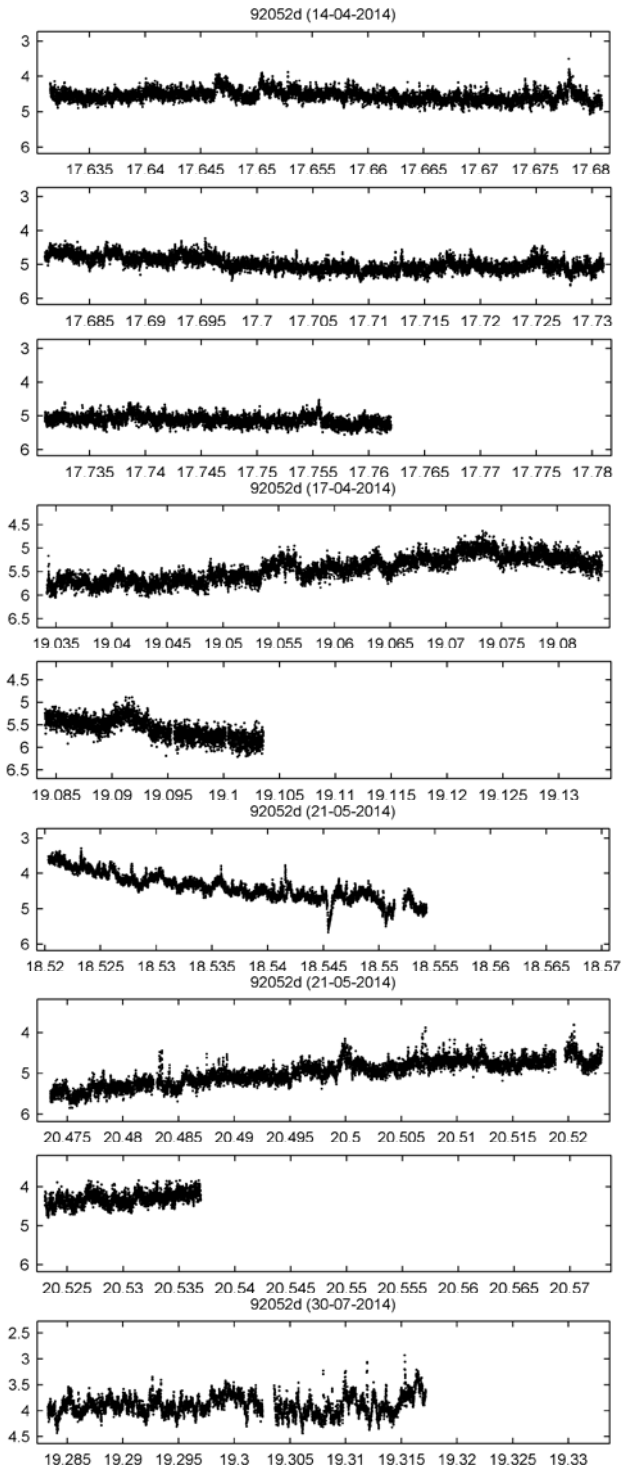
Inclination: 66.07°

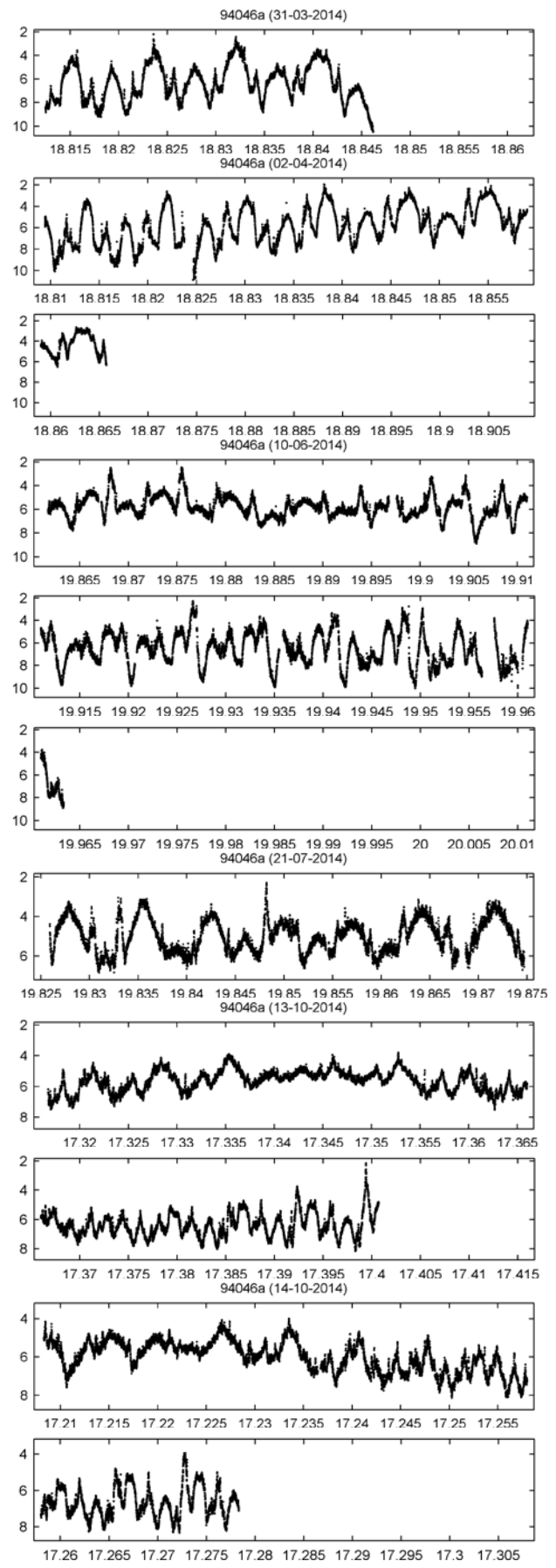
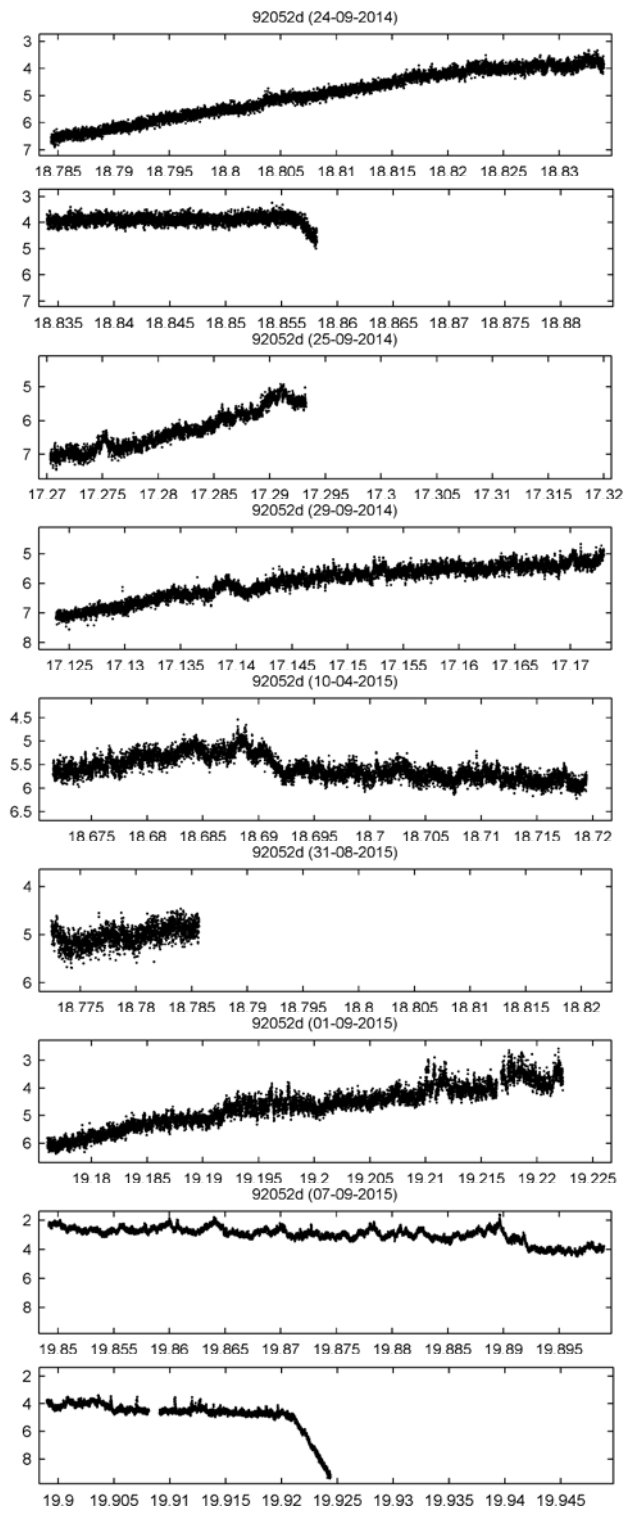
Period: 112.72 min

Eccentricity: 0.006

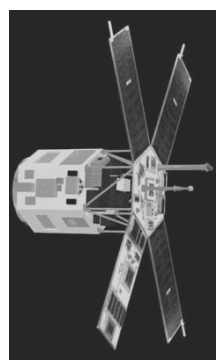
Launch date: 1992-08-10

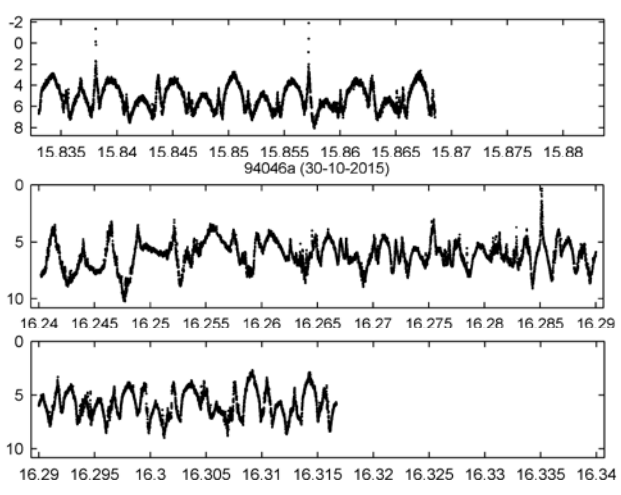
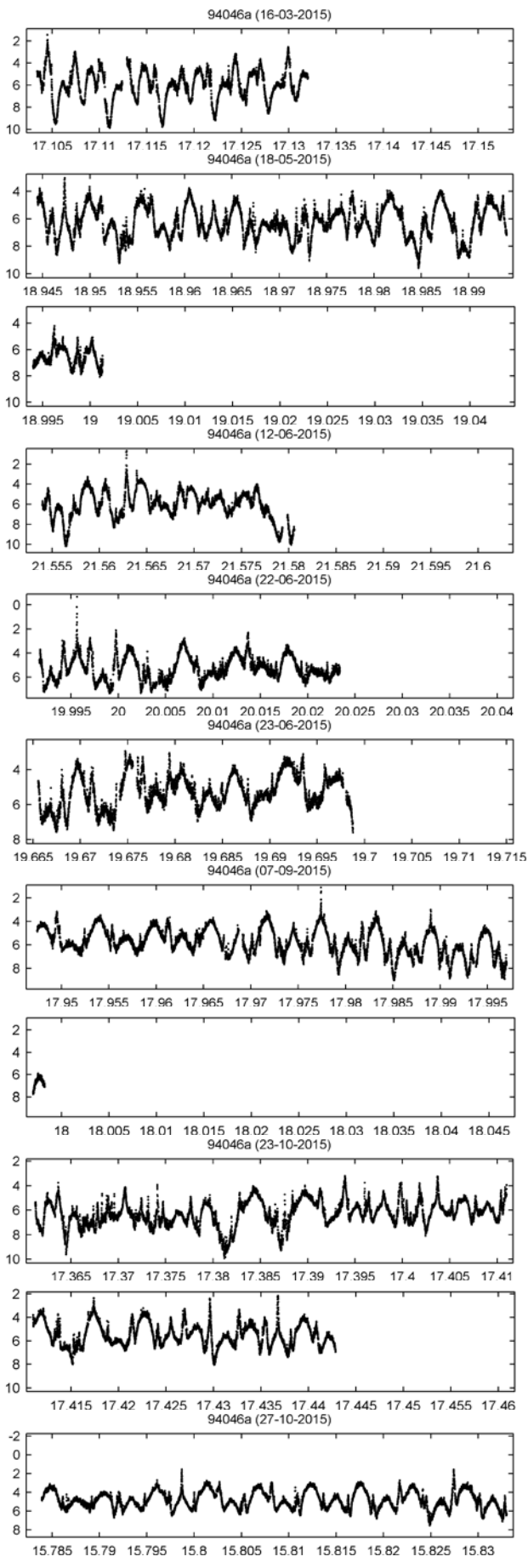
Source: France (FR)



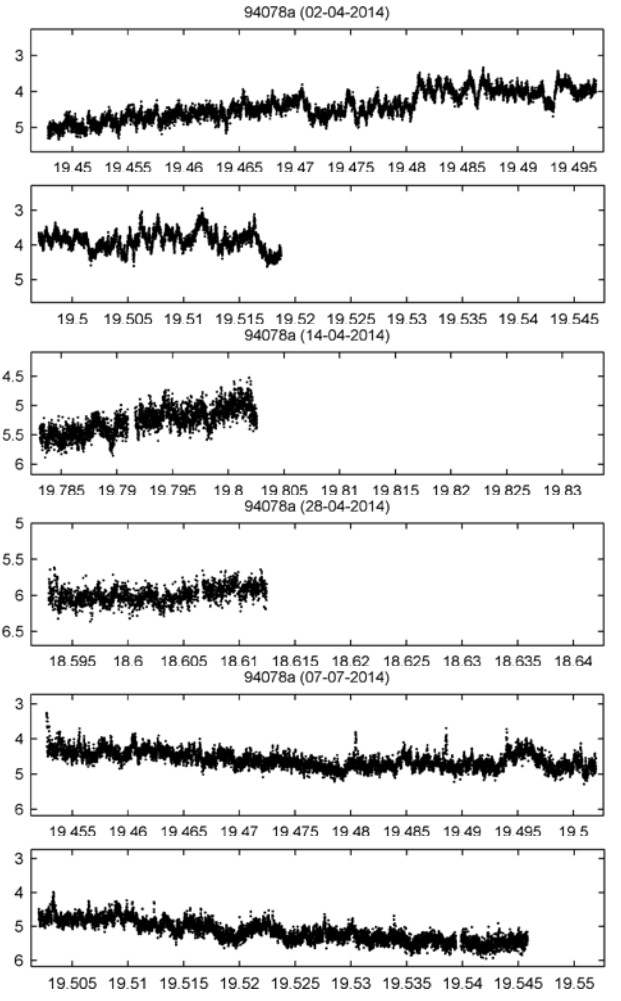
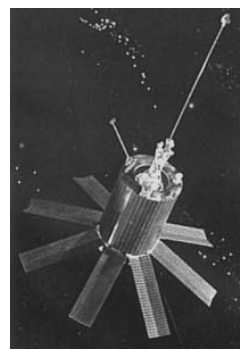


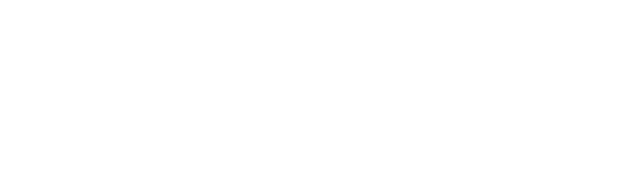
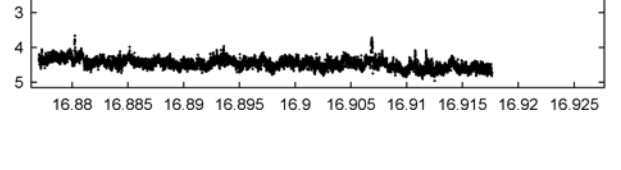
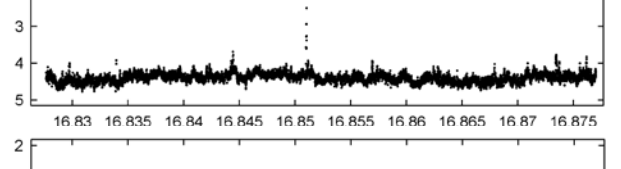
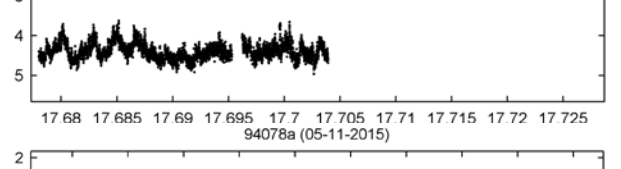
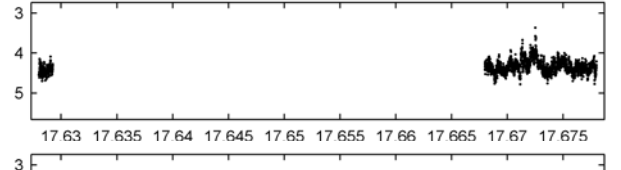
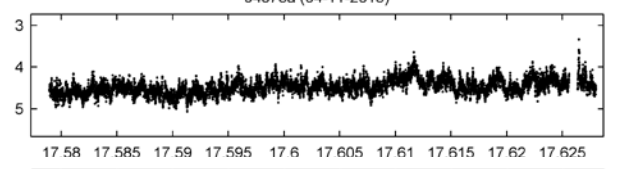
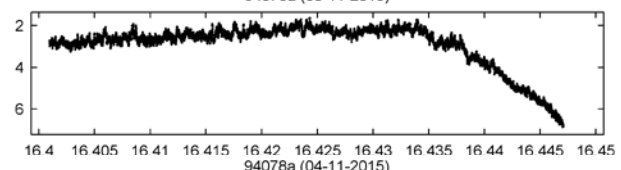
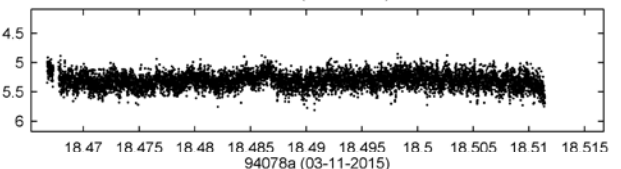
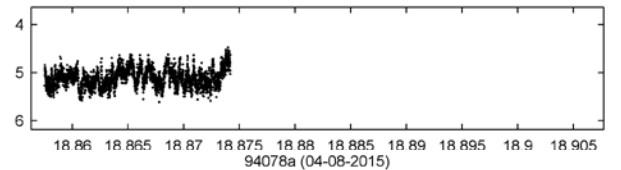
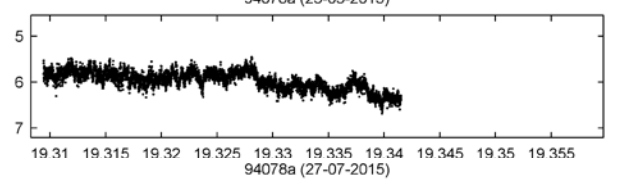
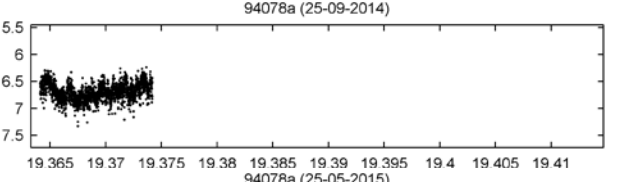
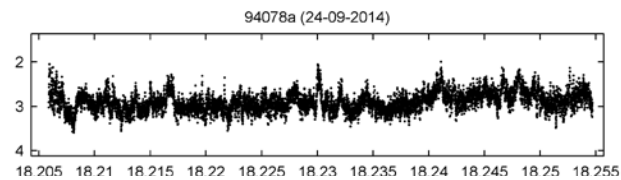
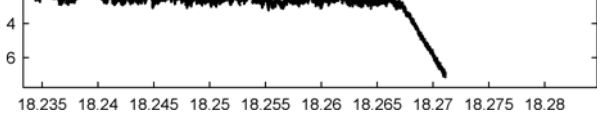
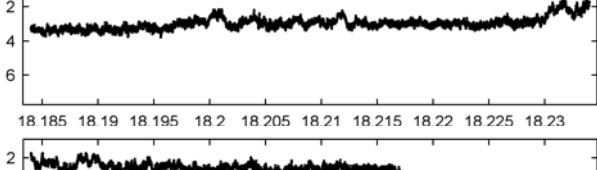
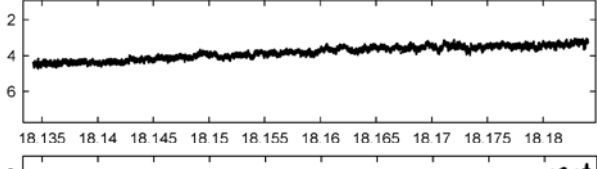
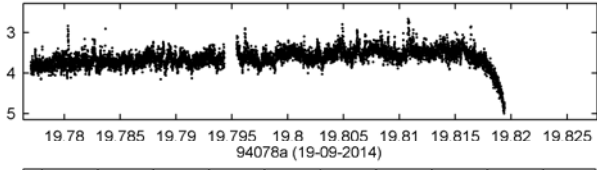
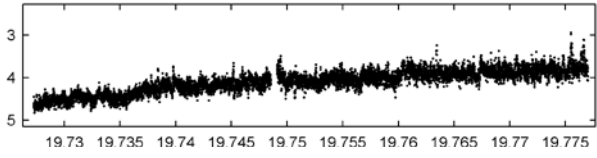
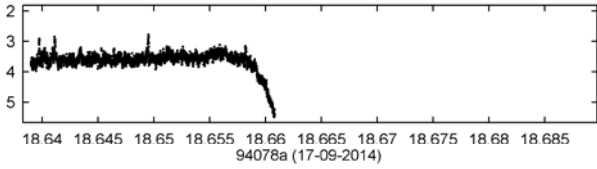
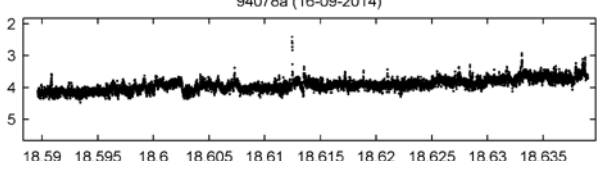
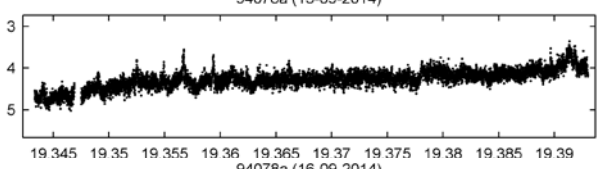
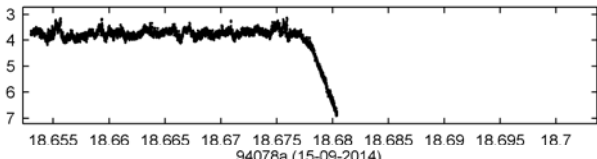
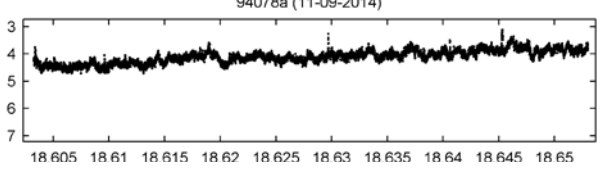
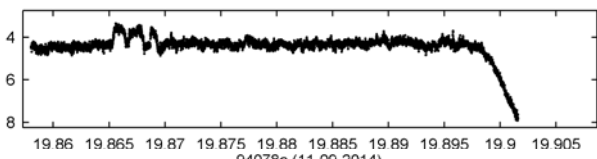
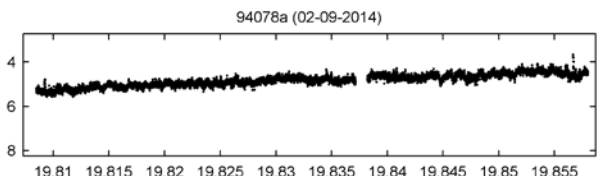
APEX (P90-6)
 NORAD ID: 23191
 Int'l Code: 1994-046A
 Dimensions:
 Initial orbit:
 Perigee: 379 km
 Apogee: 2551 km
 Inclination: 69.93°
 Period: 115.22 min
 Eccentricity: 0.138
 Launch date: 1994-08-03
 Source: United States (US)





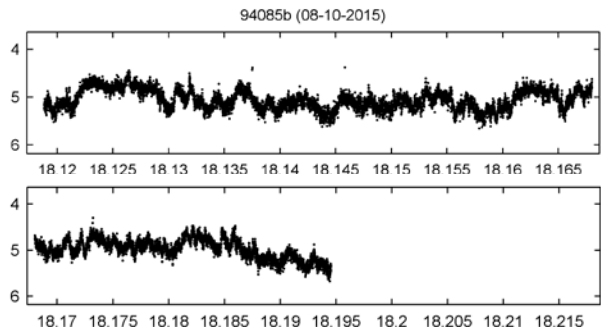
Geo-IK 1
 (Geo-IK #14, Musson #14, 11F666)
 NORAD ID: 23411
 Int'l Code: 1994-078A
 Dimensions:
 Initial orbit:
 Perigee: 1479 km
 Apogee: 1526 km
 Inclination: 73.6°
 Period: 116.04 min
 Eccentricity: 0.003
 Launch date: 1994-11-29
 Source: Commonwealth of Independent States (former USSR) (CIS)





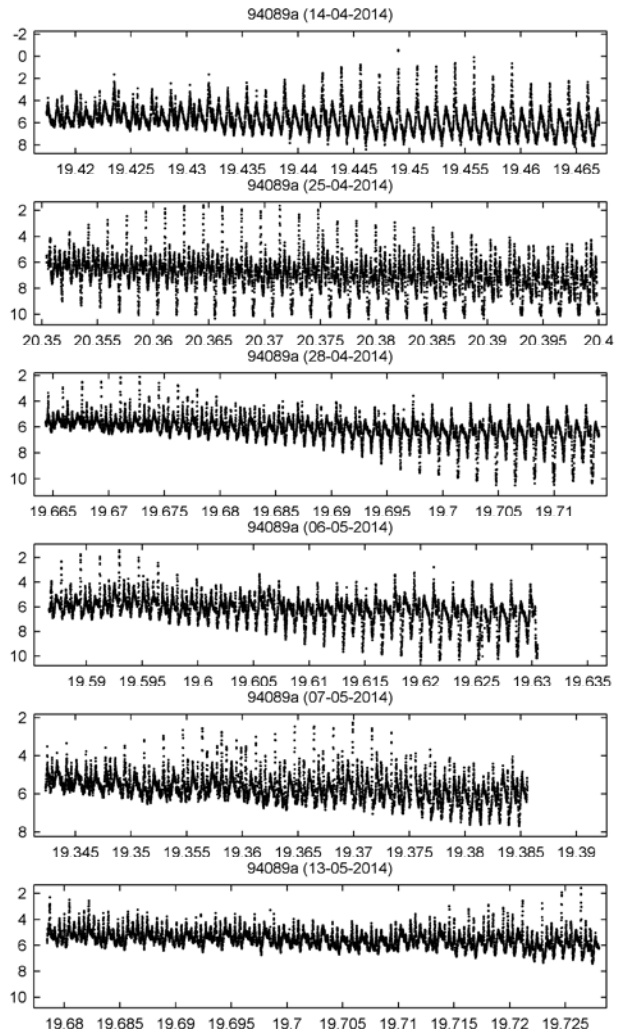
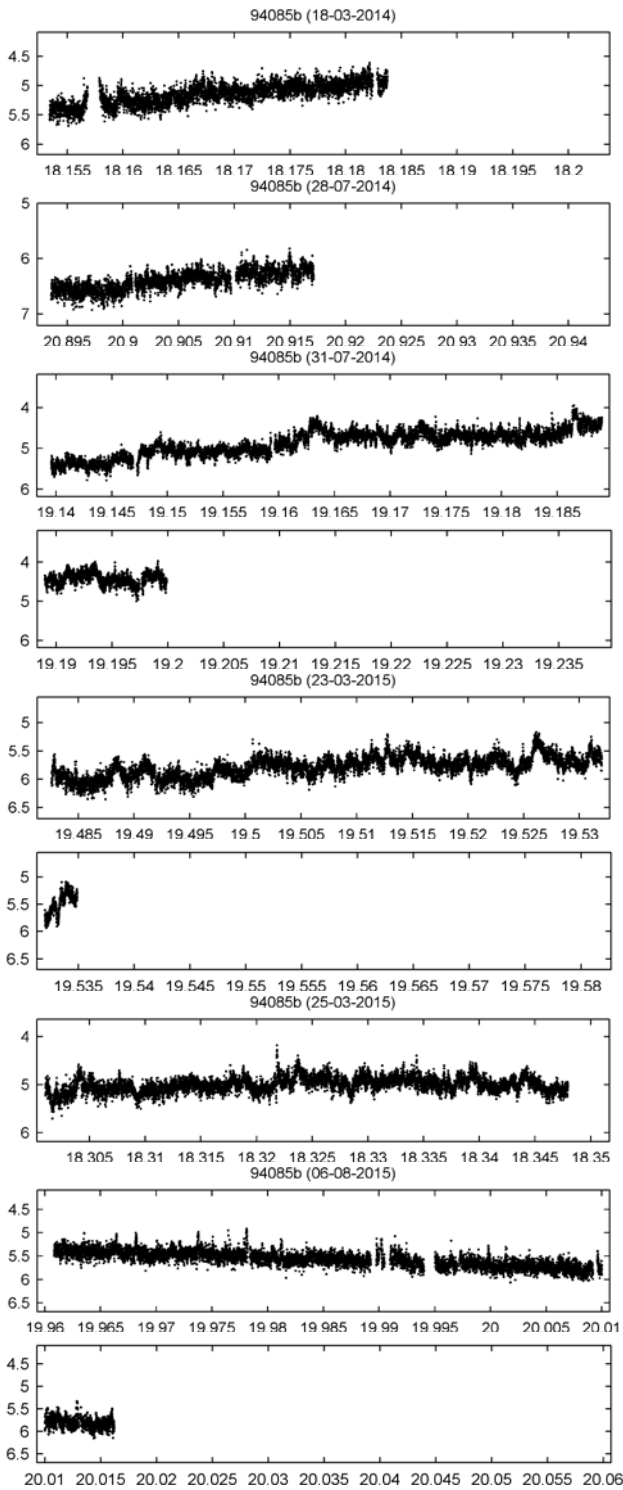
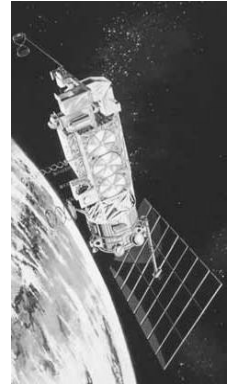
SL-19 R/B (Rokot 3rd stage)

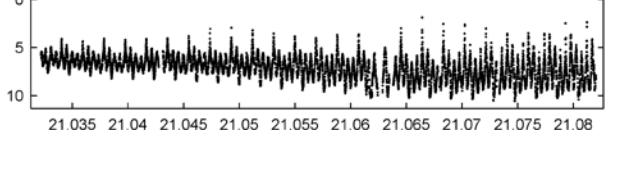
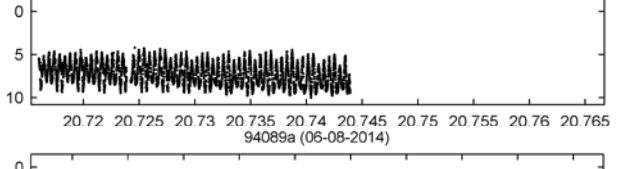
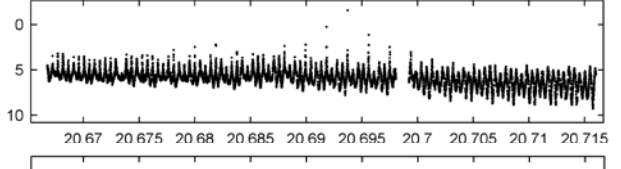
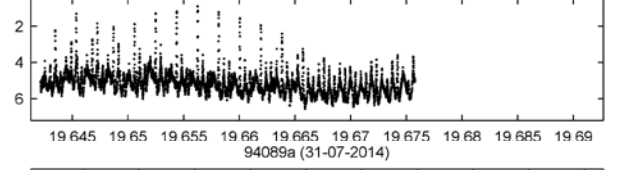
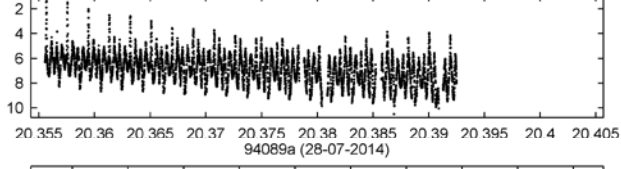
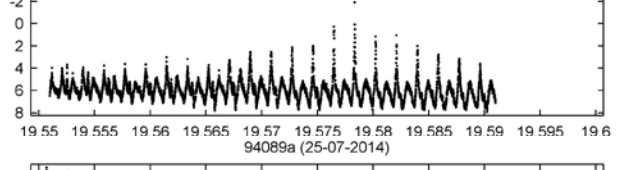
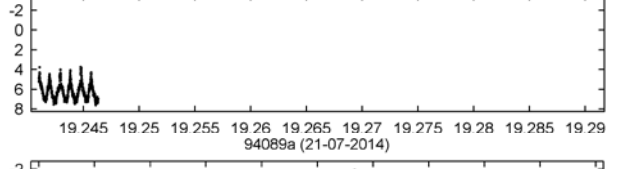
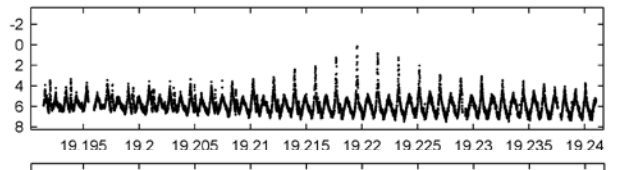
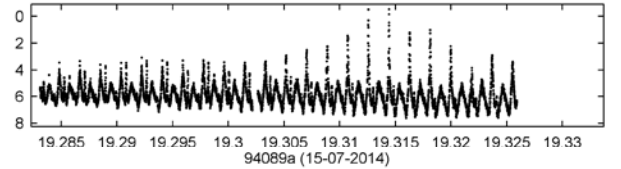
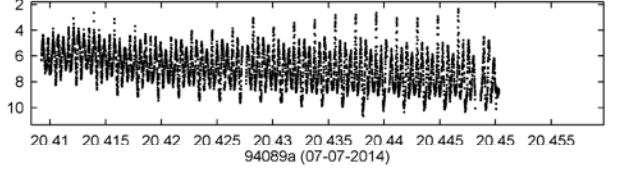
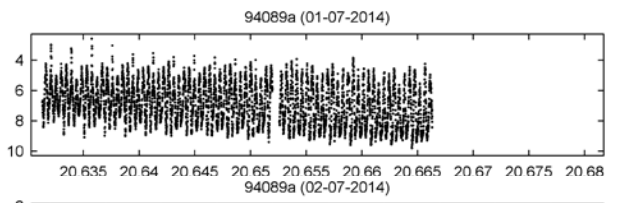
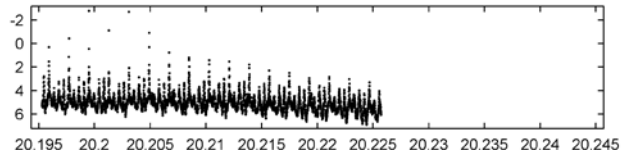
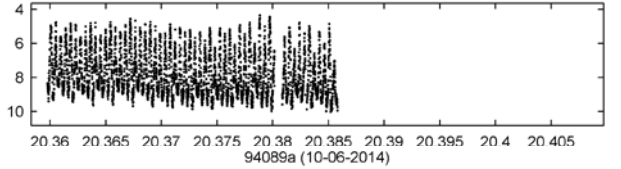
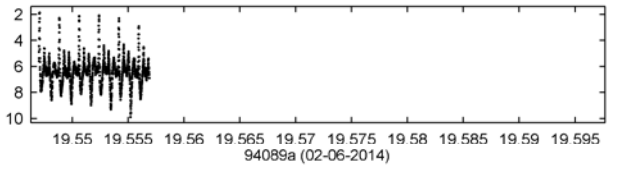
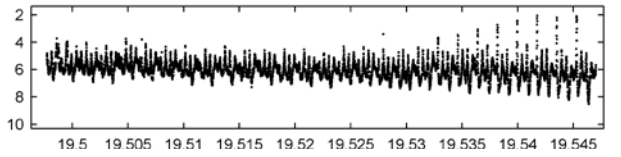
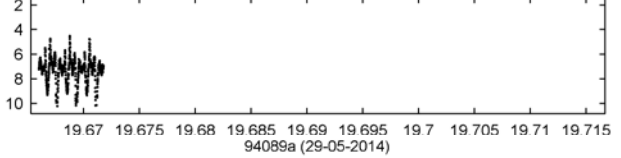
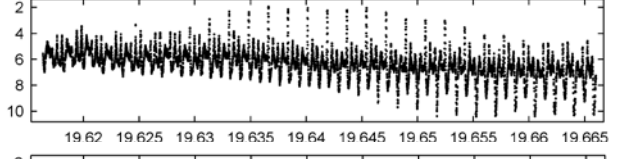
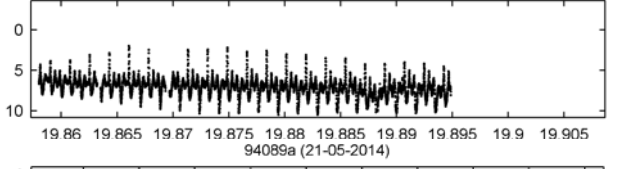
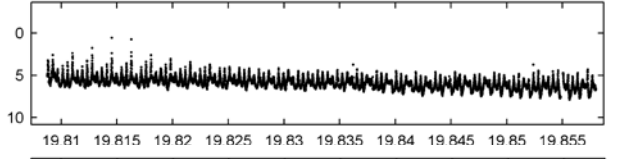
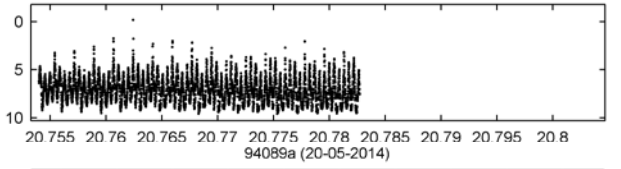
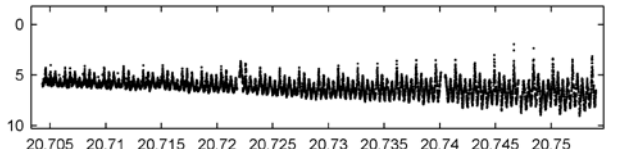
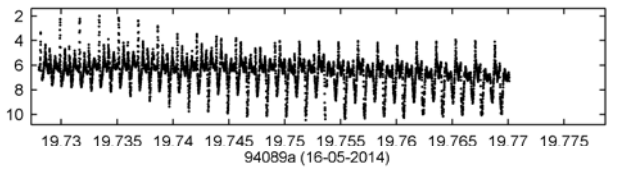
NORAD ID: 23440
 Int'l Code: 1994-085B
 Dimensions:
 Initial orbit:
 Perigee: 1866 km
 Apogee: 2183 km
 Inclination: 64.83°
 Period: 127.75 min
 Eccentricity: 0.019
 Launch date: 1994-12-26
 Source: Commonwealth of Independent States (former USSR) (CIS)

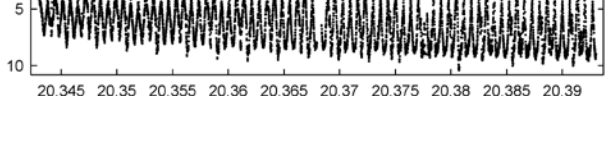
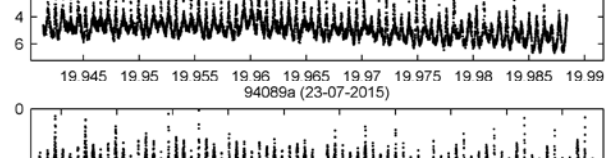
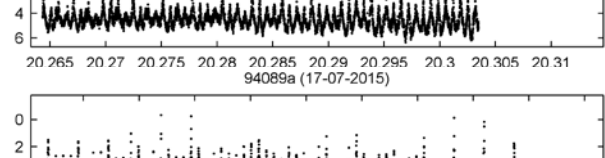
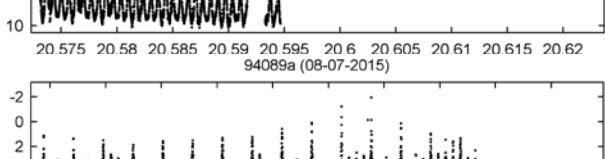
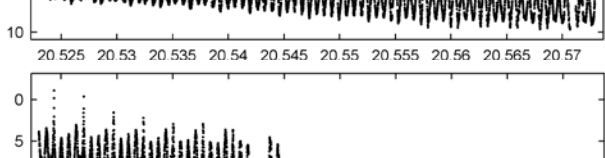
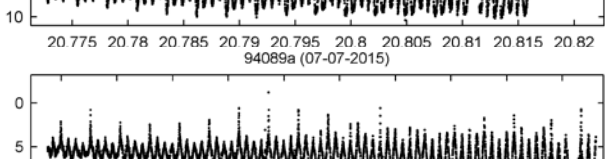
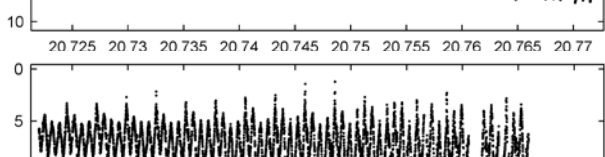
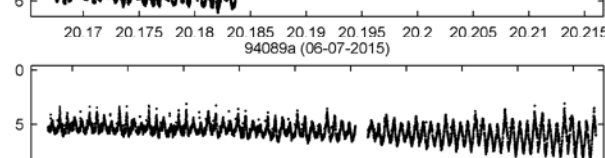
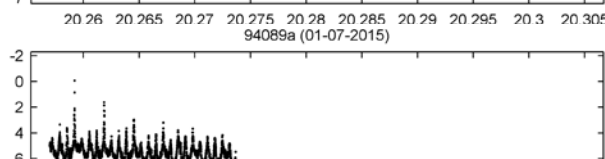
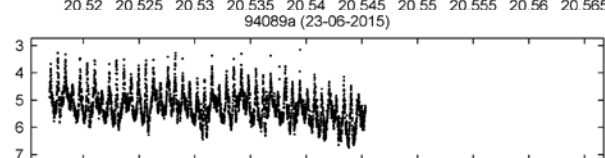
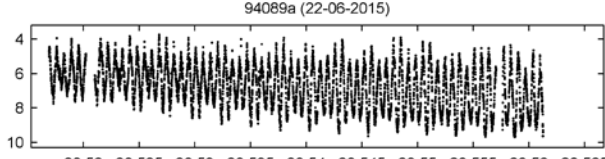
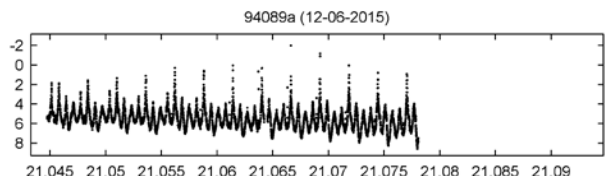
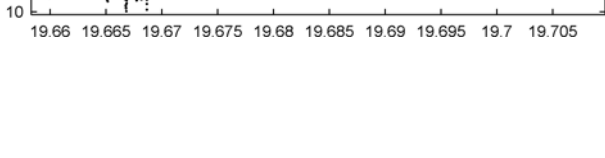
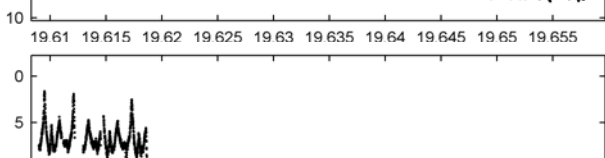
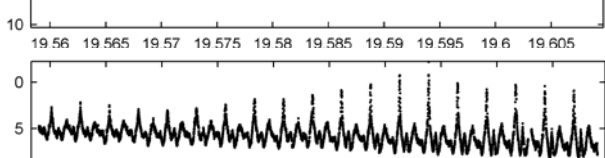
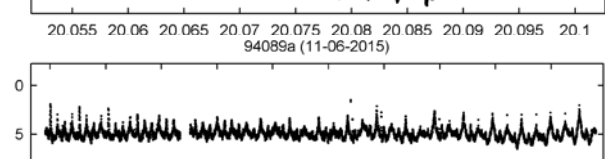
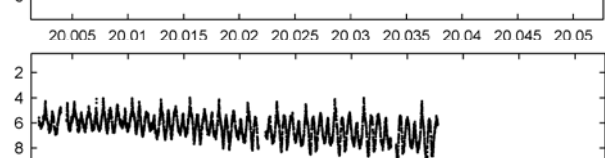
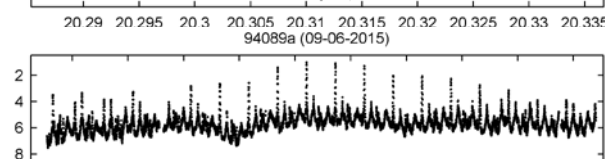
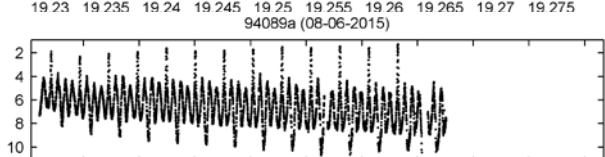
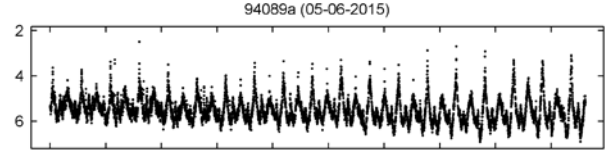
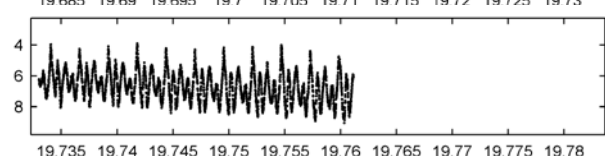
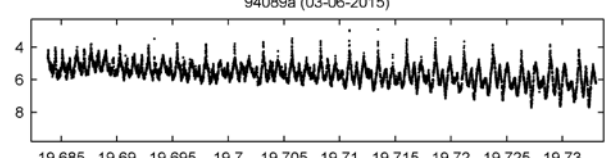
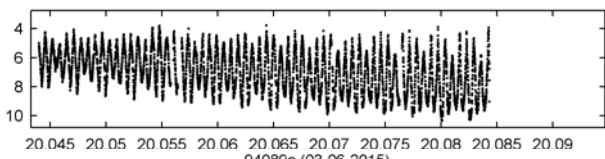
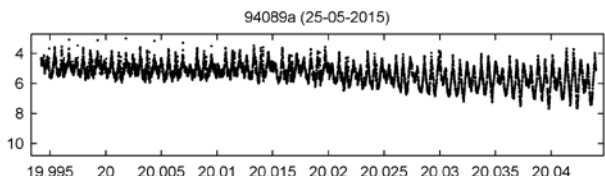


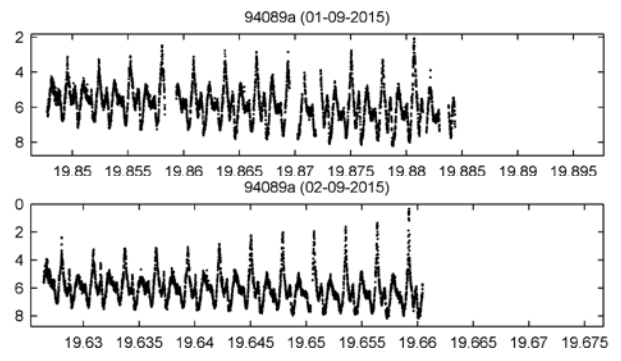
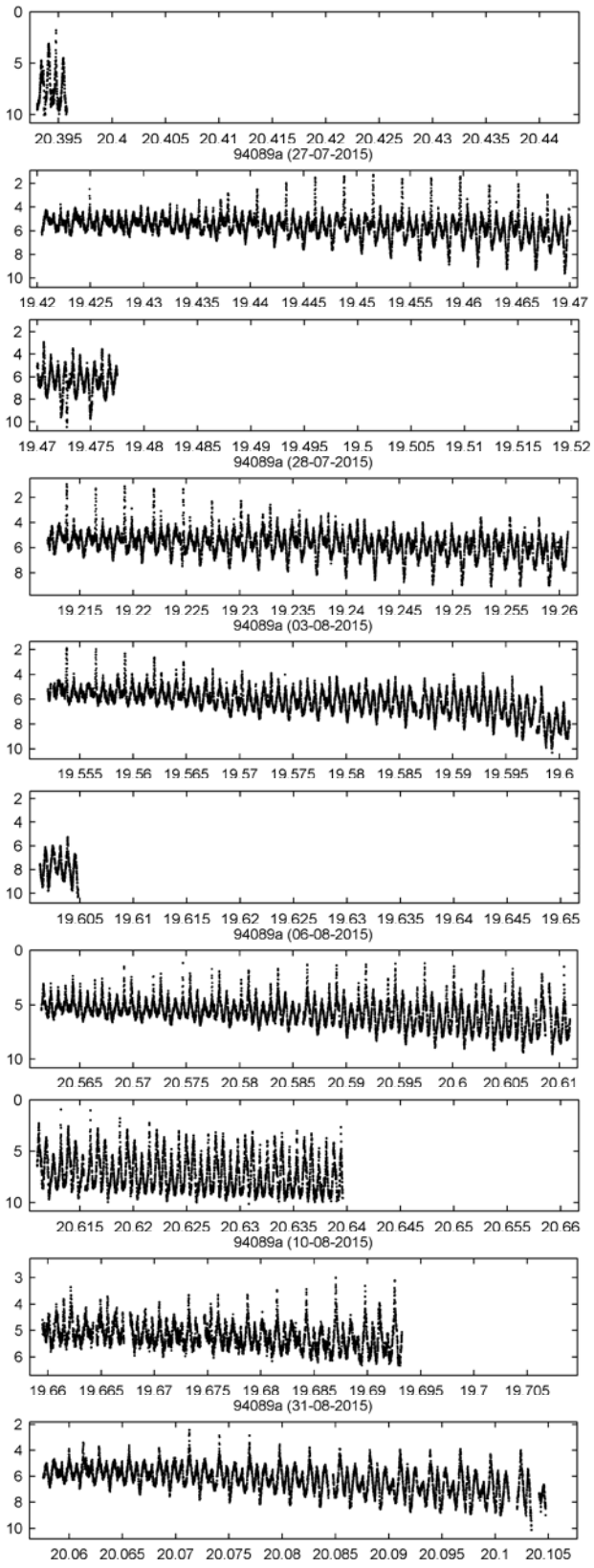
NOAA 14 (J)

NORAD ID: 23455
 Int'l Code: 1994-089A
 Dimensions: cylindrical 4.18m long, 1.88m dia
 Initial orbit:
 Perigee: 847 km
 Apogee: 860 km
 Inclination: 98.89°
 Period: 102.02 min
 Eccentricity: 0.0009
 Launch date: 1994-12-30
 Source: United States (US)

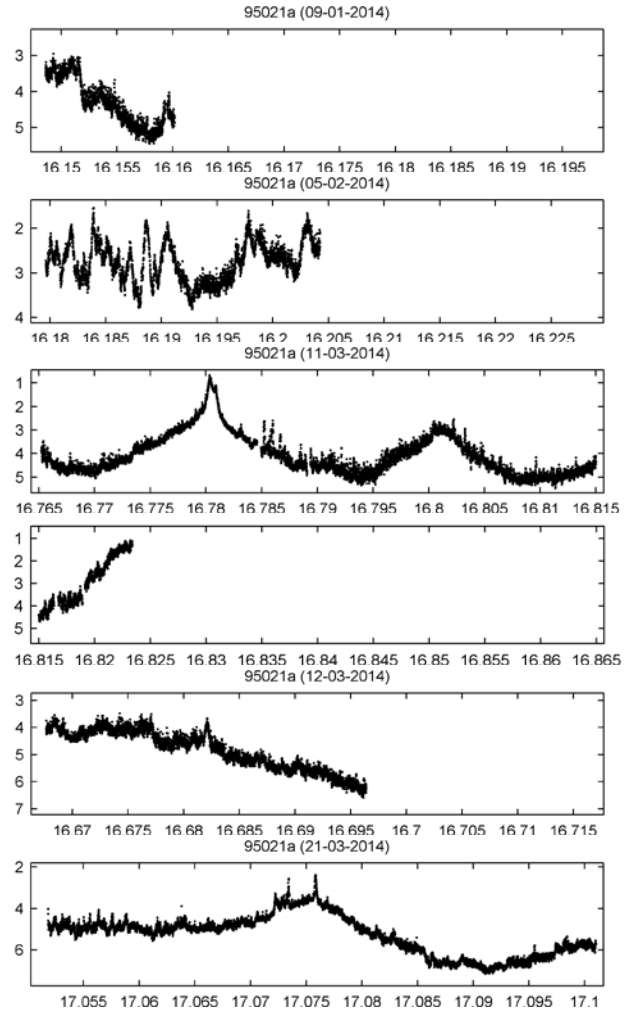


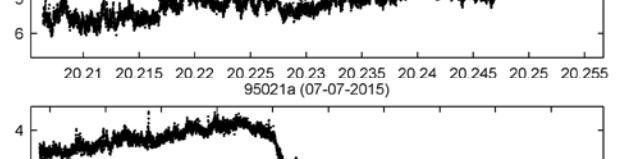
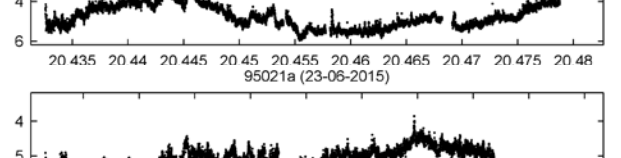
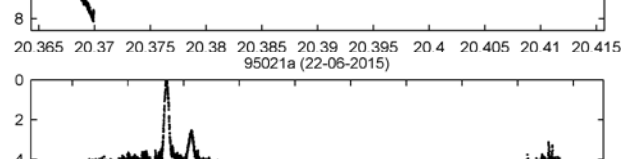
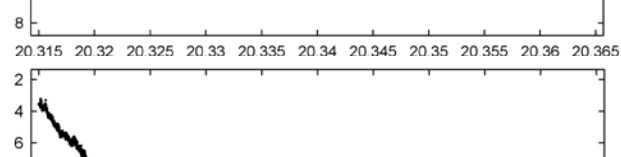
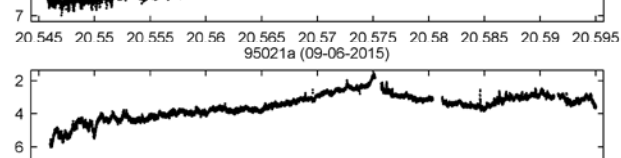
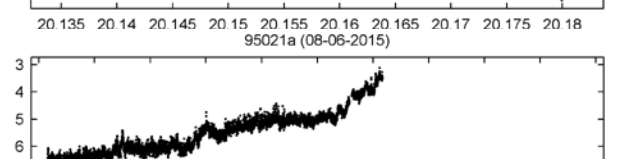
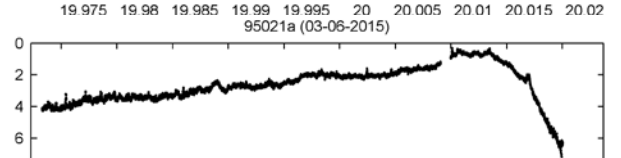
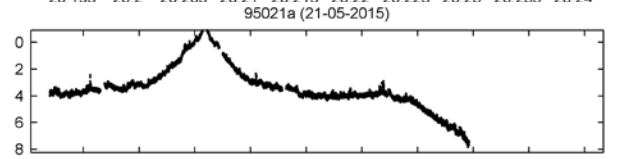
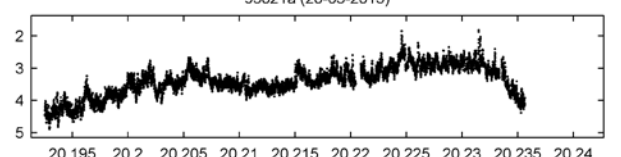
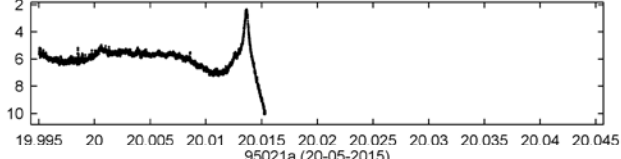
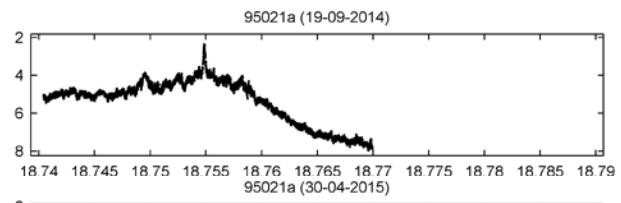
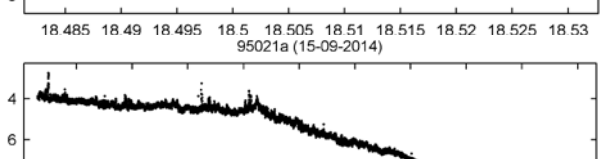
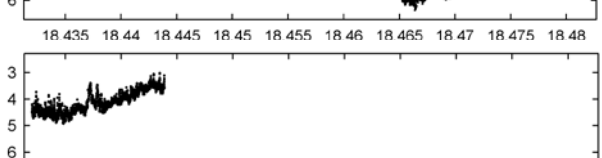
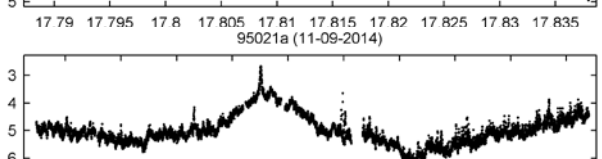
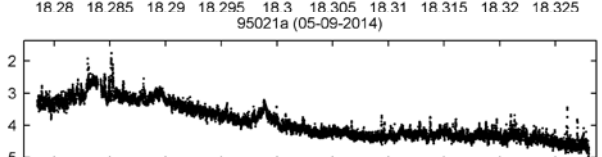
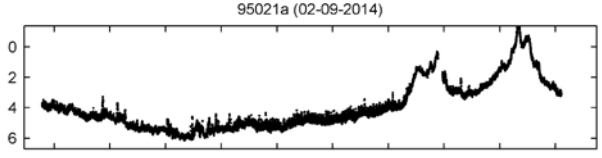
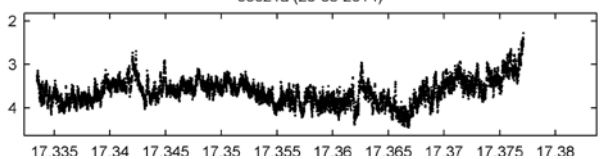
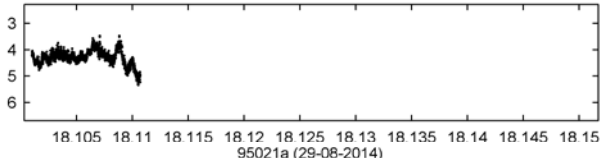
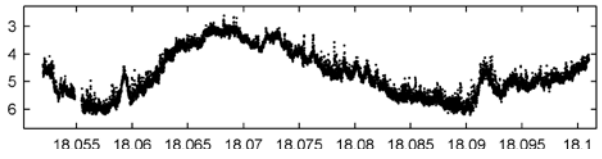
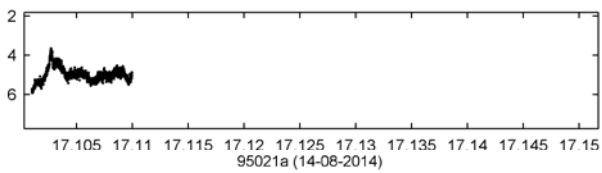






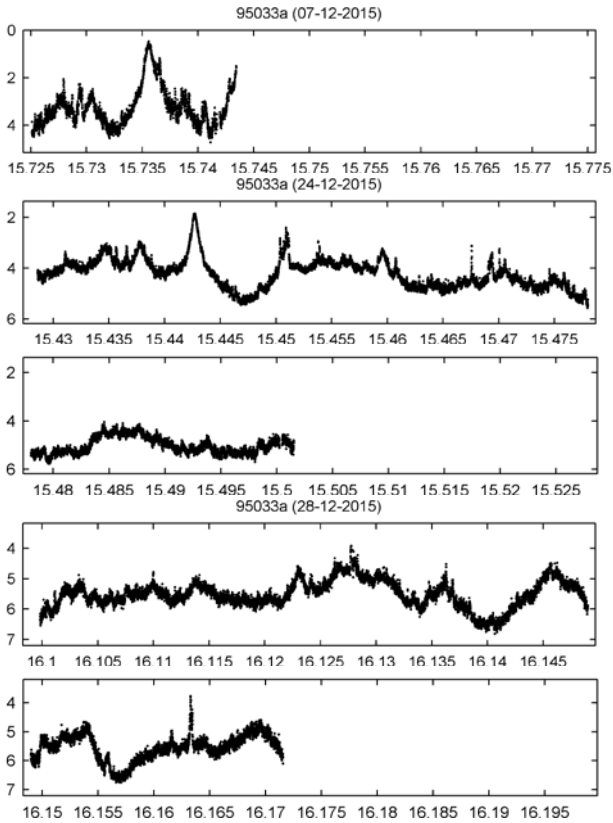
ERS 2
 NORAD ID: 23560
 Int'l Code: 1995-021A
 Dimensions: box 11.8m high
 + panel 2.4m x 11.7m
 + SAR antenna 1m x 10m
 Initial orbit:
 Perigee: 783 km
 Apogee: 785 km
 Inclination: 98.5°
 Period: 100.53 min
 Eccentricity: 0.00014
 Launch date: 1995-04-21
 Source: European Space Agency (ESA)





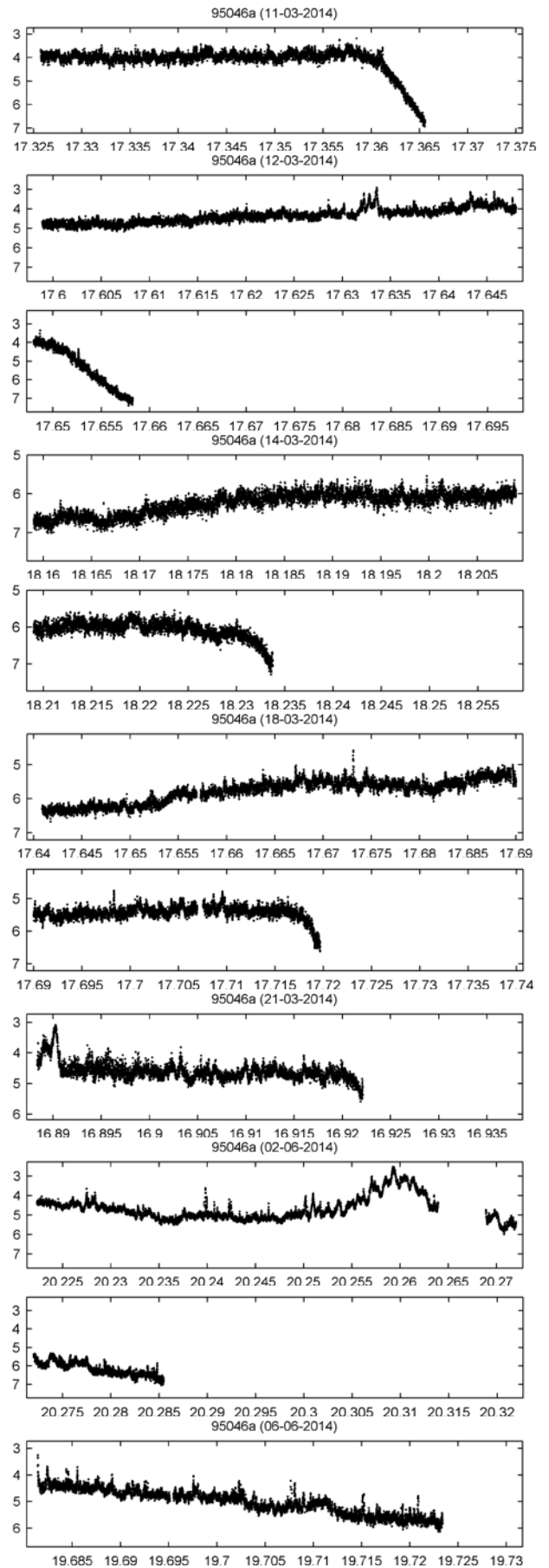
HELIOS 1A

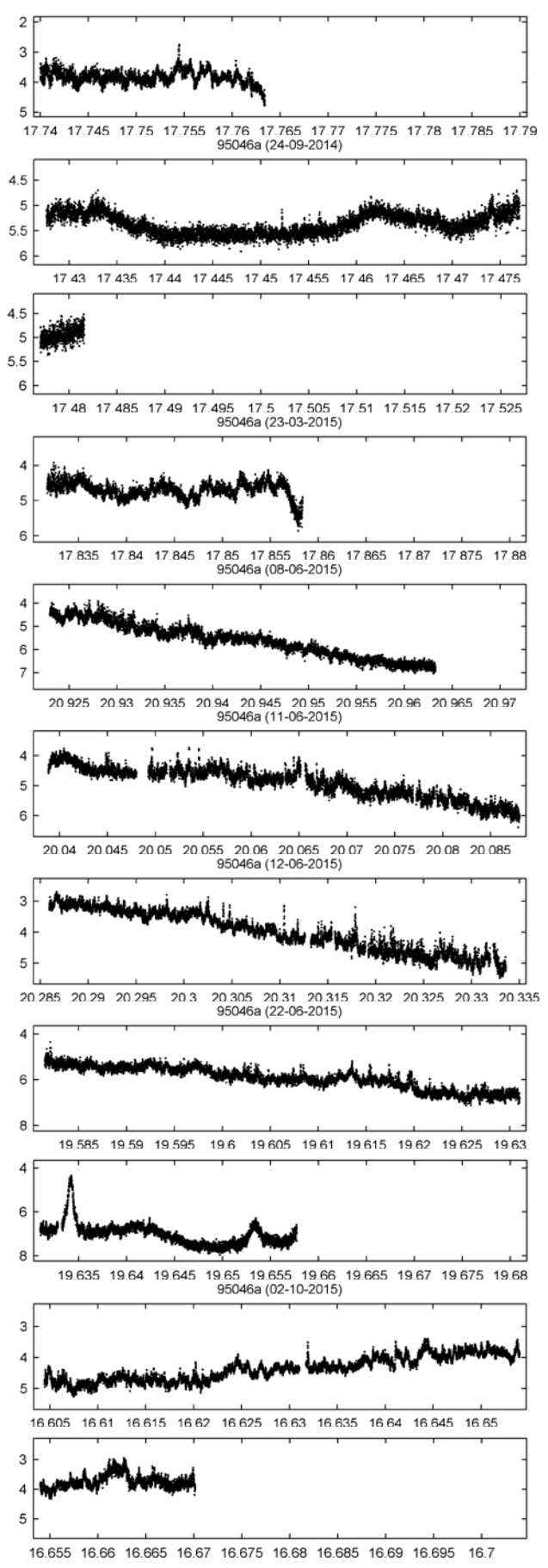
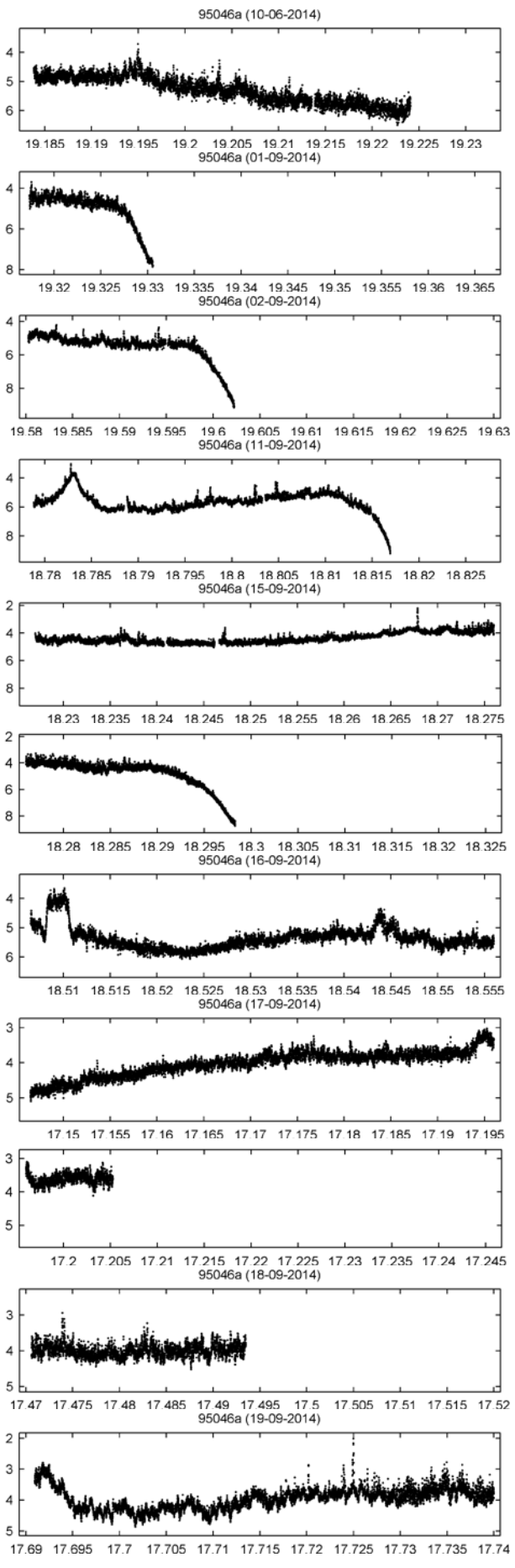
NORAD ID: 23605
Int'l Code: 1995-033A
Dimensions:
Initial orbit:
Perigee: 679 km
Apogee: 681 km
Inclination: 98.0°
Period: 98.35 min
Eccentricity: 0.00014
Launch date: 1995-07-07
Source: France (FR)

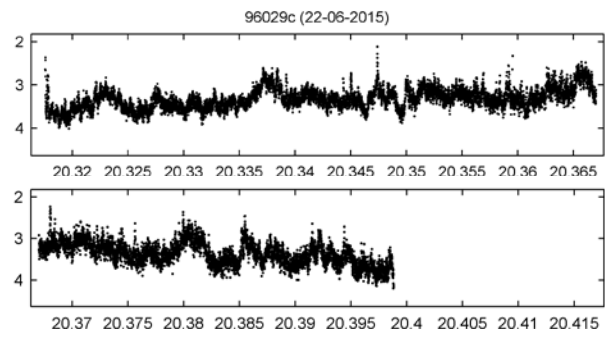
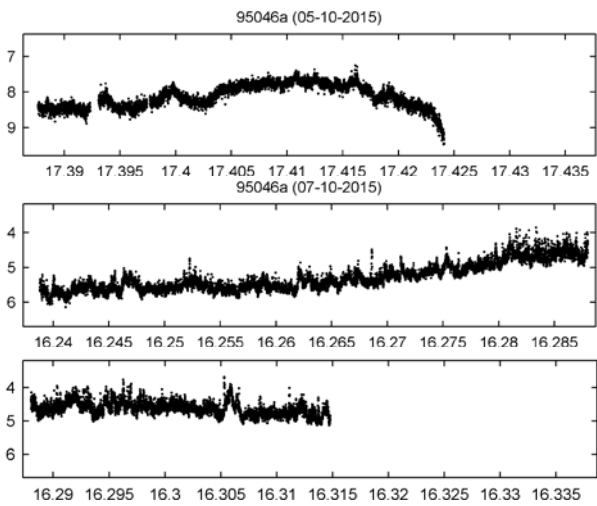


SICH 1 (OKEAN-O1 8)

NORAD ID: 23657
Int'l Code: 1995-046A
Dimensions: conical 3m high,
1.4m maxdia
Initial orbit:
Perigee: 630 km
Apogee: 669 km
Inclination: 82.5°
Period: 97.71 min
Eccentricity: 0.00278
Launch date: 1995-08-31
Source: Commonwealth of Independent States (former USSR) (CIS)

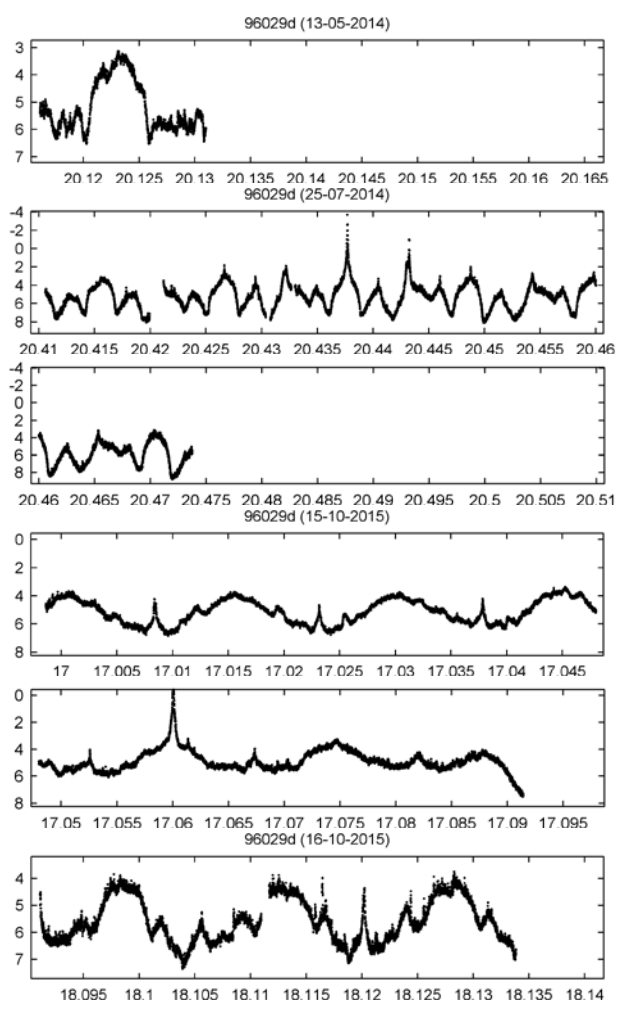
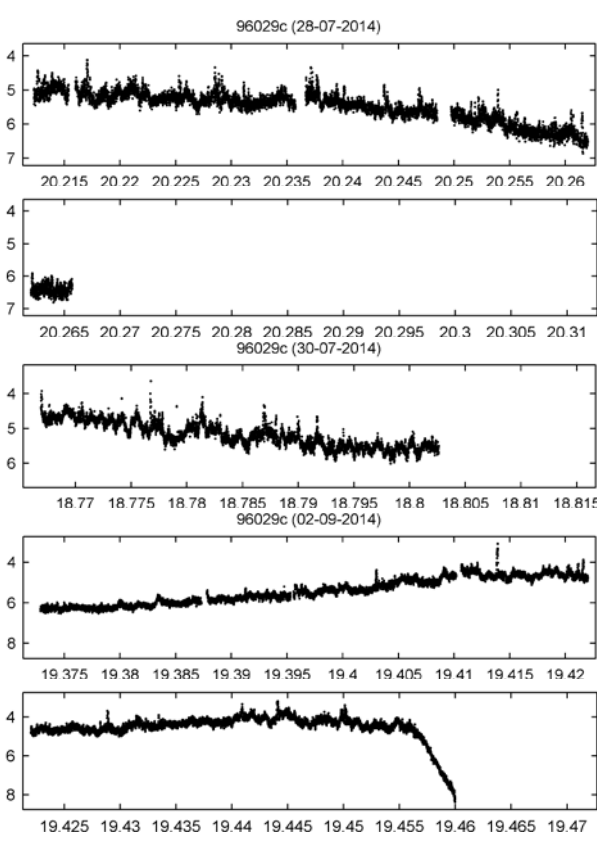






NOSS-2 4B (USA 121)
 NORAD ID: 23908
 Int'l Code: 1996-029C
 Dimensions:
 Initial orbit:
 Perigee: 1054 km
 Apogee: 1162 km
 Inclination: 63.42°
 Period: 107.44 min
 Eccentricity: 0.007
 Launch date: 1996-05-12
 Source: United States (US)

NOSS-2 4C (USA 122)
 NORAD ID: 23862
 Int'l Code: 1996-029D
 Dimensions:
 Initial orbit:
 Perigee: 1053 km
 Apogee: 1164 km
 Inclination: 63.50°
 Period: 107.44 min
 Eccentricity: 0.0074
 Launch date: 1996-05-12
 Source: United States (US)



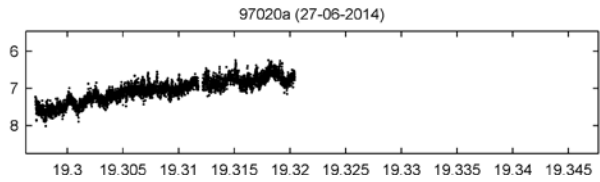
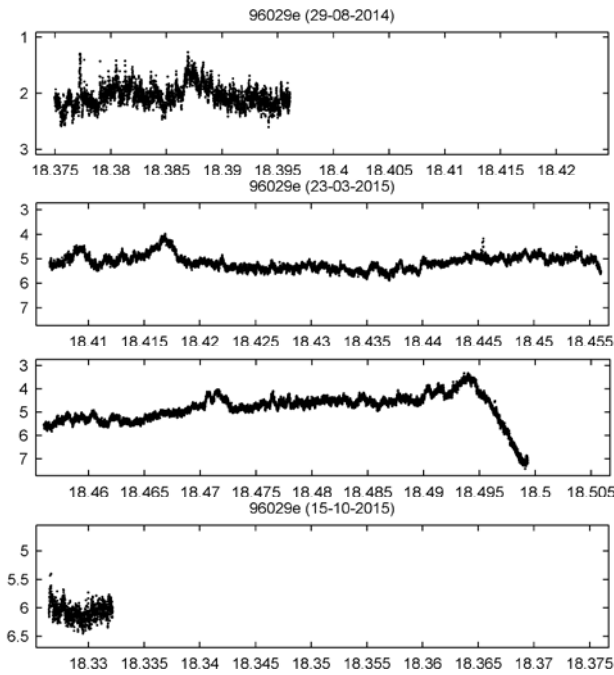
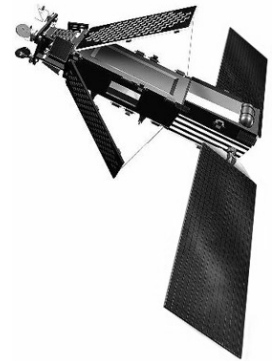
TIPS 1A (RALPH, USA 123)

NORAD ID: 23936
Int'l Code: 1996-029E
Dimensions:
Initial orbit:
Perigee: 1056 km
Apogee: 1161 km
Inclination: 63.42°
Period: 107.44 min
Eccentricity: 0.007
Launch date: 1996-05-12
Source: United States (US)



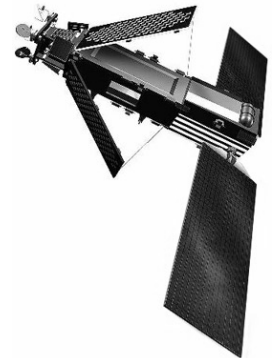
IRIDIUM 8

NORAD ID: 24792
Int'l Code: 1997-020A
Dimensions: box+2 panels
1 across 3.5m long
Initial orbit:
Perigee: 774 km
Apogee: 780 km
Inclination: 86.4°
Period: 100.38 min
Eccentricity: 0.00042
Launch date: 1997-05-05
Source: United States (US)



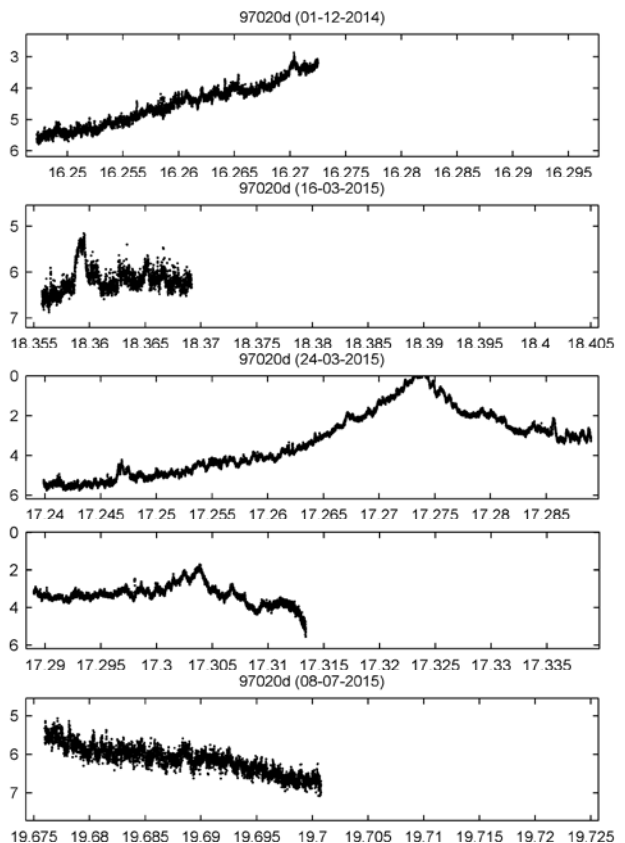
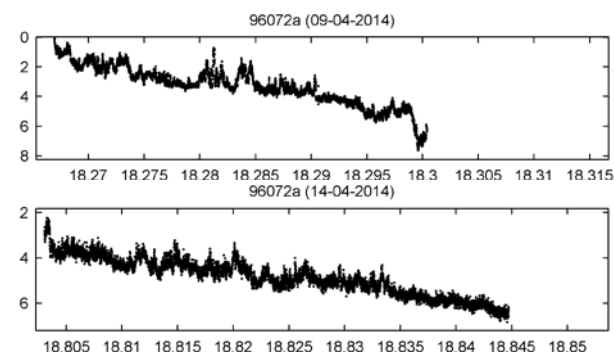
IRIDIUM 5

NORAD ID: 24795
Int'l Code: 1997-020D
Dimensions: box + 2 panels
1 across 3.5m long
Initial orbit:
Perigee: 776 km
Apogee: 779 km
Inclination: 86.4°
Period: 100.4 min
Eccentricity: 0.00042
Launch date: 1997-05-05
Source: United States (US)



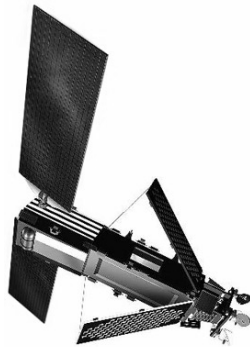
USA 129 (KH-12 3)

NORAD ID: 24680
Int'l Code: 1996-072A
Dimensions:
Initial orbit:
Perigee: 264 km
Apogee: 1023 km
Inclination: 97.86°
Period: 97.59 min
Eccentricity: 0.054
Launch date: 1996-12-20
Source: United States (US)



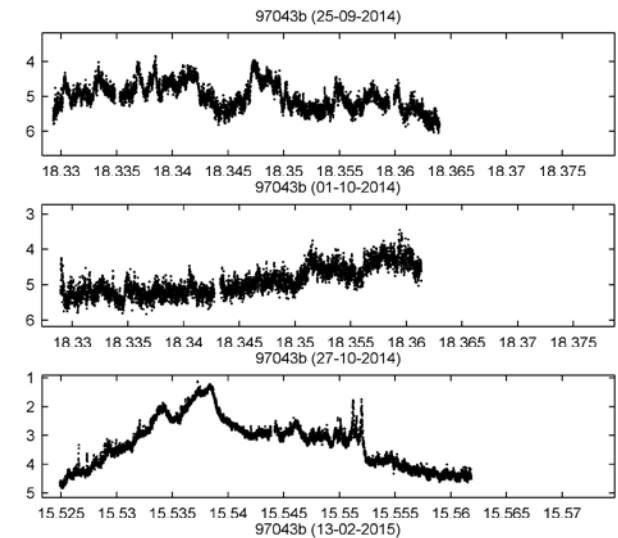
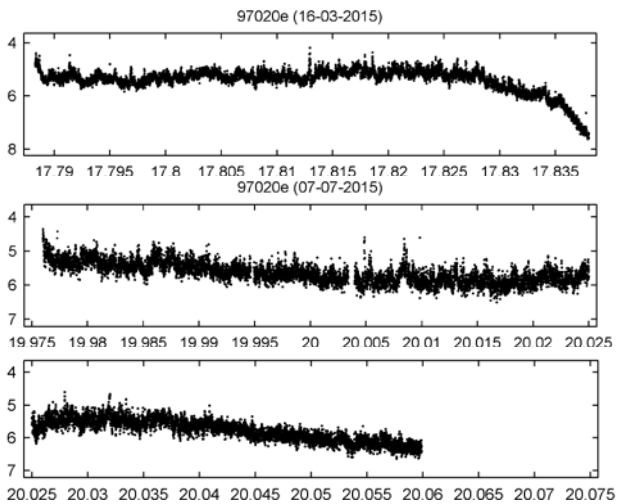
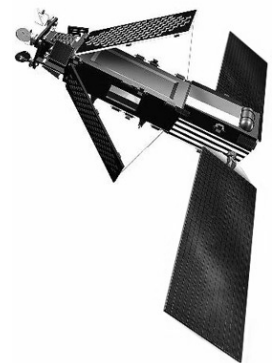
IRIDIUM 4

NORAD ID: 24796
Int'l Code: 1997-020E
Dimensions: box + 2 panels
1 across 3.5m long
Initial orbit:
Perigee: 771 km
Apogee: 784 km
Inclination: 86.4°
Period: 100.4 min
Eccentricity: 0.00091
Launch date: 1997-05-05
Source: United States (US)



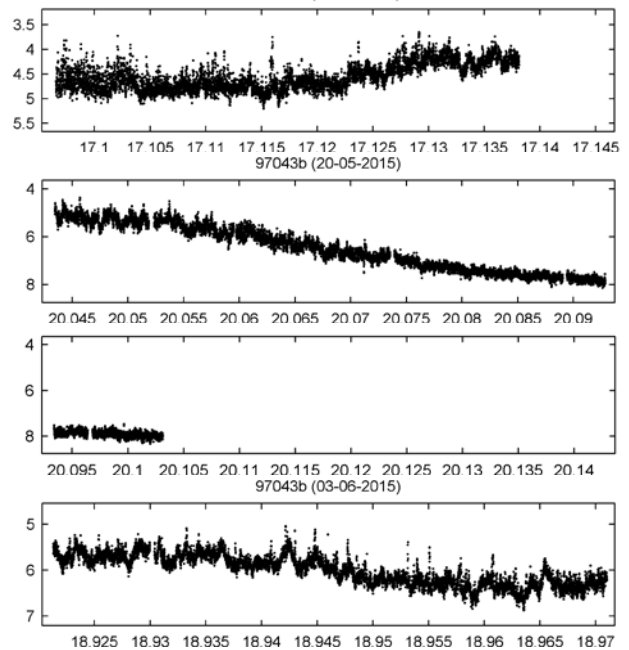
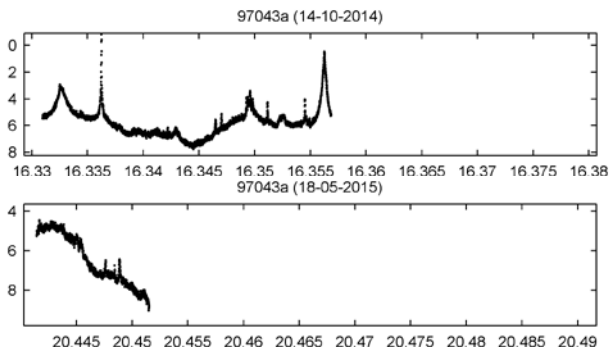
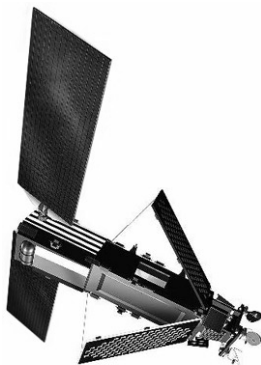
IRIDIUM 25

NORAD ID: 24904
Int'l Code: 1997-043B
Dimensions: box+2 panels
1 across 3.5m long
Initial orbit:
Perigee: 776 km
Apogee: 779 km
Inclination: 86.4°
Period: 100.4 min
Eccentricity: 0.00042
Launch date: 1997-08-21
Source: United States (US)



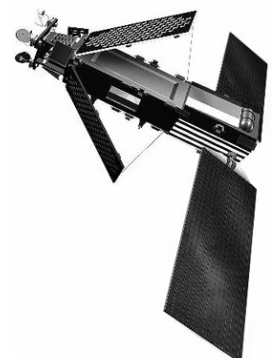
IRIDIUM 26

NORAD ID: 24903
Int'l Code: 1997-043A
Dimensions: box+2 panels
1 across 3.5m long
Initial orbit:
Perigee: 774 km
Apogee: 780 km
Inclination: 86.4°
Period: 100.38 min
Eccentricity: 0.0004
Launch date: 1997-08-21
Source: United States (US)

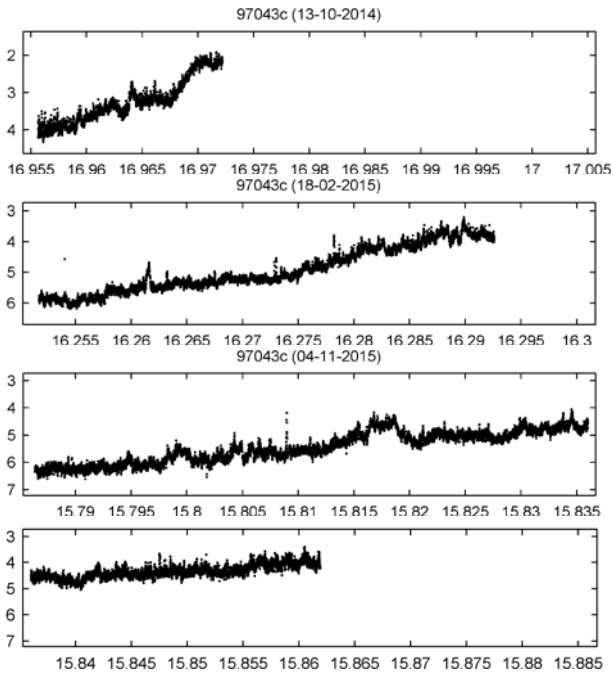


IRIDIUM 24

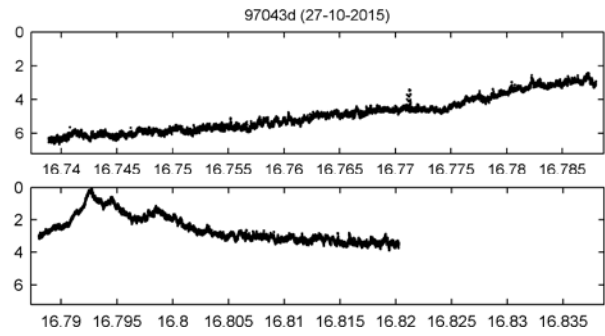
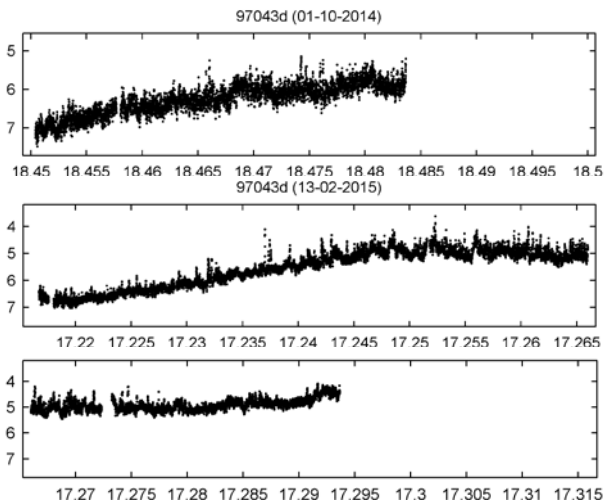
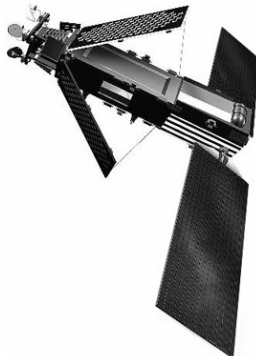
NORAD ID: 24905
Int'l Code: 1997-043C
Dimensions: box + 2 panels
1 across 3.5m long
Initial orbit:
Perigee: 776 km
Apogee: 779 km
Inclination: 86.4°



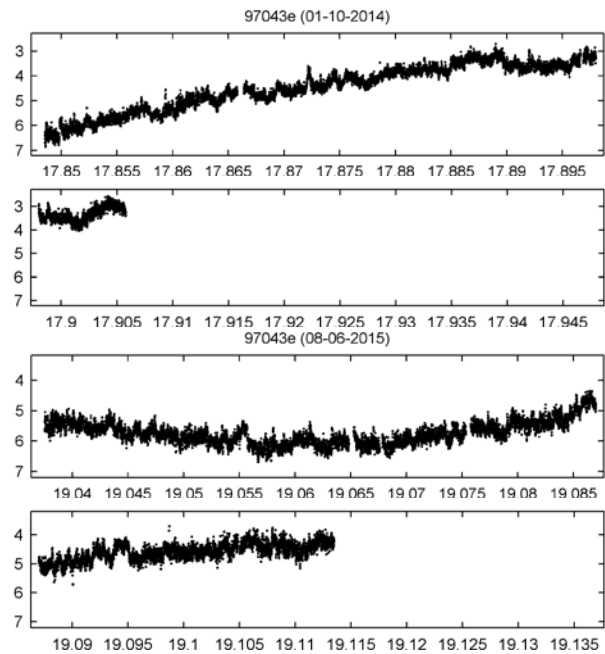
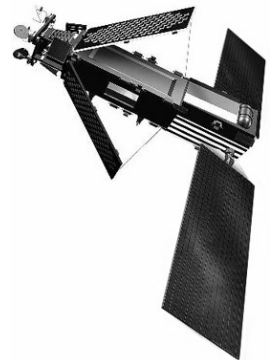
Period: 100.4 min
 Eccentricity: 0.00042
 Launch date: 1997-08-21
 Source: United States (US)



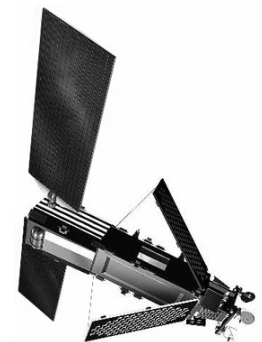
IRIDIUM 23
 NORAD ID: 24906
 Int'l Code: 1997-043D
 Dimensions: box + 2 panels
 1 across 3.5m long
 Initial orbit:
 Perigee: 776 km
 Apogee: 779 km
 Inclination: 86.4°
 Period: 100.4 min
 Eccentricity: 0.00042
 Launch date: 1997-08-21
 Source: United States (US)

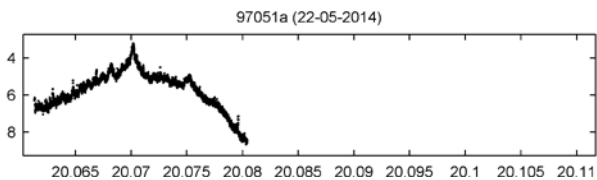


IRIDIUM 22
 NORAD ID: 24906
 Int'l Code: 1997-043E
 Dimensions: box + 2 panels
 1 across 3.5m long
 Initial orbit:
 Perigee: 776 km
 Apogee: 779 km
 Inclination: 86.4°
 Period: 100.4 min
 Eccentricity: 0.00042
 Launch date: 1997-08-21
 Source: United States (US)

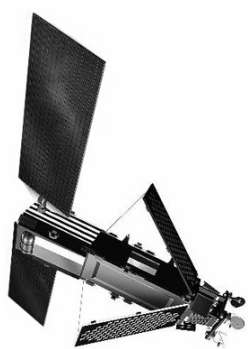


IRIDIUM 29
 NORAD ID: 24944
 Int'l Code: 1997-051A
 Dimensions: box + 2 panels
 1 across 3.5 long
 Initial orbit:
 Perigee: 776 km
 Apogee: 778 km
 Inclination: 86.4°
 Period: 100.38 min
 Eccentricity: 0.0001
 Launch date: 1997-09-14
 Source: United States (US)

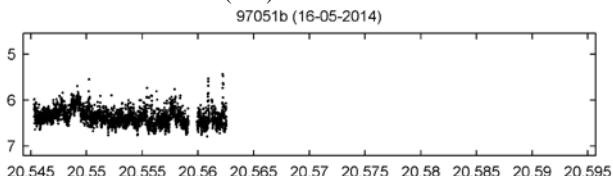
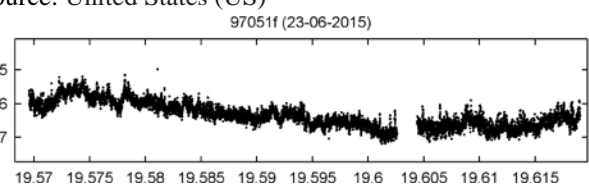
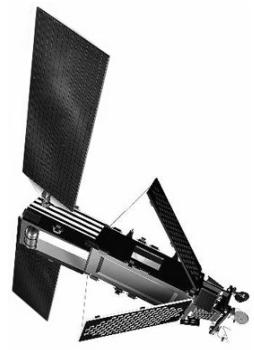




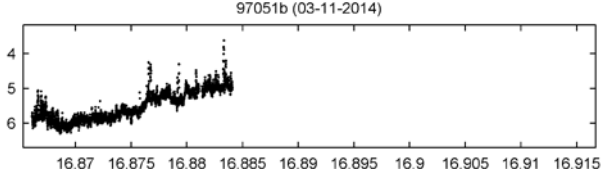
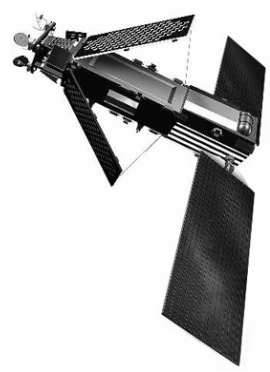
IRIDIUM 32
 NORAD ID: 24945
 Int'l Code: 1997-051B
 Dimensions: box + 2 panels
 1 across 3.5 long
 Initial orbit:
 Perigee: 776 km
 Apogee: 778 km
 Inclination: 86.4°
 Period: 100.38 min
 Eccentricity: 0.0001
 Launch date: 1997-09-14
 Source: United States (US)



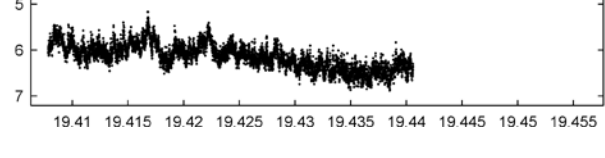
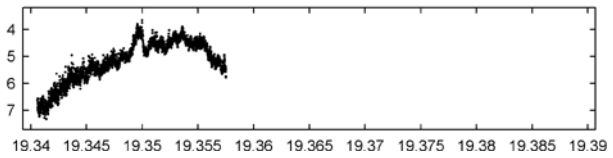
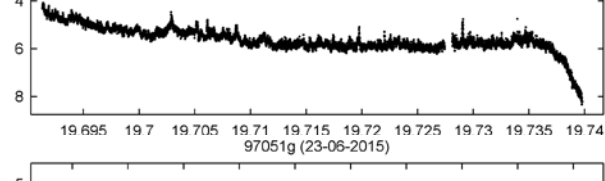
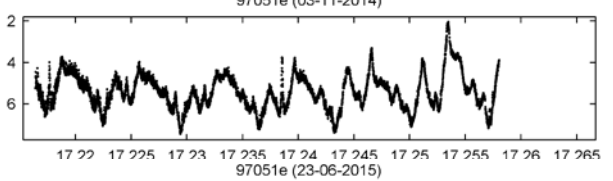
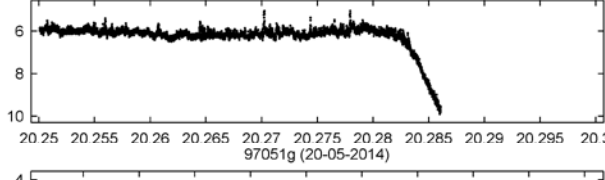
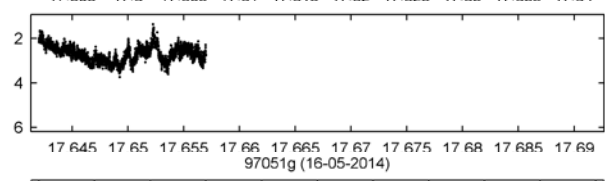
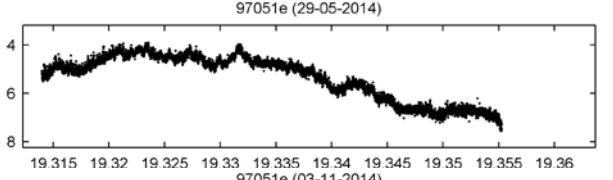
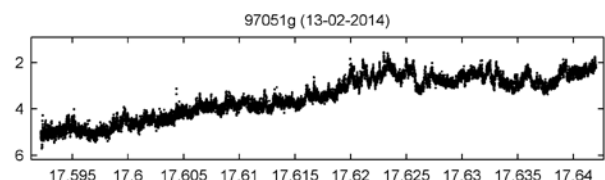
IRIDIUM 30
 NORAD ID: 24949
 Int'l Code: 1997-051F
 Dimensions: box + 2 panels
 1 across 3.5 long
 Initial orbit:
 Perigee: 774 km
 Apogee: 780 km
 Inclination: 86.3°
 Period: 100.38 min
 Eccentricity: 0.0004
 Launch date: 1997-09-14
 Source: United States (US)



IRIDIUM 31
 NORAD ID: 24950
 Int'l Code: 1997-051G
 Dimensions: box+2 panels
 1 across 3.5m long
 Initial orbit:
 Perigee: 776 km
 Apogee: 778 km
 Inclination: 86.4°
 Period: 100.38 min
 Eccentricity: 0.00014
 Launch date: 1997-09-14
 Source: United States (US)



IRIDIUM 28
 NORAD ID: 24948
 Int'l Code: 1997-051E
 Dimensions: box + 2 panels
 1 across 3.5 long
 Initial orbit:
 Perigee: 776 km
 Apogee: 778 km
 Inclination: 86.4°
 Period: 100.38 min
 Eccentricity: 0.0001
 Launch date: 1997-09-14
 Source: United States (US)

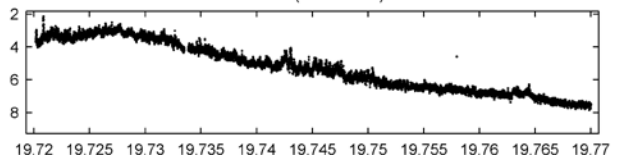
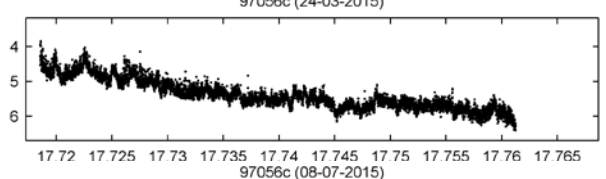
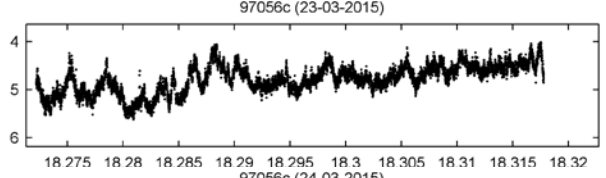
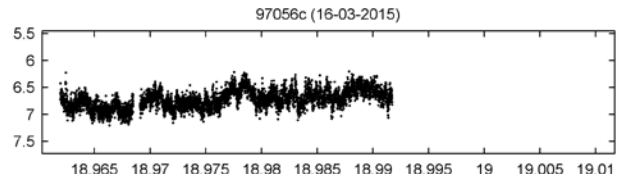
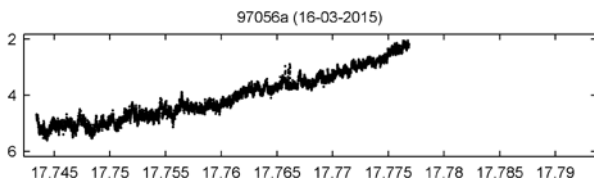


IRIDIUM 19

NORAD ID: 24965
Int'l Code: 1997-056A
Dimensions: box + 2 panels
1 across 3.5m long
Initial orbit:
Perigee: 775 km
Apogee: 778 km
Inclination: 86.3°
Period: 100.37 min
Eccentricity: 0.00021
Launch date: 1997-09-27
Source: United States (US)



Period: 95.95 min
Eccentricity: 0.000288
Launch date: 1997-09-27
Source: United States (US)



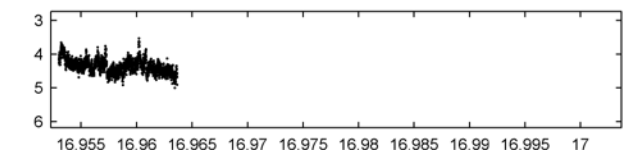
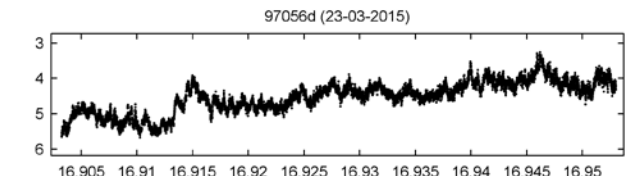
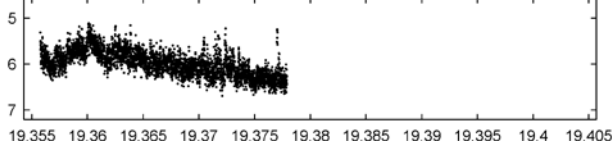
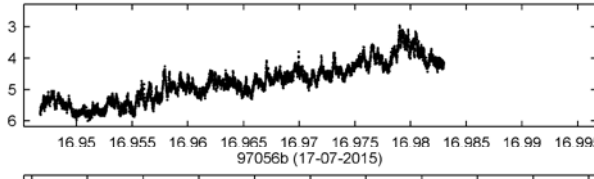
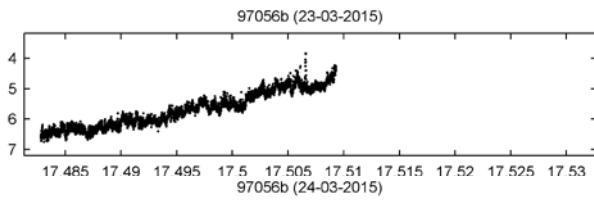
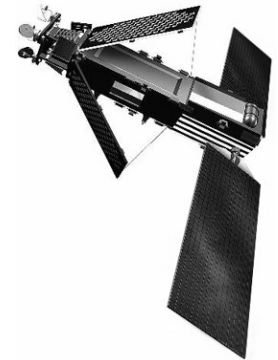
IRIDIUM 37 (35?)

NORAD ID: 24966
Int'l Code: 1997-056B
Dimensions: box + 2 panels
1 across 3.5m long
Initial orbit:
Perigee: 775 km
Apogee: 779 km
Inclination: 86.4°
Period: 100.38 min
Eccentricity: 0.00028
Launch date: 1997-09-27
Source: United States (US)



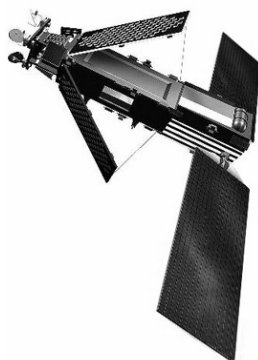
IRIDIUM 37(35)

NORAD ID: 24968
Int'l Code: 1997-056D
Dimensions: box+2 panels
1 across 3.5m long
Initial orbit:
Perigee: 776 km
Apogee: 778 km
Inclination: 86.3°
Period: 100.38 min
Eccentricity: 0.00014
Launch date: 1997-09-27
Source: United States (US)



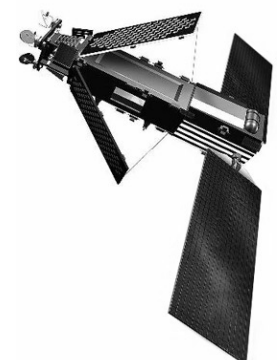
IRIDIUM 36

NORAD ID: 24967
Int'l Code: 1997-056C
Dimensions: box + 2 panels
1 across 3.5m long
Initial orbit:
Perigee: 562 km
Apogee: 566 km
Inclination: 86.7°

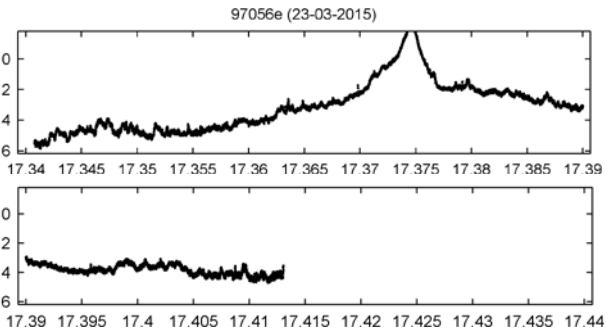


IRIDIUM 34

NORAD ID: 24969
Int'l Code: 1997-056E
Dimensions: box+2 panels
1 across 3.5m long
Initial orbit:
Perigee: 775 km
Apogee: 779 km
Inclination: 86.4°

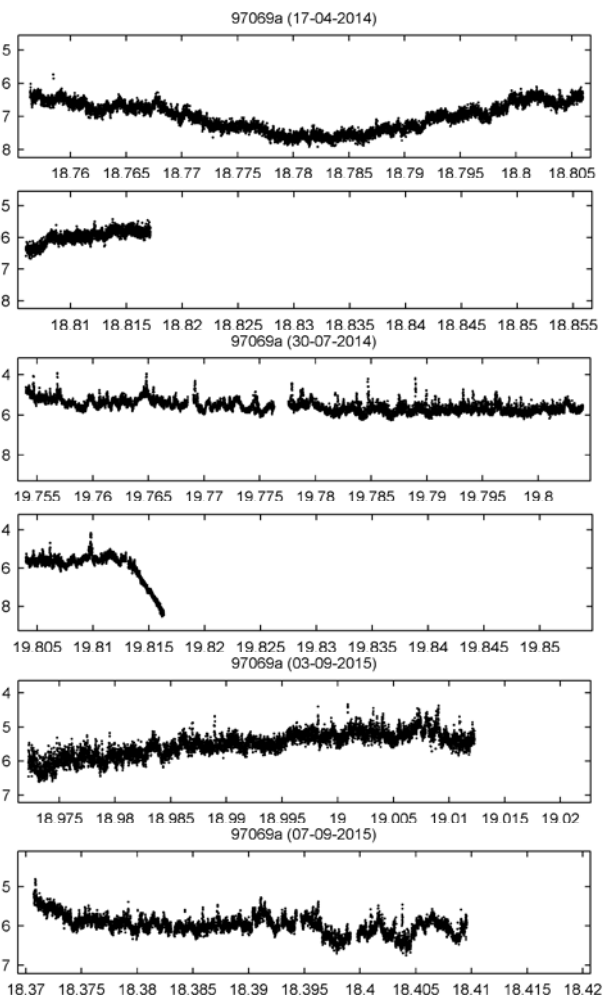
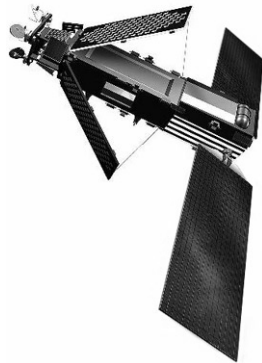


Period: 100.38 min
 Eccentricity: 0.0003
 Launch date: 1997-09-27
 Source: United States (US)



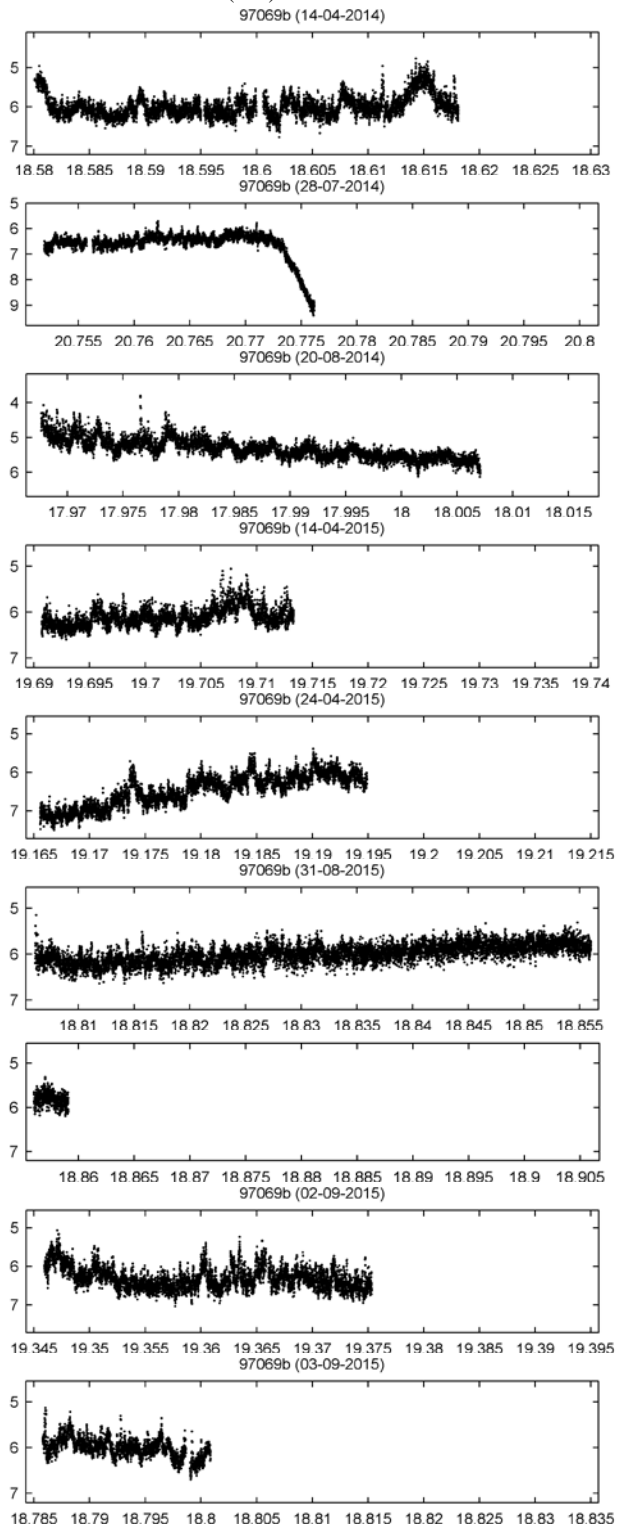
IRIDIUM 43

NORAD ID: 25039
 Int'l Code: 1997-069A
 Dimensions: box+2 panels
 1 across 3.5m long
 Initial orbit:
 Perigee: 776 km
 Apogee: 779 km
 Inclination: 86.4°
 Period: 100.40 min
 Eccentricity: 0.0002
 Launch date: 1997-11-09
 Source: United States (US)



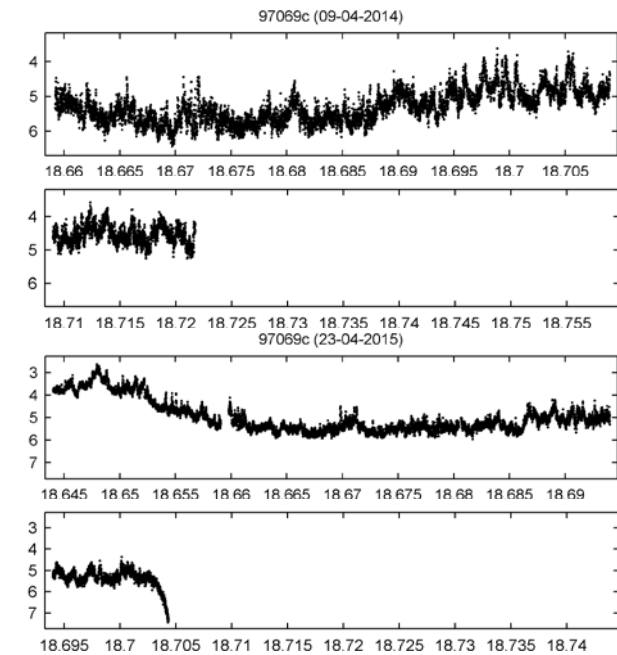
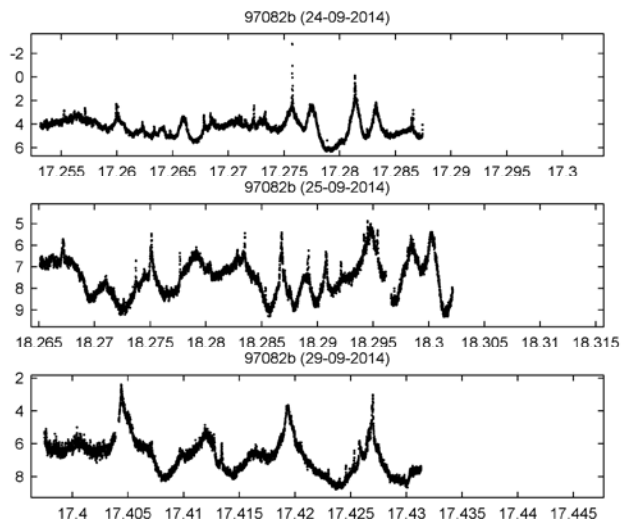
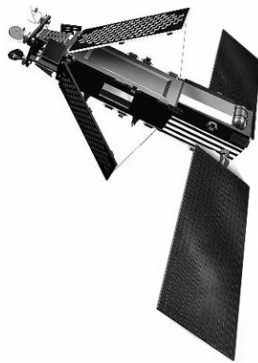
IRIDIUM 41

NORAD ID: 25040
 Int'l Code: 1997-069B
 Dimensions: box + 2 panels
 1 across 3.5 long
 Initial orbit:
 Perigee: 775 km
 Apogee: 778 km
 Inclination: 86.4°
 Period: 100.37 min
 Eccentricity: 0.0002
 Launch date: 1997-11-09
 Source: United States (US)



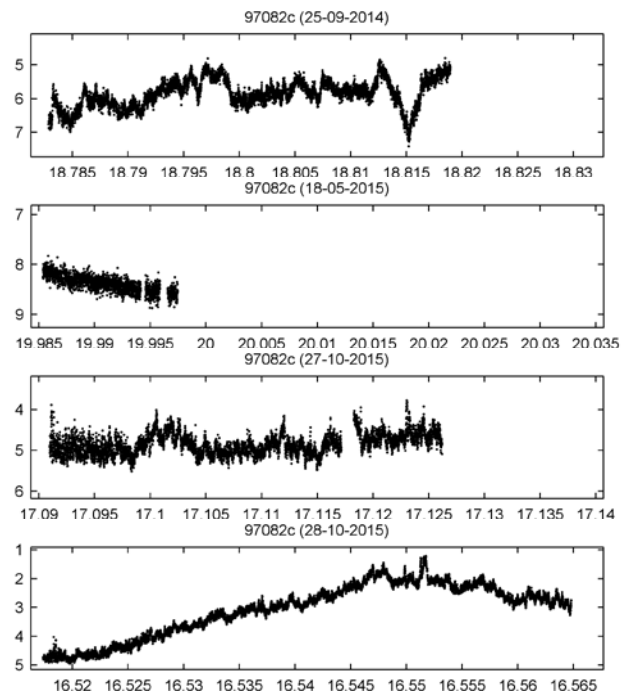
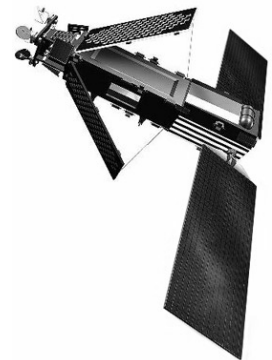
IRIDIUM 40

NORAD ID: 25041
Int'l Code: 1997-069C
Dimensions: box + 2 panels
1 across 3.5m long
Initial orbit:
Perigee: 776 km
Apogee: 779 km
Inclination: 86.4°
Period: 100.4 min
Eccentricity: 0.00042
Launch date: 1997-11-09
Source: United States (US)



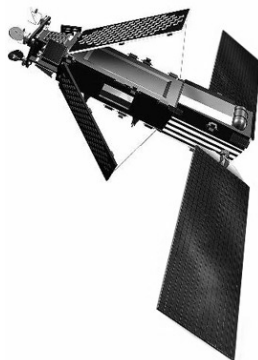
IRIDIUM 47

NORAD ID: 25106
Int'l Code: 1997-082C
Dimensions: box + 2 panels
1 across 3.5m long
Initial orbit:
Perigee: 776 km
Apogee: 779 km
Inclination: 86.4°
Period: 100.4 min
Eccentricity: 0.00042
Launch date: 1997-12-20
Source: United States (US)



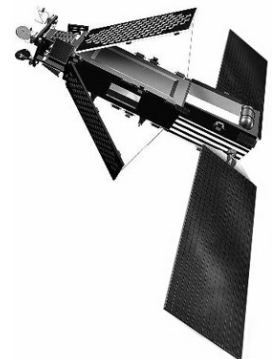
IRIDIUM 46

NORAD ID: 25105
Int'l Code: 1997-082B
Dimensions: box + 2 panels
1 across 3.5m long
Initial orbit:
Perigee: 776 km
Apogee: 779 km
Inclination: 86.4°
Period: 100.4 min
Eccentricity: 0.00042
Launch date: 1997-12-20
Source: United States (US)

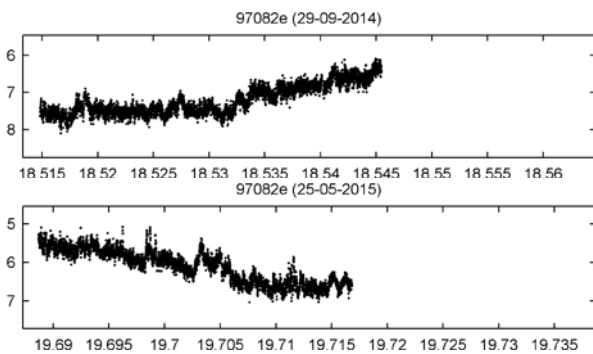


IRIDIUM 49

NORAD ID: 25108
Int'l Code: 1997-082E
Dimensions: box + 2 panels
1 across 3.5m long
Initial orbit:
Perigee: 776 km

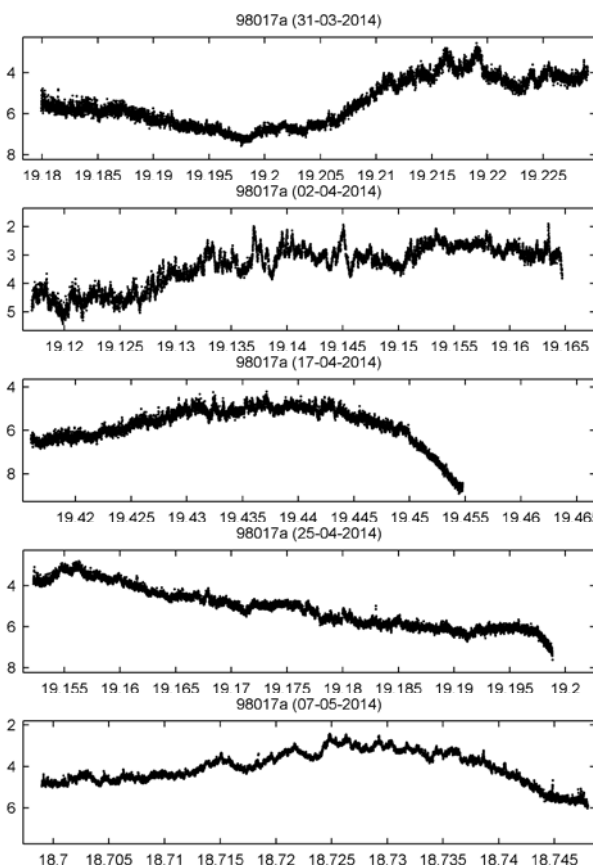
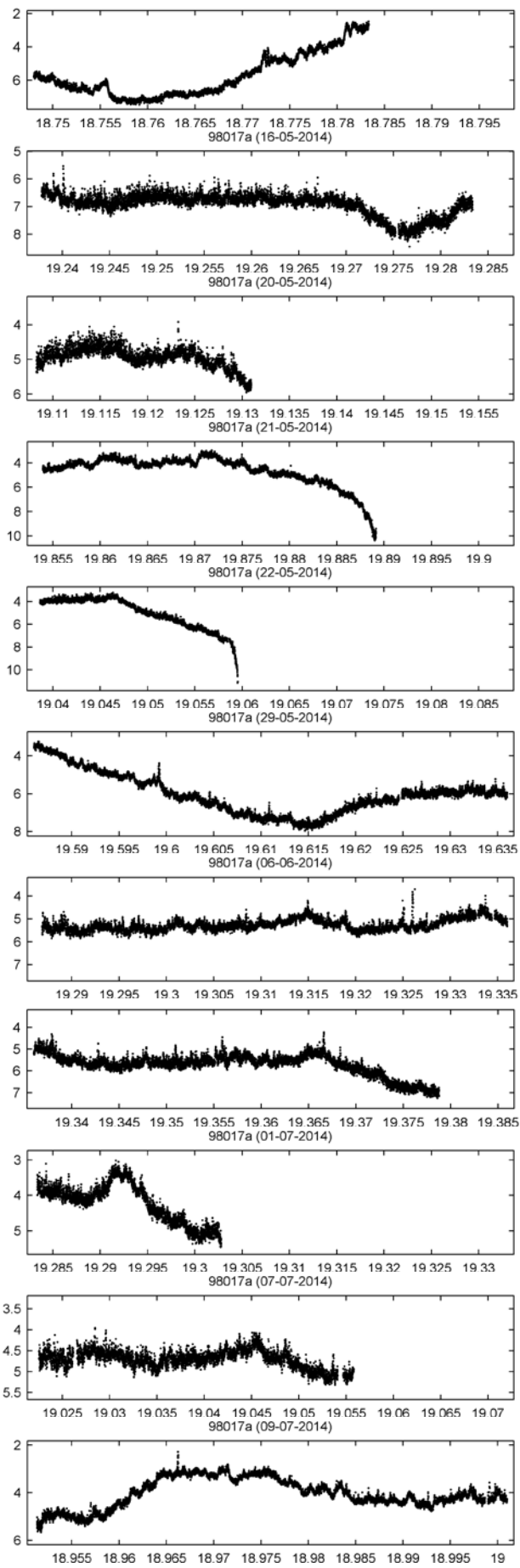
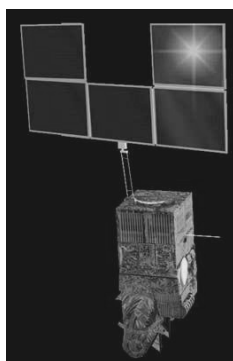


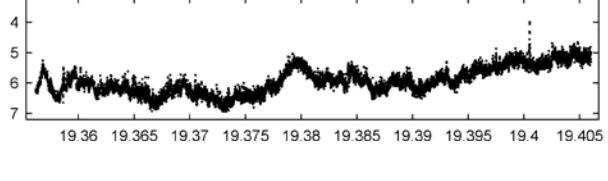
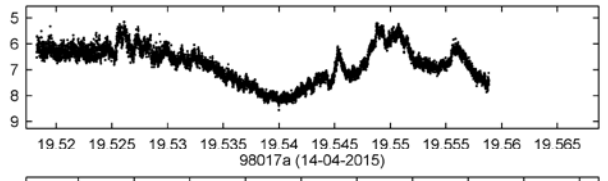
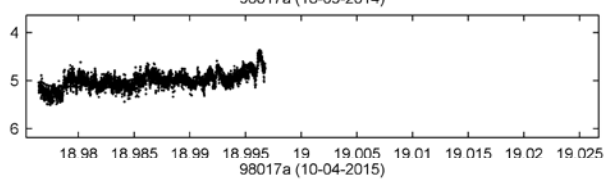
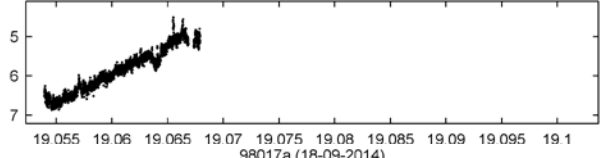
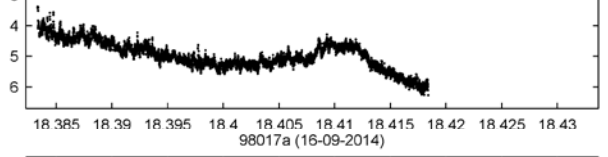
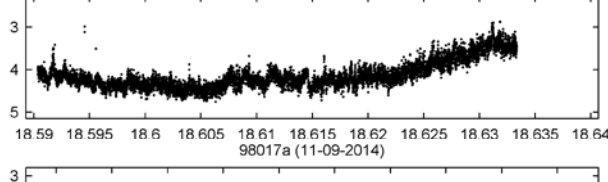
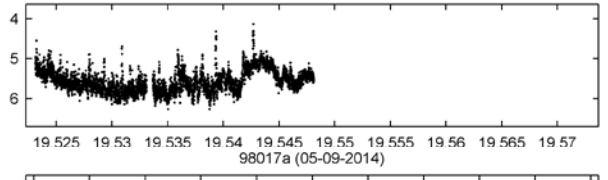
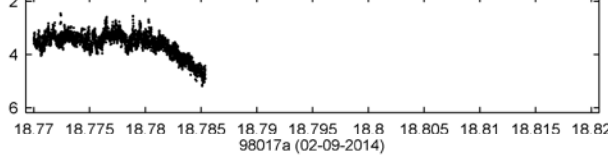
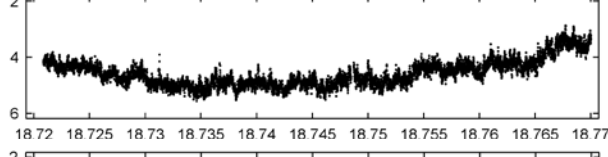
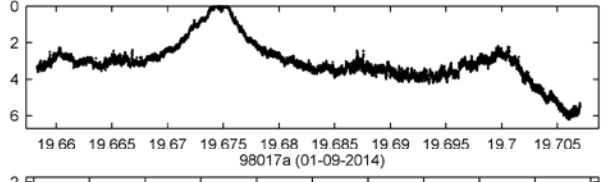
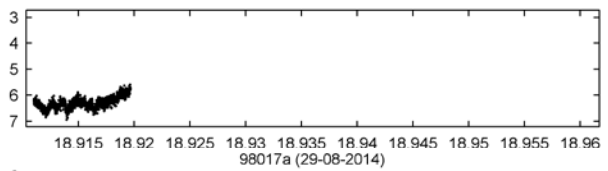
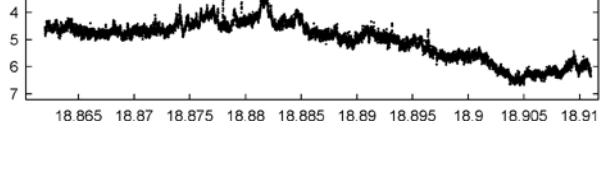
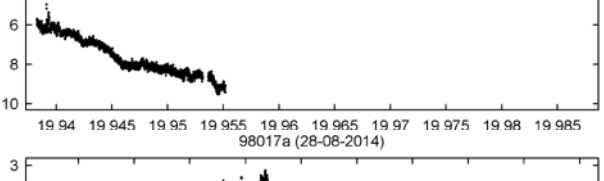
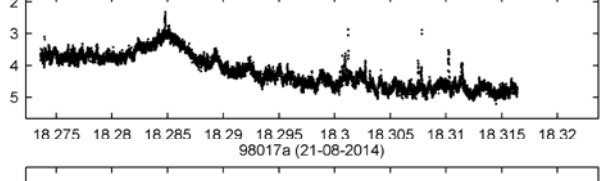
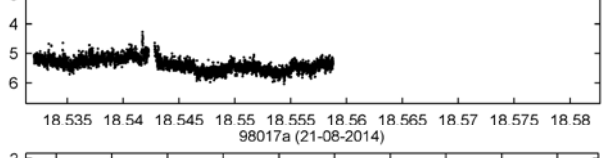
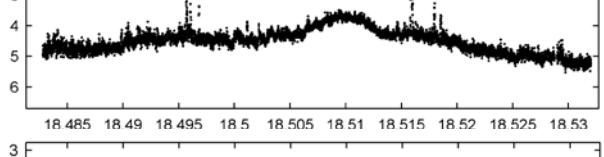
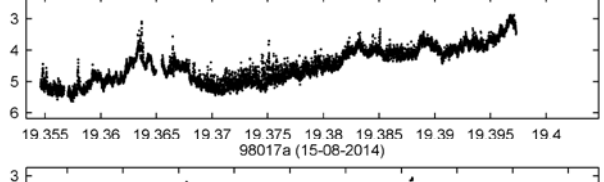
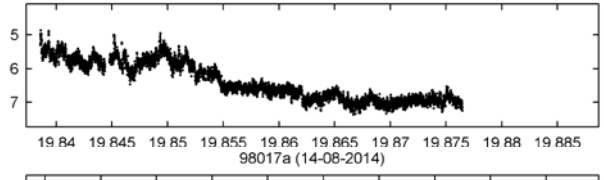
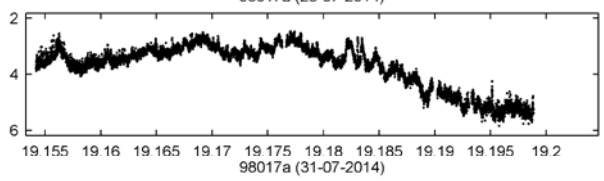
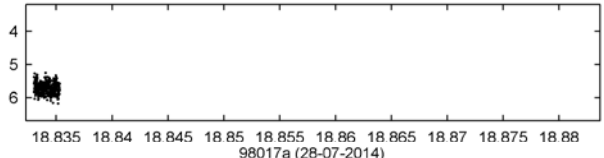
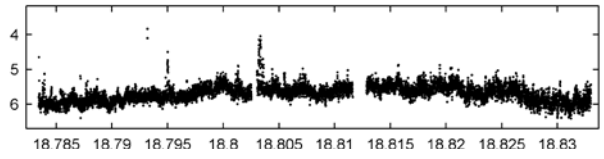
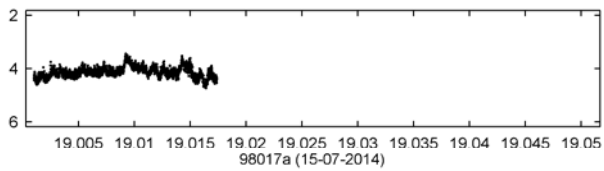
Apogee: 779 km
 Inclination: 86.4°
 Period: 100.4 min
 Eccentricity: 0.00042
 Launch date: 1997-12-20
 Source: United States (US)

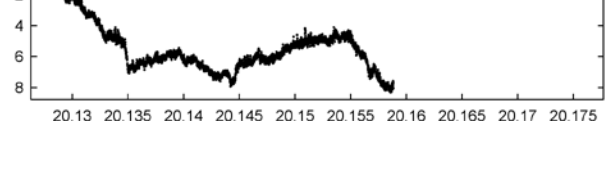
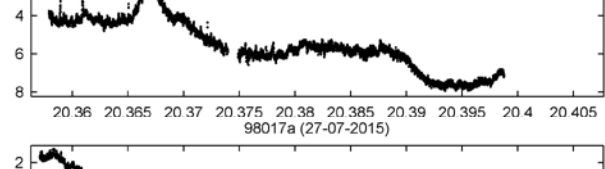
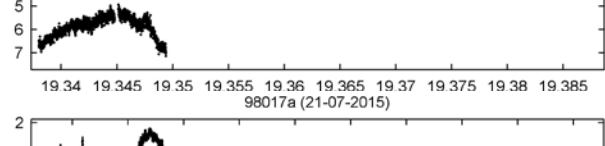
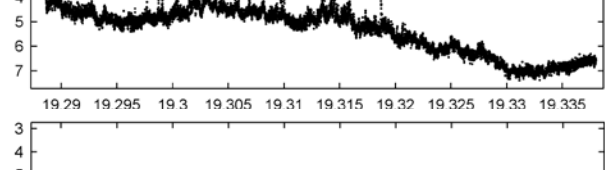
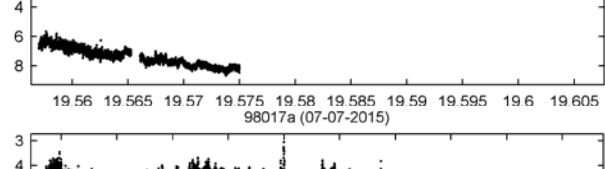
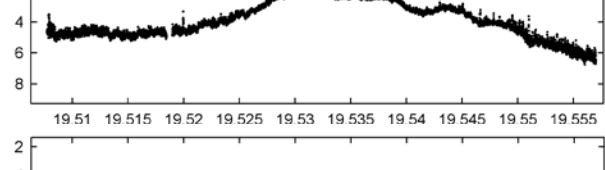
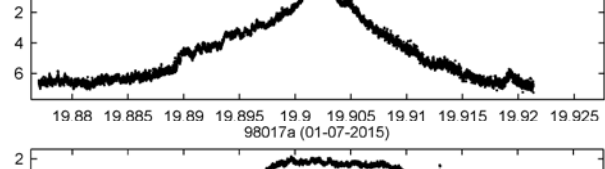
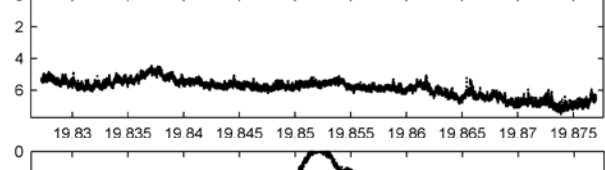
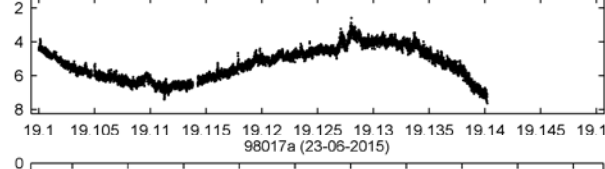
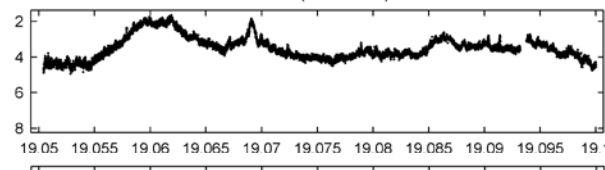
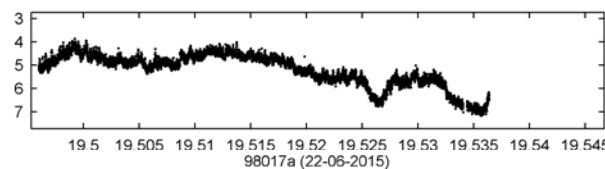
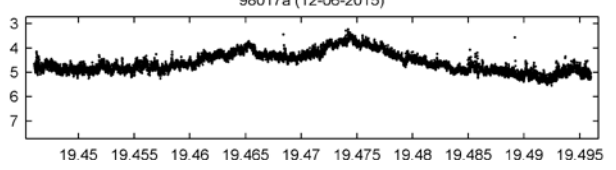
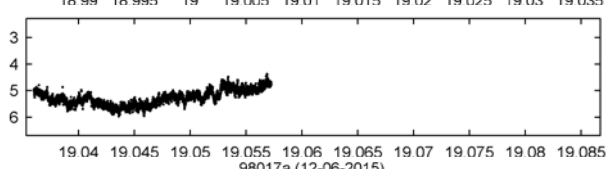
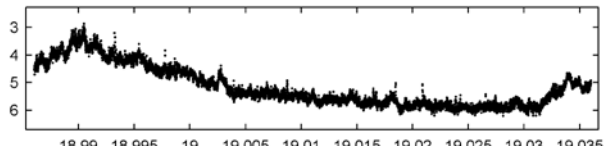
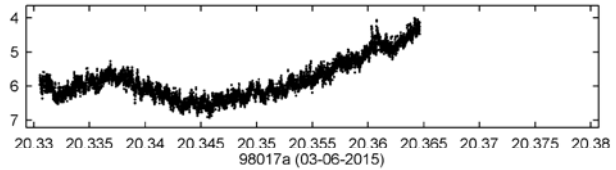
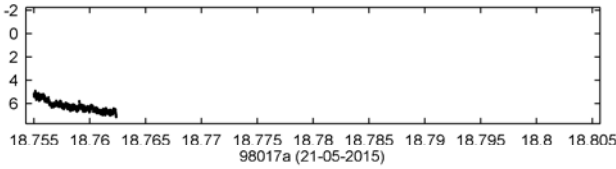
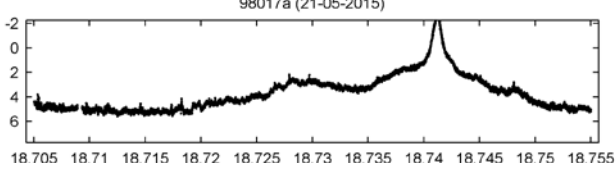
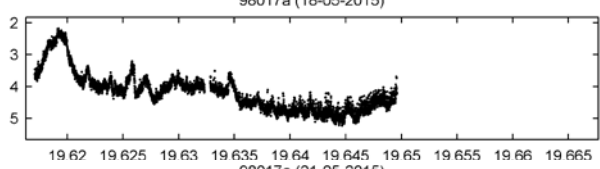
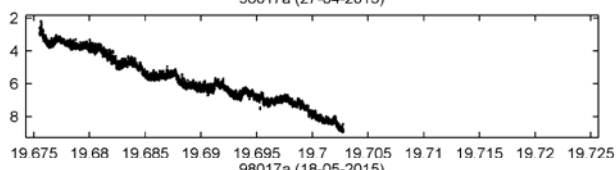
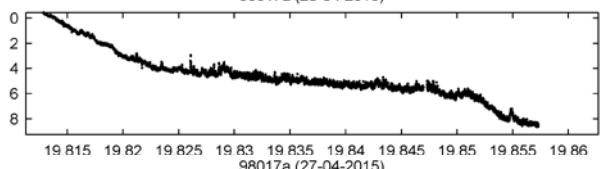
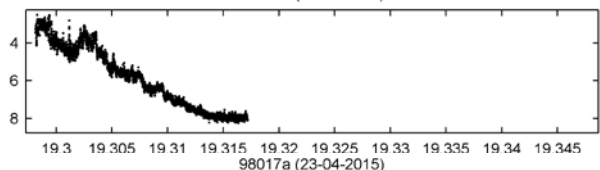
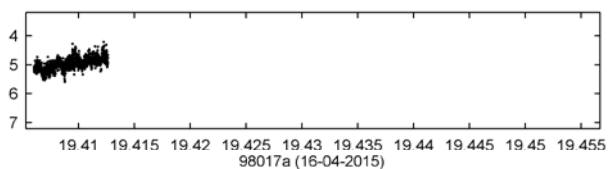


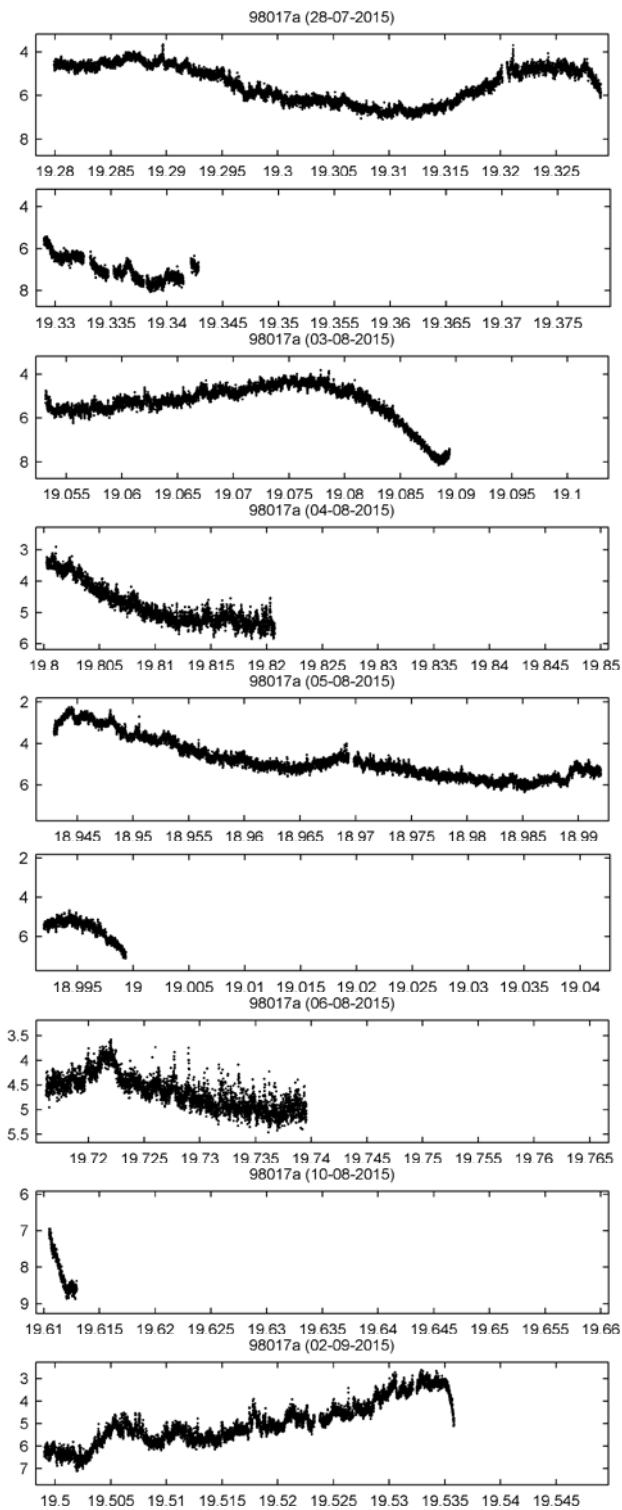
SPOT 4

NORAD ID: 25260
 Int'l Code: 1998-017A
 Dimensions: box+5 panels
 2.5m x 2.5m x 5.6m, 4m x 8m span
 Initial orbit:
 Perigee: 824 km
 Apogee: 825 km
 Inclination: 98.7°
 Period: 101.39 min
 Eccentricity: 0.00007
 Launch date: 1998-03-24
 Source: France (FR)



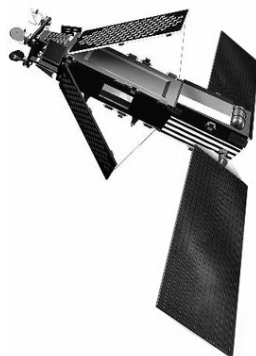




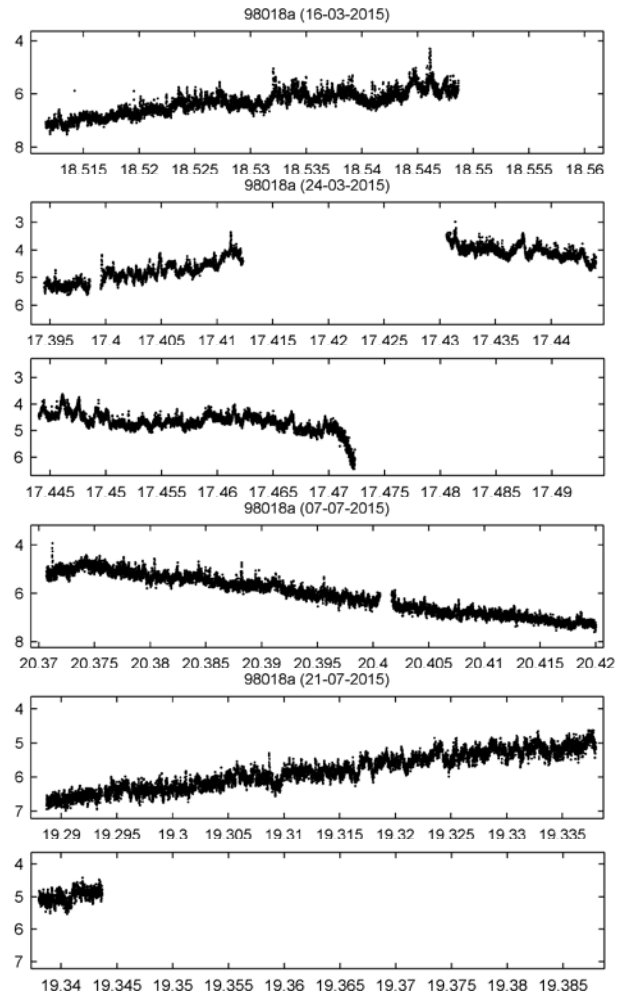


IRIDIUM 51

NORAD ID: 25262
 Int'l Code: 1998-018A
 Dimensions: box+2 panels
 1 across 3.5m long
 Initial orbit:
 Perigee: 775 km
 Apogee: 780 km
 Inclination: 86.4°
 Period: 100.40 min
 Eccentricity: 0.00035
 Launch date: 1998-03-25

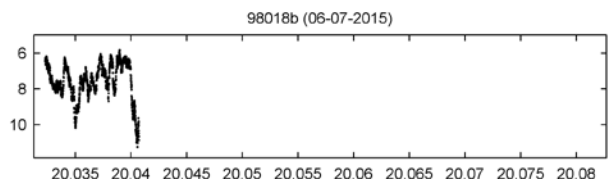
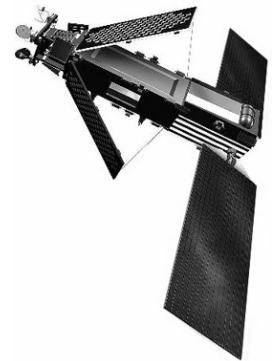


Source: United States (US)



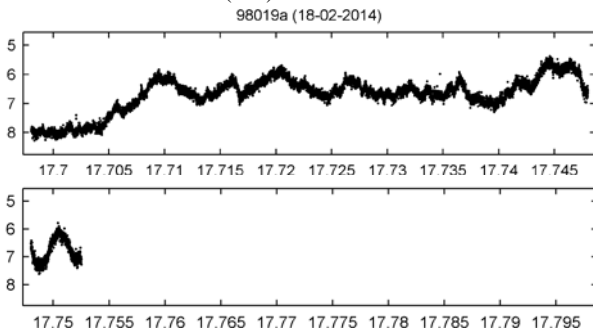
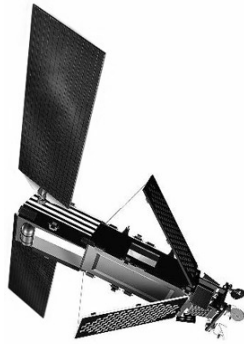
IRIDIUM 61

NORAD ID: 25263
 Int'l Code: 1998-018B
 Dimensions: box + 2 panels
 1 across 3.5m long
 Initial orbit:
 Perigee: 693 km
 Apogee: 696 km
 Inclination: 86.5°
 Period: 98.65 min
 Eccentricity: 0.000212
 Launch date: 1998-03-25
 Source: United States (US)



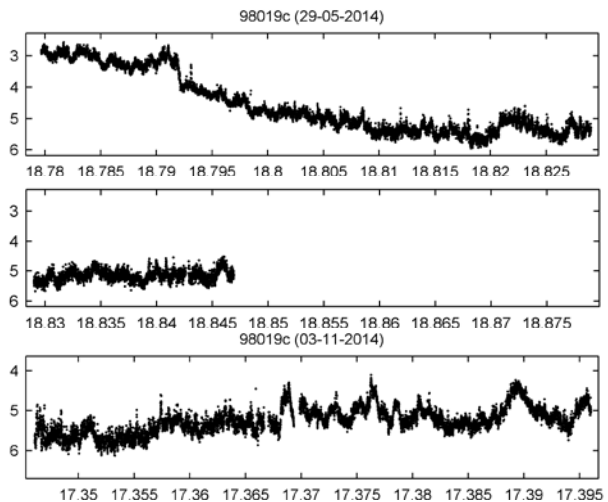
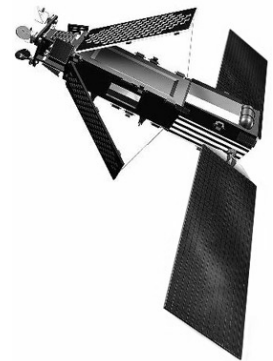
IRIDIUM 55

NORAD ID: 25272
 Int'l Code: 1998-019A
 Dimensions: box + 2 panels
 1 across 3.5 long
 Initial orbit:
 Perigee: 774 km
 Apogee: 780 km
 Inclination: 86.3°
 Period: 100.38 min
 Eccentricity: 0.0004
 Launch date: 1998-03-30
 Source: United States (US)



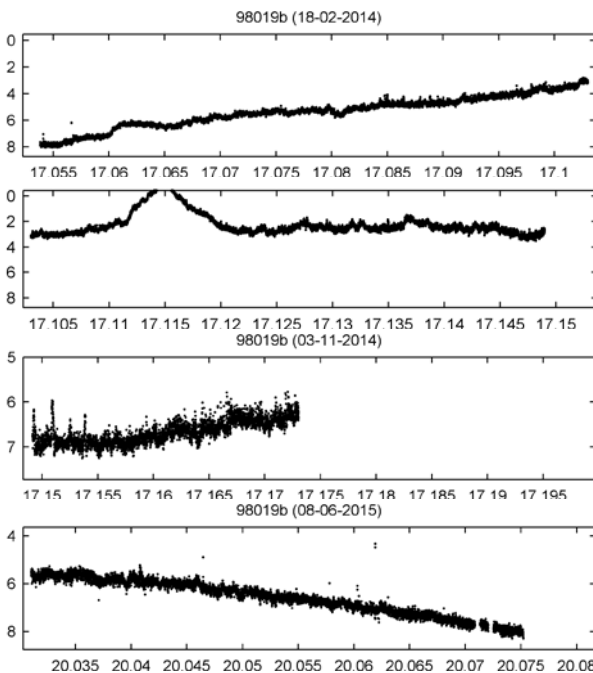
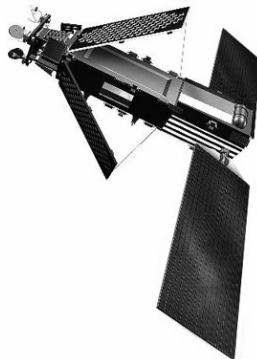
IRIDIUM 58

NORAD ID: 25274
 Int'l Code: 1998-019C
 Dimensions: box + 2 panels
 1 across 3.5m long
 Initial orbit:
 Perigee: 776 km
 Apogee: 778 km
 Inclination: 86.3°
 Period: 100.38 min
 Eccentricity: 0.00035
 Launch date: 1998-03-30
 Source: United States (US)



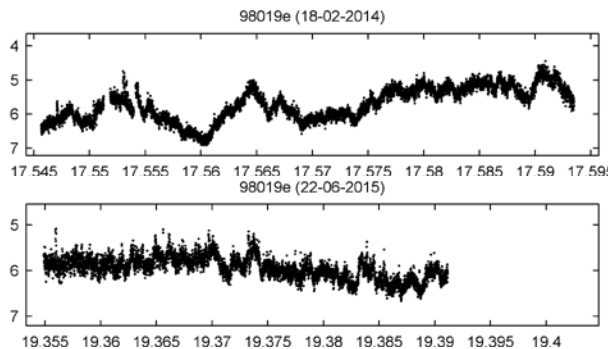
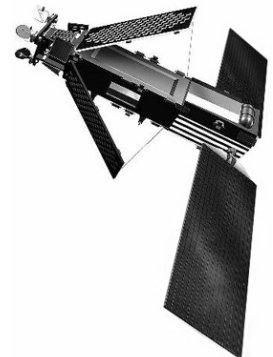
IRIDIUM 57

NORAD ID: 25273
 Int'l Code: 1998-019B
 Dimensions: box + 2 panels
 1 across 3.5m long
 Initial orbit:
 Perigee: 776 km
 Apogee: 779 km
 Inclination: 86.4°
 Period: 100.4 min
 Eccentricity: 0.00042
 Launch date: 1998-03-30
 Source: United States (US)



IRIDIUM 60

NORAD ID: 25276
 Int'l Code: 1998-019E
 Dimensions: box + 2 panels
 1 across 3.5m long
 Initial orbit:
 Perigee: 773 km
 Apogee: 781 km
 Inclination: 86.3°
 Period: 100.38 min
 Eccentricity: 0.00035
 Launch date: 1998-03-30
 Source: United States (US)

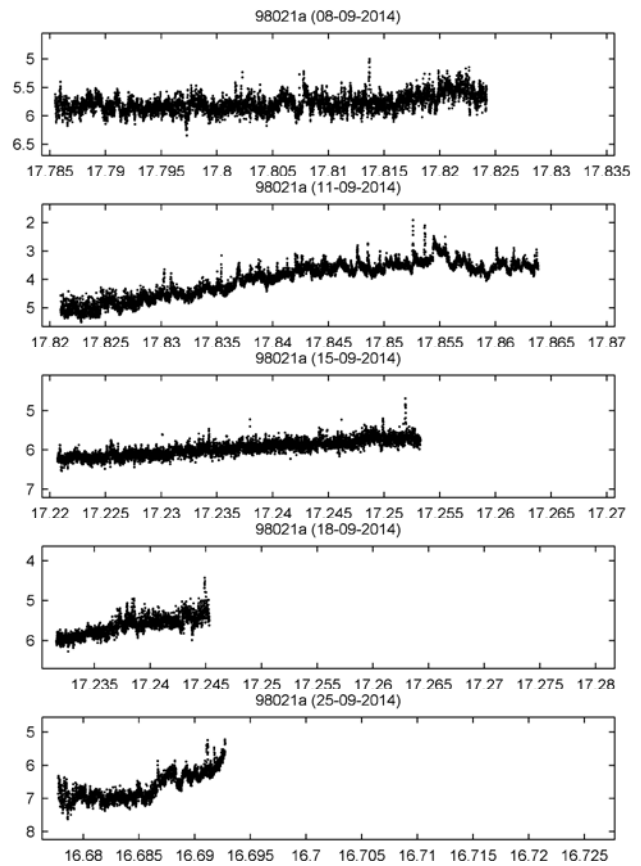
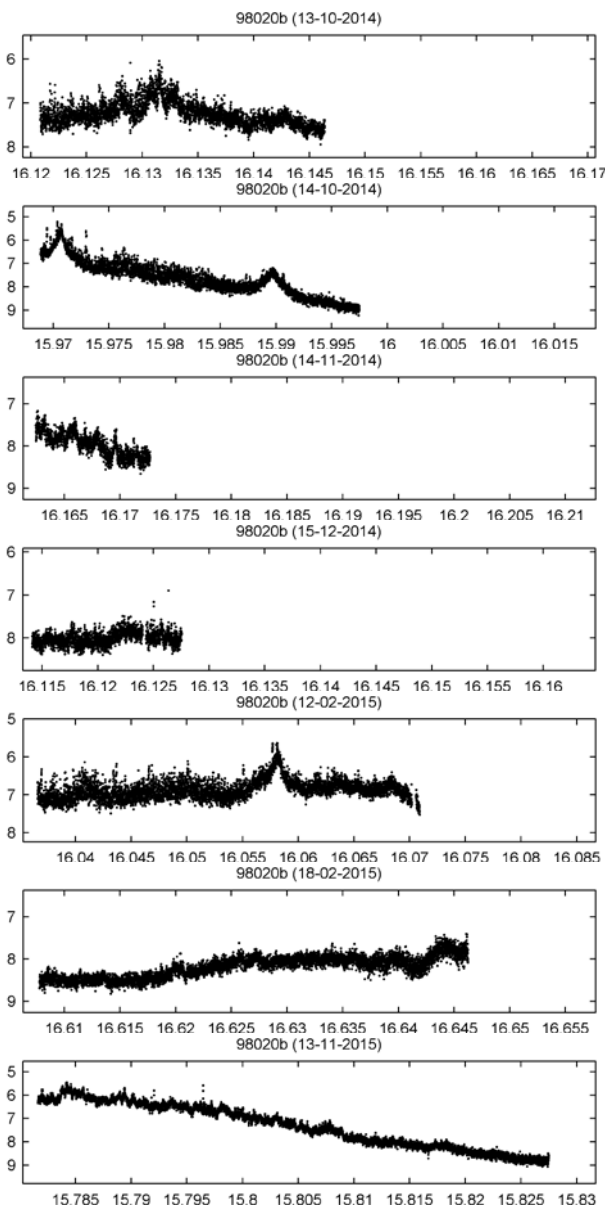


PEGASUS R/B
(Pegasus-XL 3rd stage)

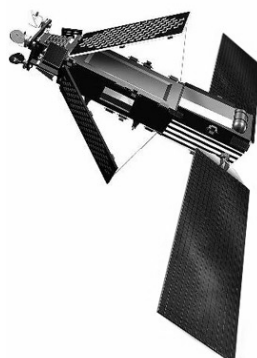
NORAD ID: 25281
 Int'l Code: 1998-020B
 Dimensions: cone-cyl
 0.97m dia 2.08m long
 Initial orbit:
 Perigee: 522 km
 Apogee: 539 km
 Inclination: 97.6°
 Period: 95.2 min
 Eccentricity: 0.0012
 Launch date: 1998-04-02
 Source: United States (US)



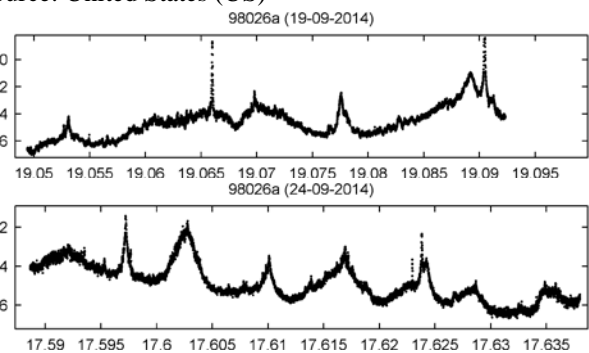
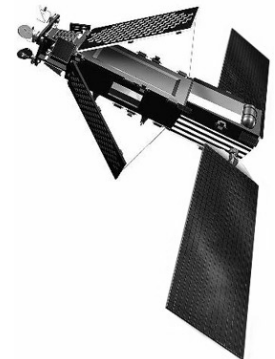
Inclination: 86.4°
 Period: 100.38 min
 Eccentricity: 0.00035
 Launch date: 1998-04-07
 Source: United States (US)

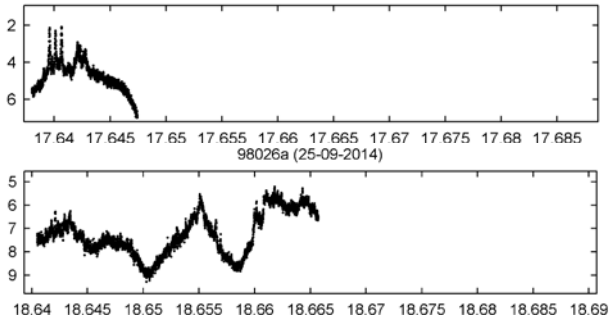


IRIDIUM 62
 NORAD ID: 25285
 Int'l Code: 1998-021A
 Dimensions: box + 2 panels
 1 across 3.5m long
 Initial orbit:
 Perigee: 776 km
 Apogee: 778 km



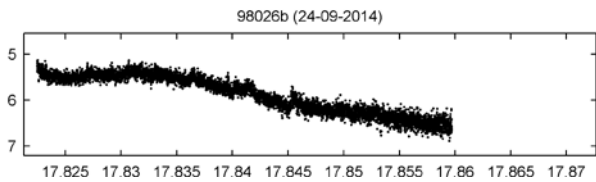
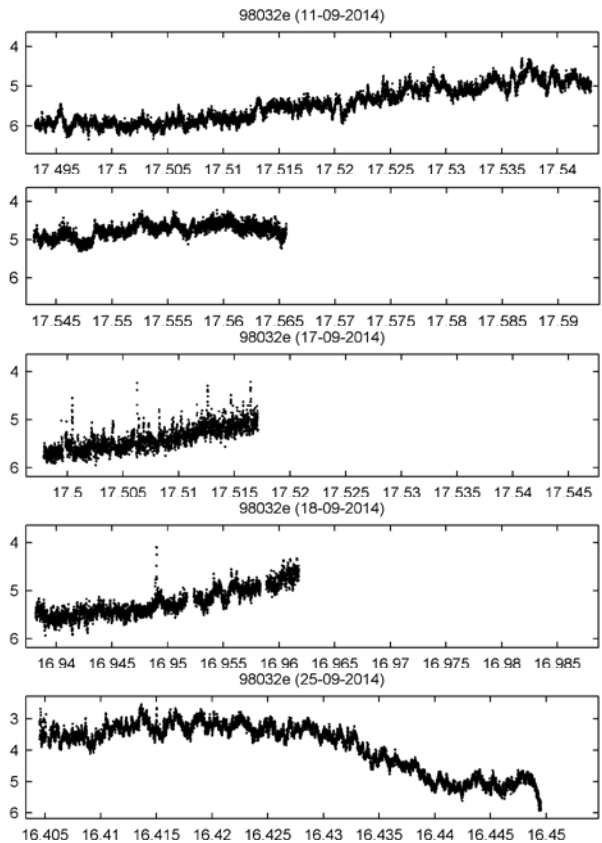
IRIDIUM 69
 NORAD ID: 25319
 Int'l Code: 1998-026A
 Dimensions: box + 2 panels
 1 across 3.5m long
 Initial orbit:
 Perigee: 761 km
 Apogee: 767 km
 Inclination: 86.4°
 Period: 100.1 min
 Eccentricity: 0.00042
 Launch date: 1998-05-02
 Source: United States (US)





IRIDIUM 71

NORAD ID: 25320
 Int'l Code: 1998-026B
 Dimensions: box + 2 panels
 1 across 3.5m long
 Initial orbit:
 Perigee: 760 km
 Apogee: 765 km
 Inclination: 86.4°
 Period: 100.1 min
 Eccentricity: 0.00035
 Launch date: 1998-05-02
 Source: United States (US)



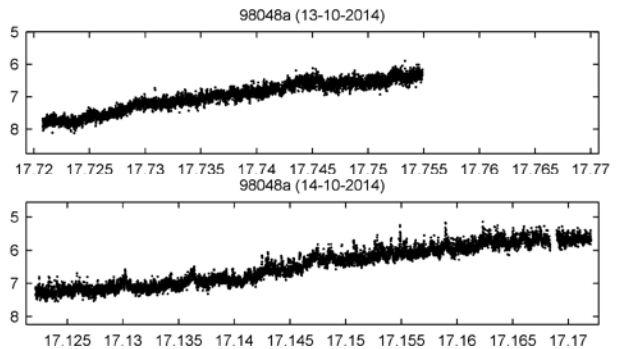
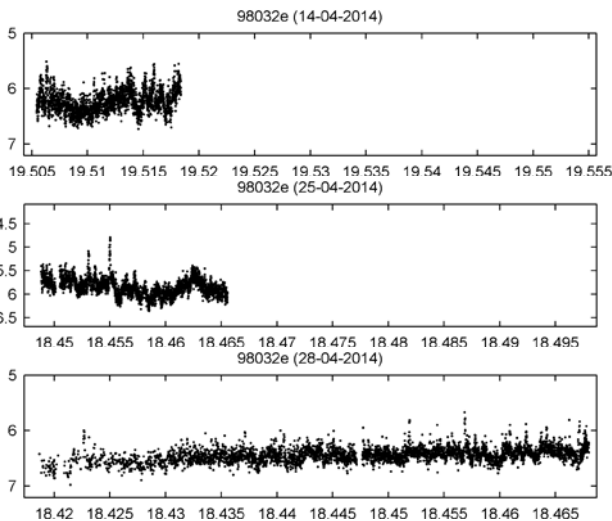
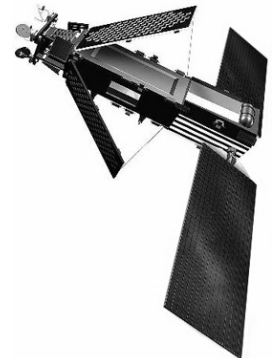
IRIDIUM 75

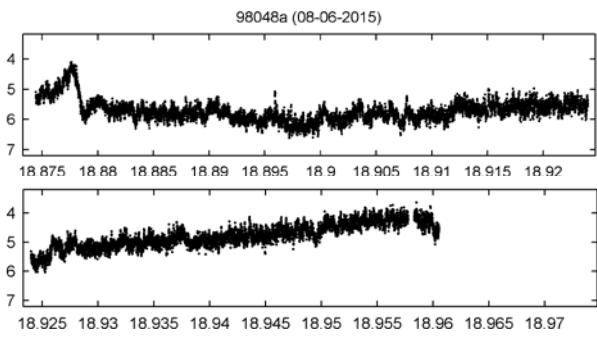
NORAD ID: 25346
 Int'l Code: 1998-032E
 Dimensions: box + 2 panels
 1 across 3.5m long
 Initial orbit:
 Perigee: 692 km
 Apogee: 695 km
 Inclination: 86.5°
 Period: 98.63 min
 Eccentricity: 0.0002
 Launch date: 1998-05-17
 Source: United States (US)



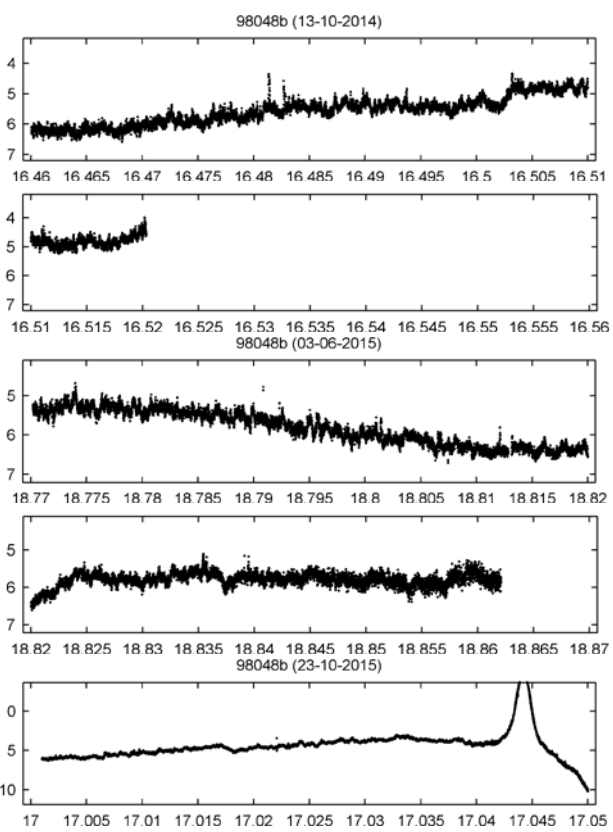
IRIDIUM 78 (3?)

NORAD ID: 25431
 Int'l Code: 1998-048A
 Dimensions: box + 2 panels
 1 across 3.5m long
 Initial orbit:
 Perigee: 776 km
 Apogee: 779 km
 Inclination: 86.3°
 Period: 100.40 min
 Eccentricity: 0.00021
 Launch date: 1998-08-19
 Source: United States (US)

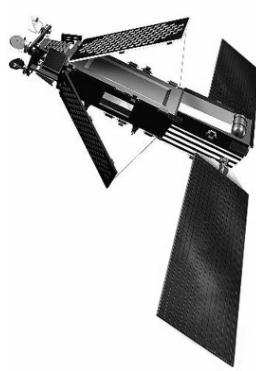




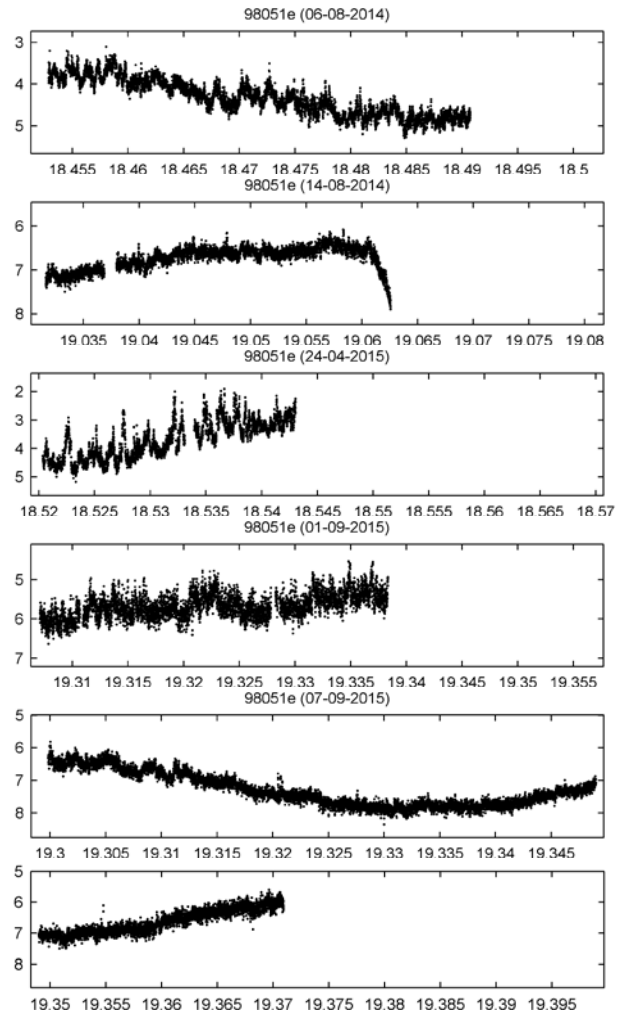
IRIDIUM 76
 NORAD ID: 25432
 Int'l Code: 1998-048B
 Dimensions: box + 2 panels
 1 across 3.5m long
 Initial orbit:
 Perigee: 775 km
 Apogee: 779 km
 Inclination: 86.3°
 Period: 100.38 min
 Eccentricity: 0.00028
 Launch date: 1998-08-19
 Source: United States (US)



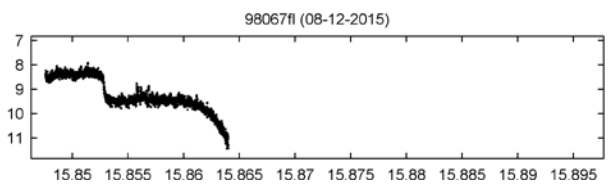
IRIDIUM 77
 NORAD ID: 25471
 Int'l Code: 1998-051E
 Dimensions: box+2 panels
 1 across 3.5m long
 Initial orbit:
 Perigee: 704 km
 Apogee: 708 km
 Inclination: 86.5°



Period: 98.89 min
 Eccentricity: 0.0003
 Launch date: 1998-09-08
 Source: United States (US)



SPINSAT (Fragments)
 NORAD ID: 40314
 Int'l Code: 1998-067FL
 Dimensions:
 Initial orbit:
 Perigee:
 Apogee:
 Inclination:
 Period:
 Eccentricity:
 Launch date: 1998-11-20
 Source: United States (US)



SWAS

(SMEX 3, EXPLORER 74)

NORAD ID: 25560

Int'l Code: 1998-071A

Dimensions: box + 4 panels 1 side

Initial orbit:

Perigee: 638 km

Apogee: 650 km

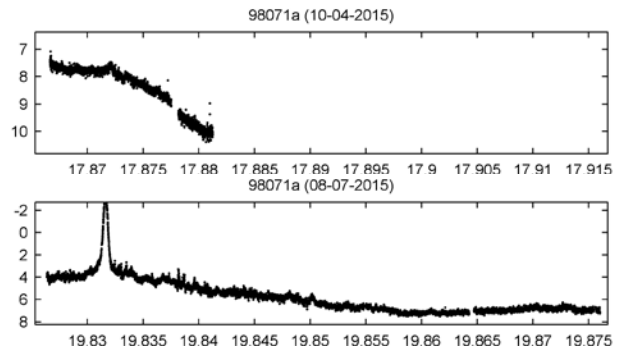
Inclination: 69.9°

Period: 97.60 min

Eccentricity: 0.00086

Launch date: 1998-12-06

Source: United States (US)



IRIDIUM 88 (20A)

NORAD ID: 25577

Int'l Code: 1998-074A

Dimensions: box + 2 panels

1 across 3.5m long

Initial orbit:

Perigee: 687 km

Apogee: 713 km

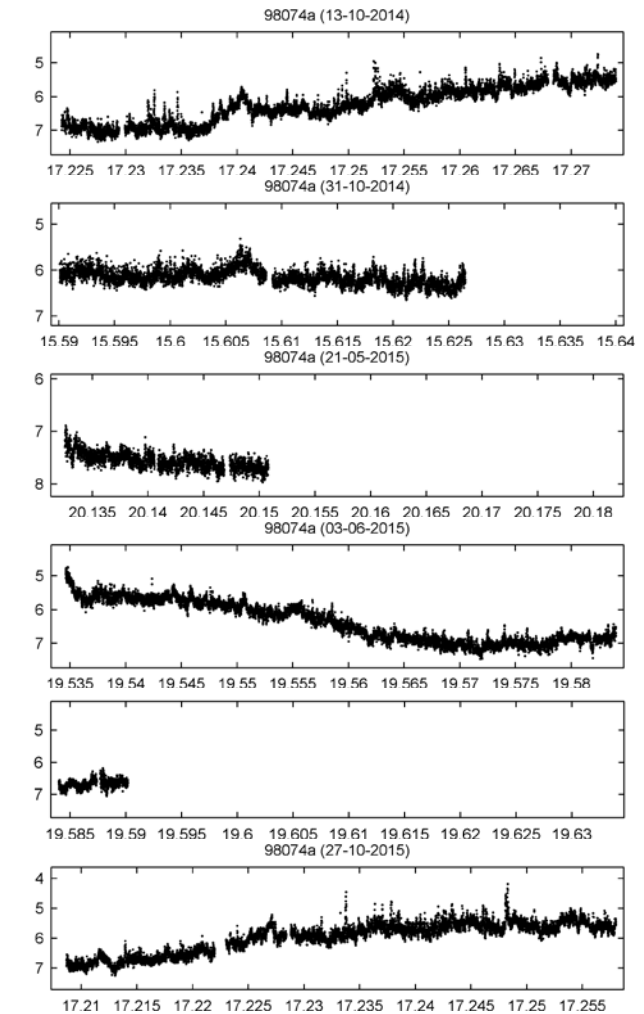
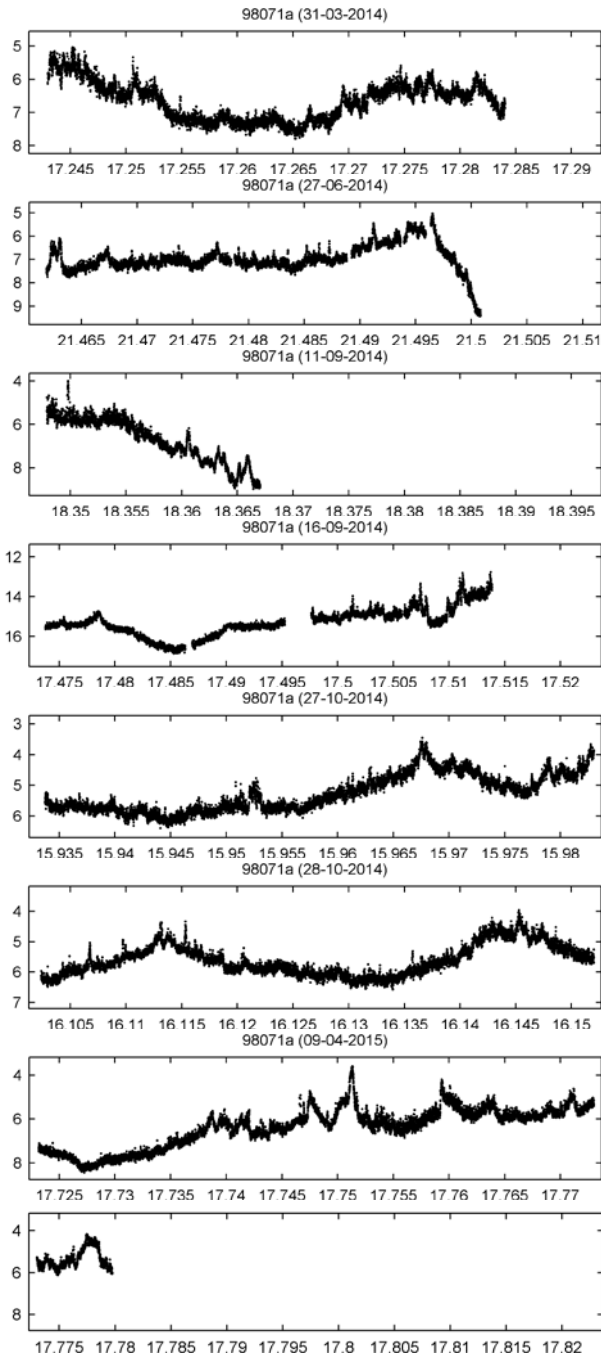
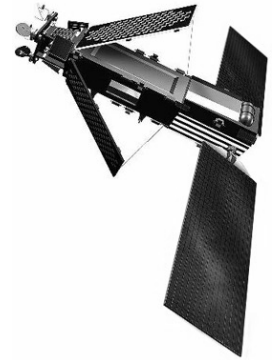
Inclination: 86.5°

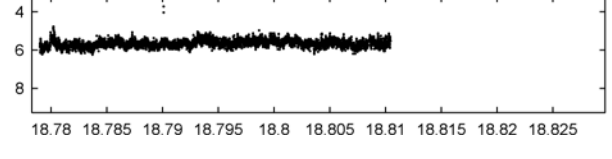
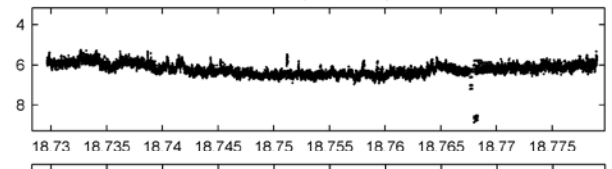
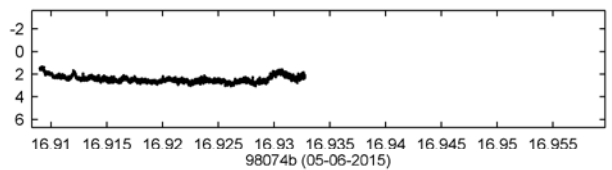
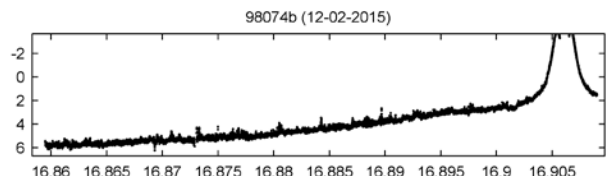
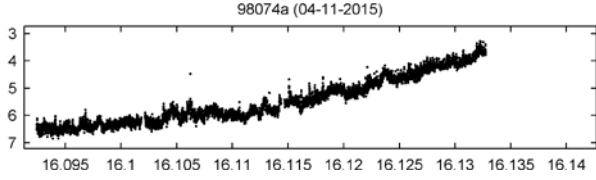
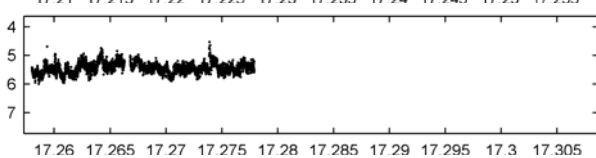
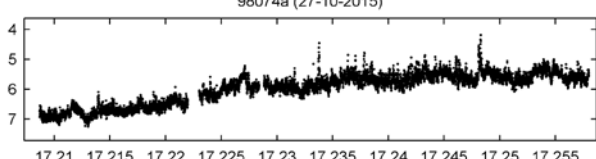
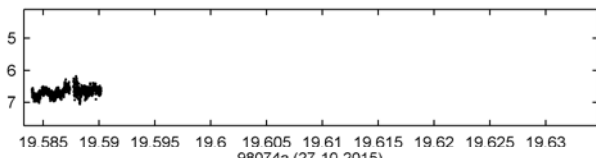
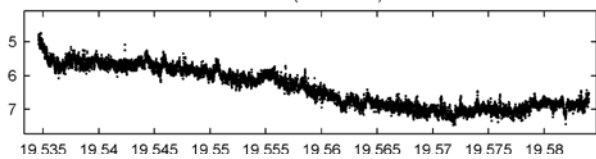
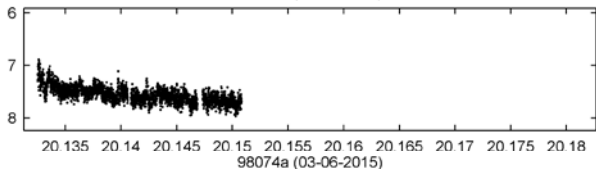
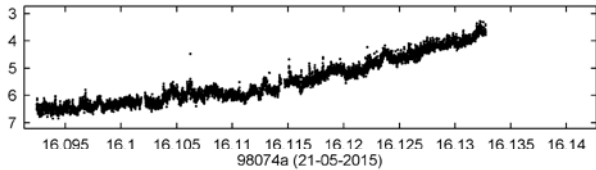
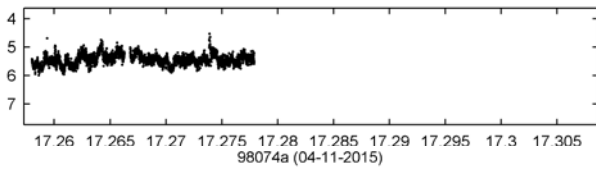
Period: 98.77 min

Eccentricity: 0.001838

Launch date: 1998-12-19

Source: United States (US)





GLOBALSTAR M042

NORAD ID: 25679

Int'l Code: 1999-019D

Dimensions: trapezoidal box

0.60 m x 1.50 m x 1.60 m +

2 panels 12 m span

Initial orbit:

Perigee: 1412 km

Apogee: 1414 km

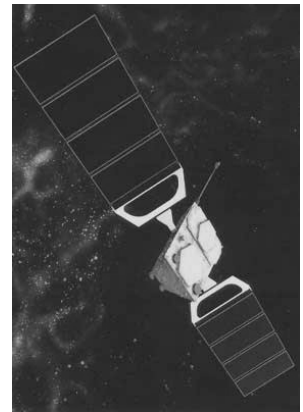
Inclination: 52.0°

Period: 114.06 min

Eccentricity: 0.000128

Launch date: 1999-04-15

Source: Globalstar (GLOB)



IRIDIUM 89 (11A)

NORAD ID: 25578

Int'l Code: 1998-074B

Dimensions: box + 2 panels

1 across 3.5m long

Initial orbit:

Perigee: 685 km

Apogee: 712 km

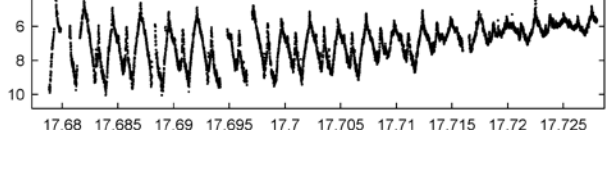
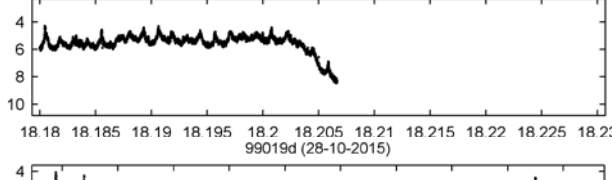
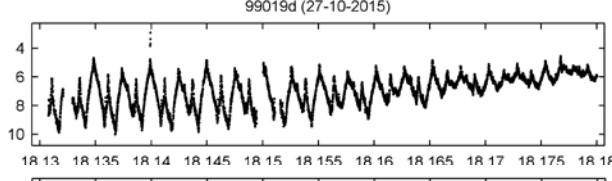
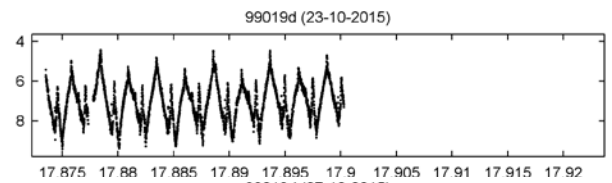
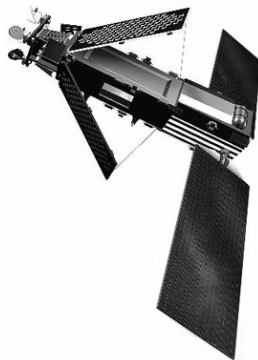
Inclination: 86.5°

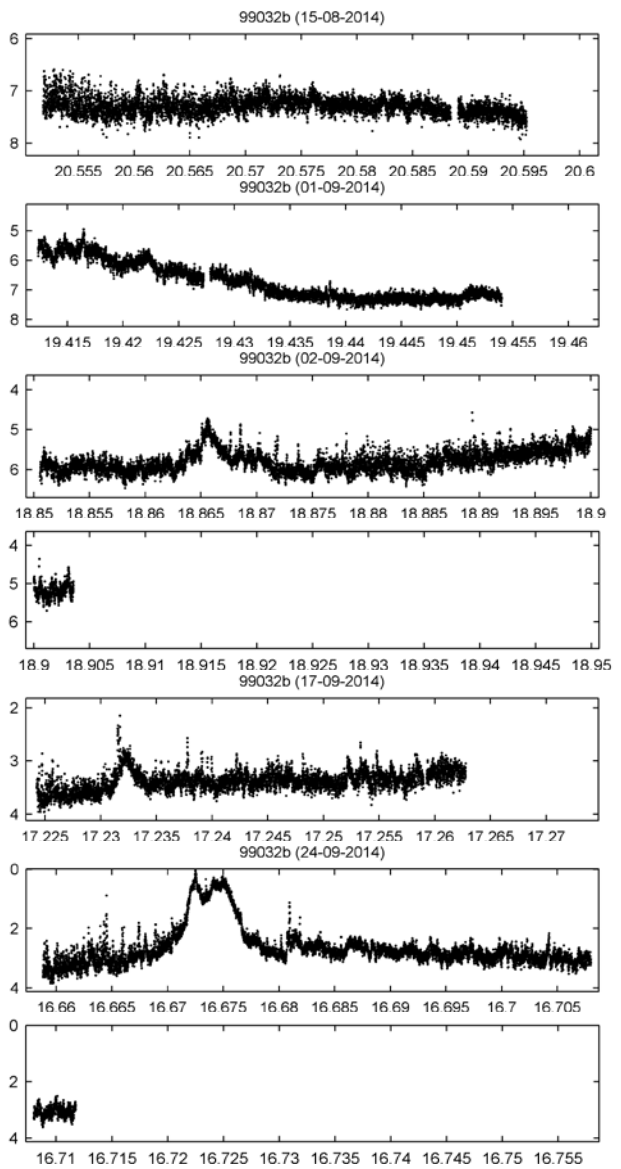
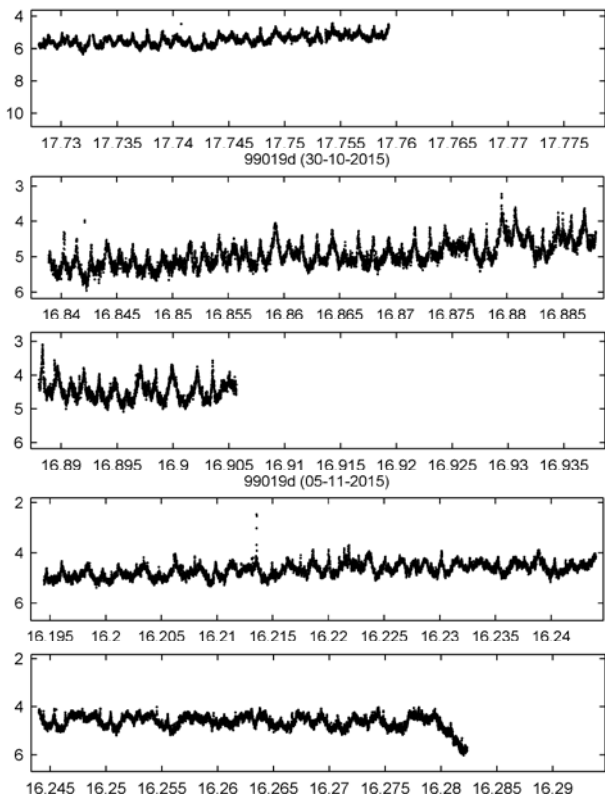
Period: 98.74 min

Eccentricity: 0.00191

Launch date: 1998-12-19

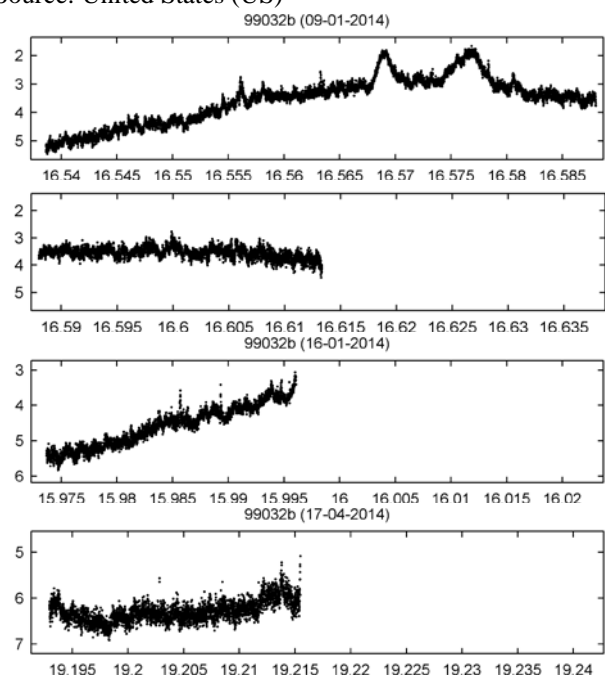
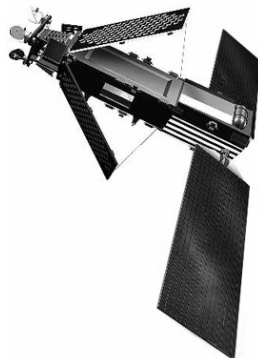
Source: United States (US)





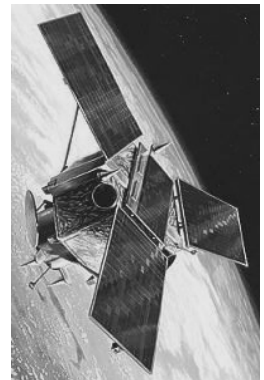
IRIDIUM 93 (IRIDIUM 21A)

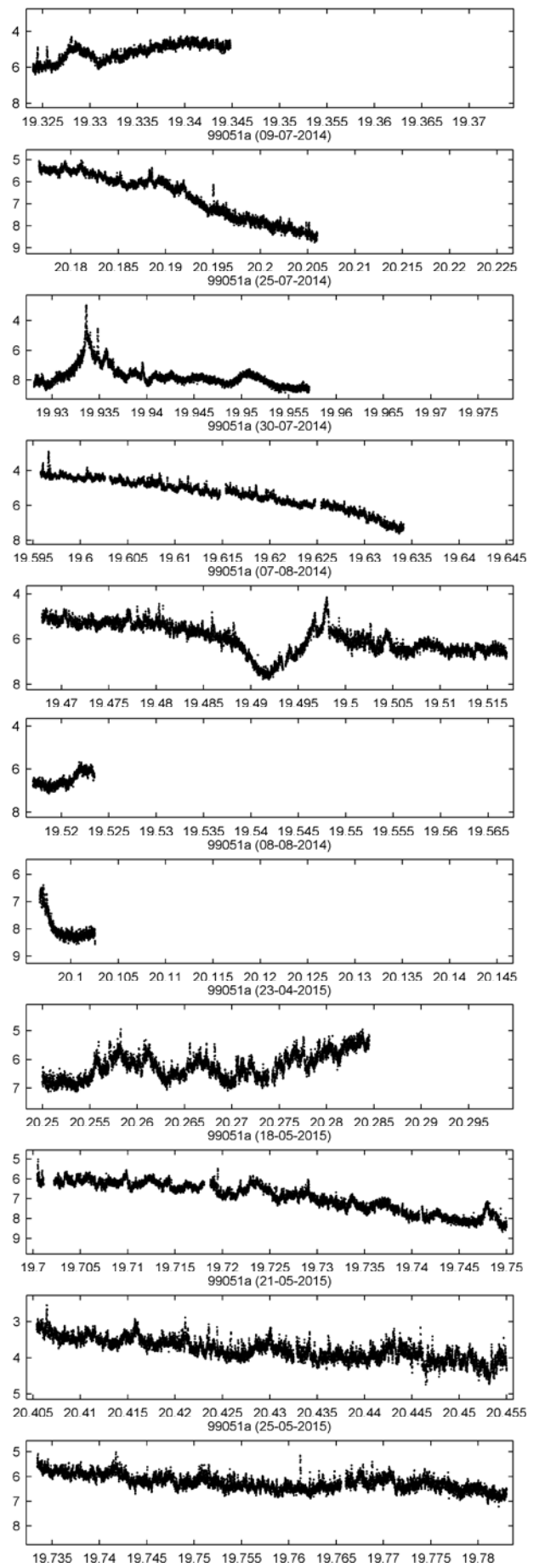
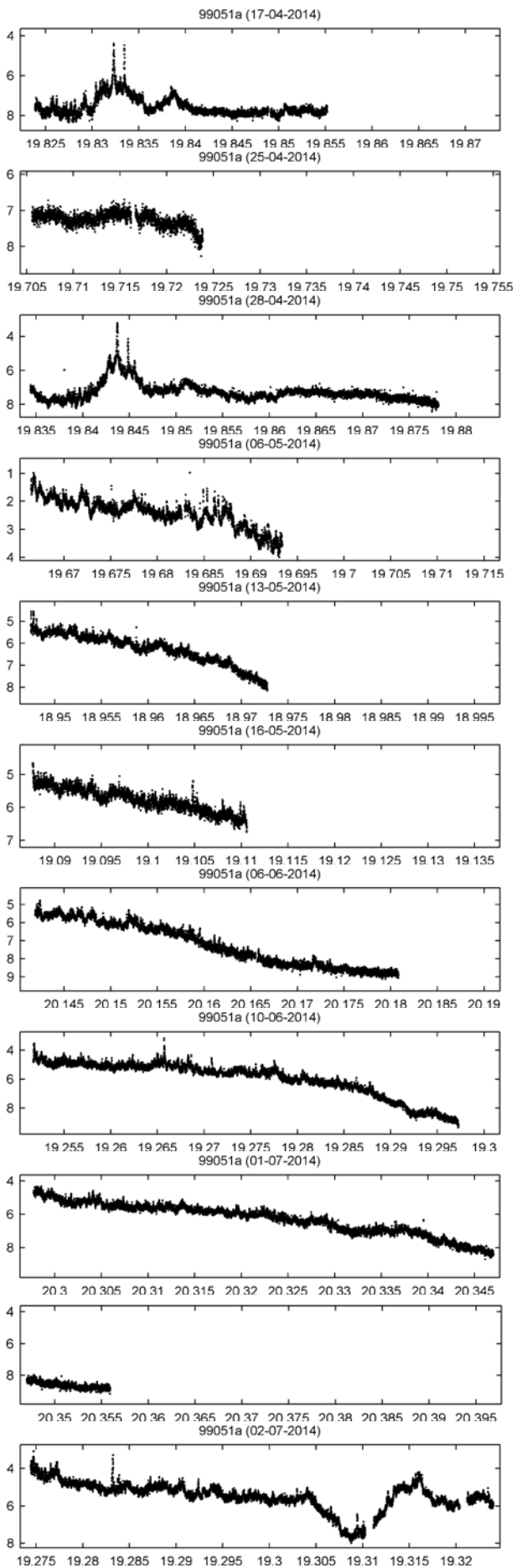
NORAD ID: 25778
 Int'l Code: 1999-032B
 Dimensions: box + 2 panels
 1 across 3.5m long
 Initial orbit:
 Perigee: 709 km
 Apogee: 711 km
 Inclination: 86.5°
 Period: 98.98 min
 Eccentricity: 0.0001
 Launch date: 1999-06-11
 Source: United States (US)

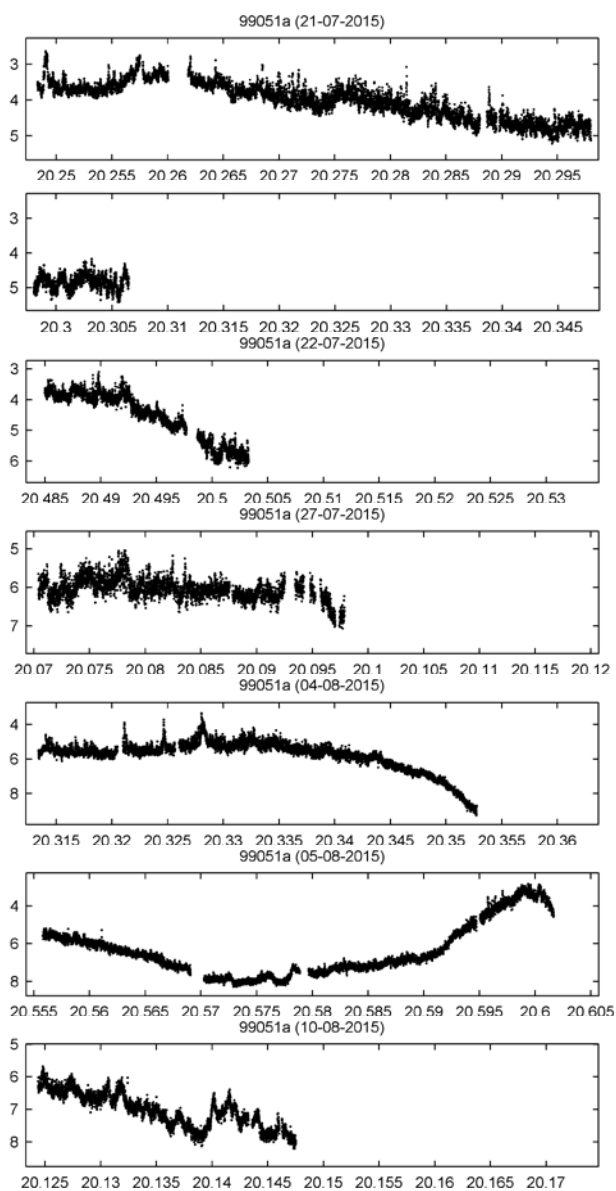
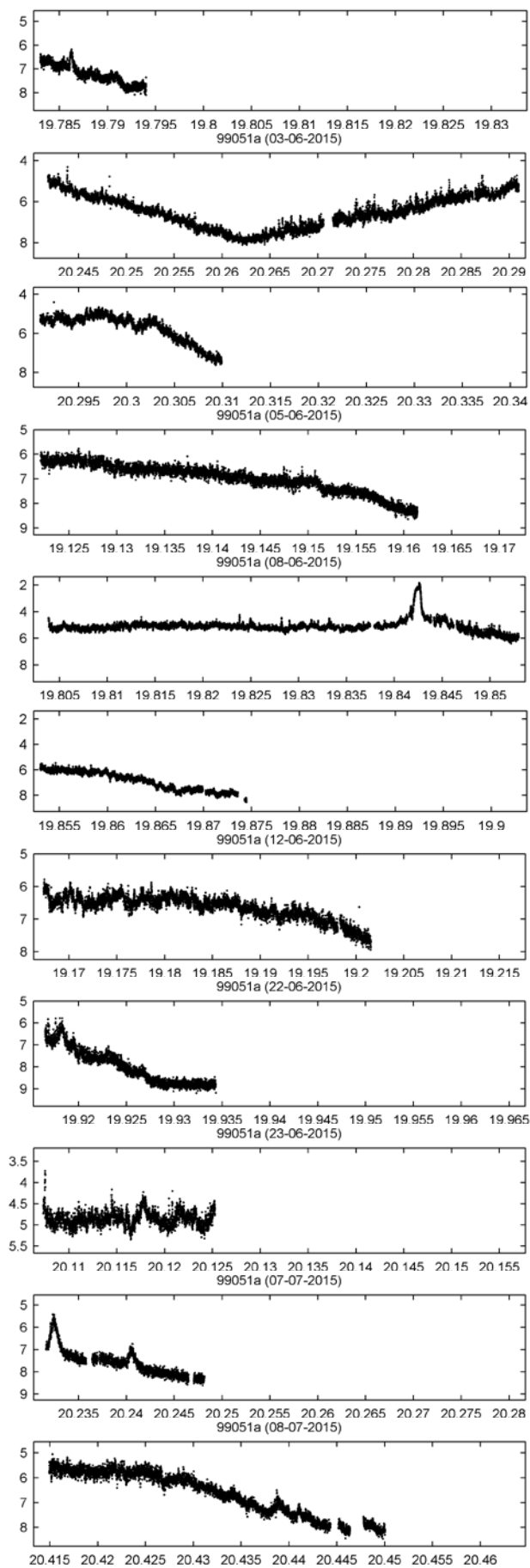


IKONOS 2

NORAD ID: 25919
 Int'l Code: 1999-051A
 Dimensions: box
 1.8m x 1.8m x 1.6m + 2 panels
 Initial orbit:
 Perigee: 677 km
 Apogee: 682 km
 Inclination: 98.1°
 Period: 98.34 min
 Eccentricity: 0.00035
 Launch date: 1999-09-24
 Source: United States (US)







TERRA (EOS AM-1)

NORAD ID: 25994

Int'l Code: 1999-068A

Dimensions: box 1.7m x 2m x 5.9m

Initial orbit:

Perigee: 655 km

Apogee: 686 km

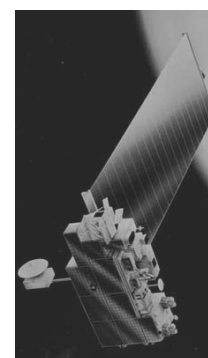
Inclination: 98.2°

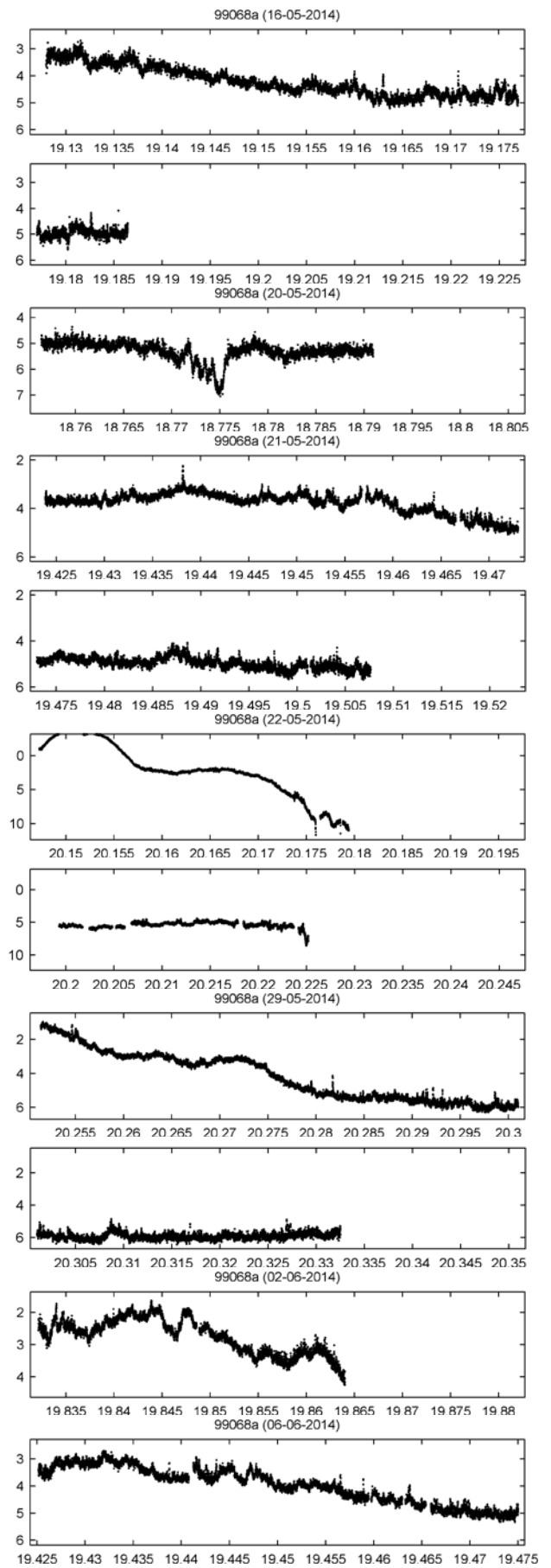
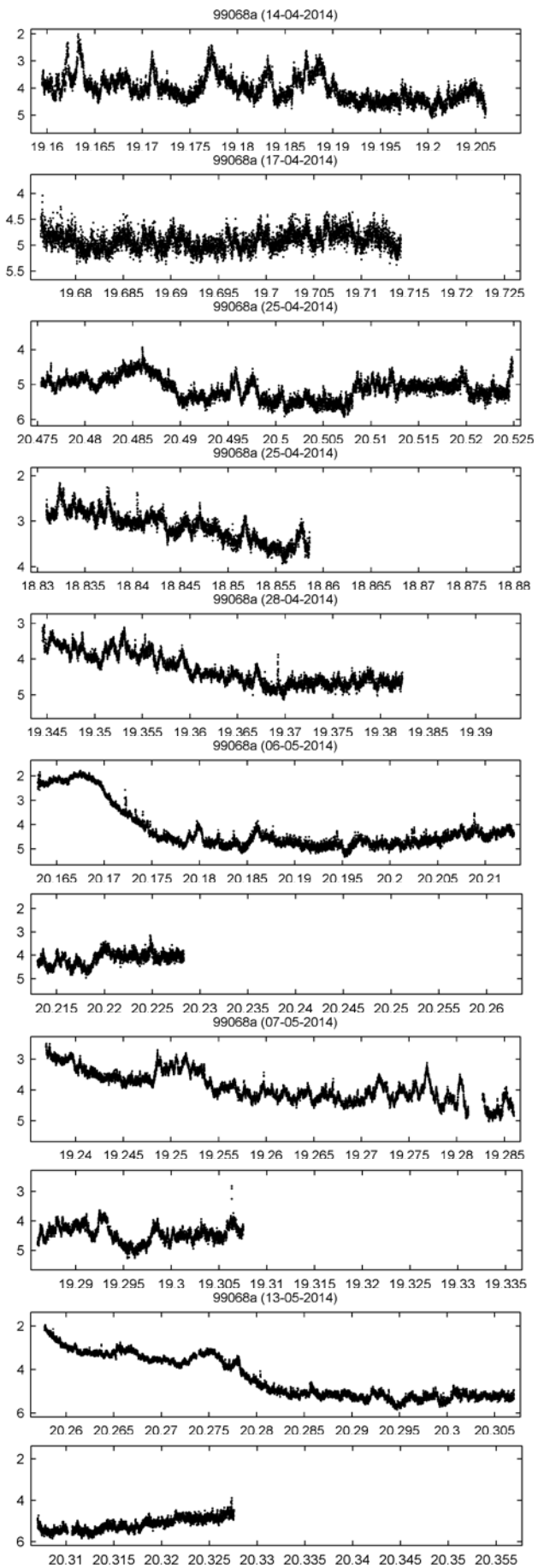
Period: 98.15 min

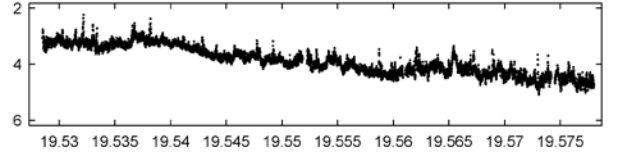
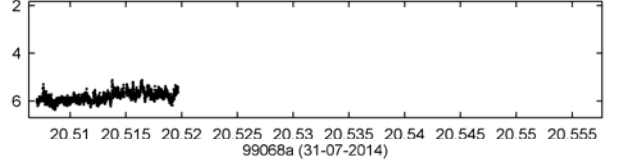
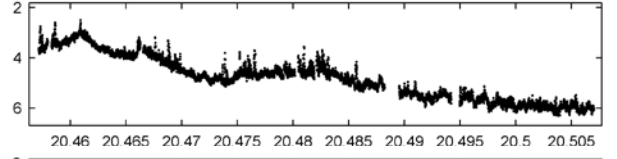
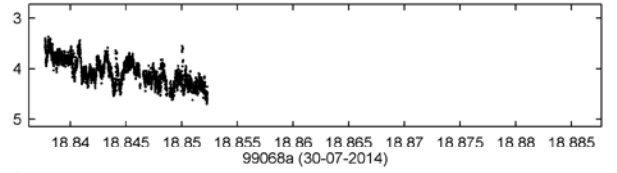
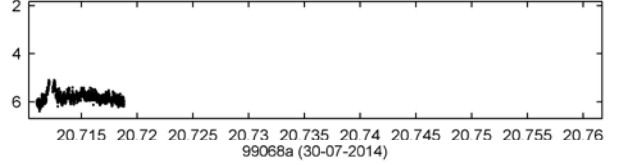
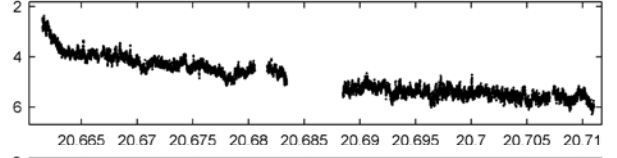
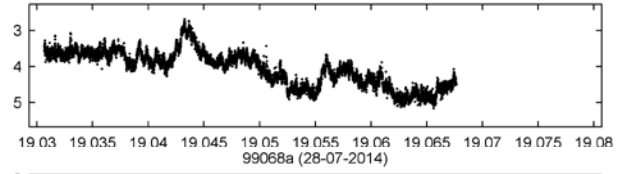
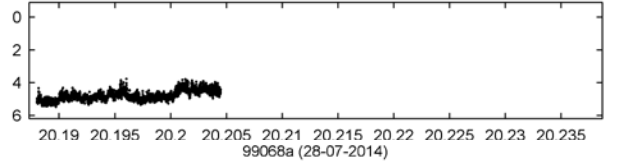
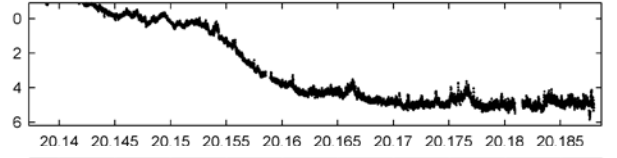
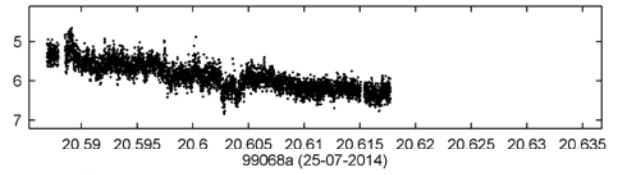
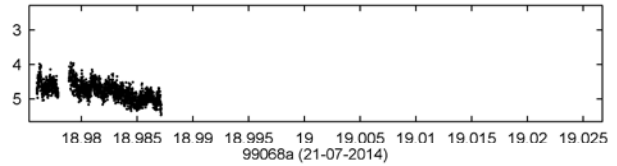
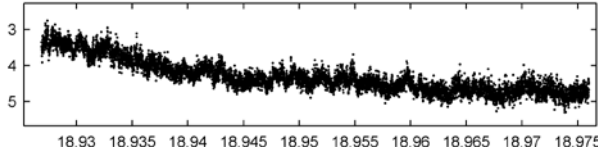
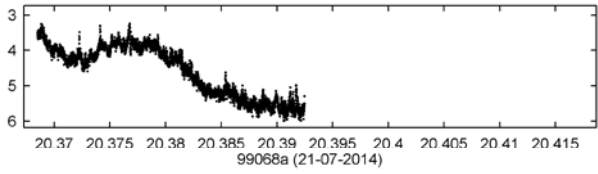
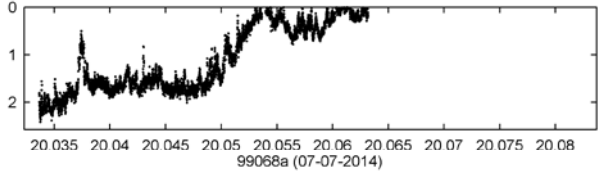
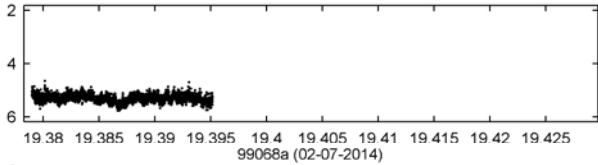
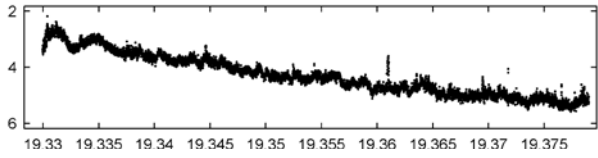
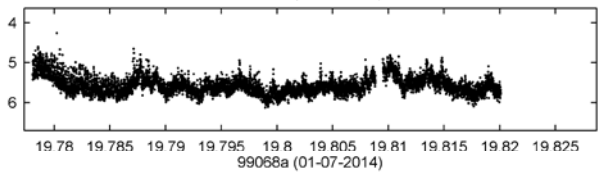
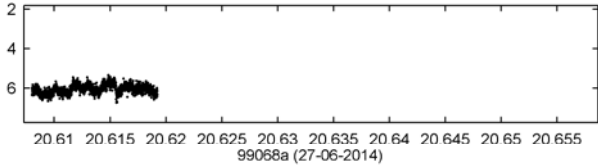
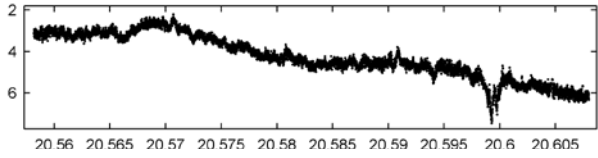
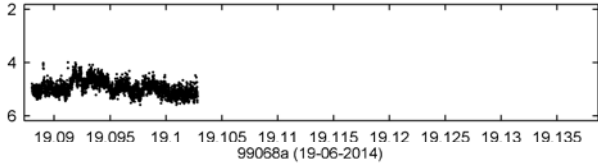
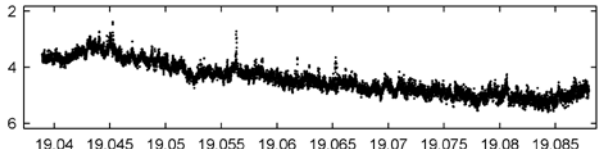
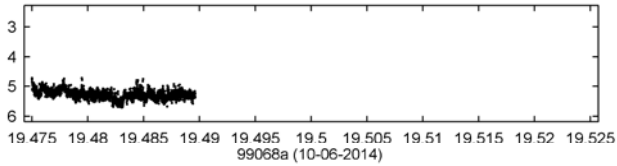
Eccentricity: 0.0022

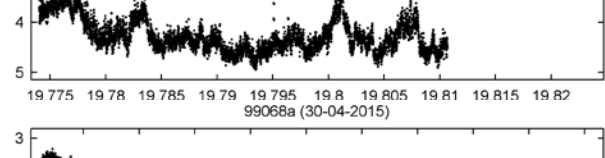
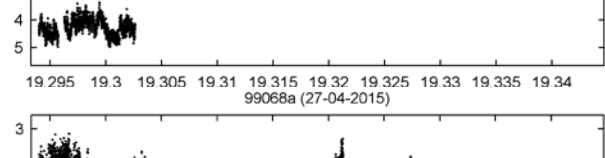
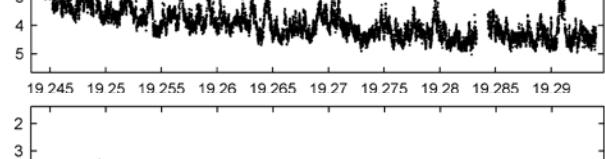
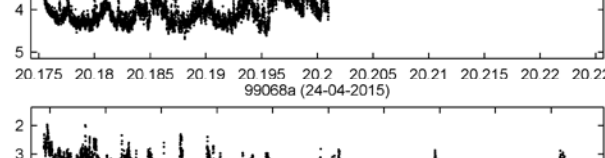
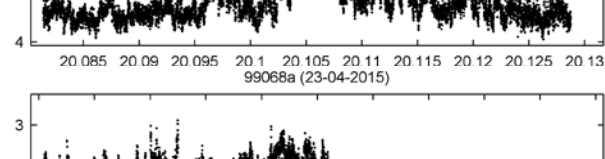
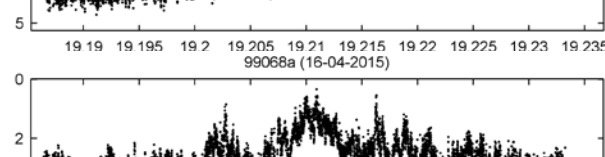
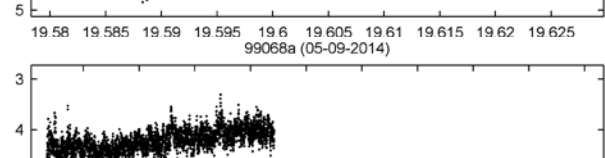
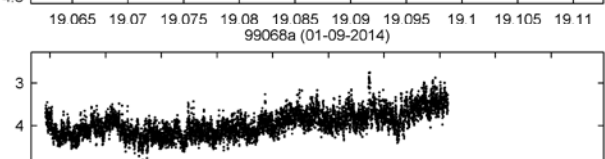
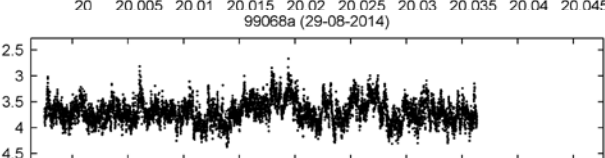
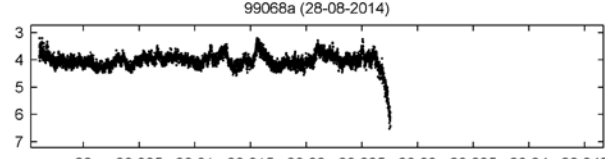
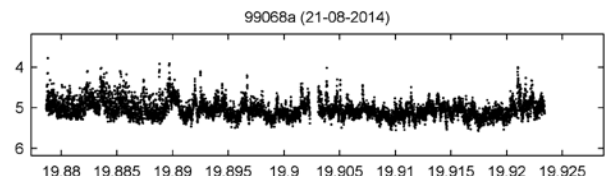
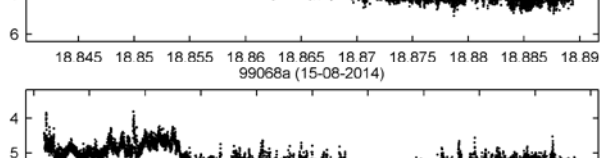
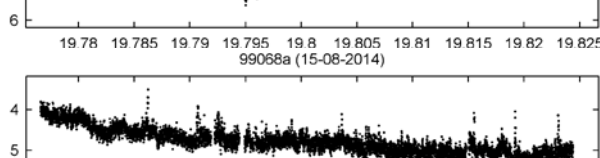
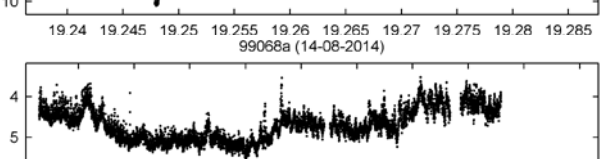
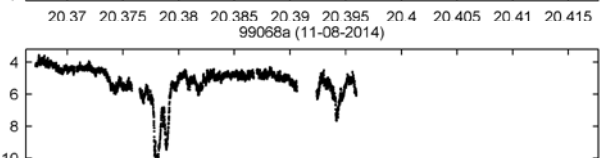
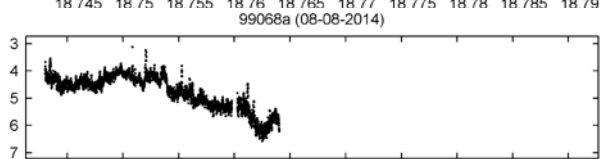
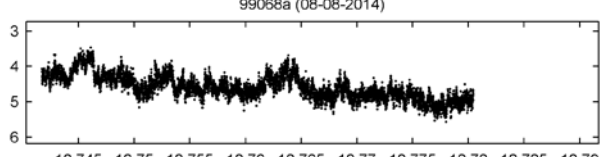
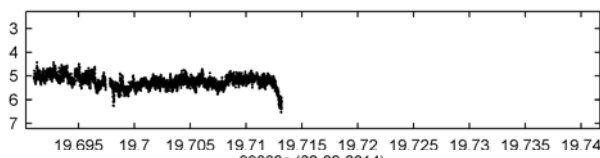
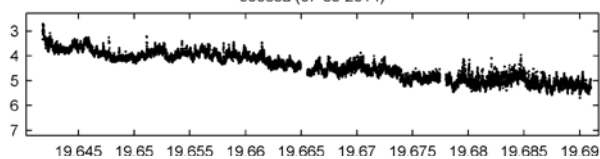
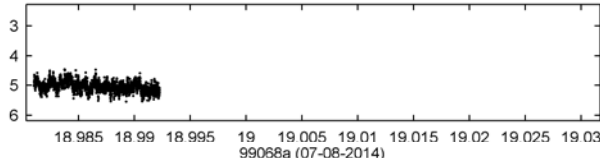
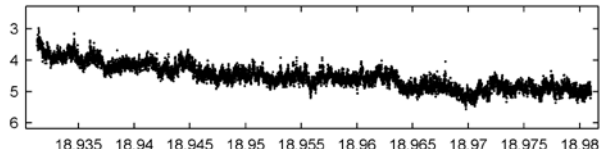
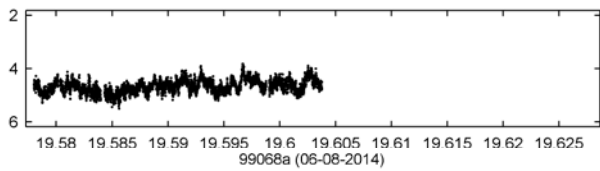
Launch date: 1999-12-18

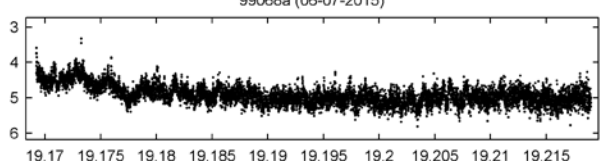
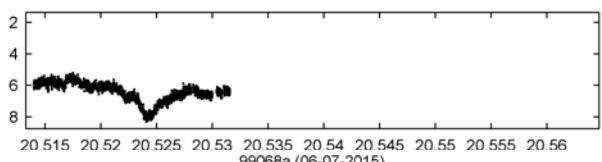
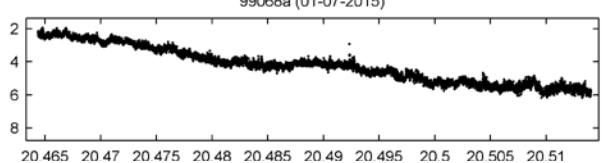
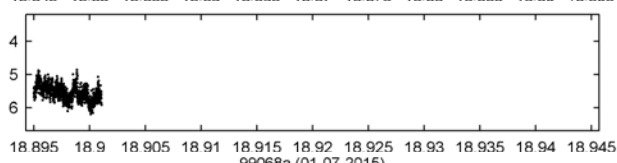
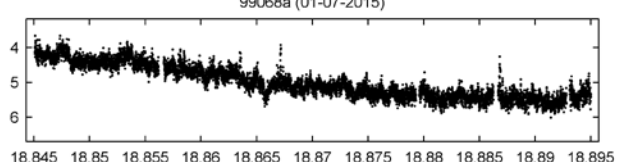
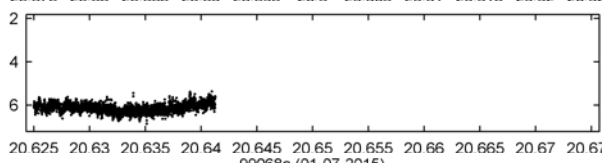
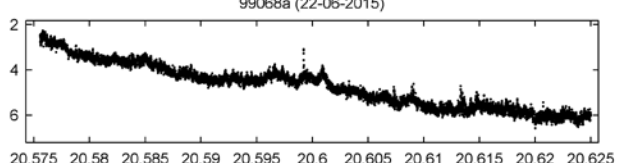
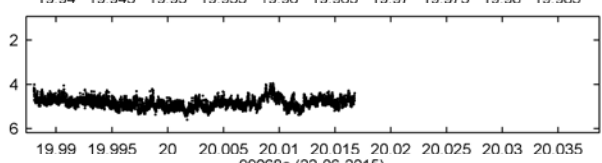
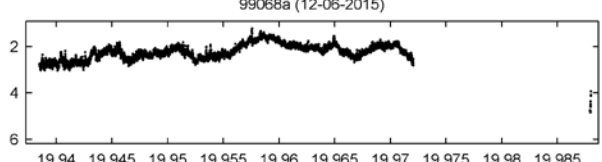
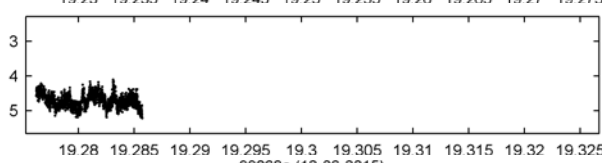
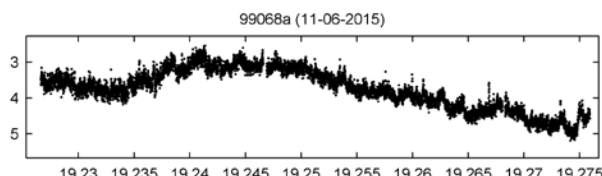
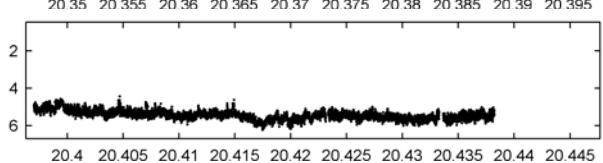
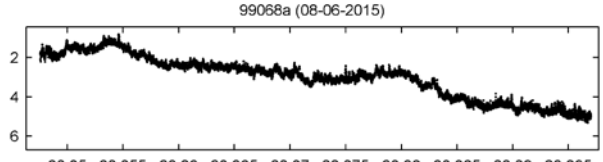
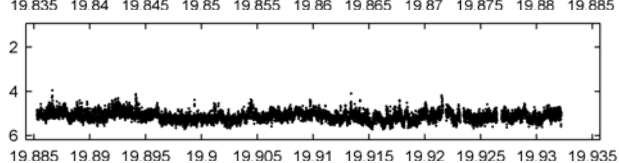
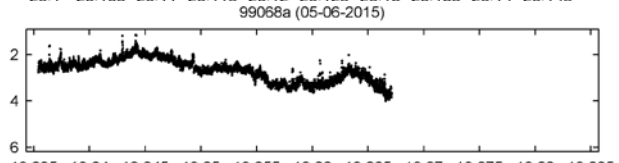
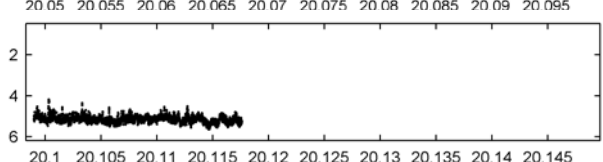
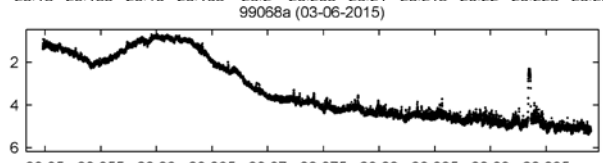
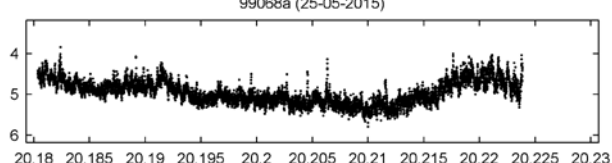
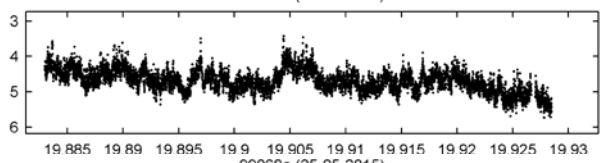
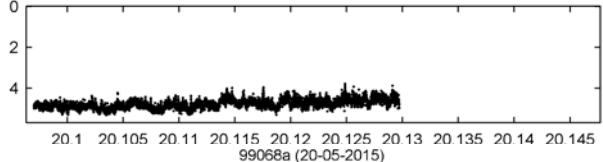
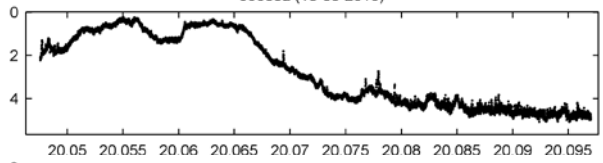
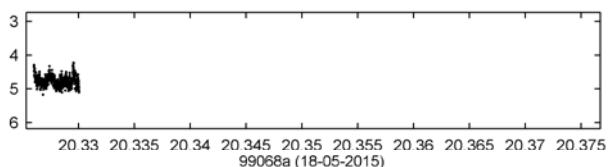
Source: United States (US)

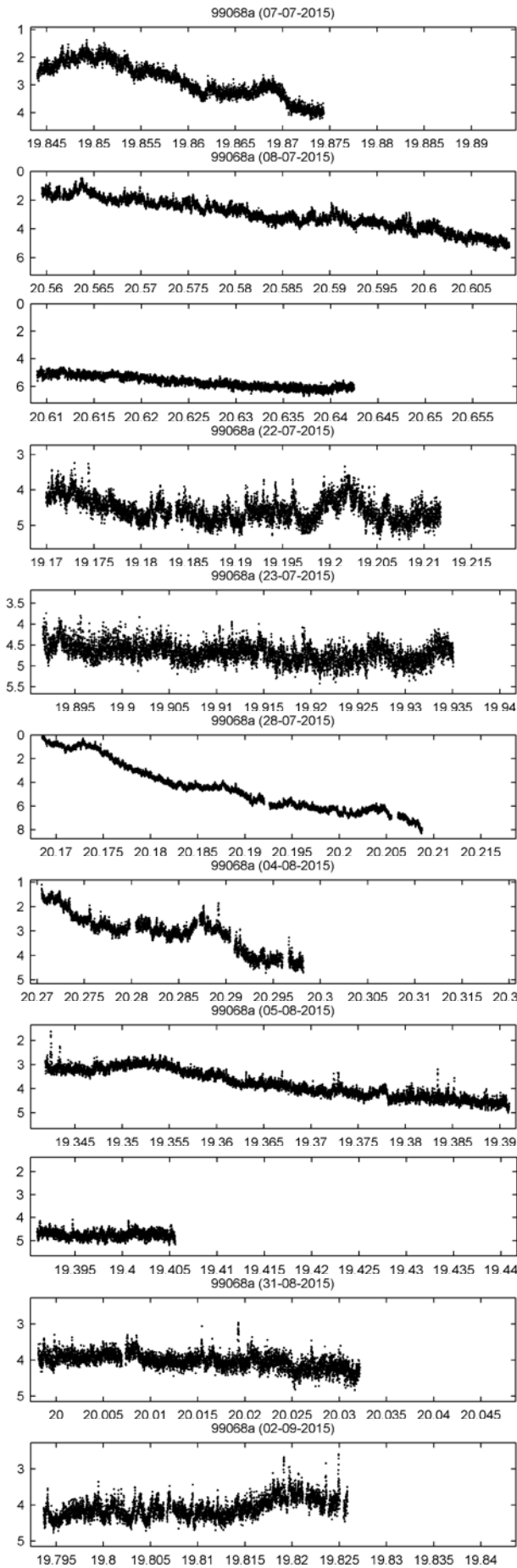






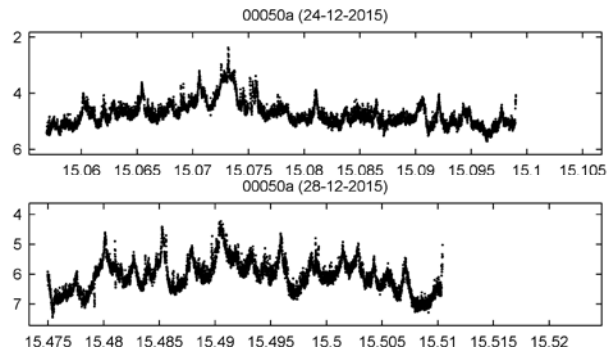
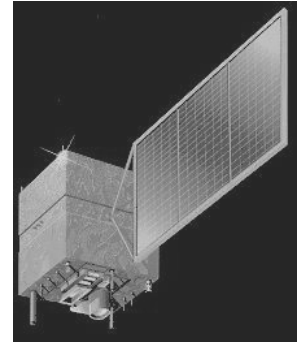






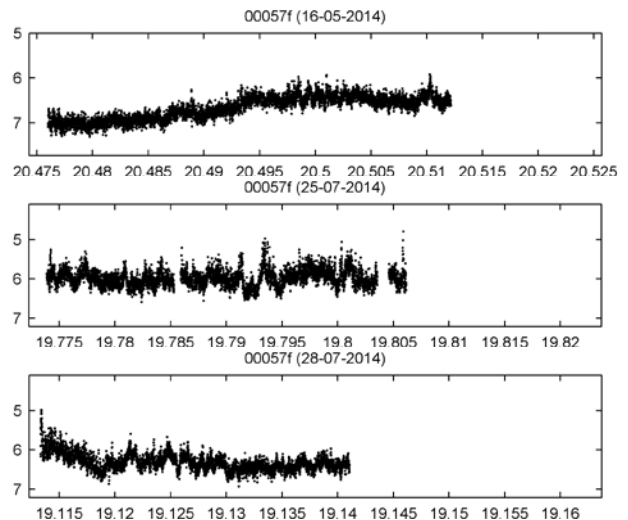
JB-3 A (Zi Yuan 2)

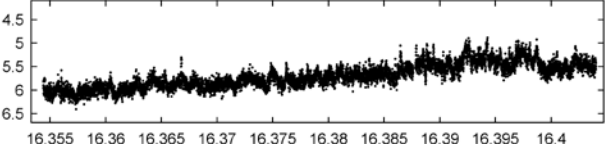
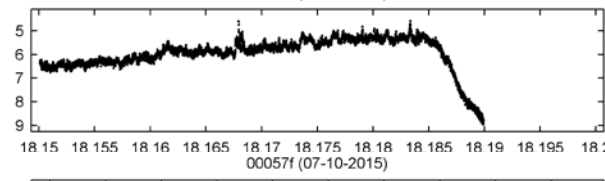
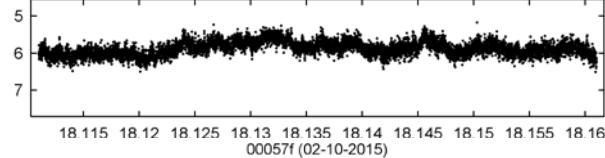
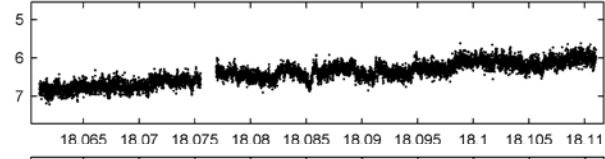
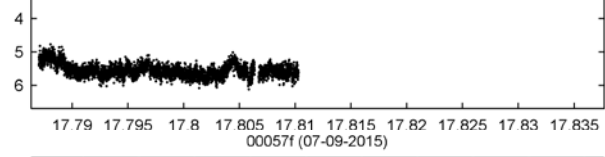
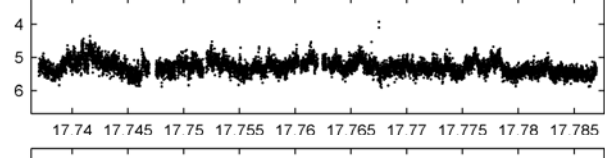
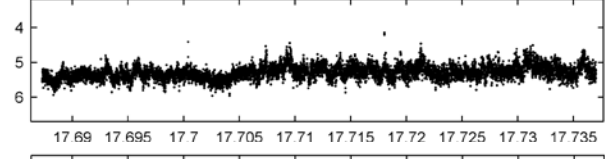
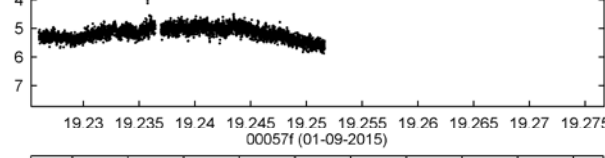
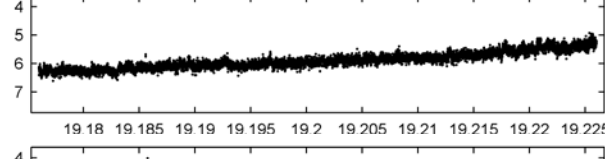
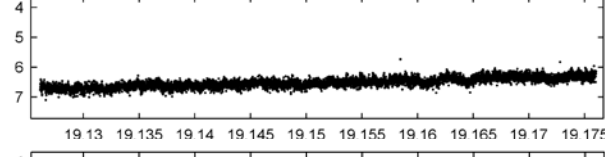
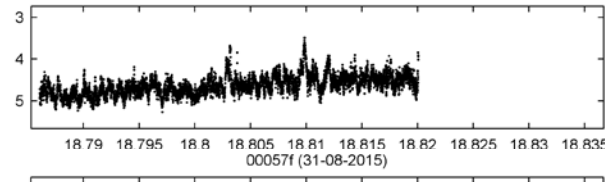
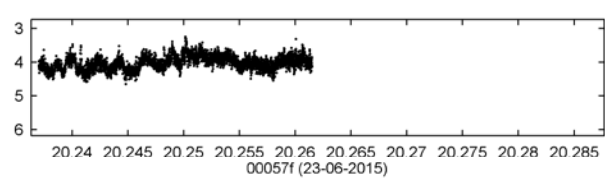
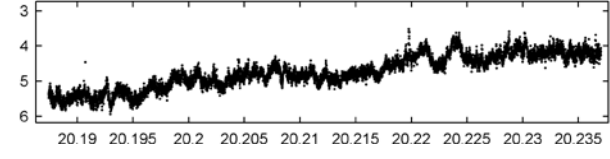
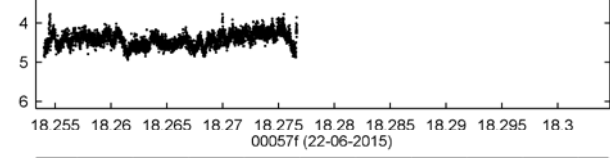
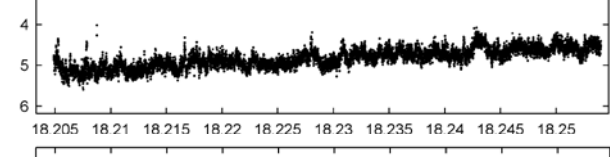
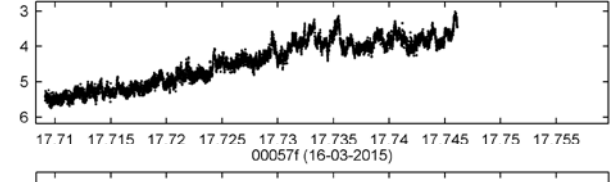
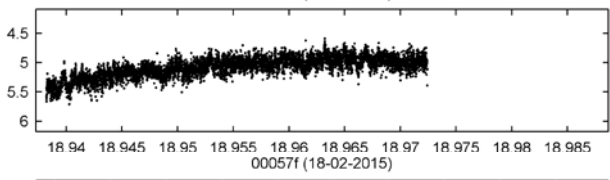
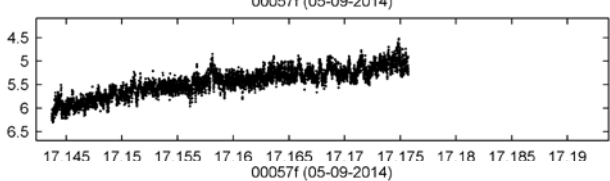
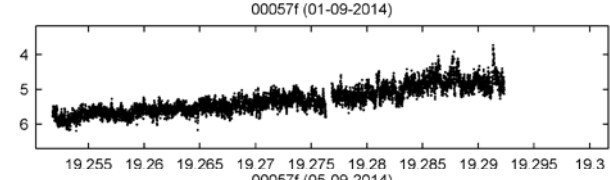
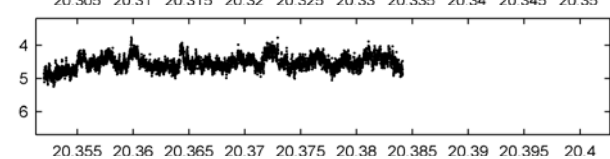
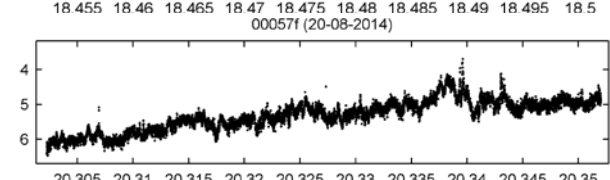
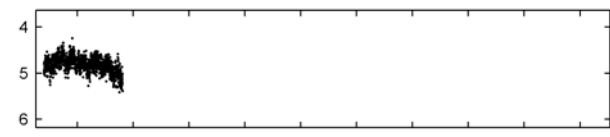
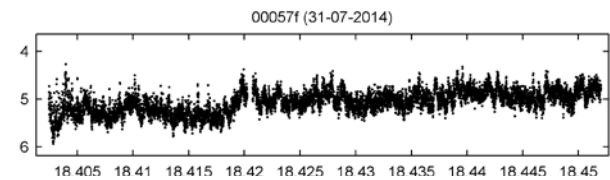
NORAD ID: 26481
 Int'l Code: 2000-50 A
 Dimensions: box 2.0m x 1.8m
 x 2.2m + panel 9.8m span
 Initial orbit:
 Perigee: 468 km
 Apogee: 492 km
 Inclination: 97.44°
 Period: 94.2 min
 Eccentricity: 0.002
 Launch date: 2000-09-01
 Source: People's Republic of China (PRC)

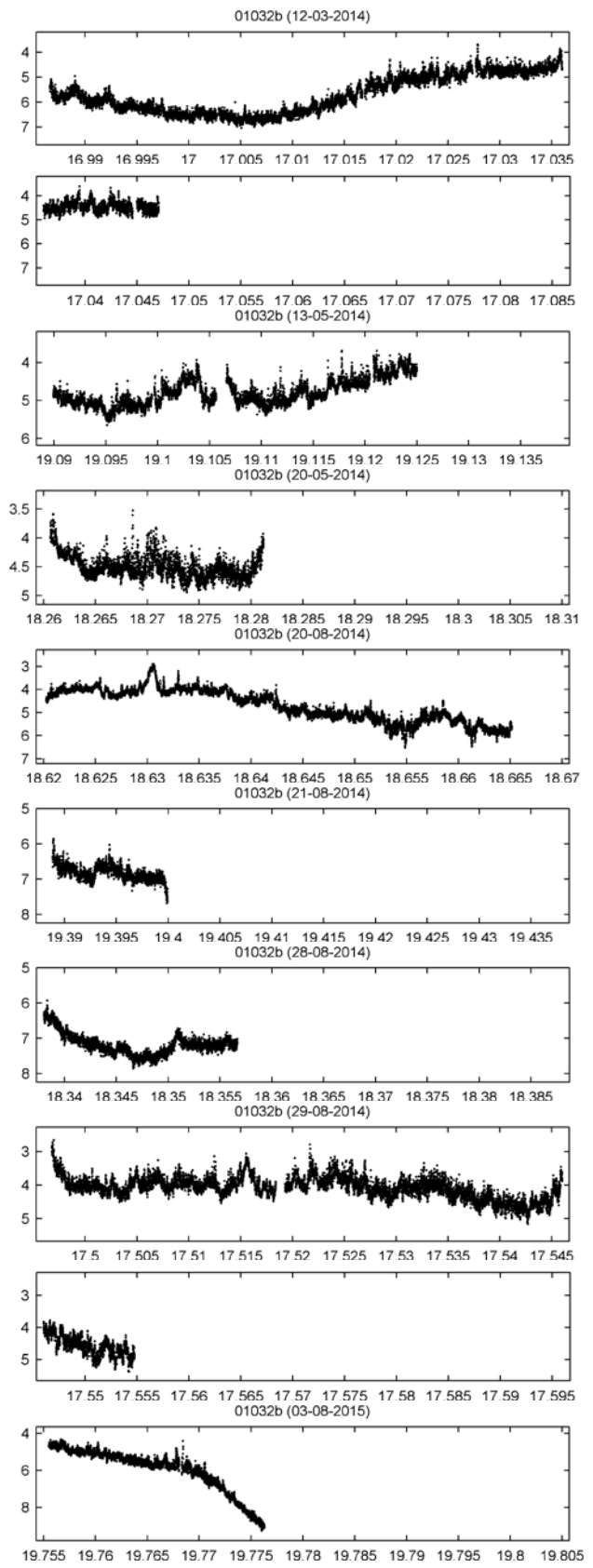
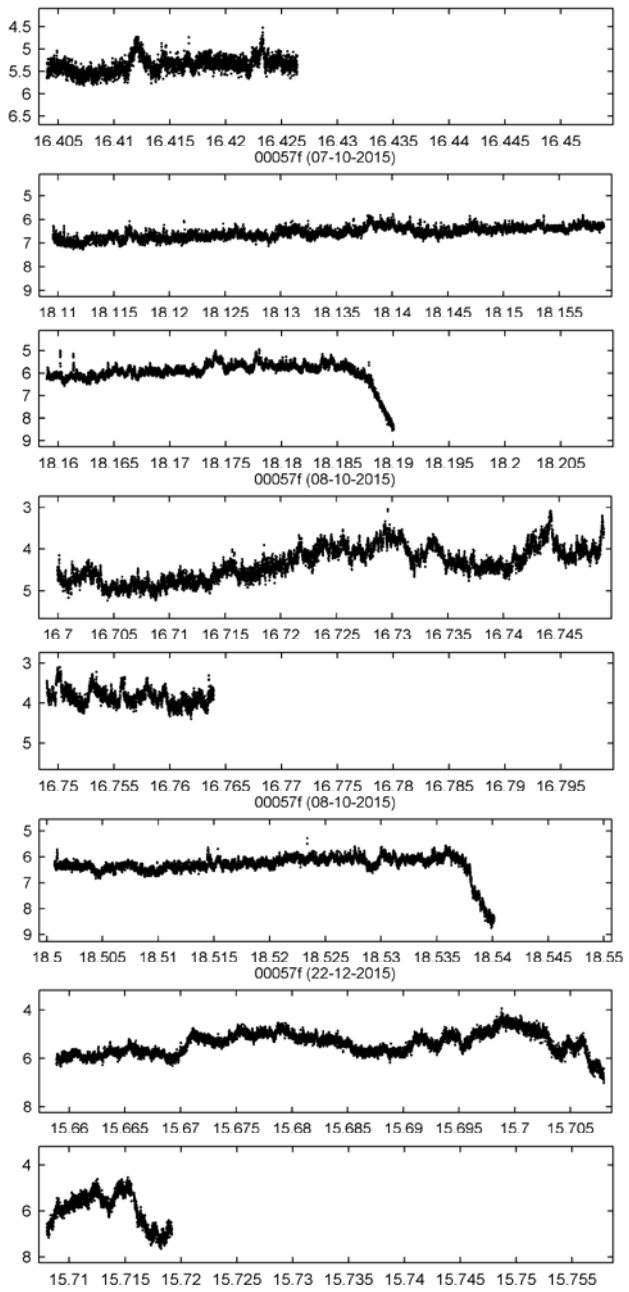


**DNEPR 1 R/B (3rd stage)(R-36M2 DS)
 (SAUDISAT 1A ROCKET)**

NORAD ID: 26550
 Int'l Code: 2000-57 F
 Dimensions:
 Initial orbit:
 Perigee: 585 km
 Apogee: 1353 km
 Inclination: 64.57°
 Period: 104.47 min
 Eccentricity: 0.052
 Launch date: 2000-09-26
 Source: Commonwealth of Independent States (former USSR) (CIS)

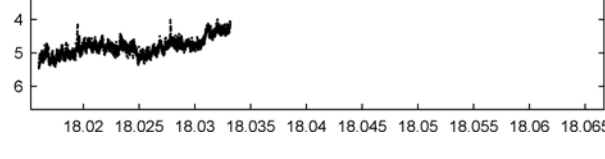
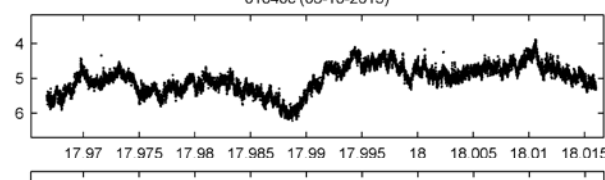
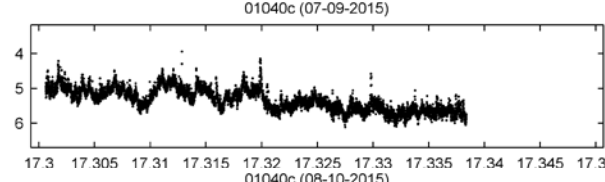
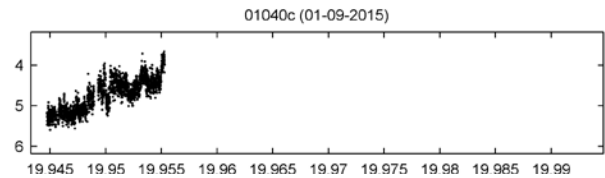
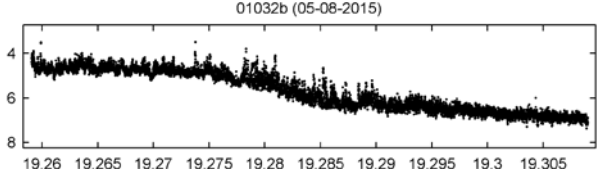
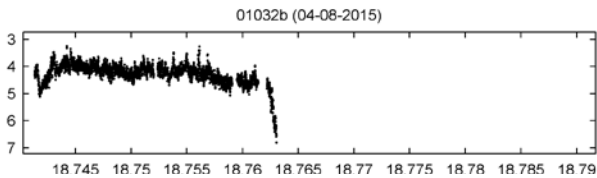




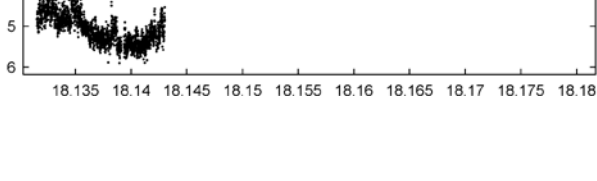
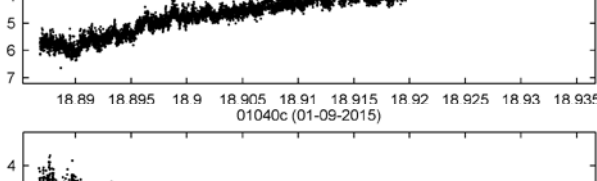
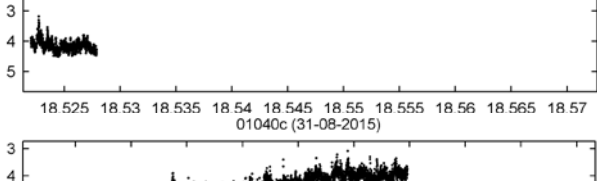
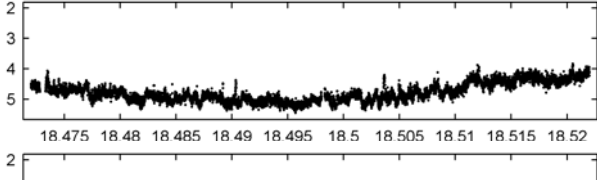
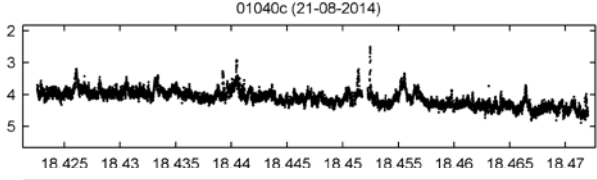
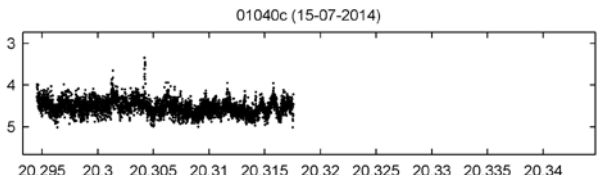


Tsyklon (3rd stage)
 NORAD ID: 26874
 Int'l Code: 2001-032B
 Dimensions:
 Initial orbit:
 Perigee: 486 km
 Apogee: 528 km
 Inclination: 82.4°
 Period: 94.77 min
 Eccentricity: 0.003
 Launch date: 2001-07-31
 Source: Commonwealth of Independent States (former USSR) (CIS)

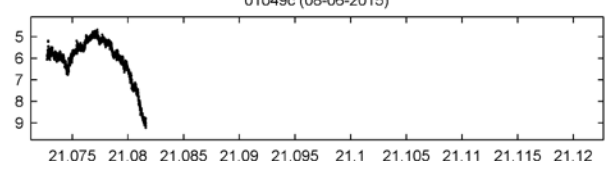
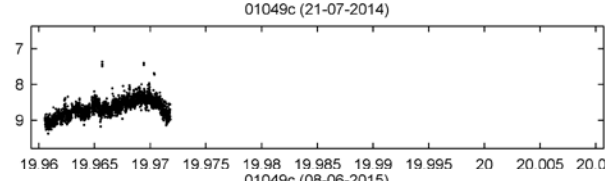
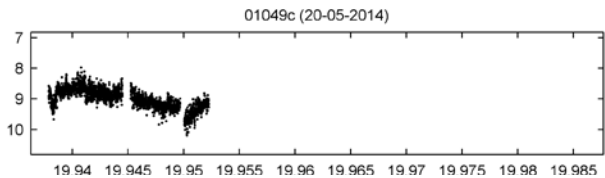
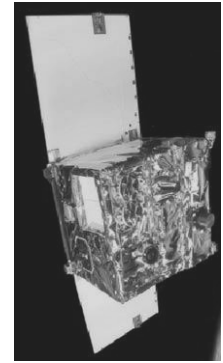




INTRUDER 5B
 (USA 160 DEB, NOSS 3-1 (C), NROL 13)
 NORAD ID: 26907
 Int'l Code: 2001-040C
 Dimensions:
 Initial orbit:
 Perigee: 1100 km
 Apogee: 1100 km
 Inclination: 63.0 °
 Period: 107.26 min
 Eccentricity: 0
 Launch date: 2001-09-08
 Source: United States (US)



BIRD 2
 NORAD ID: 26959
 Int'l Code: 2001-049C
 Dimensions:
 Initial orbit:
 Perigee: 550 km
 Apogee: 580 km
 Inclination: 97.7°
 Period: 95.96 min
 Eccentricity: 0.002
 Launch date: 2001-10-22
 Source: Germany (GER)



JASON 1

NORAD ID: 26997

Int'l Code: 2001-055A

Dimensions:

Initial orbit:

Perigee: 1320 km

Apogee: 1328 km

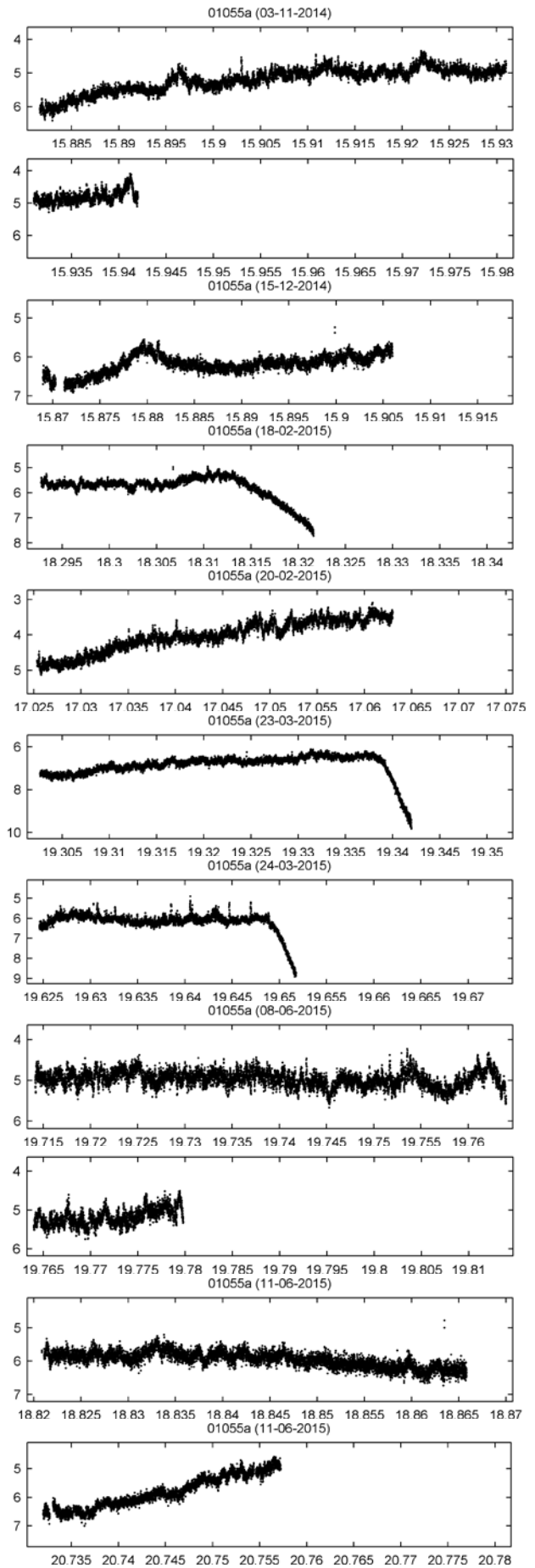
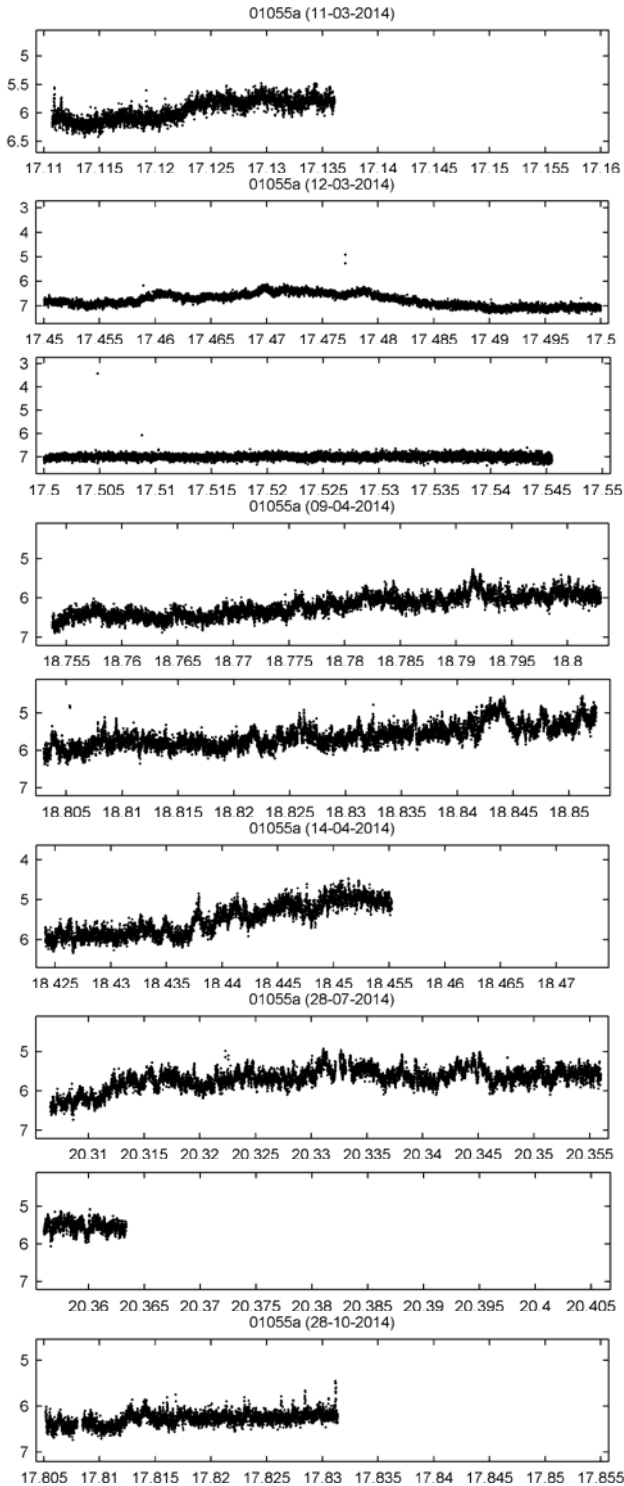
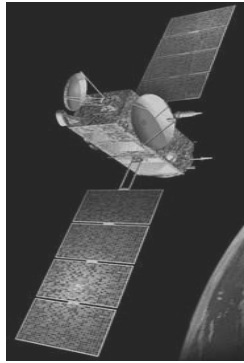
Inclination: 66.0°

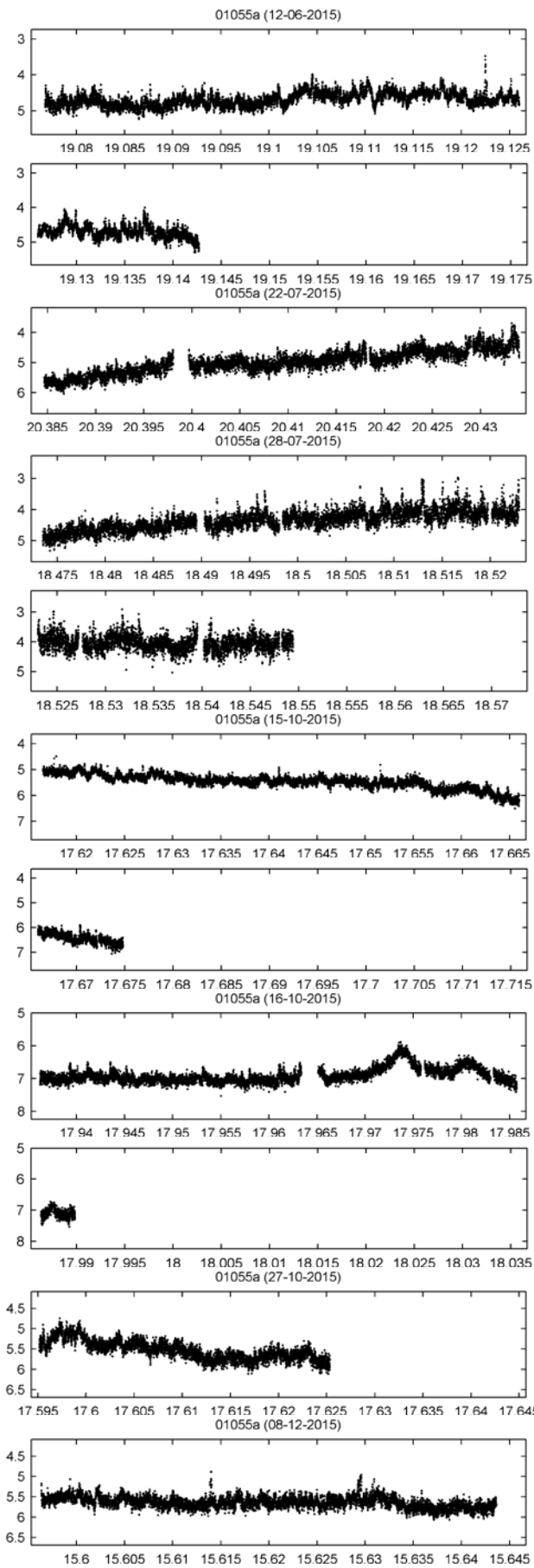
Period: 112.11 min

Eccentricity: 0.0005

Launch date: 2001-12-07

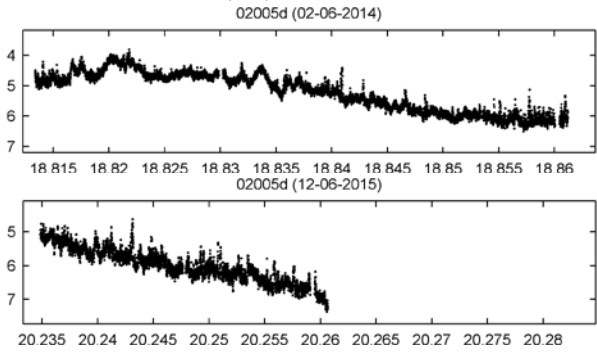
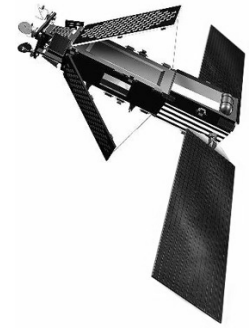
Source: United States (US)





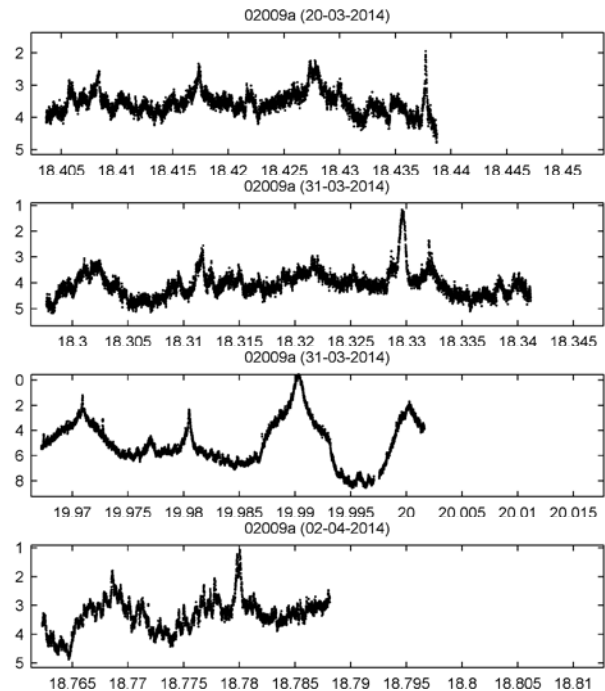
IRIDIUM 95

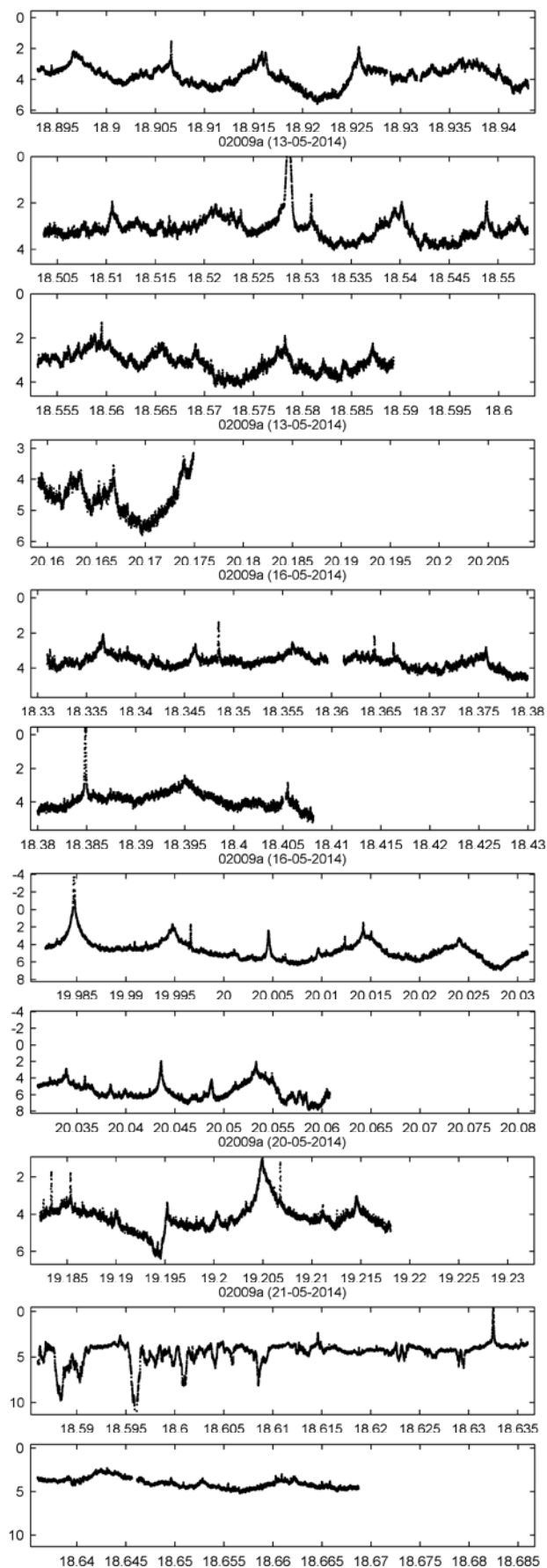
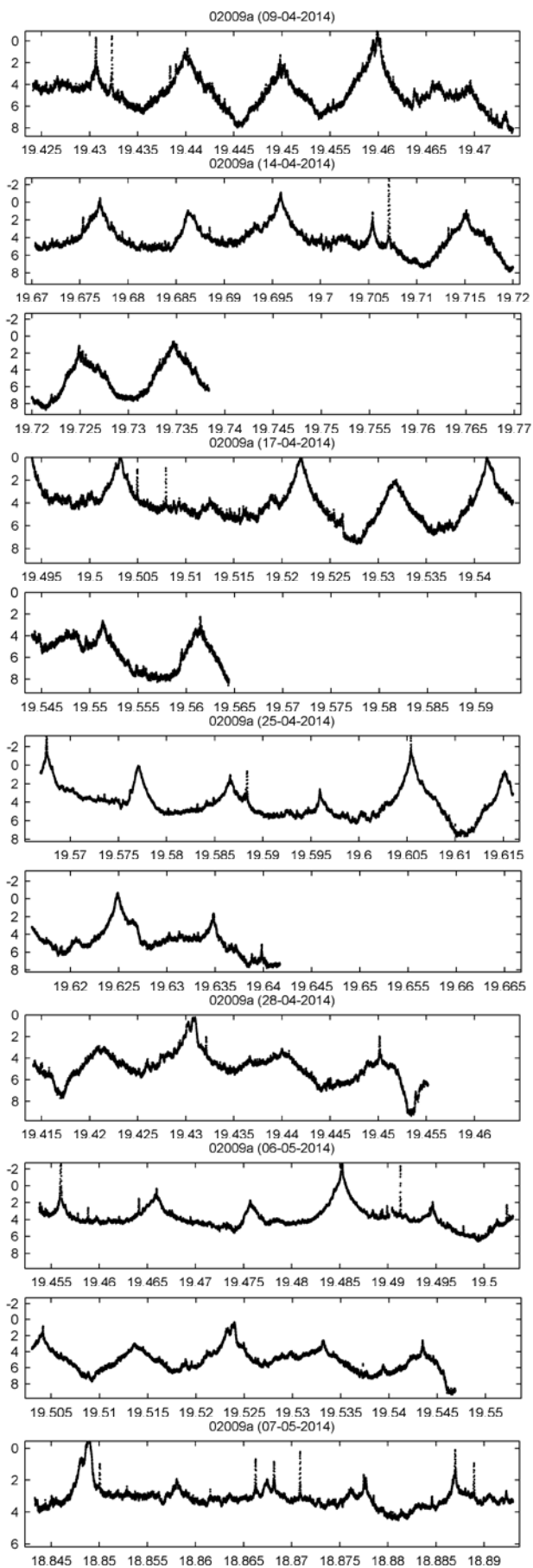
NORAD ID: 27375
 Int'l Code: 2002-005D
 Dimensions: box 1m x 1m x 3.5m + 2 panels
 Initial orbit:
 Perigee: 664 km
 Apogee: 681 km
 Inclination: 86.5°
 Period: 98.19 min
 Eccentricity: 0.001
 Launch date: 2002-02-11
 Source: United States (US)

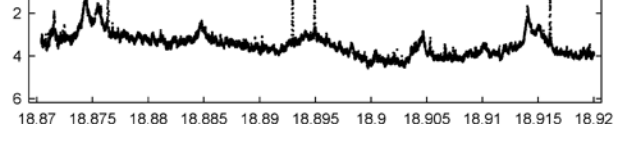
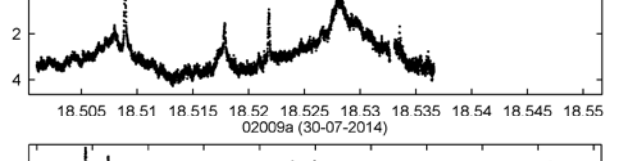
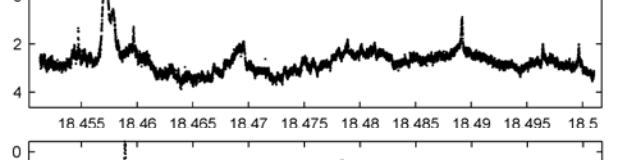
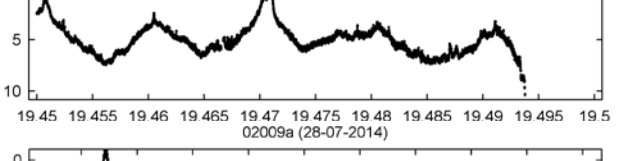
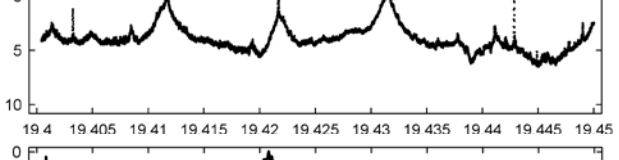
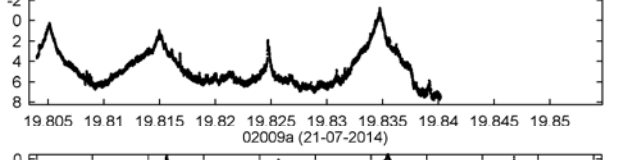
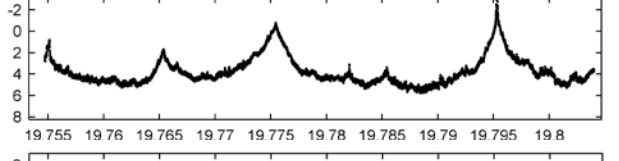
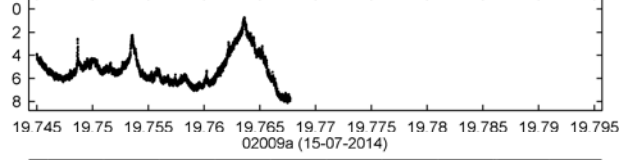
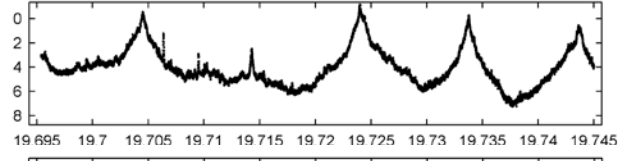
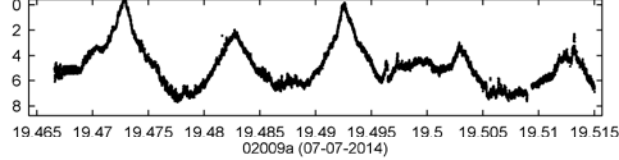
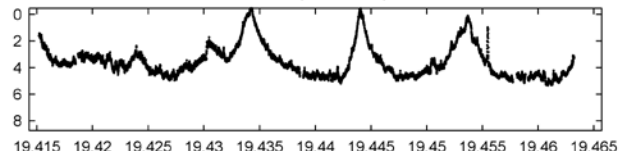
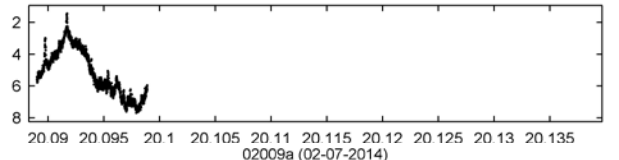
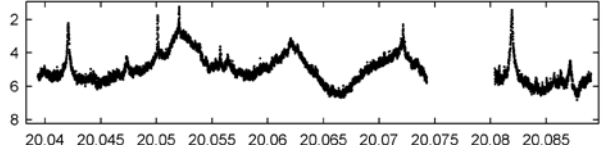
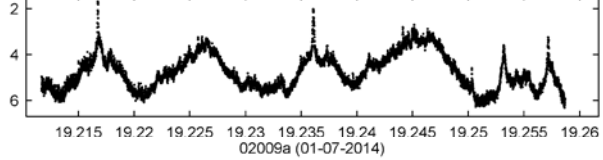
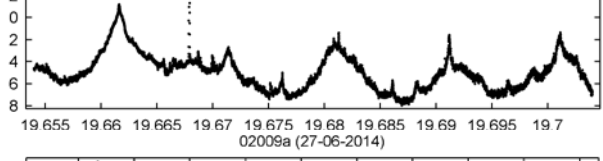
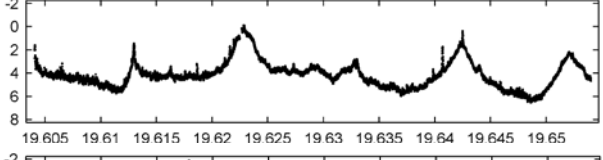
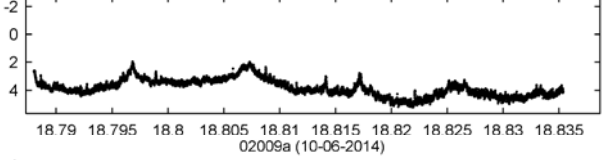
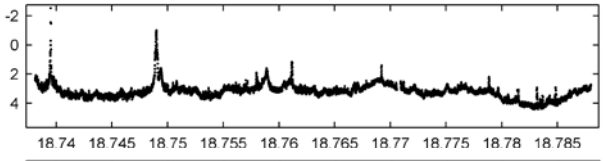
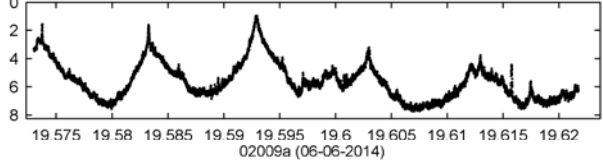
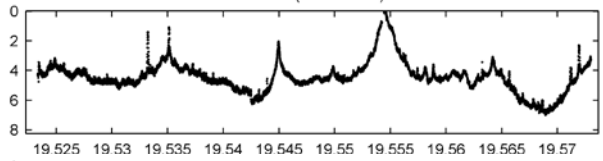
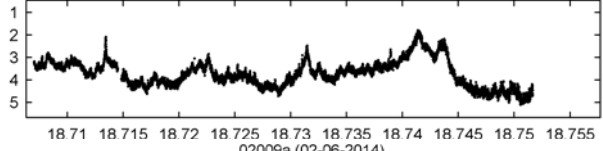
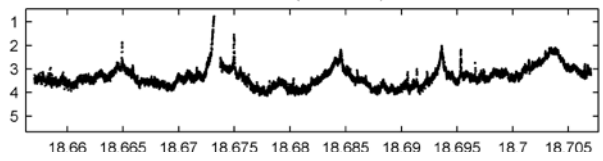
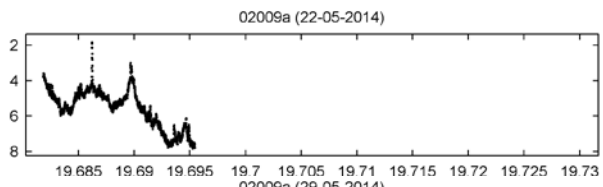


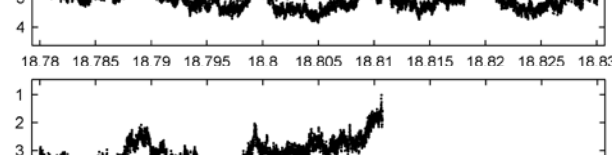
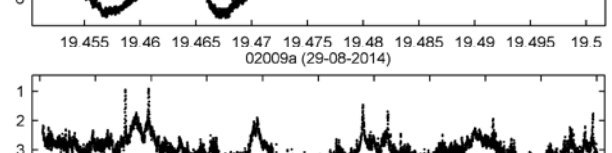
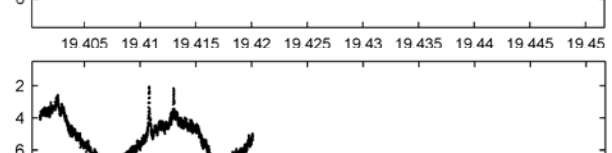
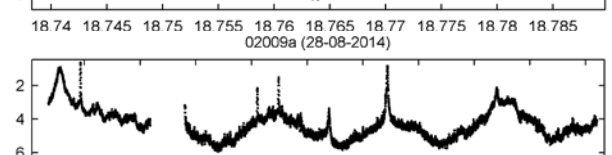
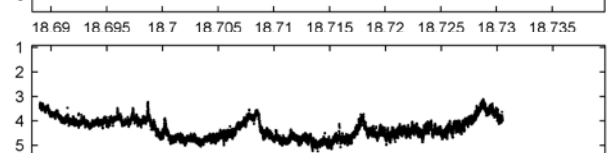
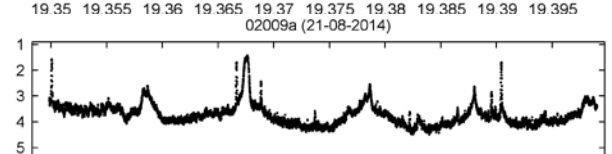
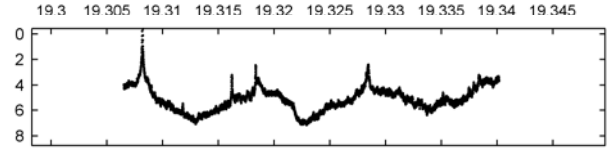
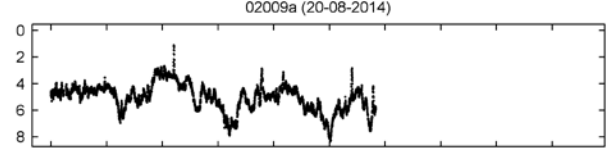
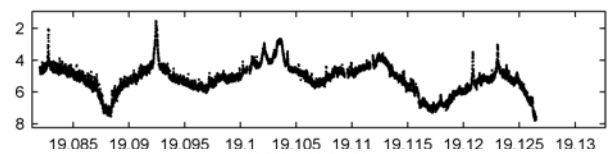
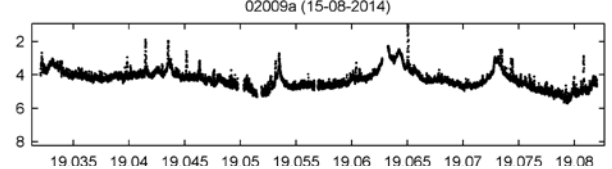
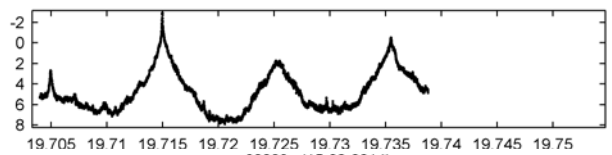
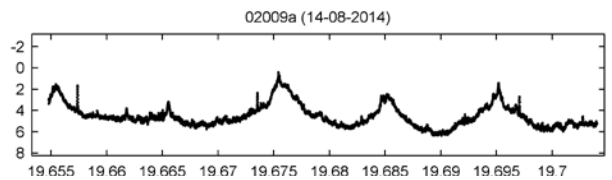
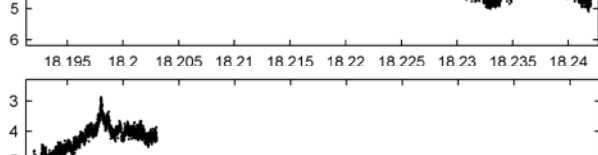
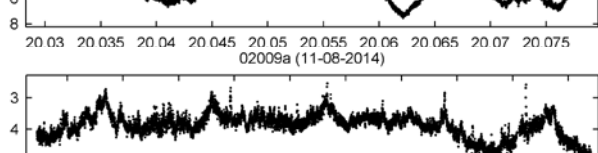
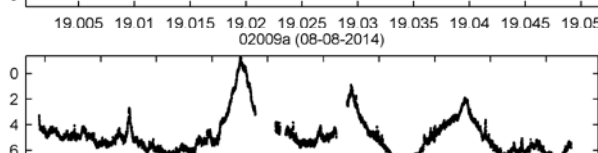
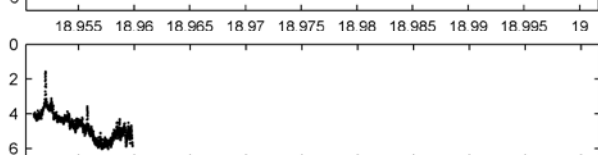
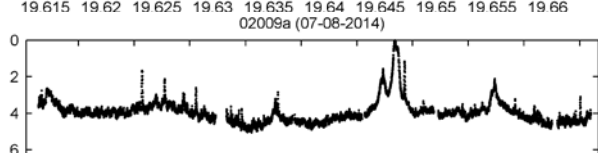
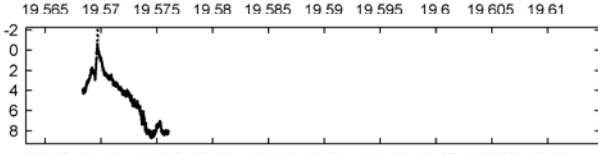
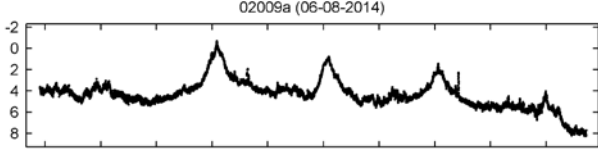
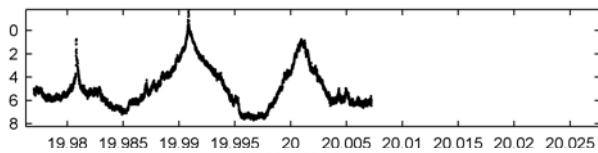
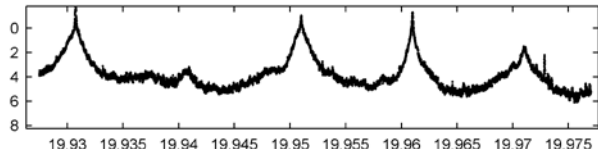
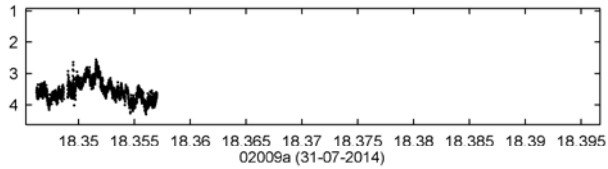
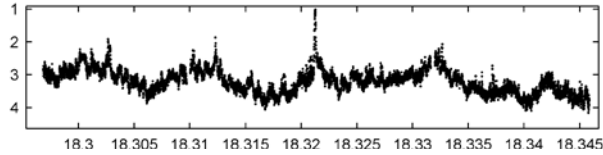
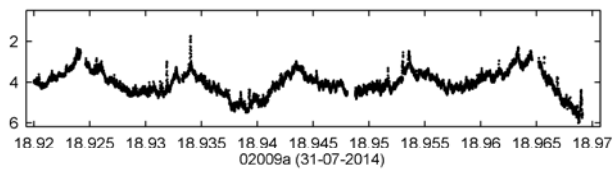
ENVISAT

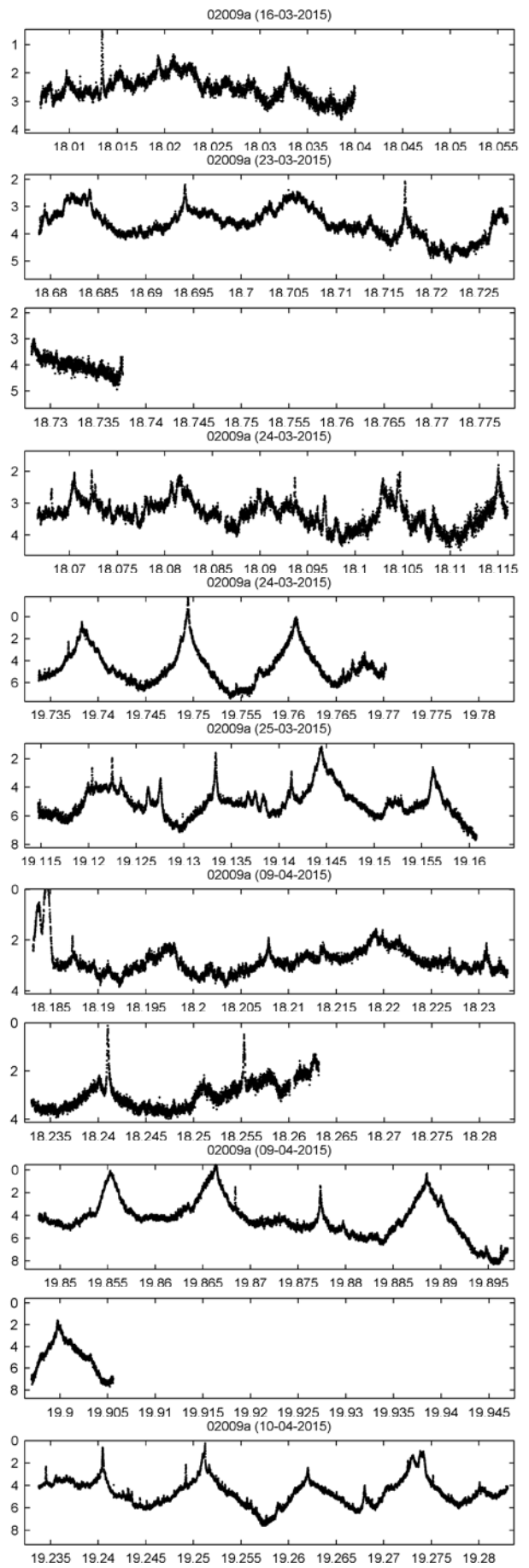
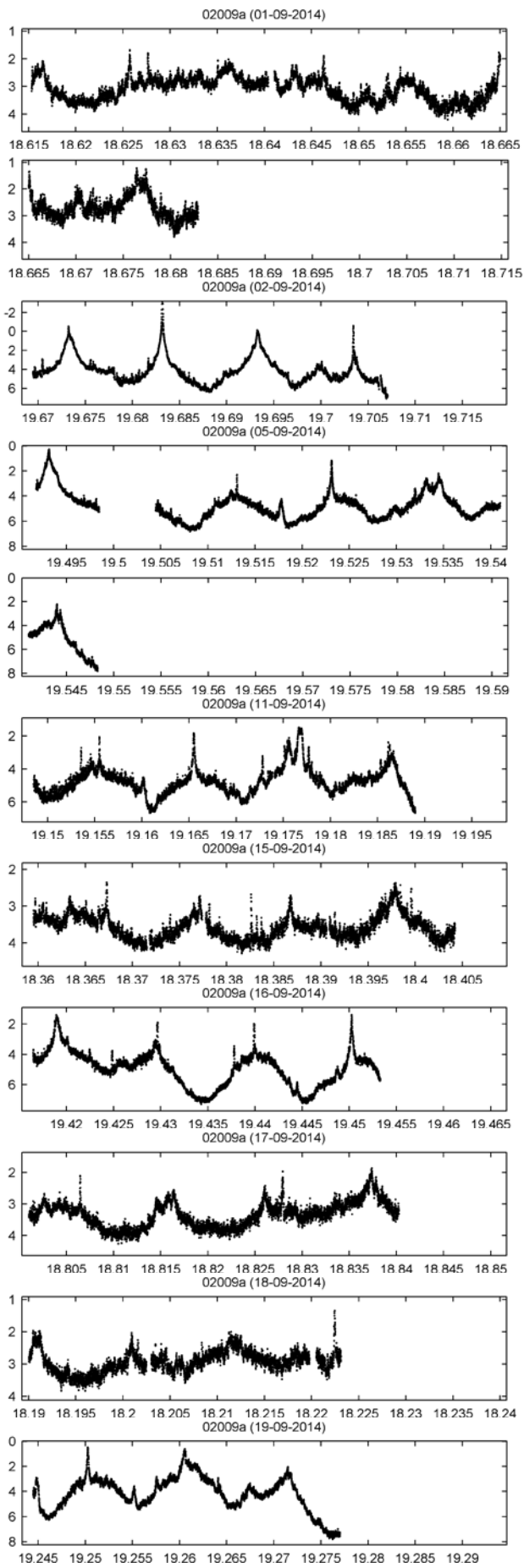
NORAD ID: 27386
 Int'l Code: 2002-009A
 Dimensions: cylindrical 6m x 2m
 Initial orbit:
 Perigee: 784 km
 Apogee: 790 km
 Inclination: 98.5°
 Period: 100.60 min
 Eccentricity: 0.0004
 Launch date: 2002-03-01
 Source: European Space Agency (ESA)

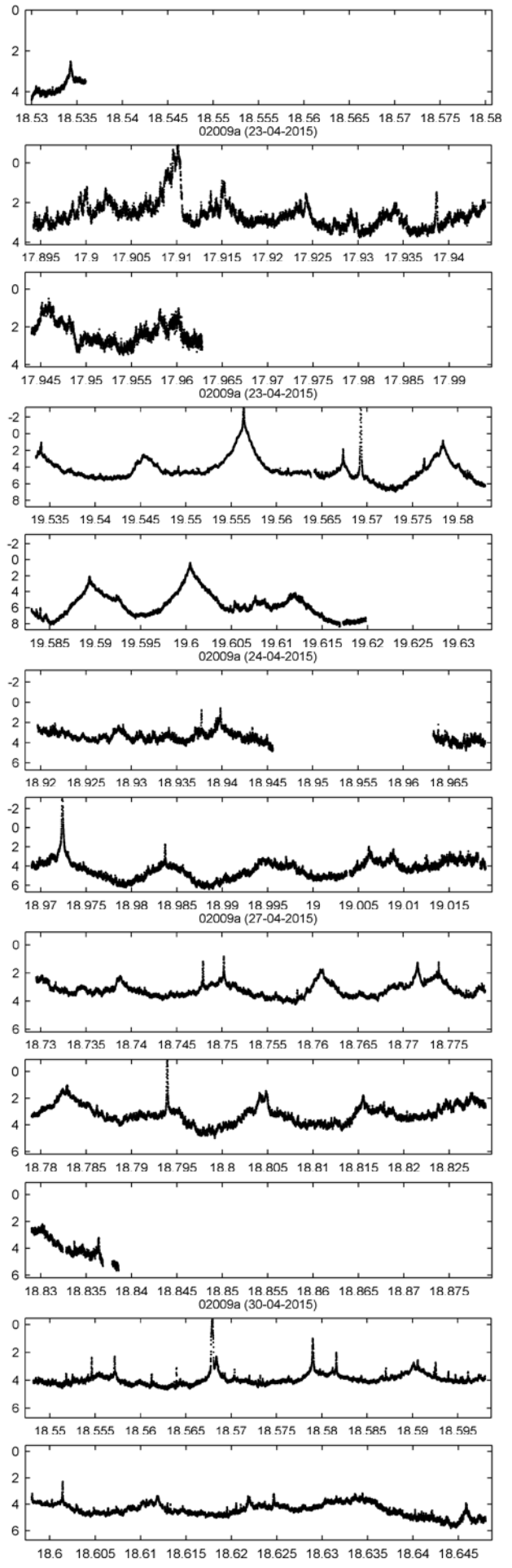
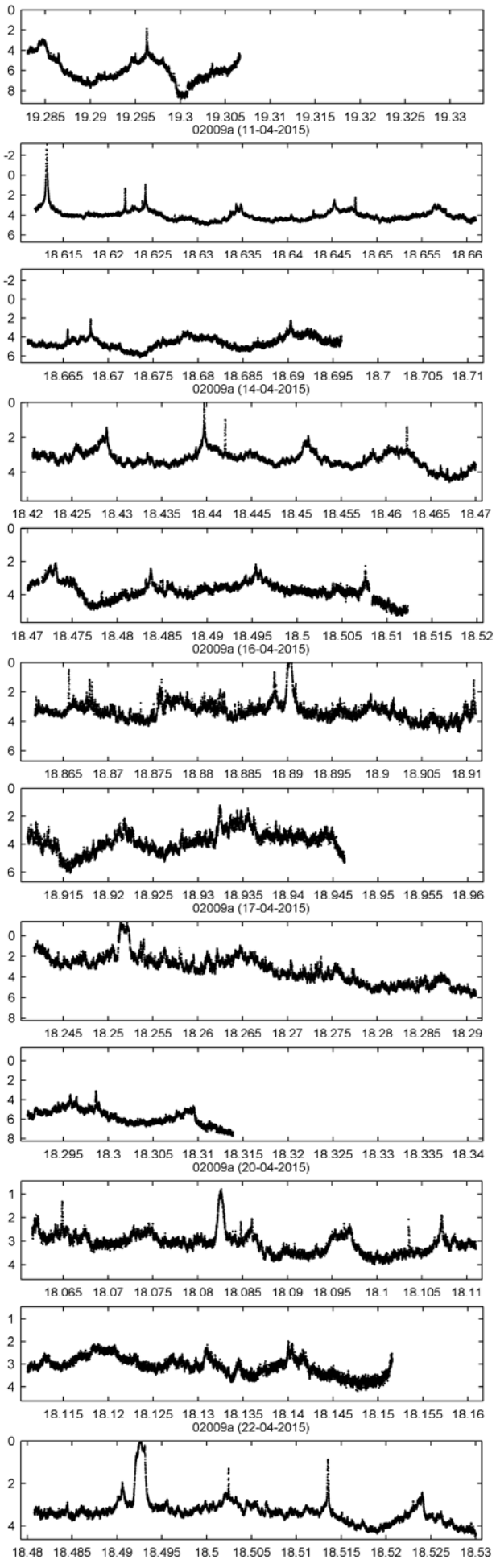


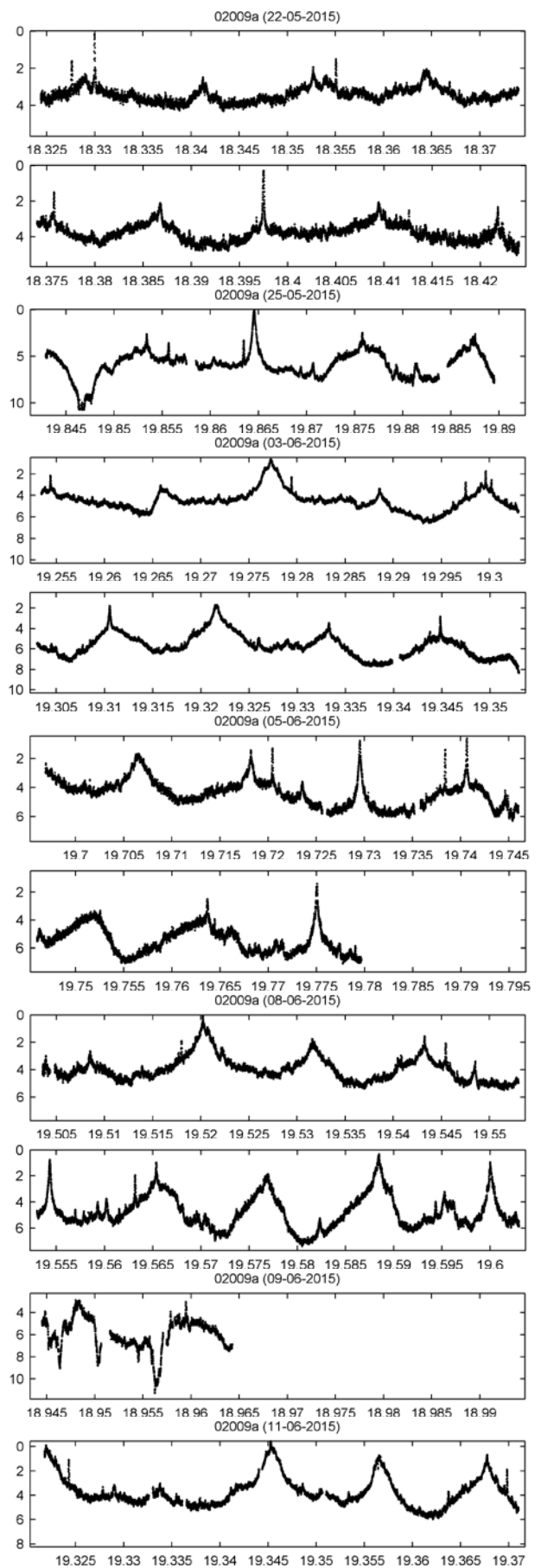
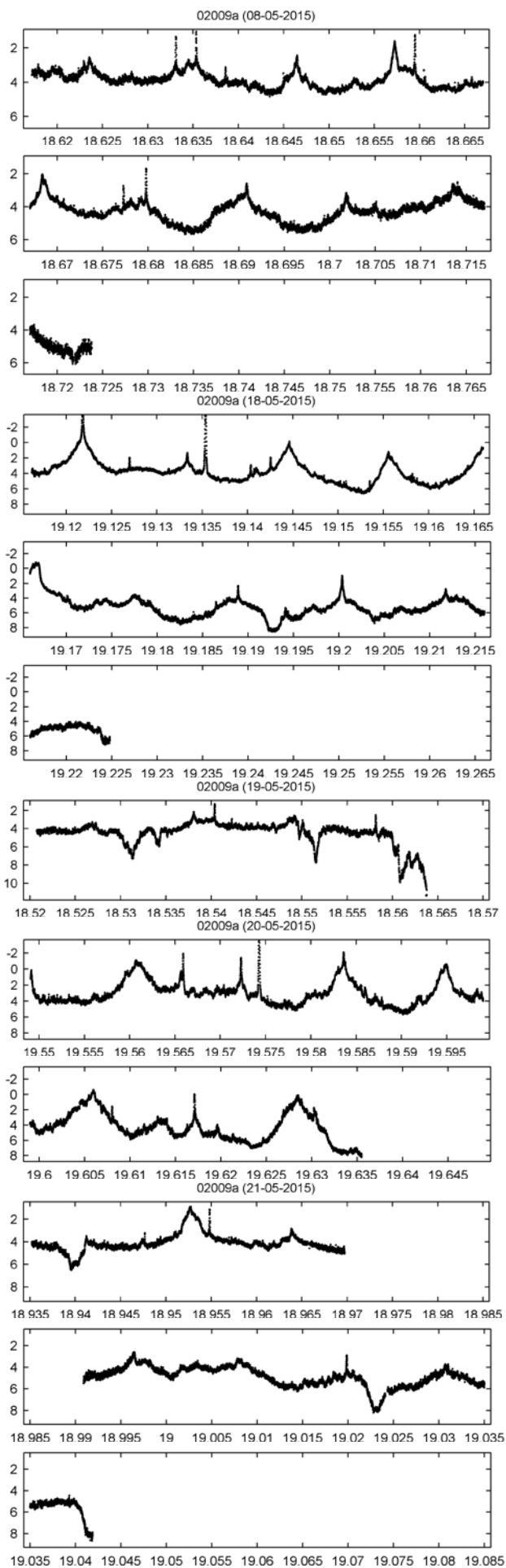


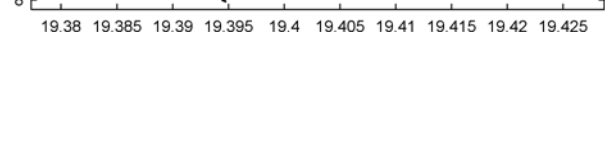
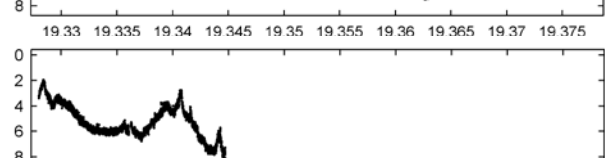
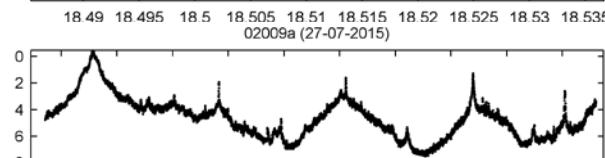
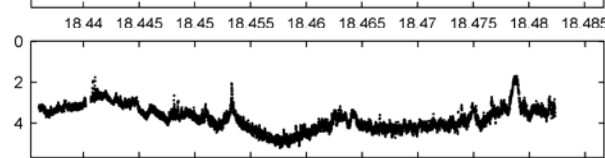
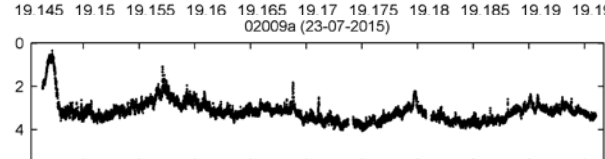
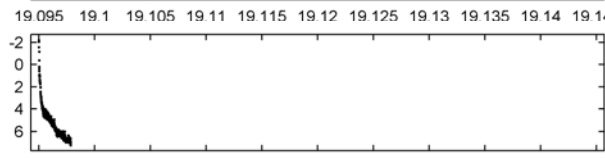
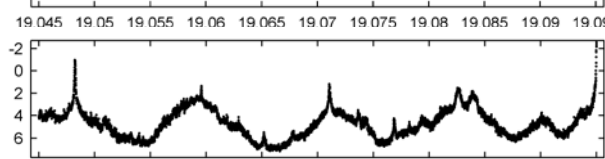
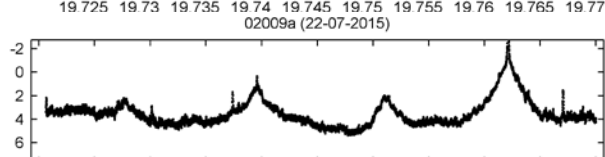
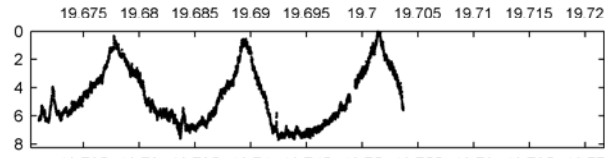
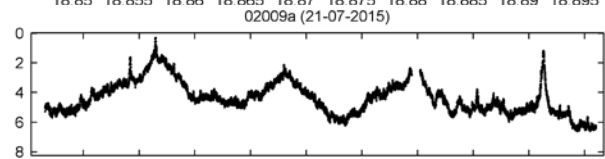
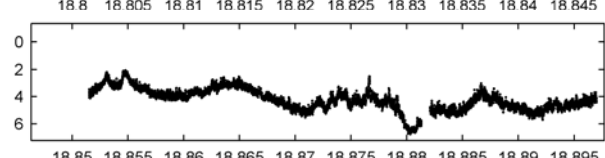
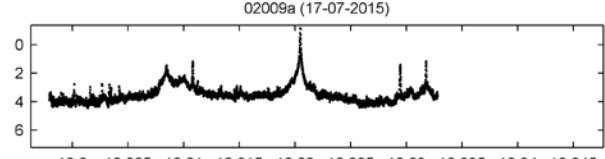
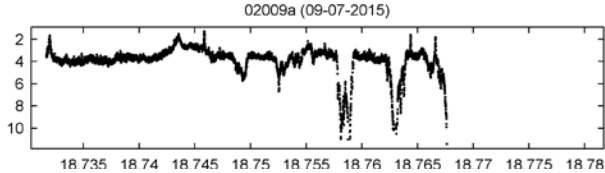
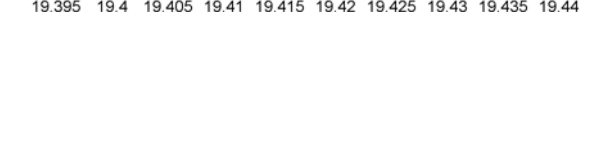
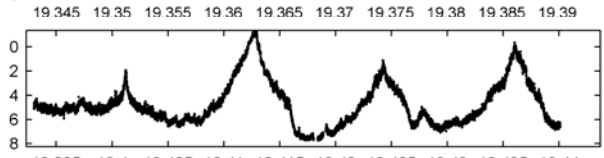
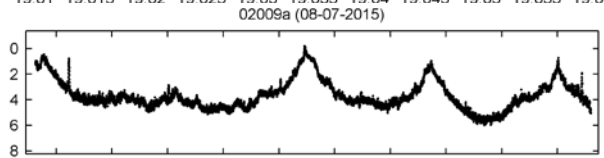
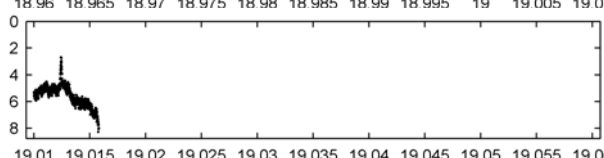
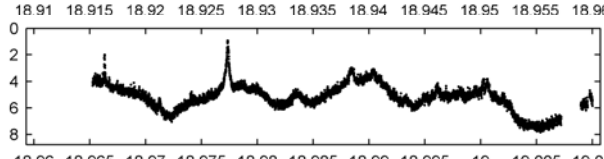
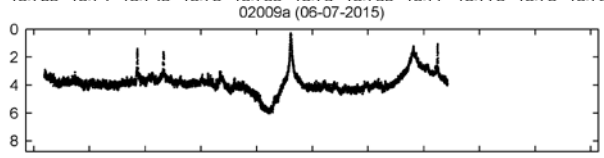
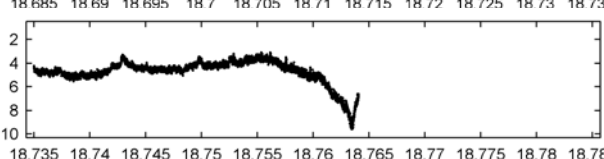
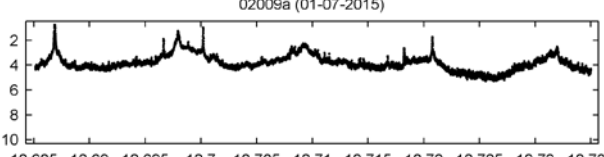
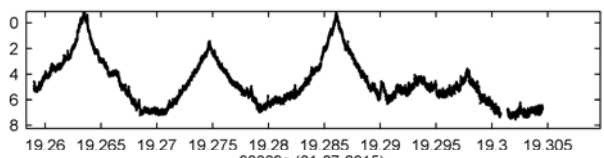
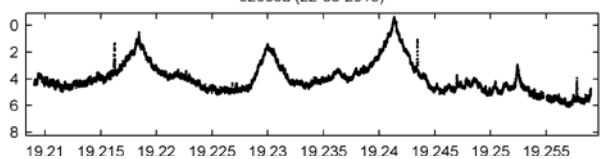
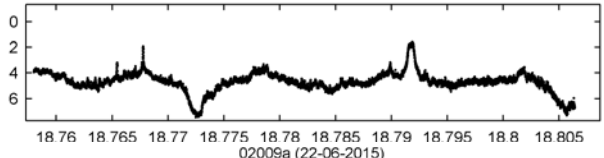
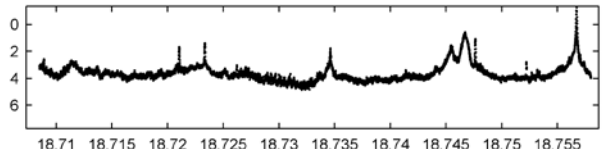
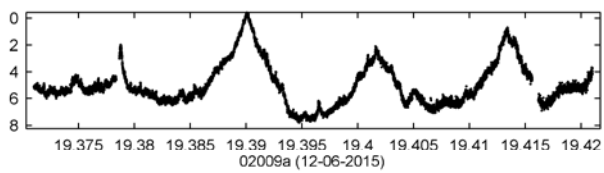


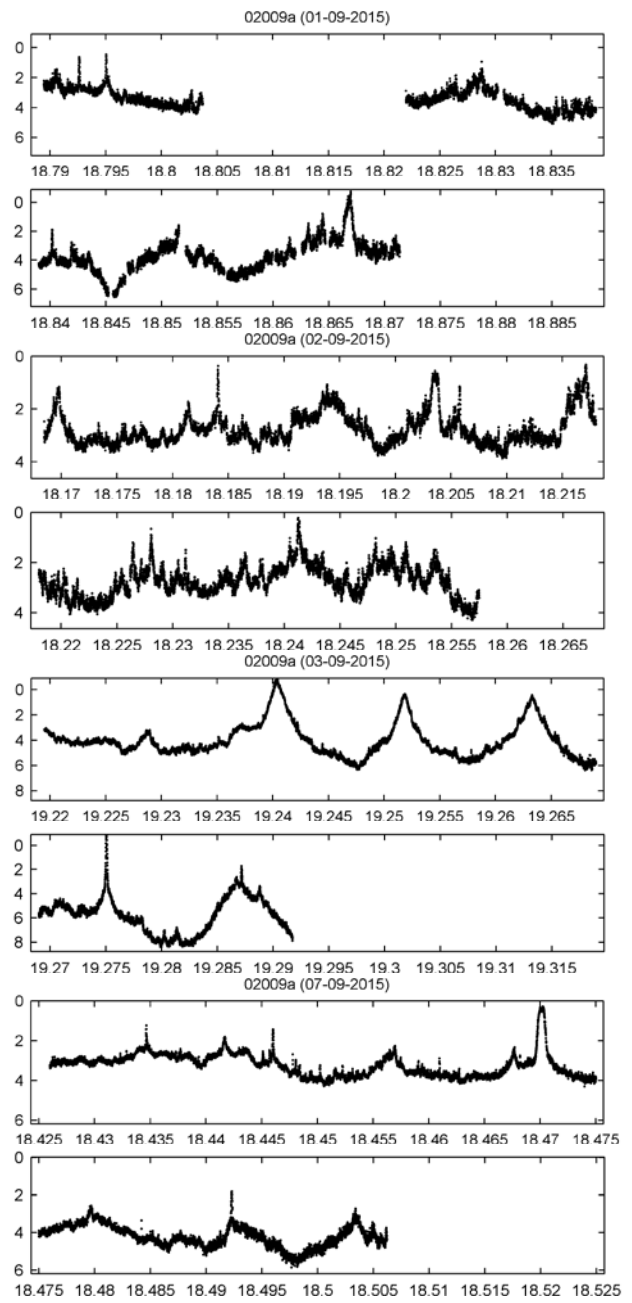
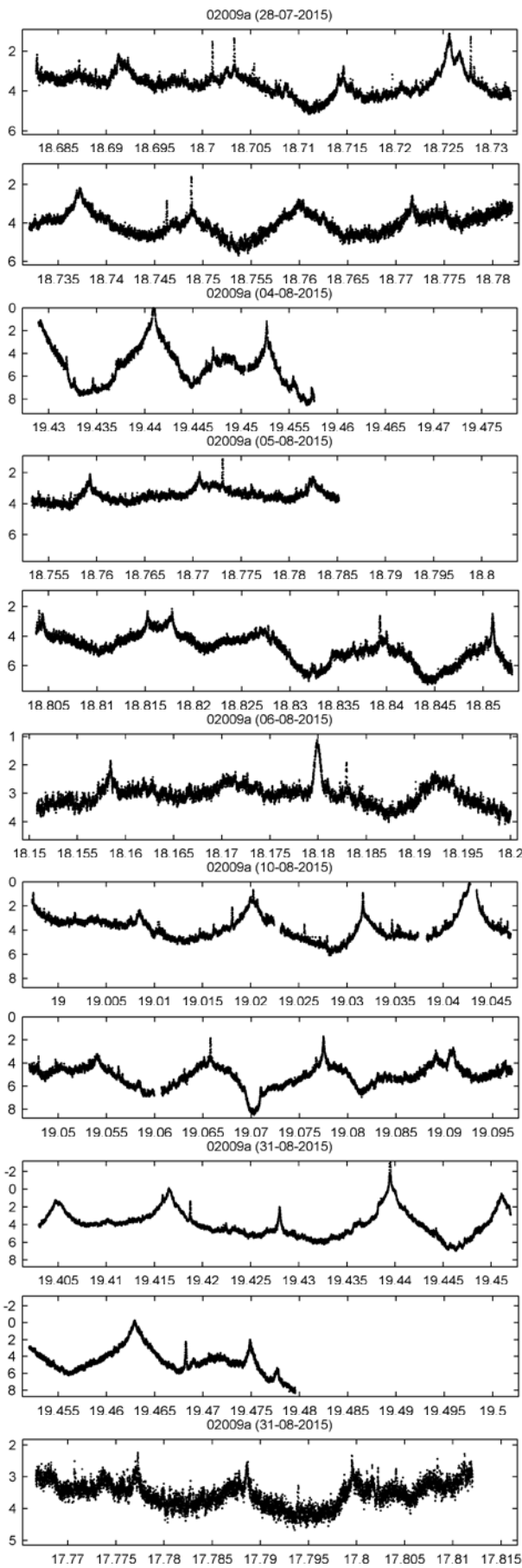




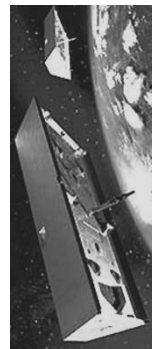


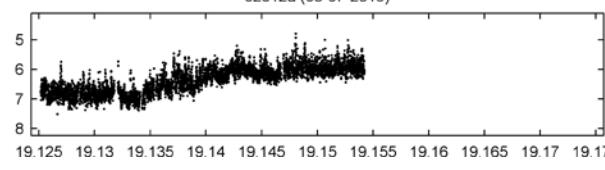
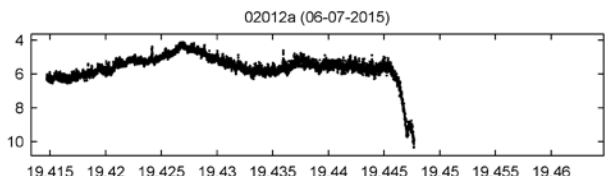
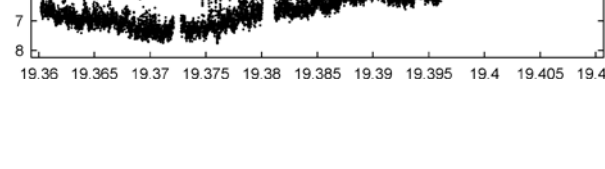
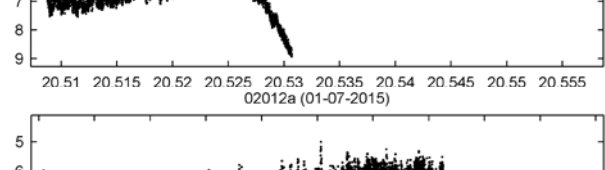
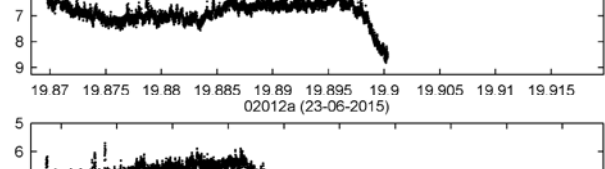
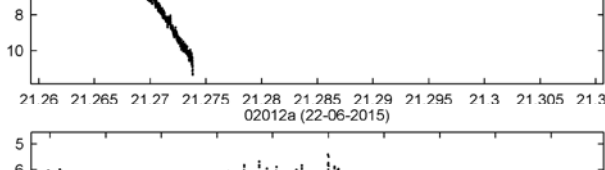
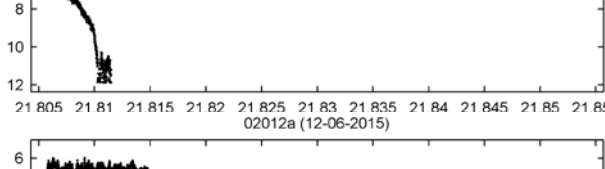
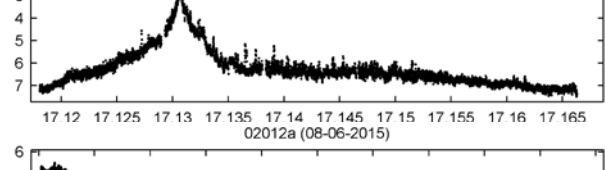
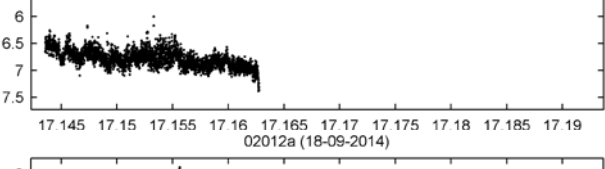
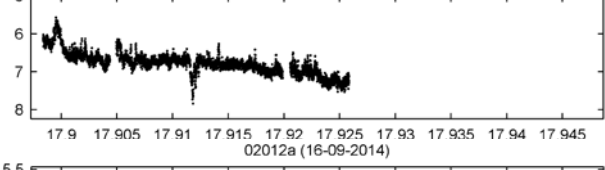
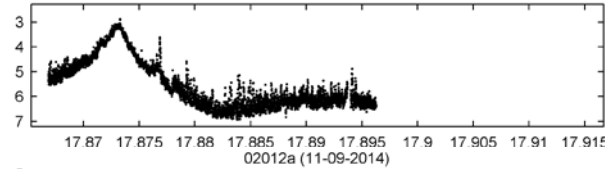
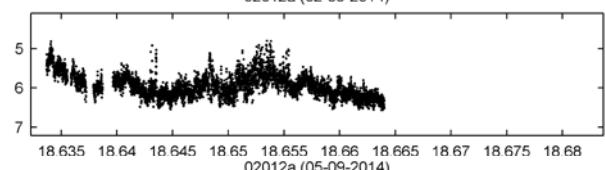
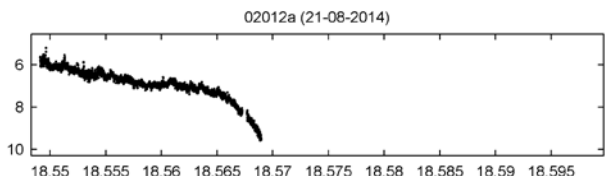




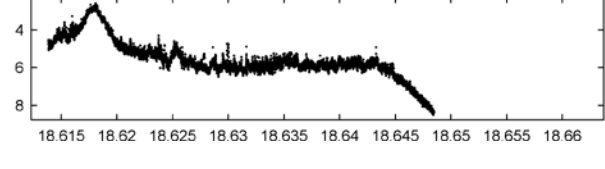
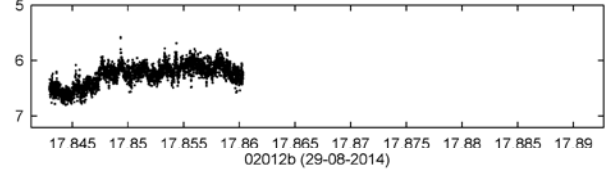
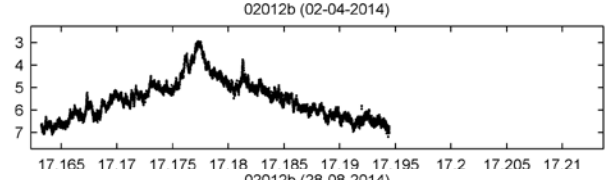


GRACE 1
 NORAD ID: 27391
 Int'l Code: 2002-012A
 Dimensions:
 Initial orbit:
 Perigee: 482 km
 Apogee: 506 km
 Inclination: 89.0°
 Period: 94.49 min
 Eccentricity: 0.002
 Launch date: 2002-03-17
 Source: United States (US)



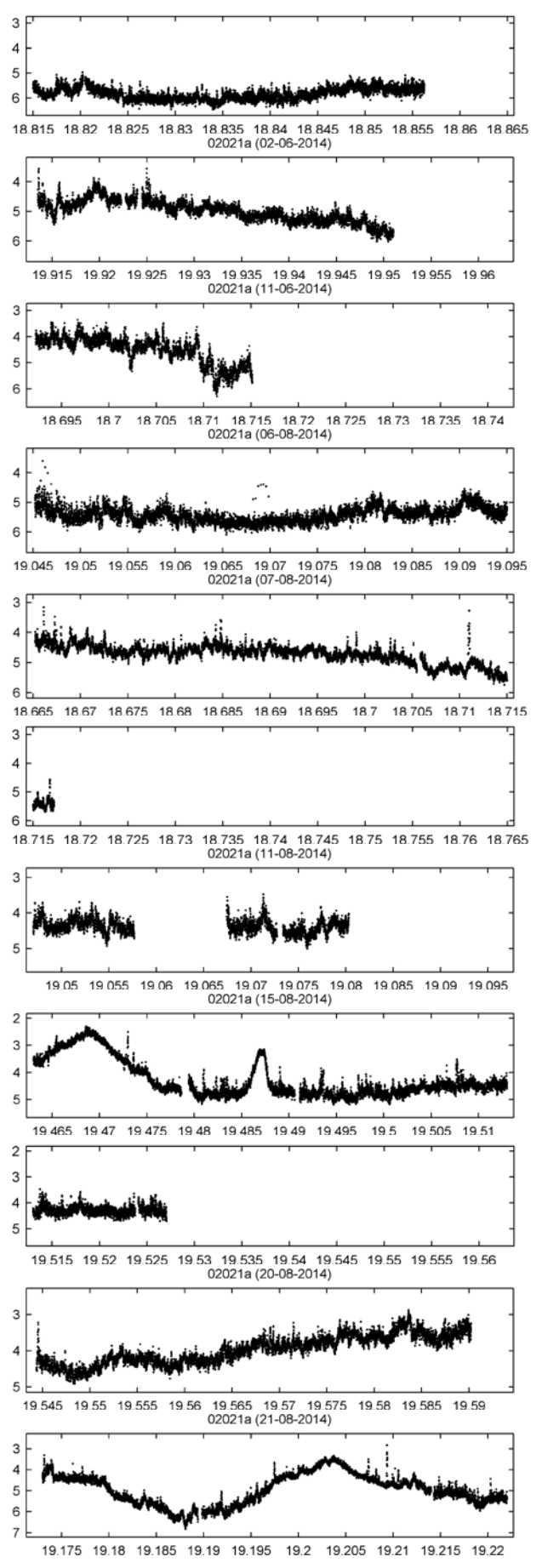
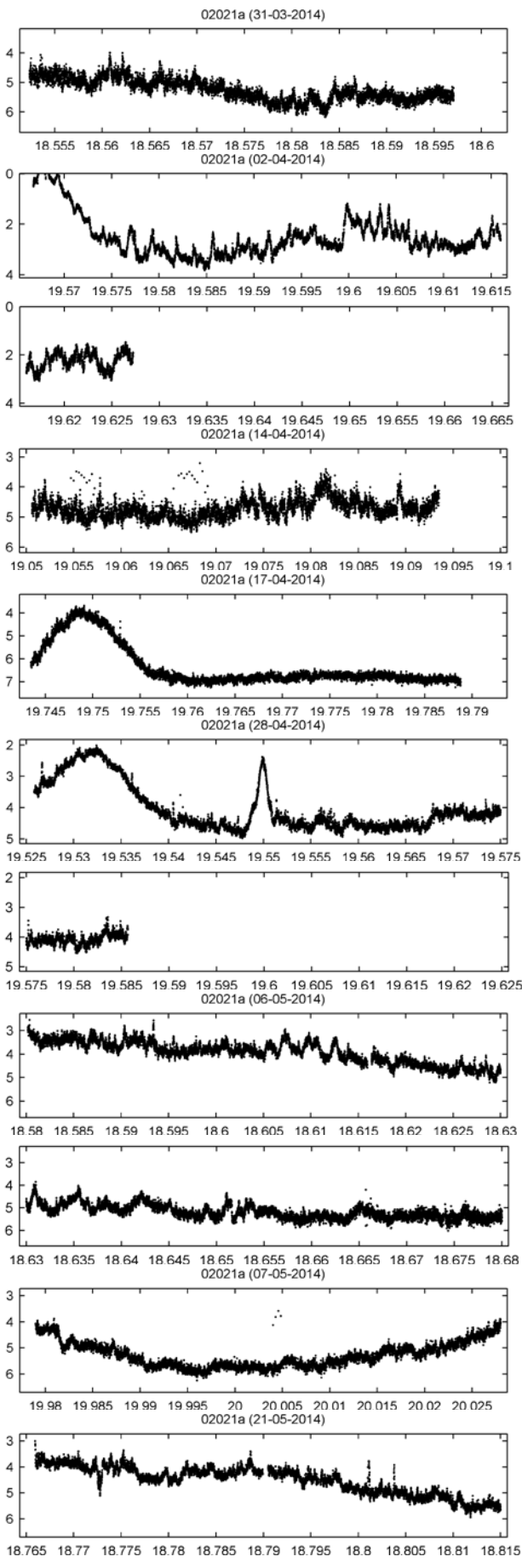


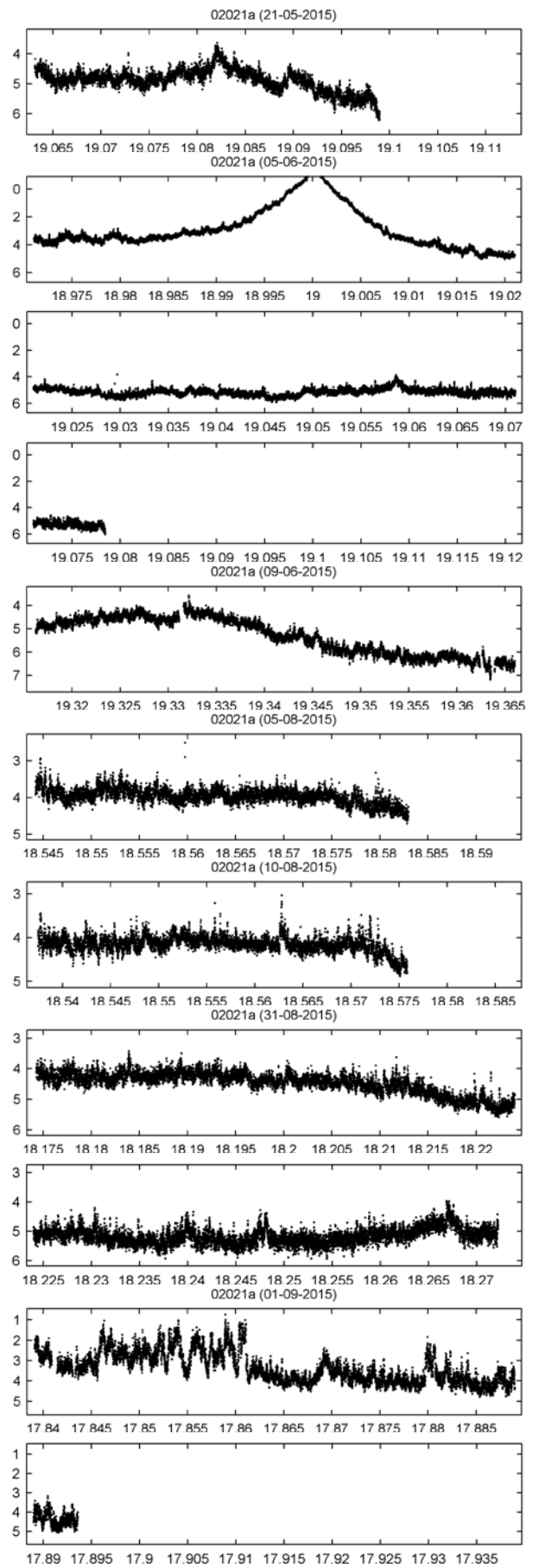
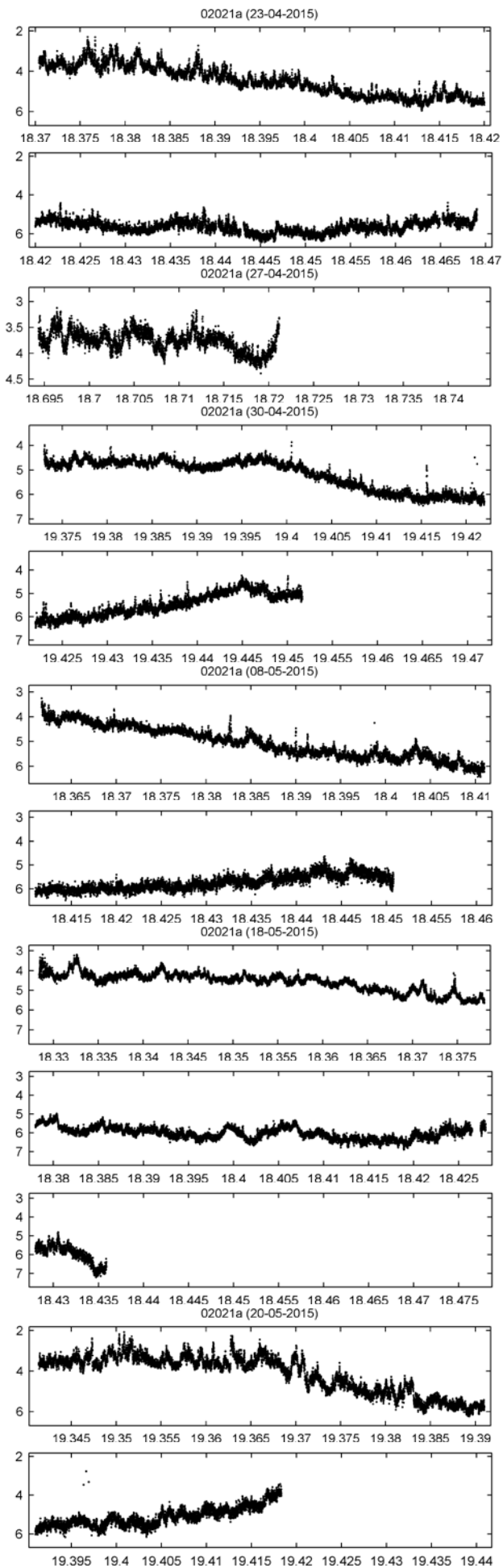
GRACE 2
 NORAD ID: 27392
 Int'l Code: 2002-012B
 Dimensions:
 Initial orbit:
 Perigee: 482 km
 Apogee: 507 km
 Inclination: 89.0°
 Period: 94.50 min
 Eccentricity: 0.002
 Launch date: 2002-03-17
 Source: United States (US)

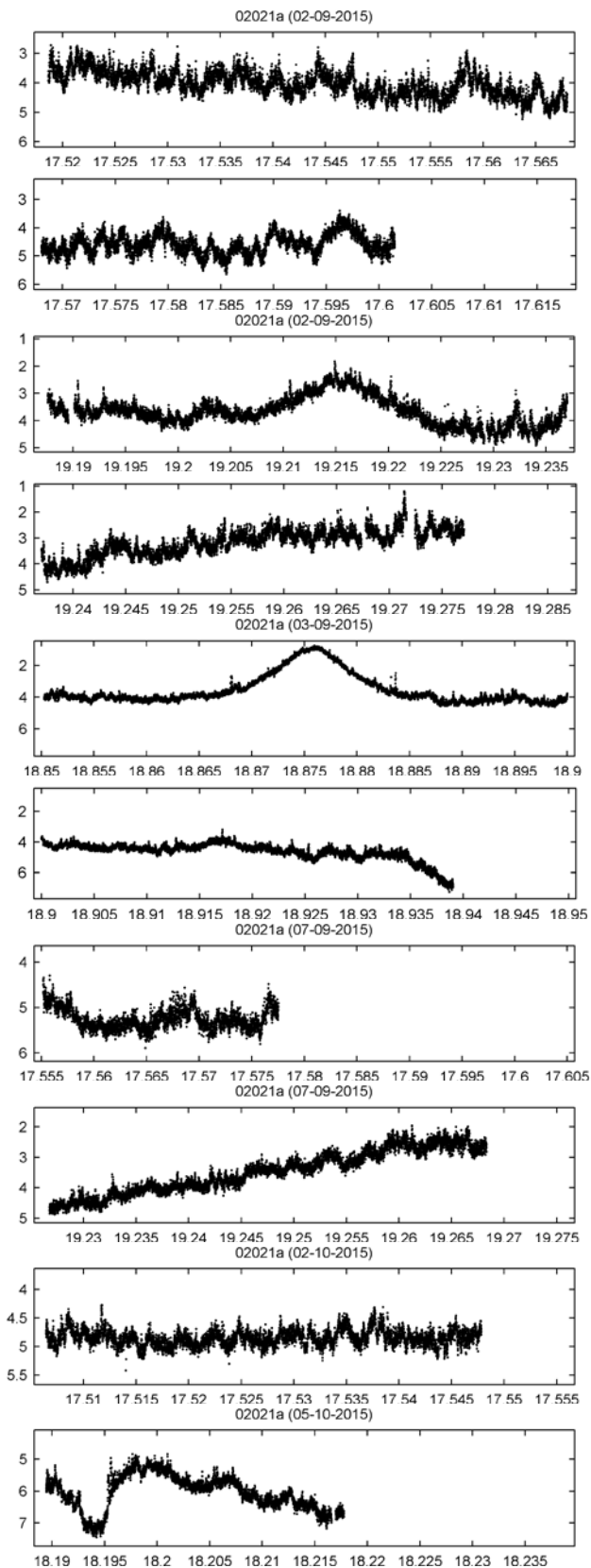


SPOT 5
 NORAD ID: 27421
 Int'l Code: 2002-021A
 Dimensions:
 Initial orbit:
 Perigee: 816 km
 Apogee: 818 km
 Inclination: 98.7°
 Period: 101.23 min
 Eccentricity: 0.00014
 Launch date: 2002-05-04
 Source: France (FR)









HAI YANG 1 (HY-1)

NORAD ID: 27430

Int'l Code: 2002-024A

Dimensions:

Initial orbit:

Perigee: 792 km

Apogee: 792 km

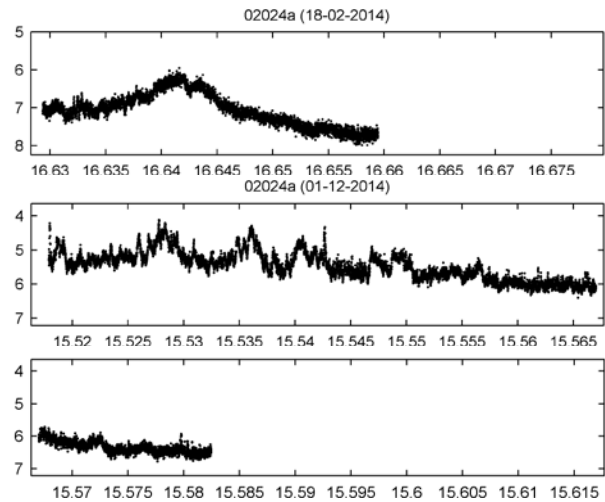
Inclination: 98.8°

Period: 100.70 min

Eccentricity: 0

Launch date: 2002-05-15

Source: People's Republic of China (PRC)



IRIDIUM 97

NORAD ID: 27450

Int'l Code: 2002-031A

Dimensions: box 1m x 1m x

3.5m

+2 panels

Initial orbit:

Perigee: 658 km

Apogee: 670 km

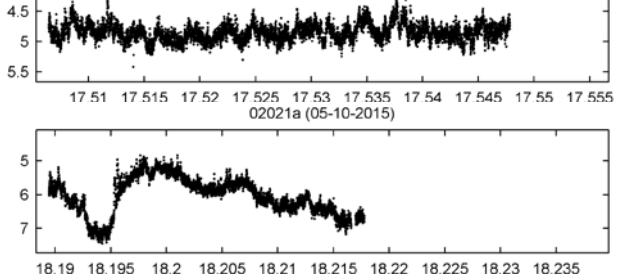
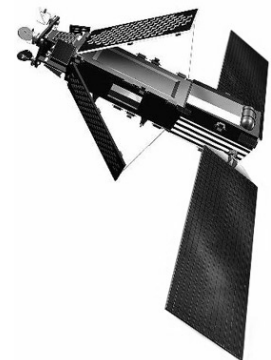
Inclination: 86.5°

Period: 98.02 min

Eccentricity: 0.00085

Launch date: 2002-06-20

Source: United States (US)



SL-8 R/B (S3M)

(COSMOS 2390 ROCKET)

Kosmos-3M (2nd stage)

NORAD ID: 27466

Int'l Code: 2002-036C

Dimensions: cylinder 7.4m long, 2.4m

dia

Initial orbit:

Perigee: 1468 km

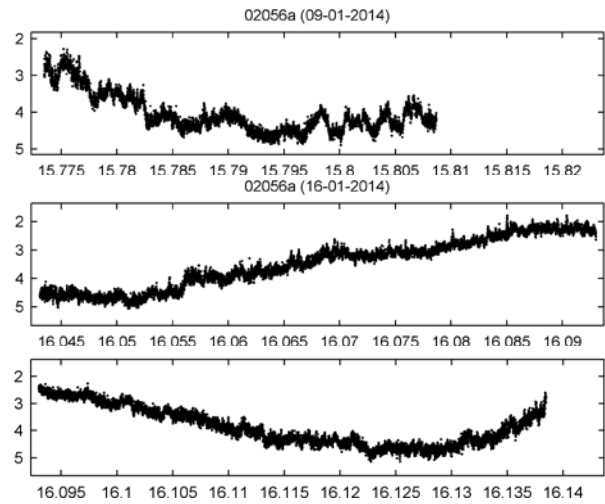
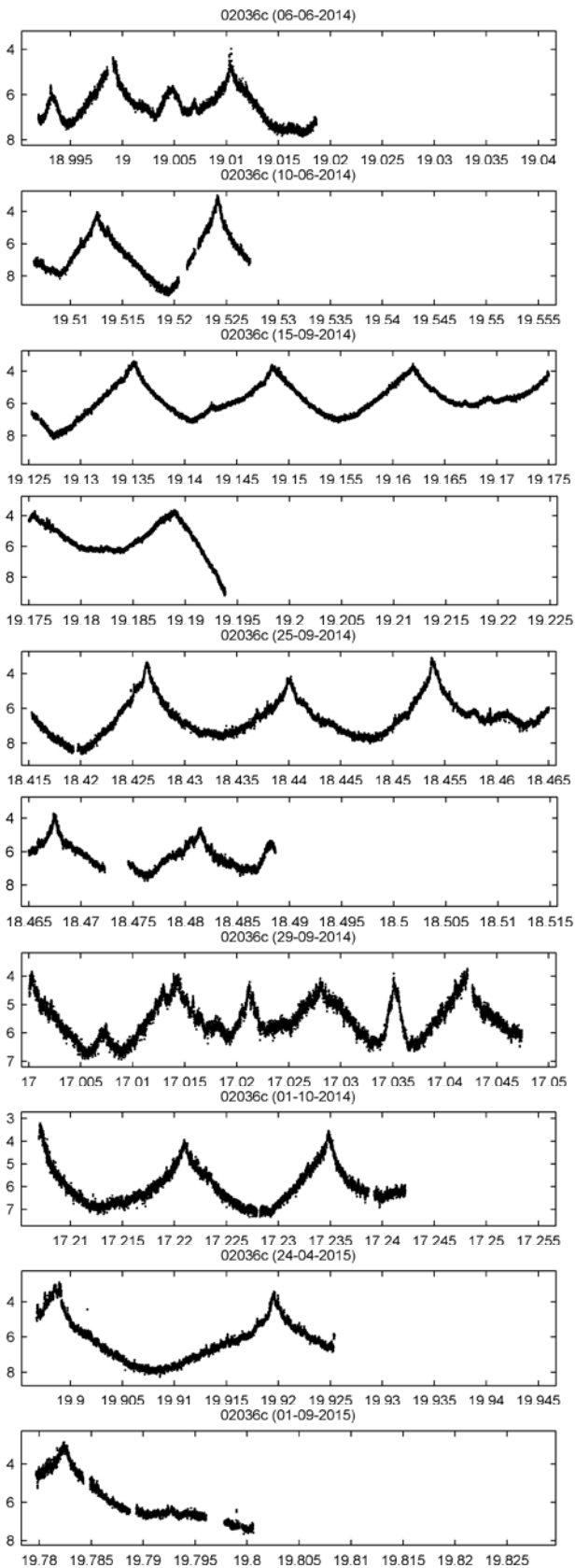
Apogee: 1509 km

Inclination: 82.4°

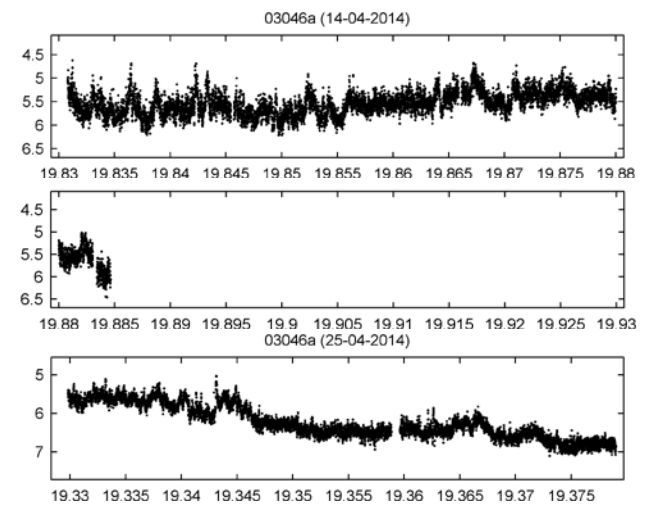


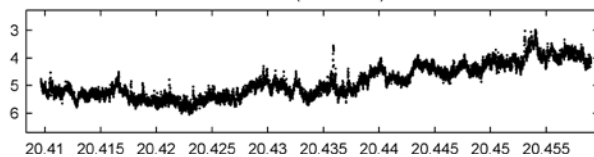
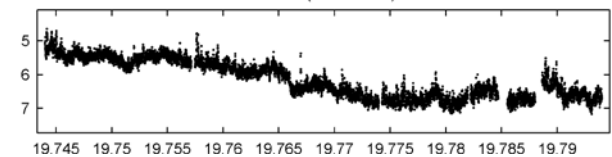
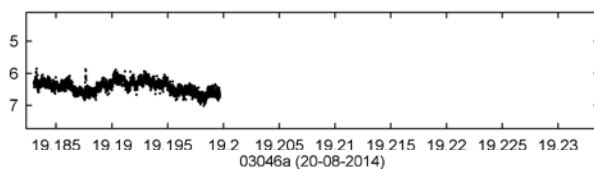
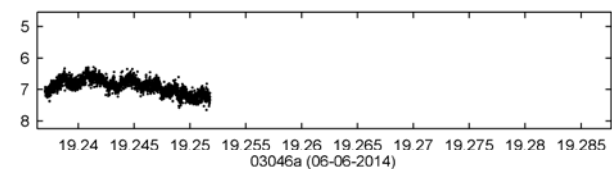
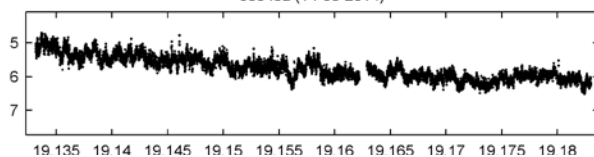
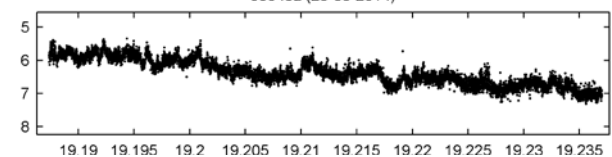
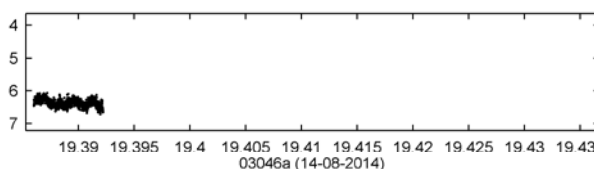
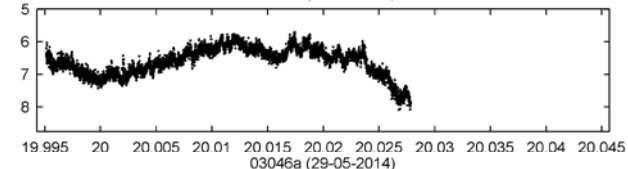
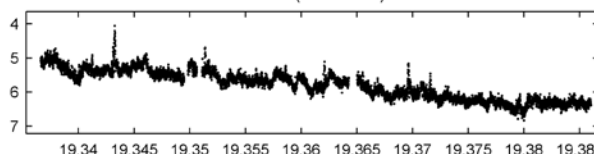
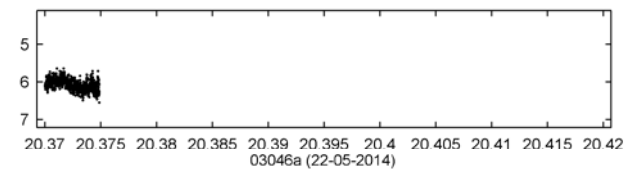
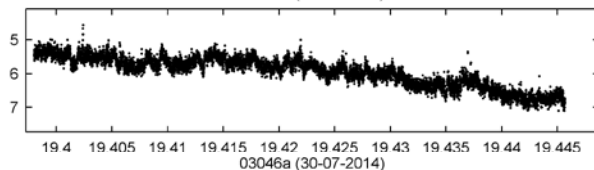
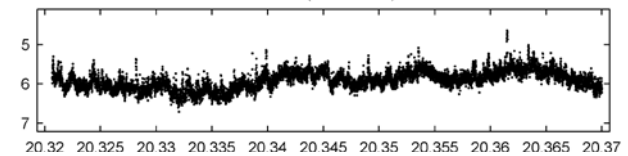
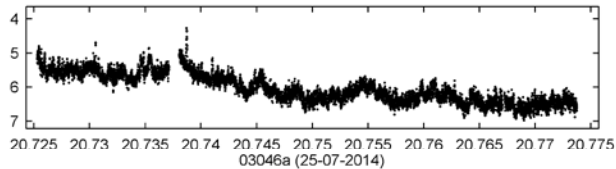
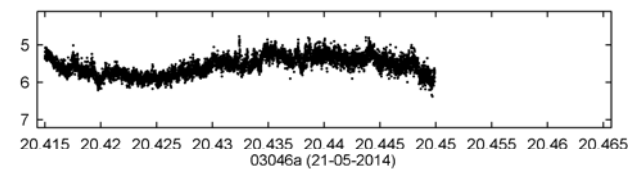
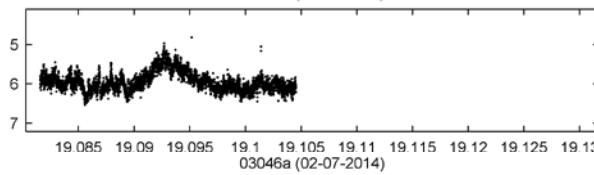
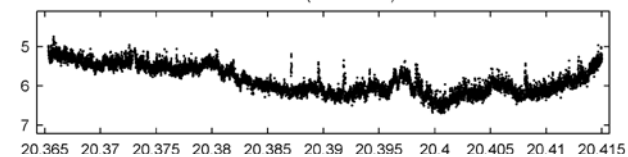
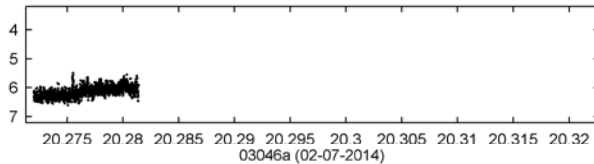
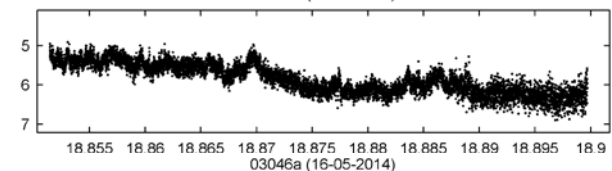
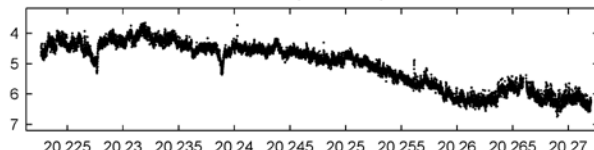
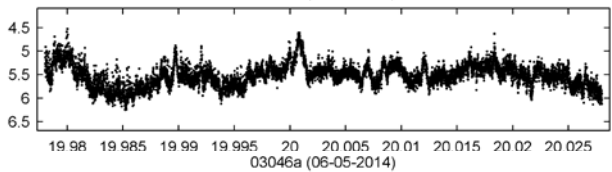
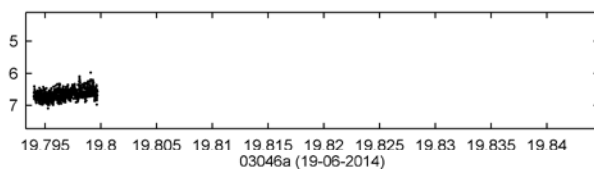
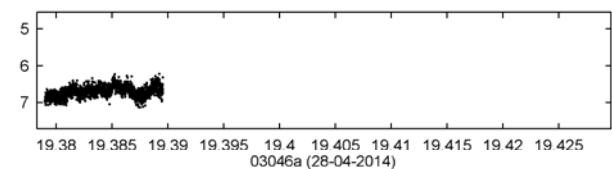
Period: 115.73 min
 Eccentricity: 0.00261
 Launch date: 2002-07-08
 Source: Commonwealth of Independent States (former USSR) (CIS)

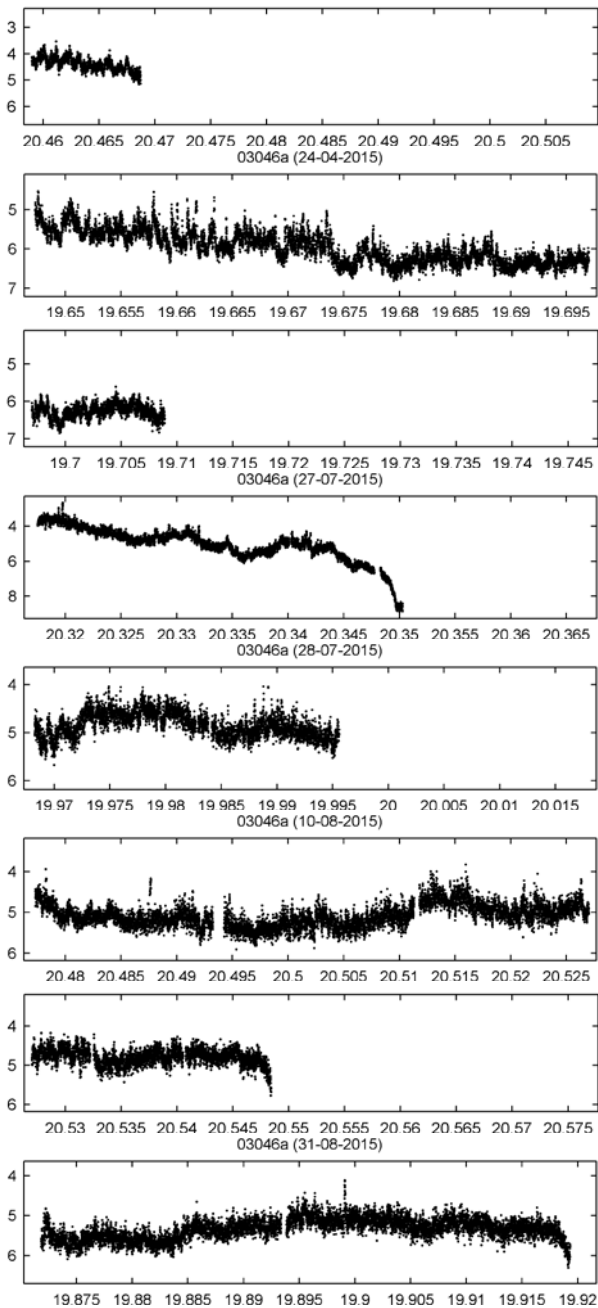
ADEOS 2 (Midori 2)
 NORAD ID: 27597
 Int'l Code: 2002-056A
 Dimensions:
 Initial orbit:
 Perigee: 804 km
 Apogee: 807 km
 Inclination: 98.6°
 Period: 100.99 min
 Eccentricity: 0.0002
 Launch date: 2002-12-14
 Source: Japan (JPN)



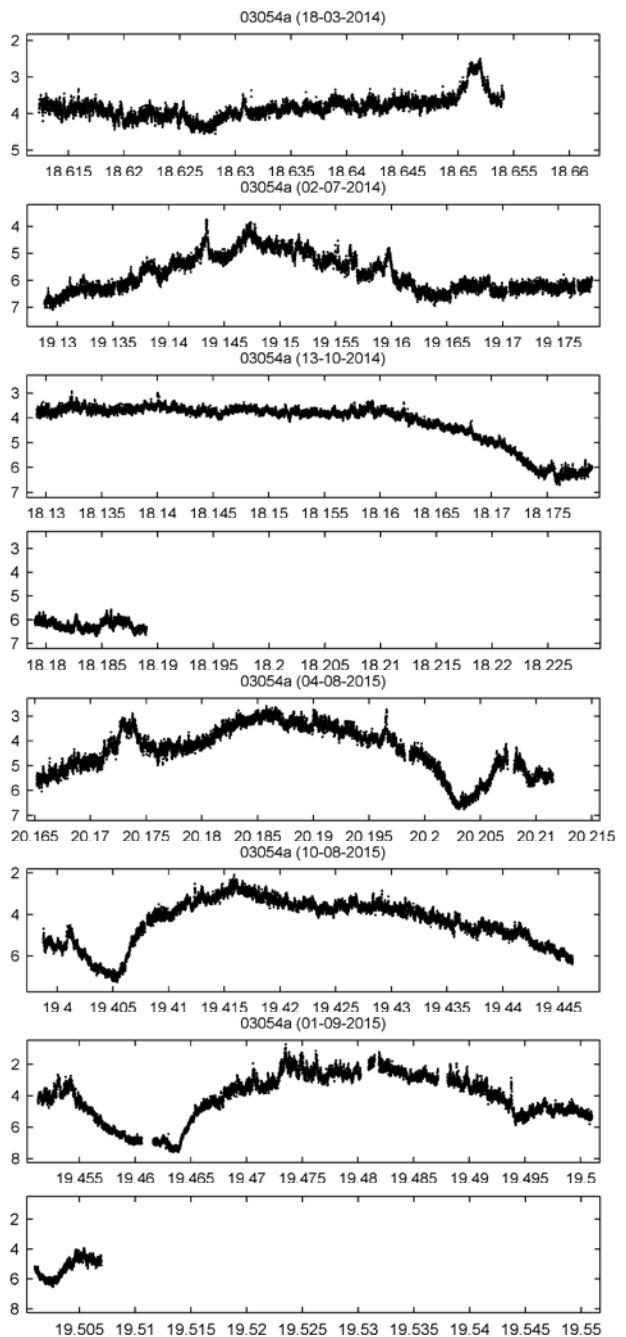
IRS P6
 NORAD ID: 28051
 Int'l Code: 2003-046A
 Dimensions:
 Initial orbit:
 Perigee: 802 km
 Apogee: 875 km
 Inclination: 98.7°
 Period: 101.68 min
 Eccentricity: 0.00506
 Launch date: 2003-10-17
 Source: India (IND)



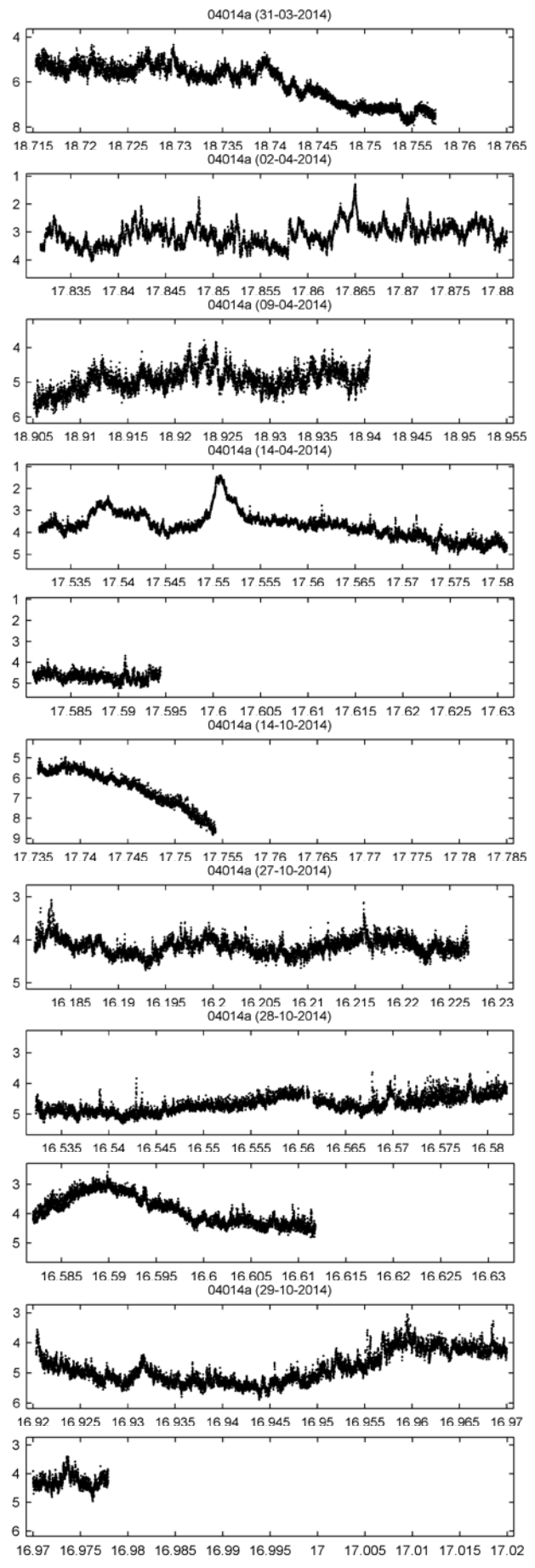
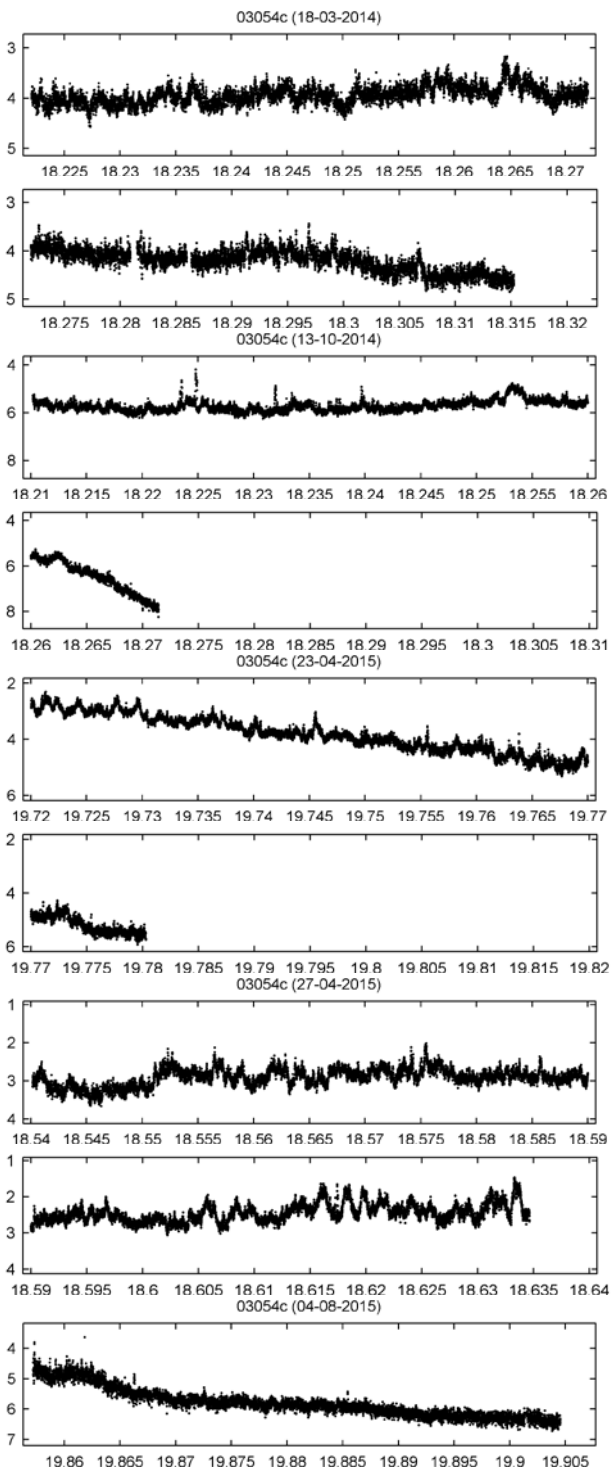




NOSS 3-2 (1) (USA 173)
 NORAD ID: 28095
 Int'l Code: 2003-054A
 Dimensions:
 Initial orbit:
 Perigee: 1013 km
 Apogee: 1200 km
 Inclination: 63.4°
 Period: 107.40 min
 Eccentricity: 0.0125
 Launch date: 2003-12-02
 Source: United States (US)

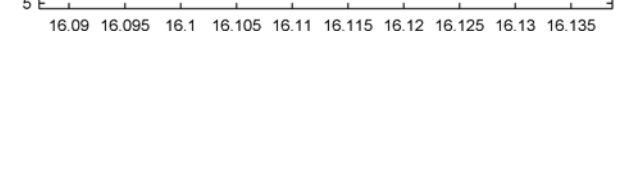
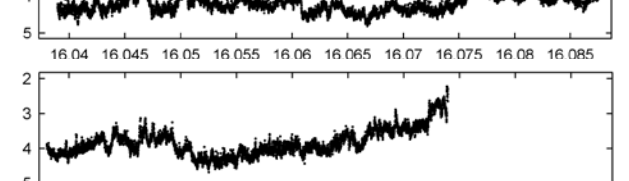
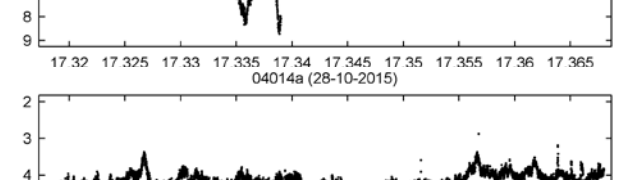
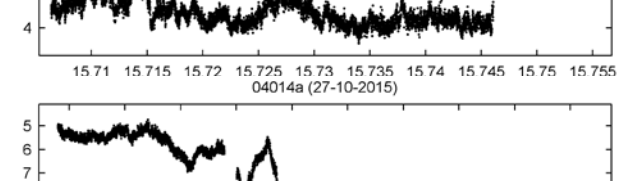
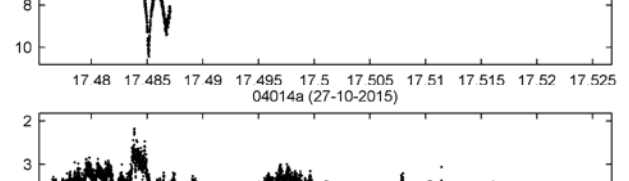
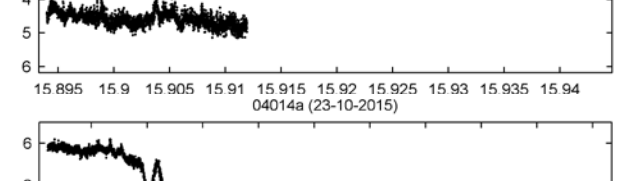
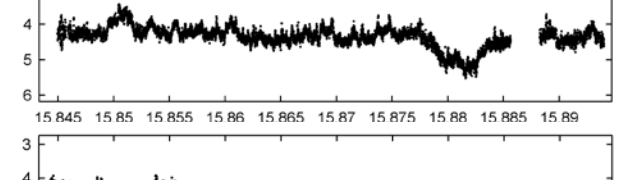
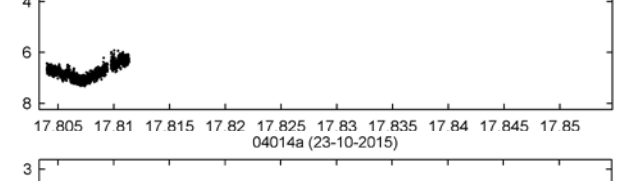
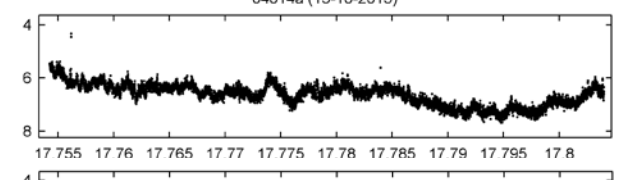
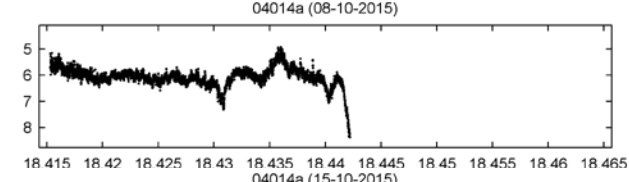
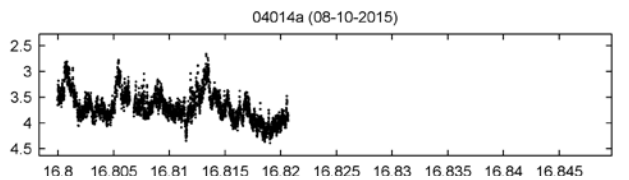
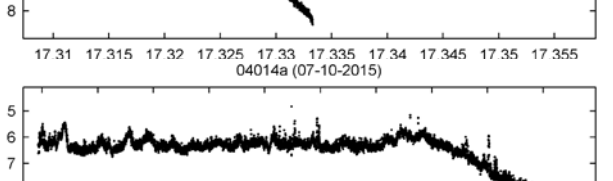
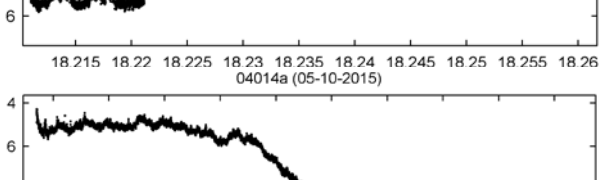
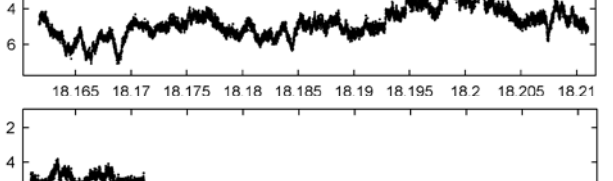
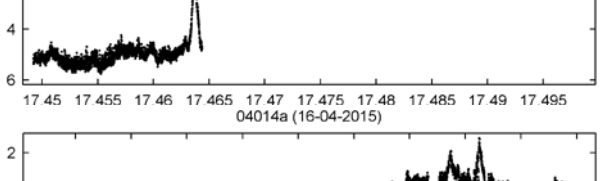
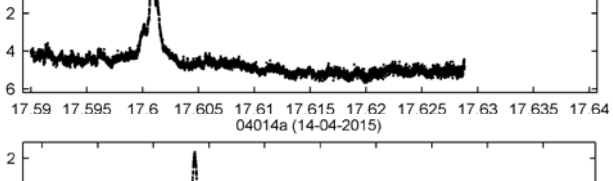
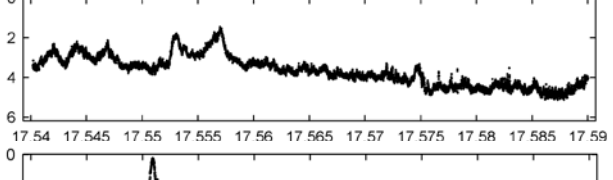
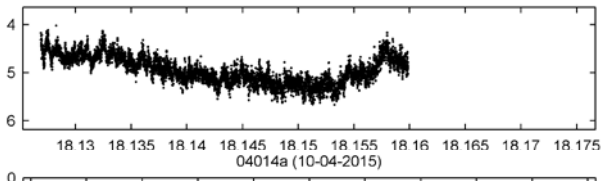
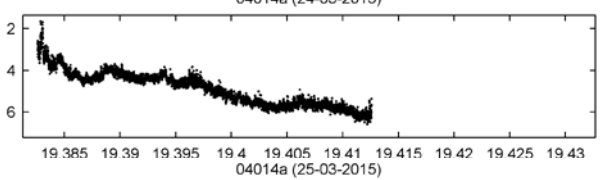
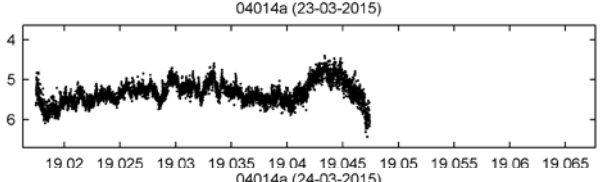
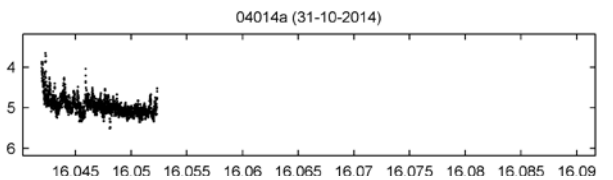


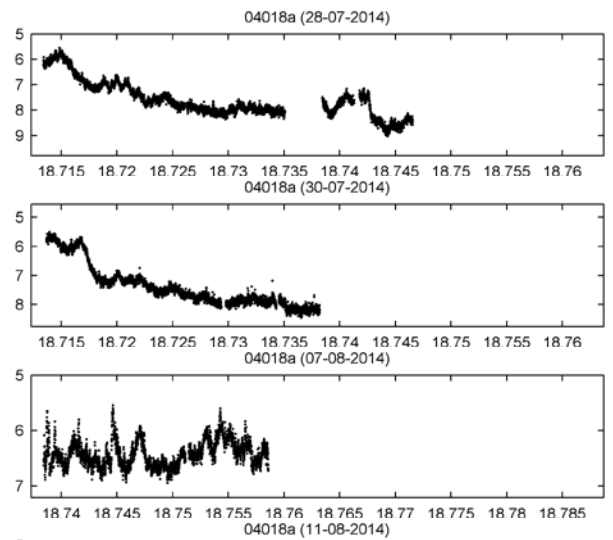
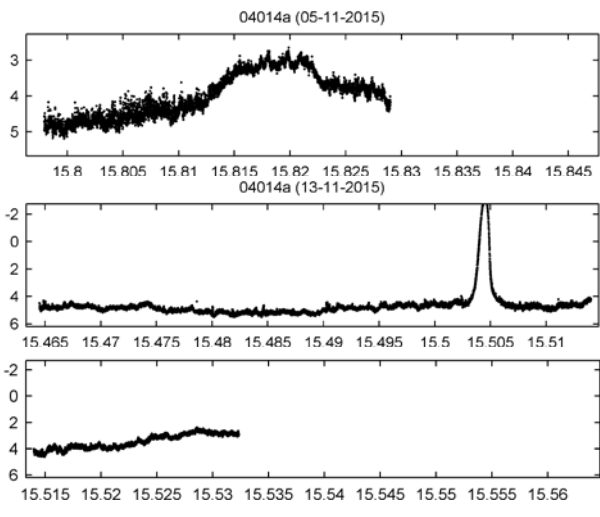
USA 173 P/L 2 (NOSS 3-2 (2))
 NORAD ID: 28097
 Int'l Code: 2003-054C
 Dimensions:
 Initial orbit:
 Perigee: 1011 km
 Apogee: 1202 km
 Inclination: 63.4°
 Period: 107.4 min
 Eccentricity: 0.01277
 Launch date: 2003-12-02
 Source: United States (US)



Gravity Probe B (GP-B)
 NORAD ID: 28230
 Int'l Code: 2004-014A
 Dimensions:
 Initial orbit:
 Perigee: 641 km
 Apogee: 645 km
 Inclination: 90.01°
 Period: 97.59 min
 Eccentricity: 0.0003
 Launch date: 2004-04-20
 Source: United States (US)

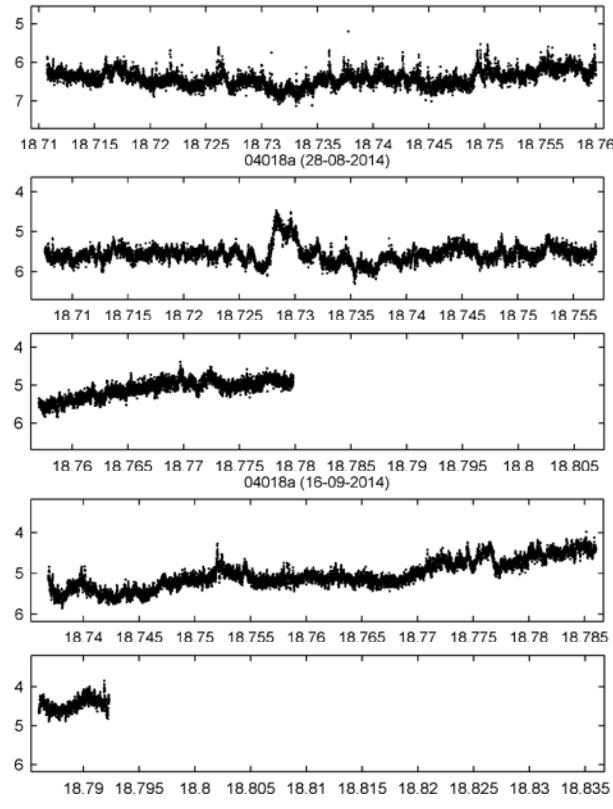
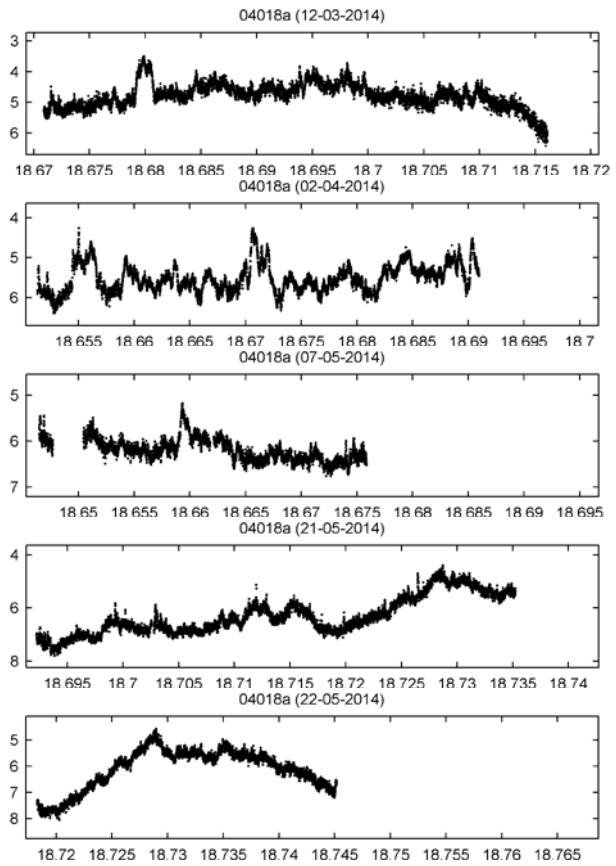
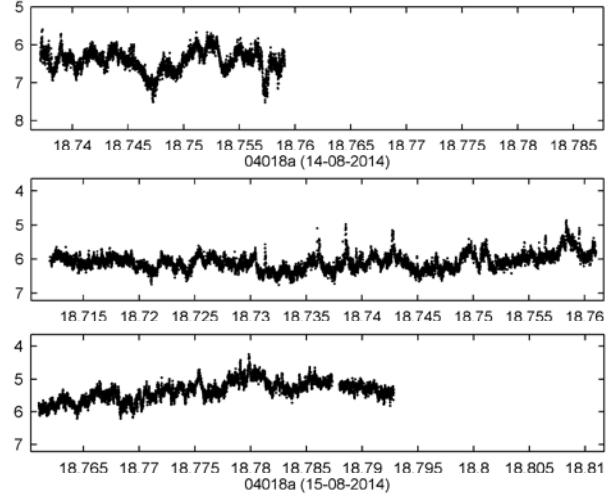
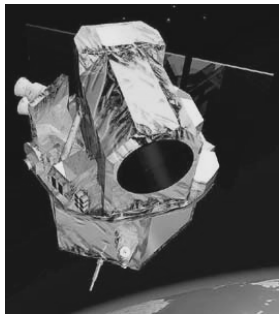


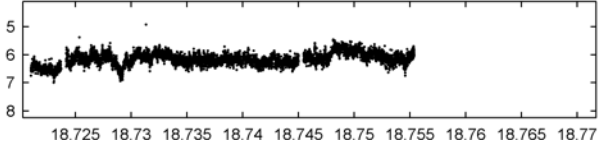
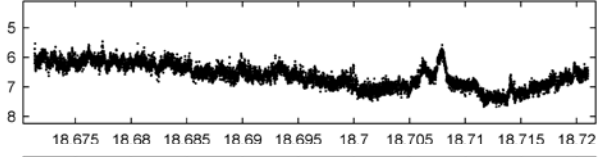
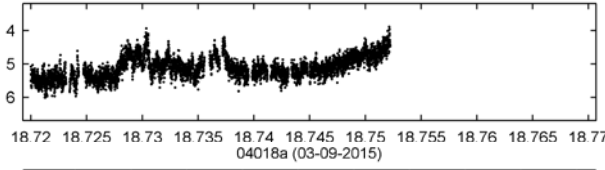
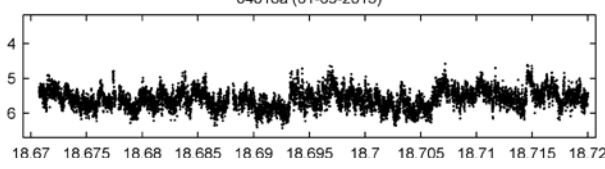
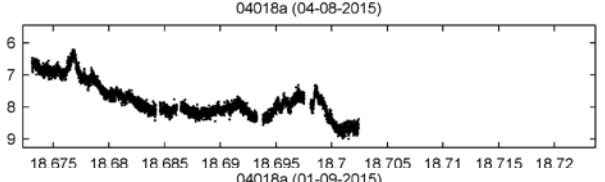
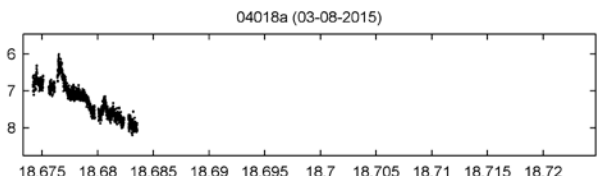
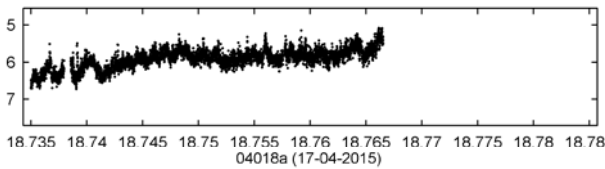
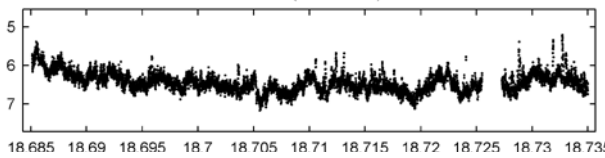
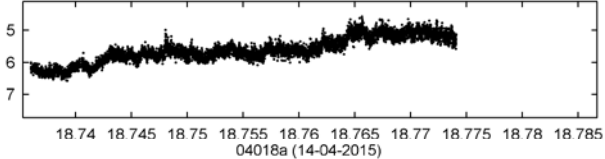
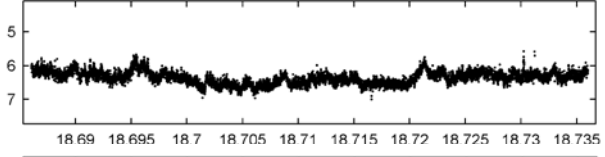
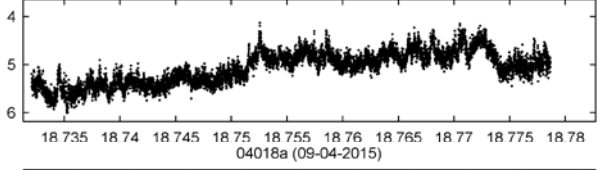
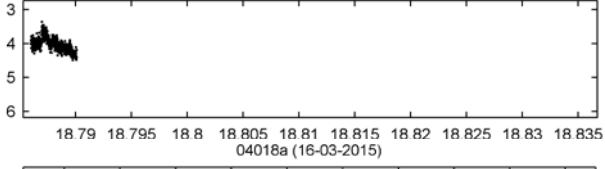
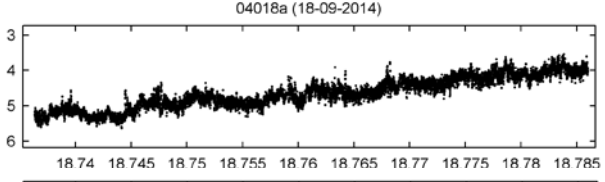
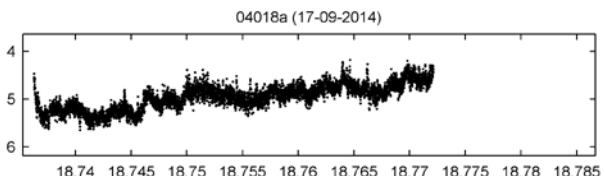




ROCSAT 2 (FORMOSAT-2)

NORAD ID: 28254
 Int'l Code: 2004-018A
 Dimensions: 6-sided box
 Initial orbit:
 Perigee: 721 km
 Apogee: 743 km
 Inclination: 99.11°
 Period: 99.43 min
 Eccentricity: 0.002
 Launch date: 2004-05-20
 Source: Taiwan (Republic of China) (ROC)





COSMOS 2406 (TSELINA-2)

NORAD ID: 28352

Int'l Code: 2004-021A

Dimensions: cylinder +2 panels

Initial orbit:

Perigee: 847 km

Apogee: 865 km

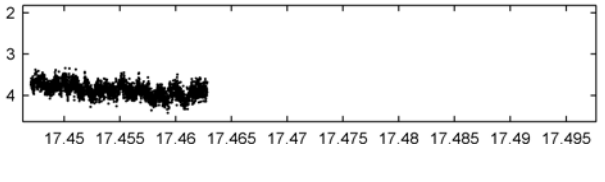
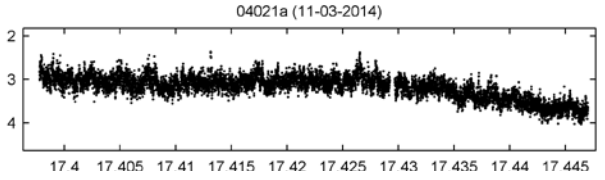
Inclination: 71.01°

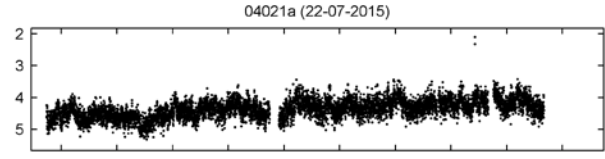
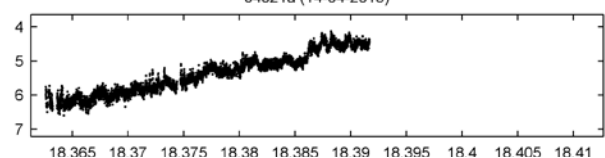
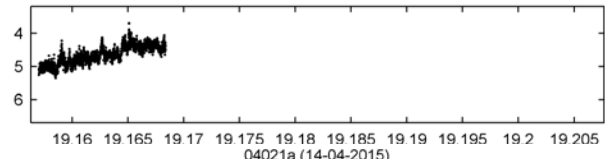
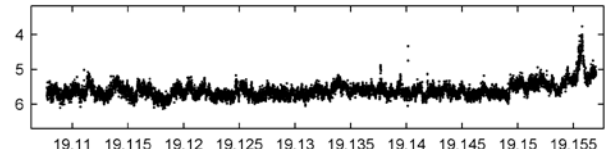
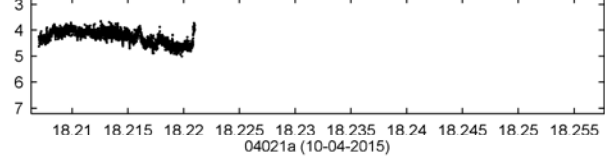
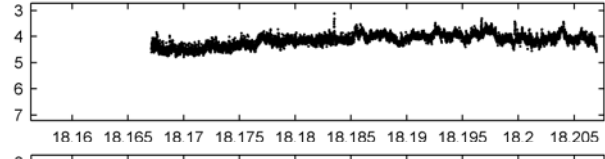
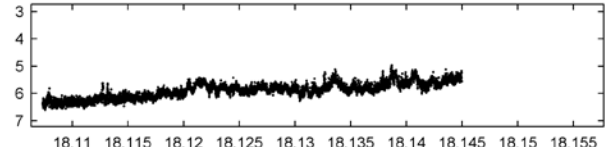
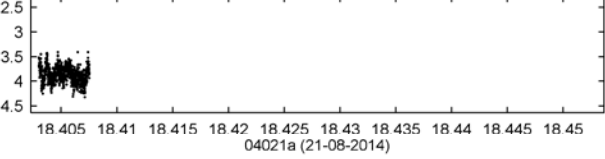
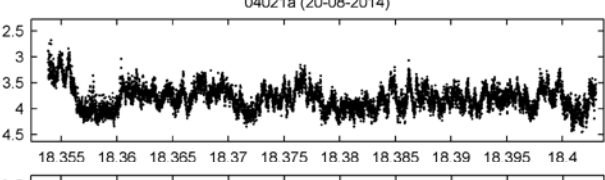
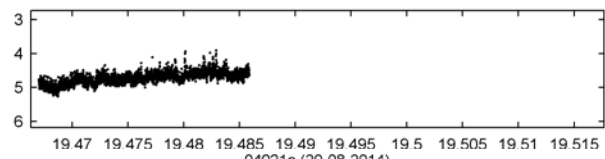
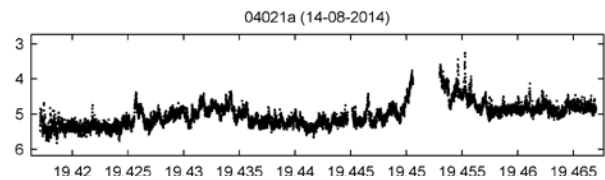
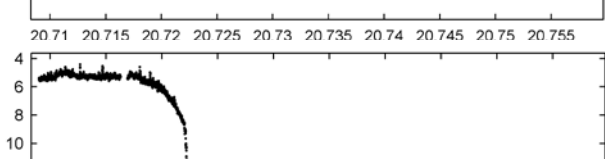
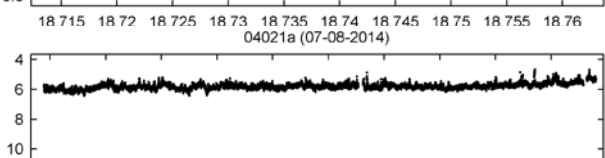
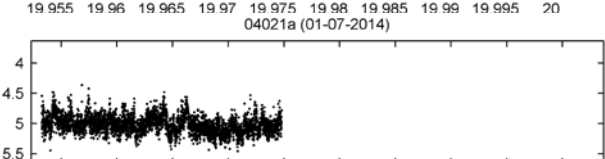
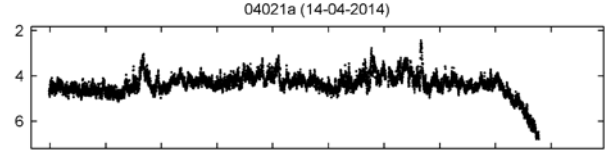
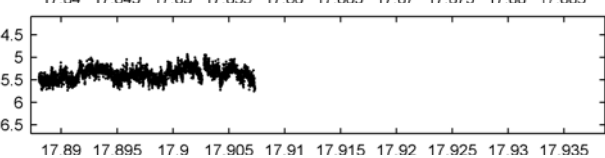
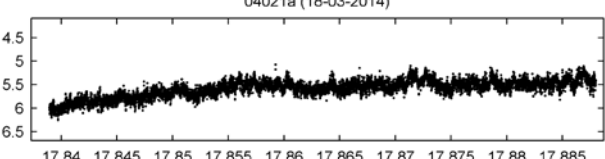
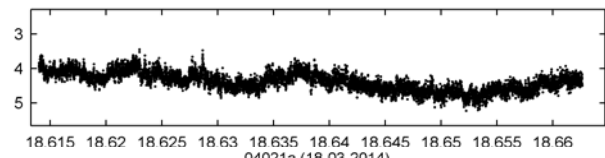
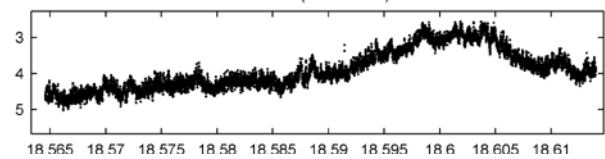
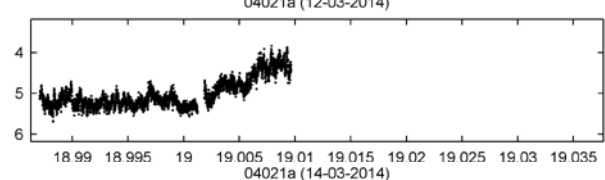
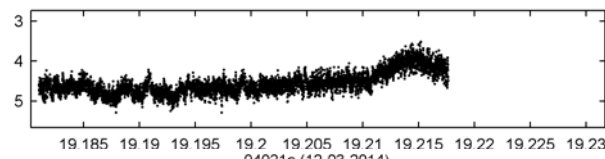
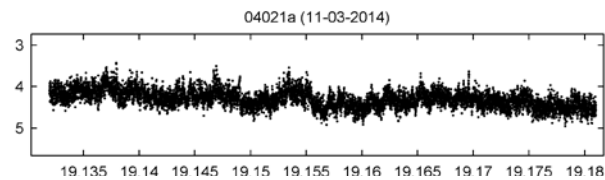
Period: 102.06 min

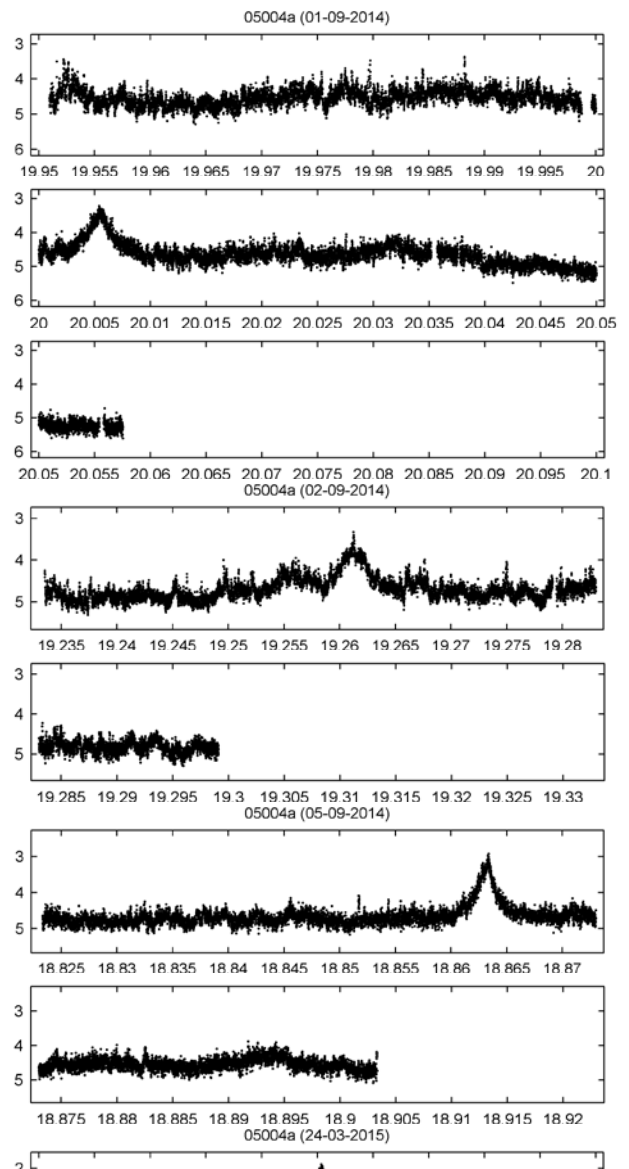
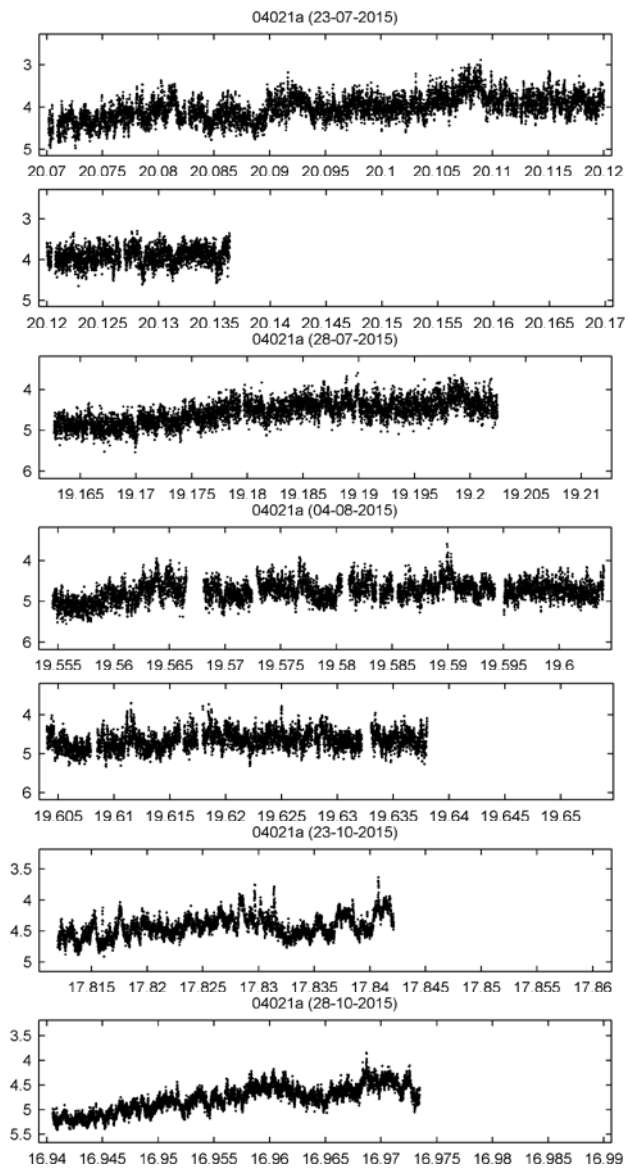
Eccentricity: 0.001

Launch date: 2004-06-10

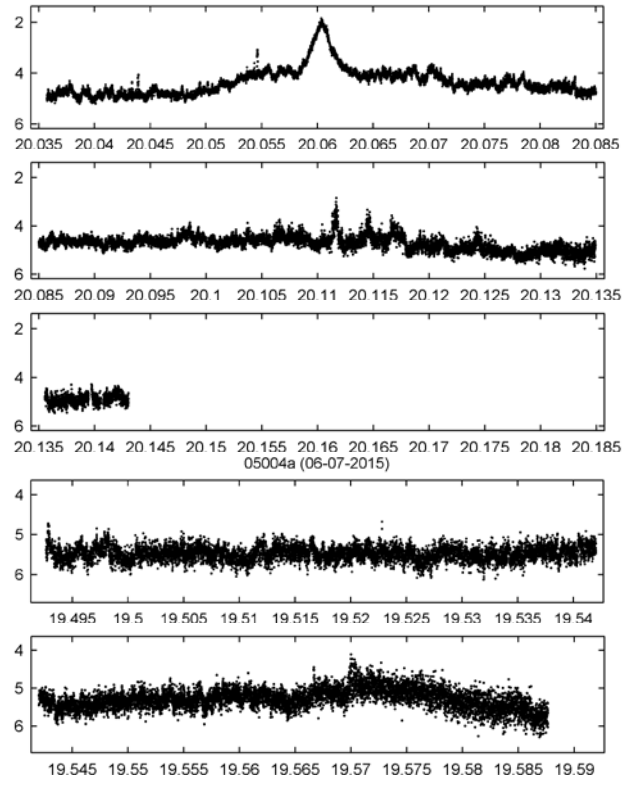
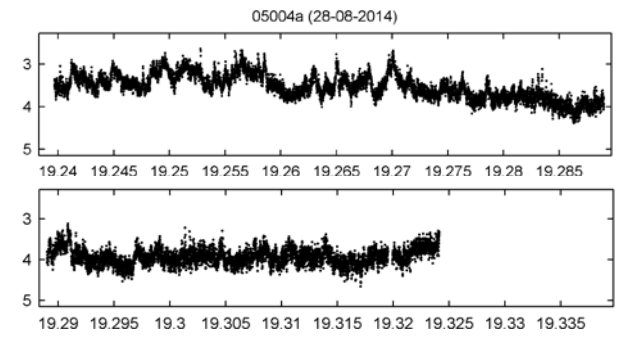
Source: Commonwealth of Independent States (former USSR) (CIS)

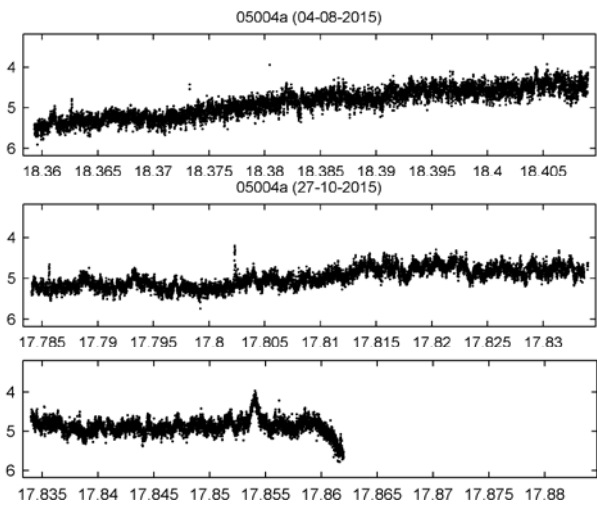






USA 181 (NOSS C3-1)
 NORAD ID: 28537
 Int'l Code: 2005-004A
 Dimensions:
 Initial orbit:
 Perigee: 1011 km
 Apogee: 1209 km
 Inclination: 63.4°
 Period: 107.47 min
 Eccentricity: 0.0132
 Launch date: 2005-02-03
 Source: United States (US)

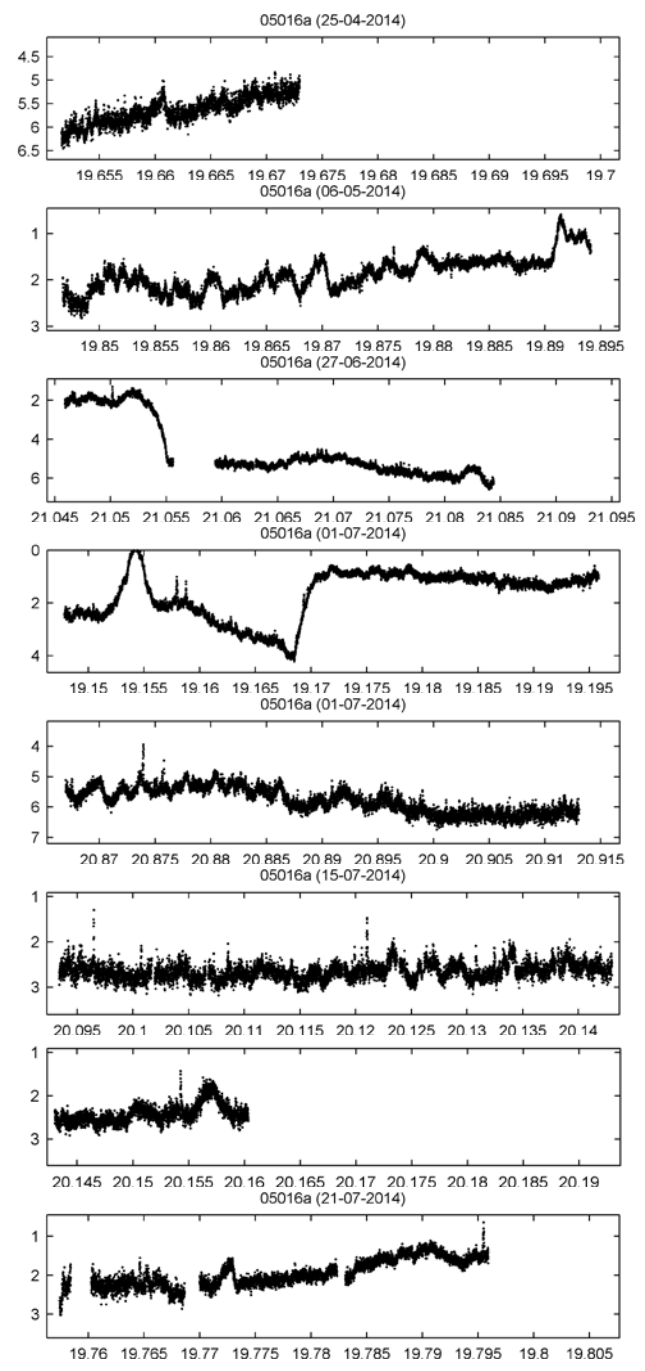
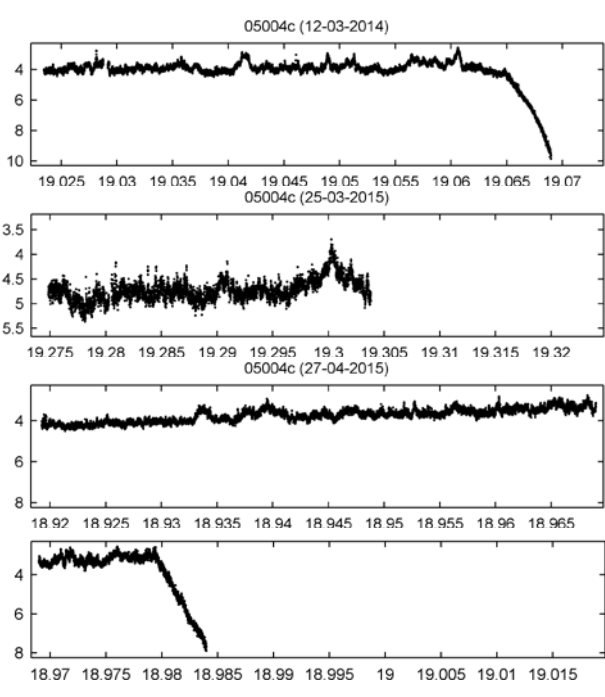


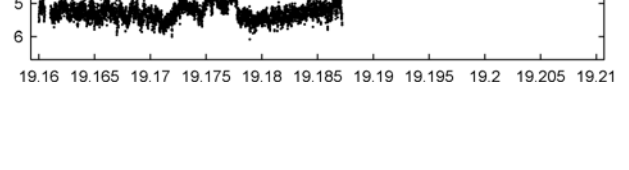
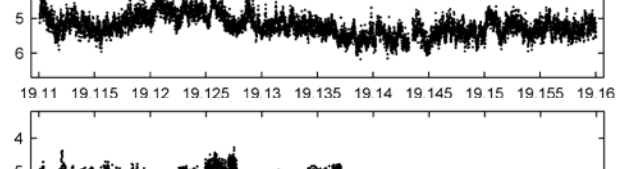
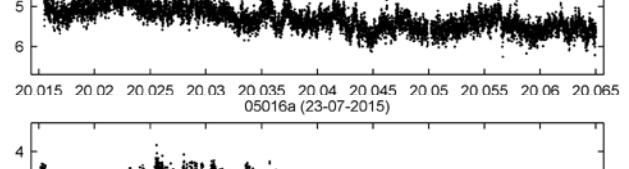
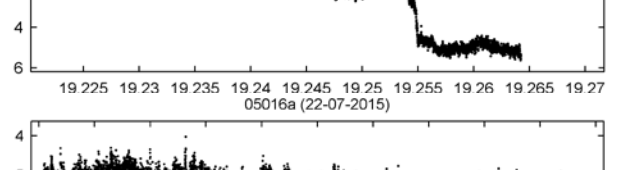
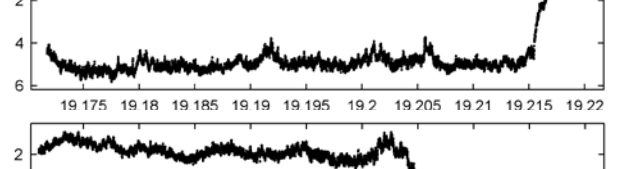
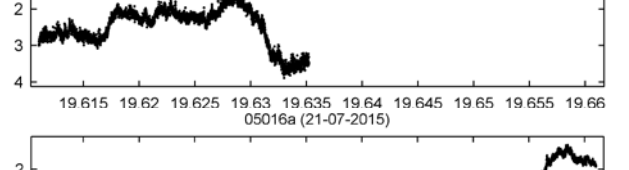
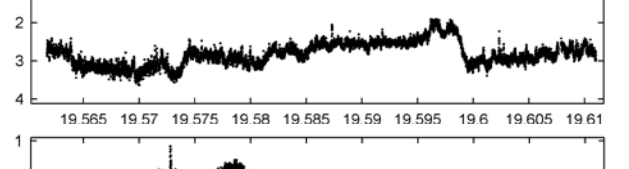
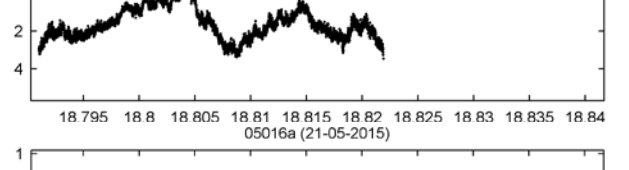
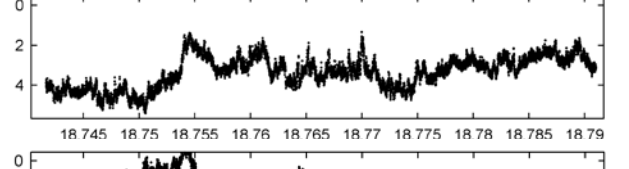
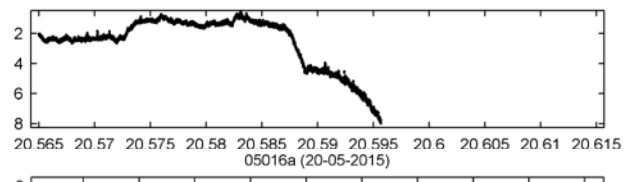
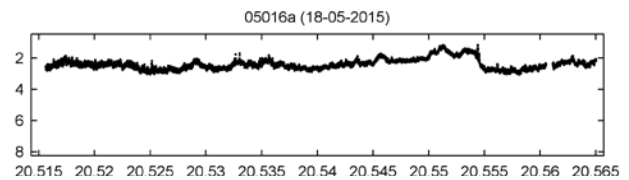
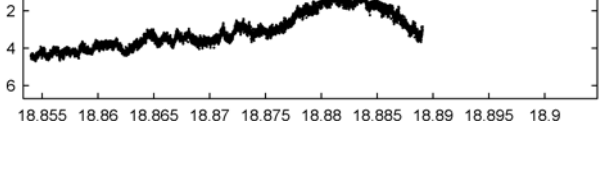
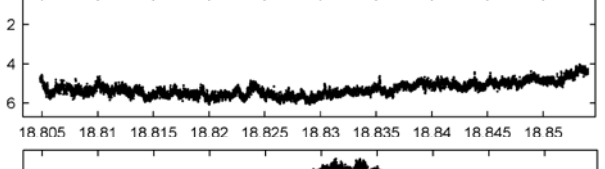
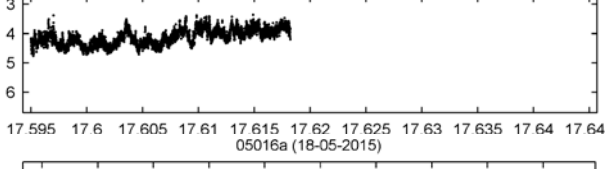
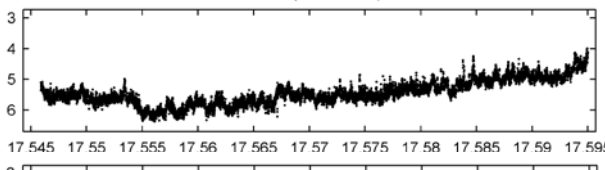
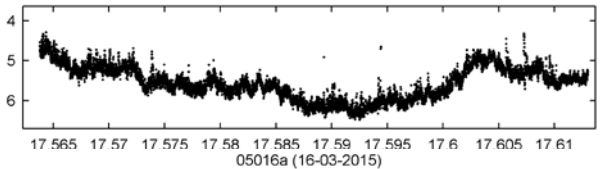
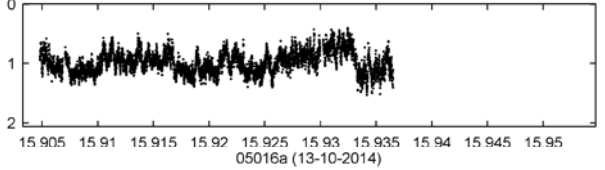
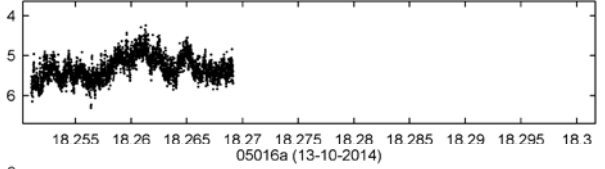
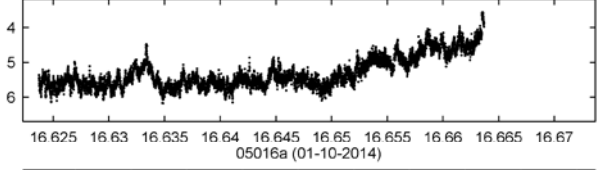
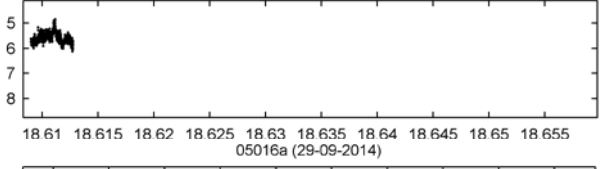
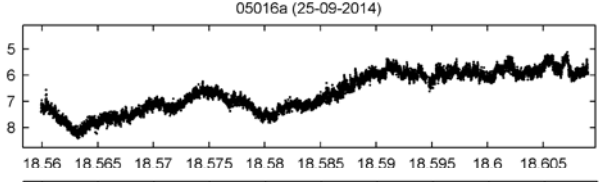
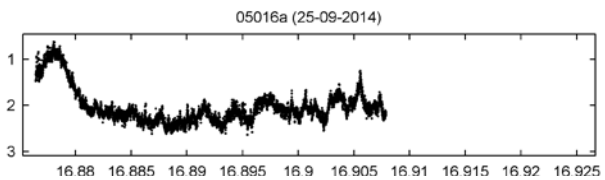


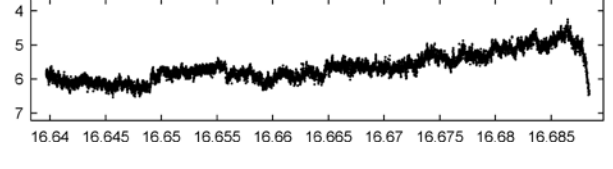
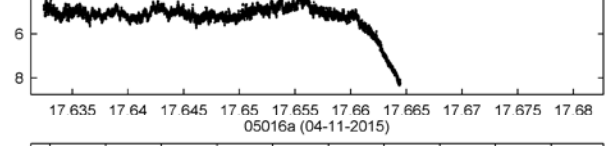
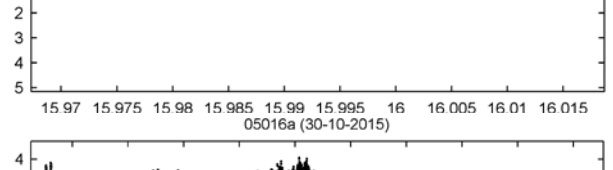
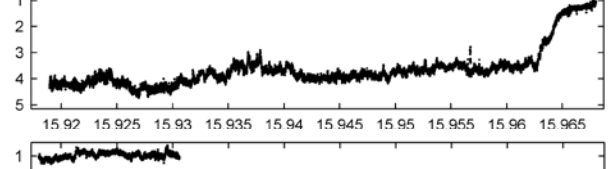
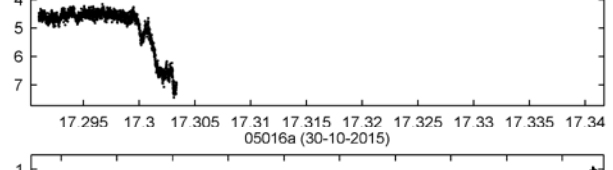
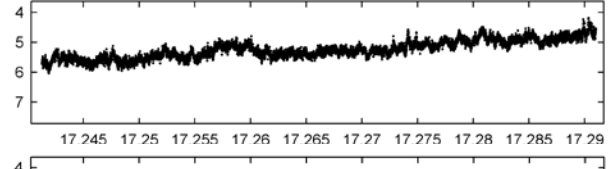
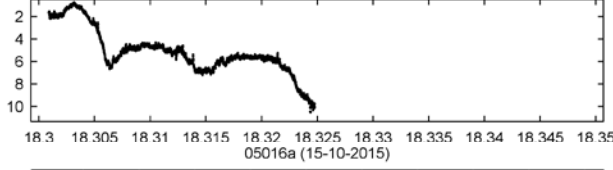
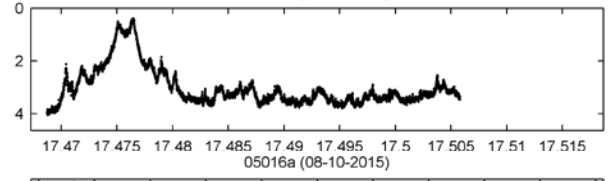
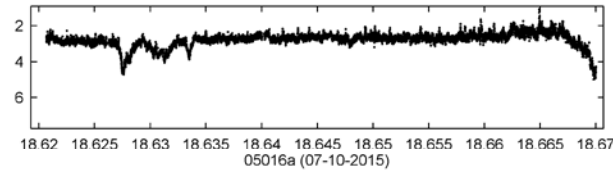
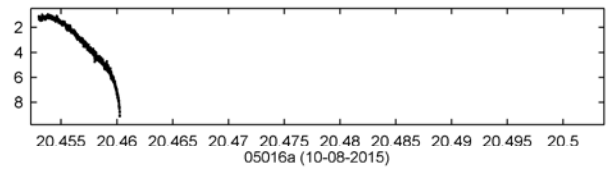
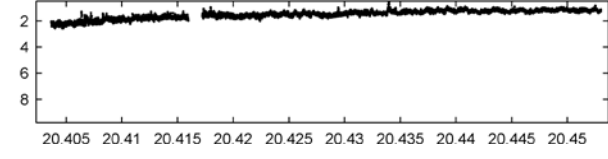
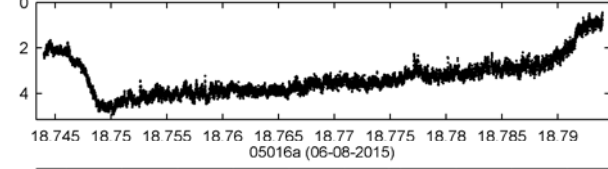
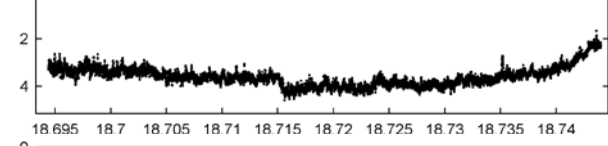
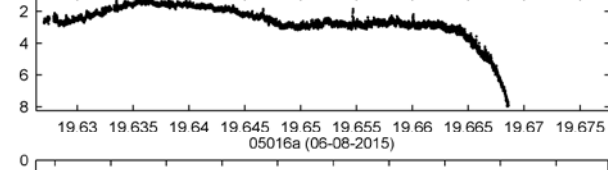
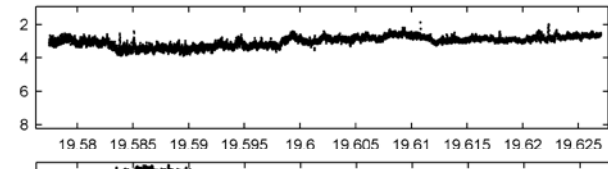
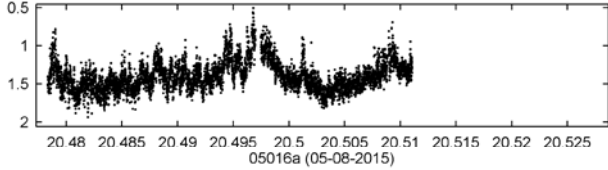
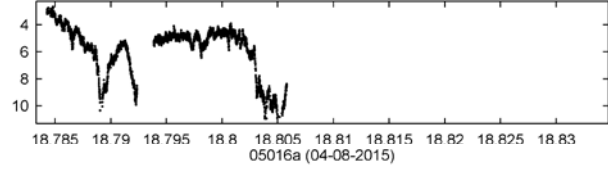
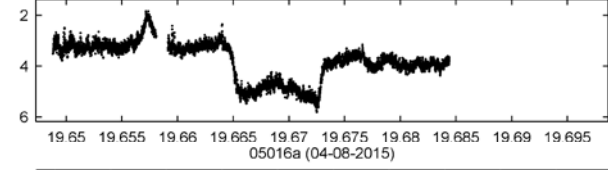
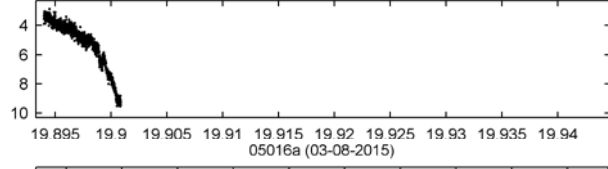
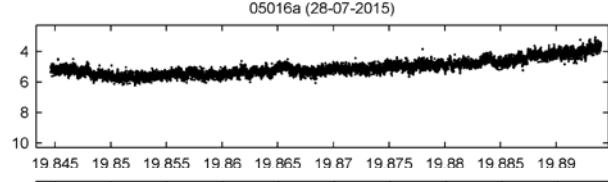
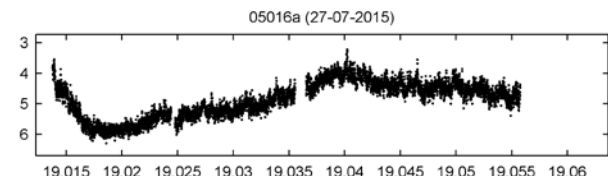
USA 182 (LACROSSE 5)
 NORAD ID: 28646
 Int'l Code: 2005-016A
 Dimensions: cylindrical 12m long,
 4m dia, 45m span
 Initial orbit:
 Perigee: 712 km
 Apogee: 718 km
 Inclination: 57.0°
 Period: 99.08 min
 Eccentricity: 0.00042
 Launch date: 2005-04-30
 Source: United States (US)

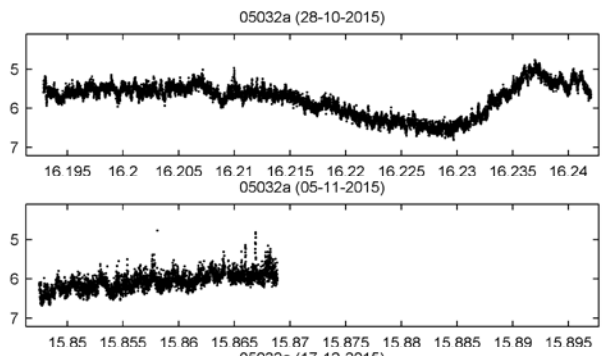
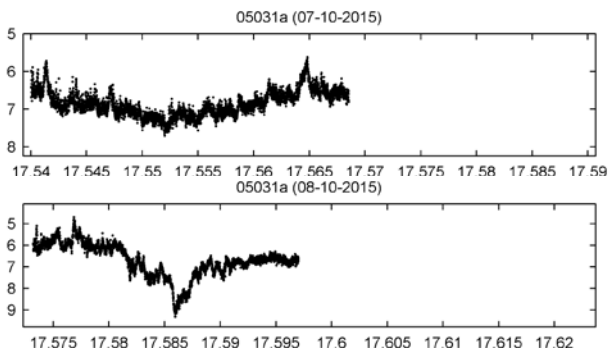


USA 181 DEB (NOSS-3 3B)
 NORAD ID: 28541
 Int'l Code: 2005-004C
 Dimensions:
 Initial orbit:
 Perigee: 1011 km
 Apogee: 1209 km
 Inclination: 63.4°
 Period: 107.47 min
 Eccentricity: 0.01323
 Launch date: 2005-02-03
 Source: United States (US)









MONITOR-E 1

NORAD ID: 28822

Int'l Code: 2005-032A

Dimensions:

Initial orbit:

Perigee: 524 km

Apogee: 544 km

Inclination: 97.56°

Period: 95.32 min

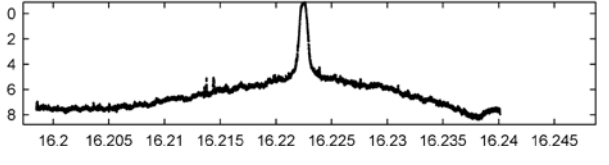
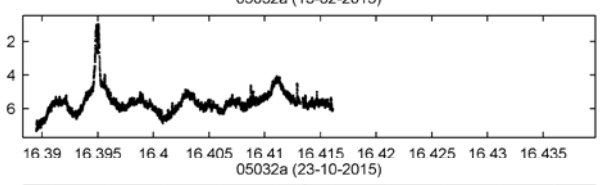
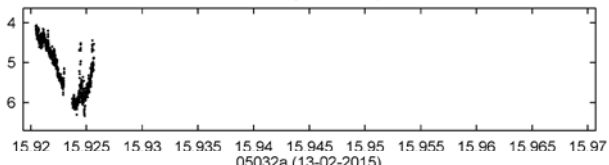
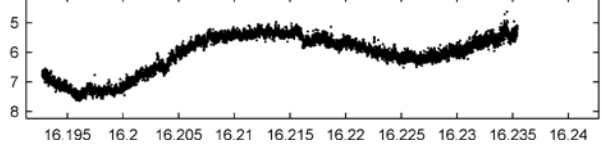
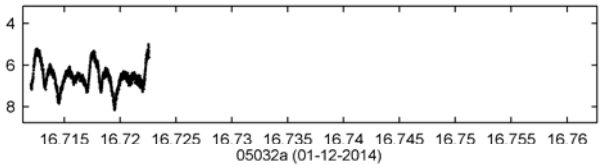
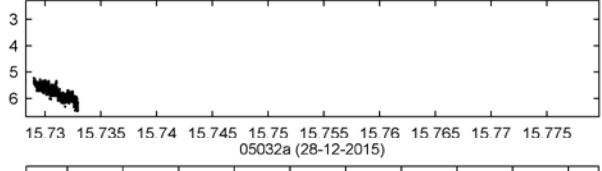
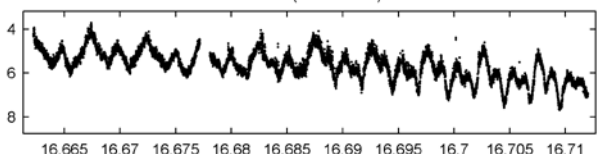
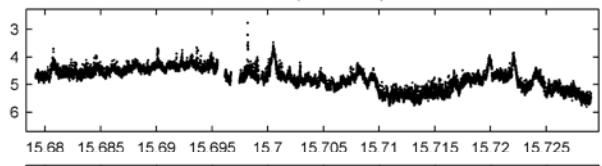
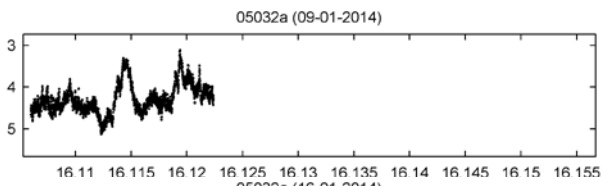
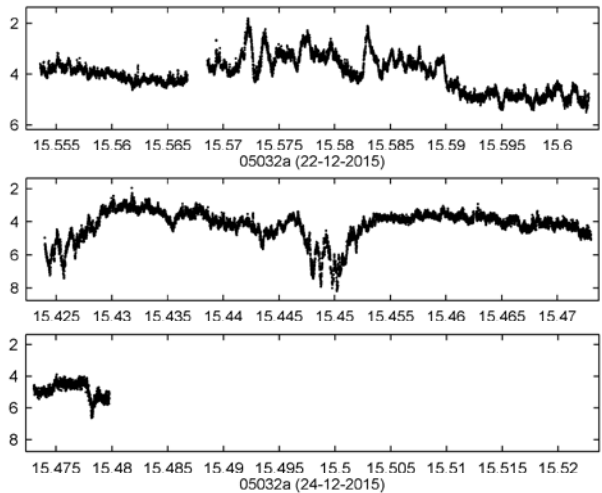
Eccentricity: 0.001

Launch date: 2005-08-26

Source: Commonwealth of

Independent States (former USSR)

(CIS)



USA 186

(NRO-L 20, KH-12 5)

NORAD ID: 28888

Int'l Code: 2005-042A

Dimensions:

Initial orbit:

Perigee: 264 km

Apogee: 1050 km

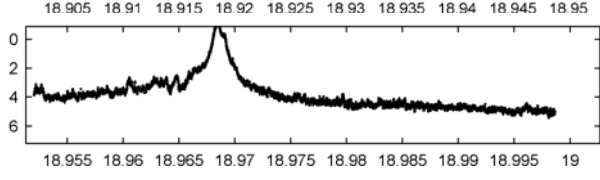
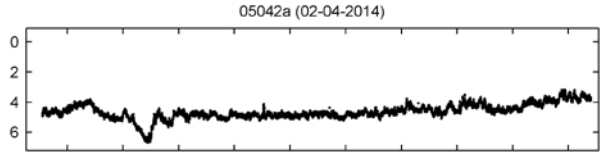
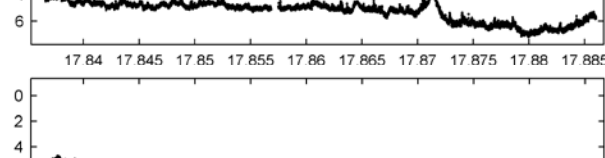
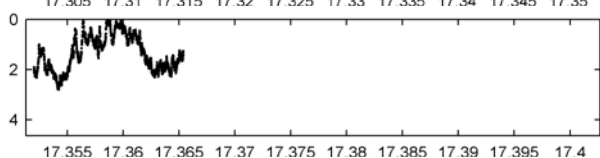
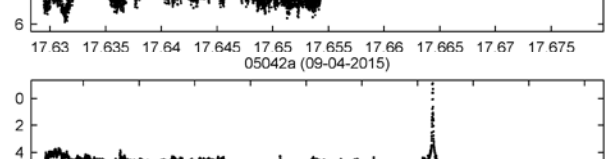
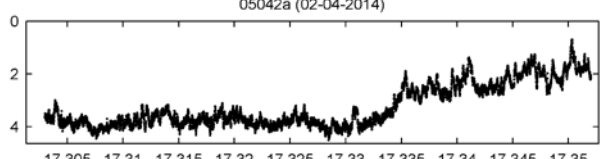
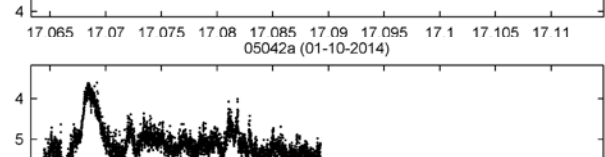
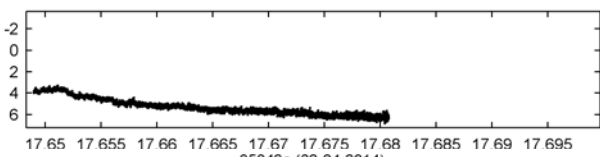
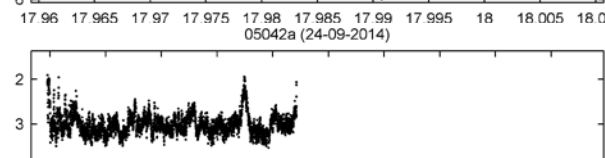
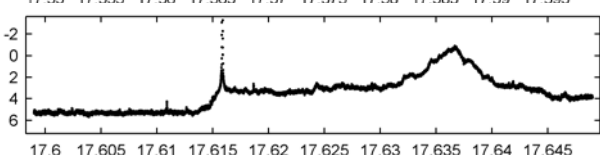
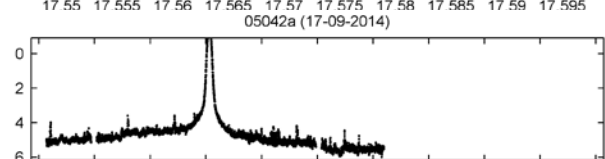
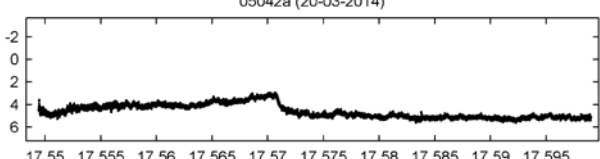
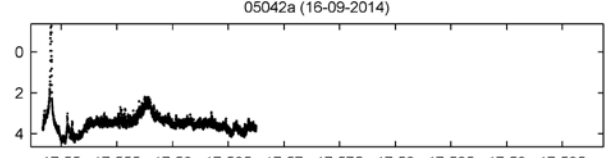
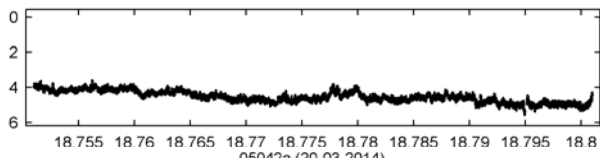
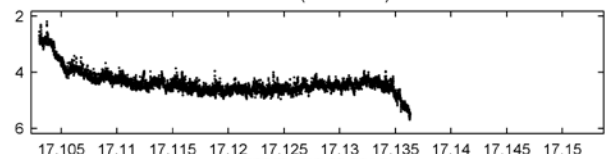
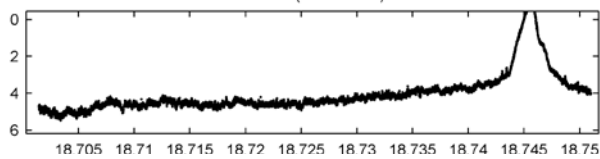
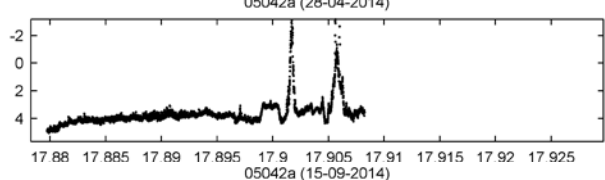
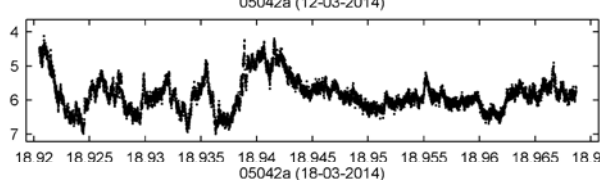
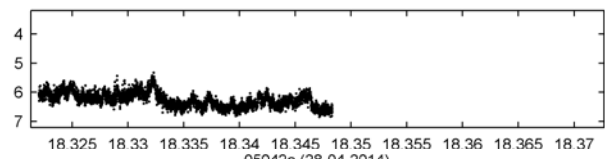
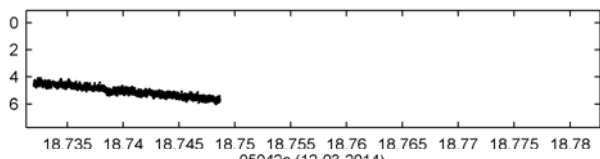
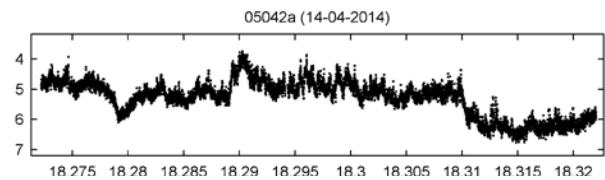
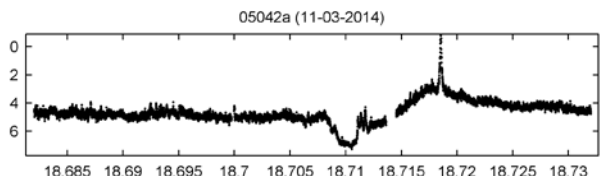
Inclination: 97.8°

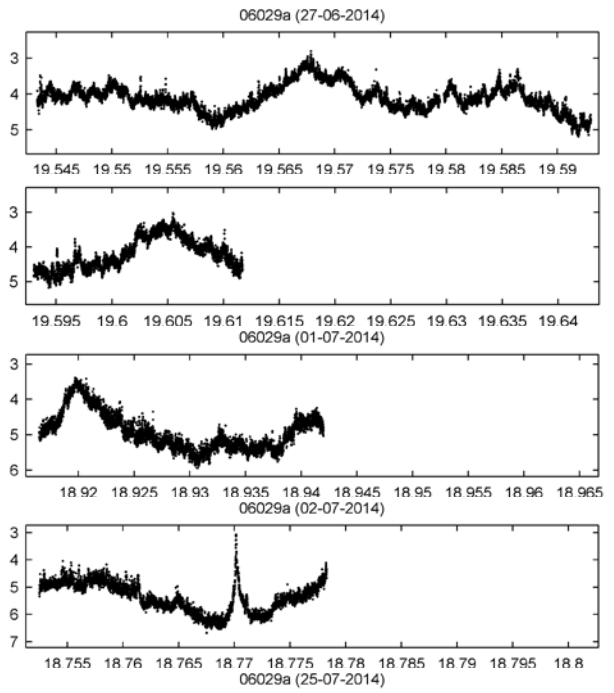
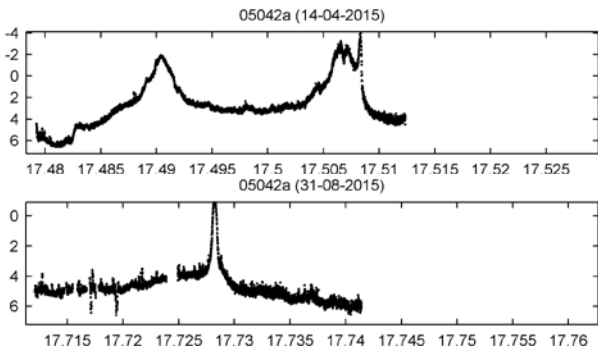
Period: 97.87 min

Eccentricity: 0.0559

Launch date: 2005-10-19

Source: United States (US)





RESURS DK-1

NORAD ID: 29228

Int'l Code: 2006-021A

Dimensions:

Initial orbit:

Perigee: 355 km

Apogee: 585 km

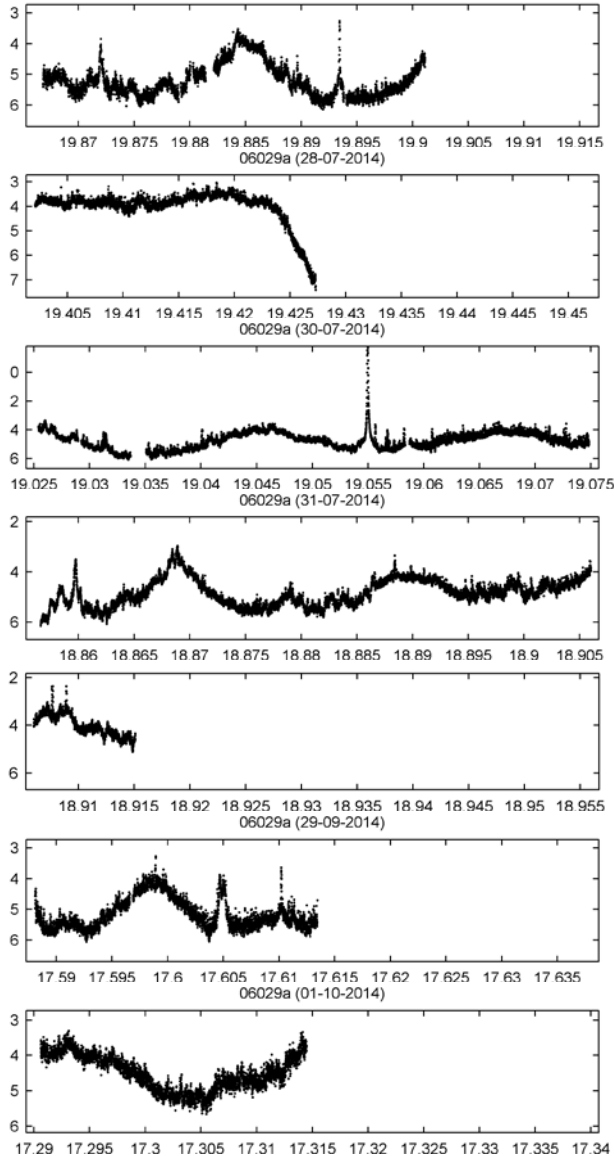
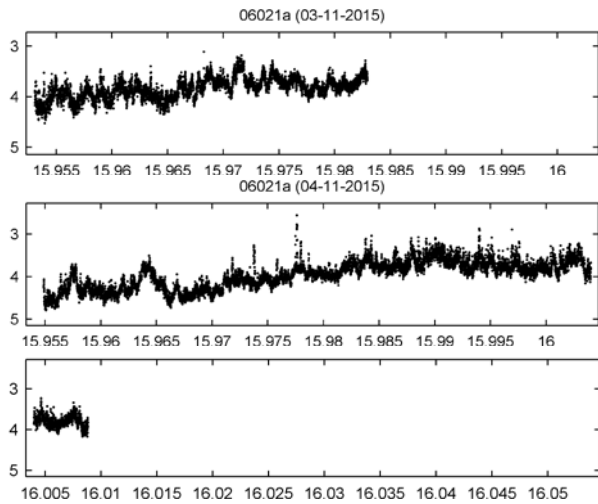
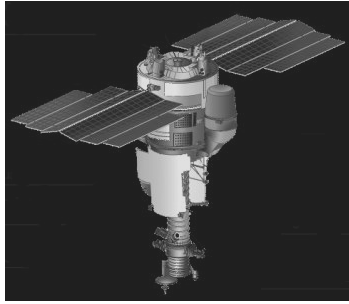
Inclination: 69.94°

Period: 94.00 min

Eccentricity: 0.017

Launch date: 2006-06-15

Source: Commonwealth of Independent States (former USSR) (CIS)



GENESIS 1

NORAD ID: 29252

Int'l Code: 2006-029A

Dimensions: inflatable cylinder

4.5m long, 2.4m dia

Initial orbit:

Perigee: 555 km

Apogee: 561 km

Inclination: 64.51°

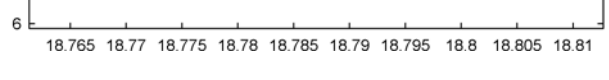
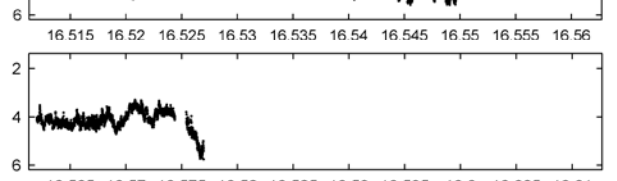
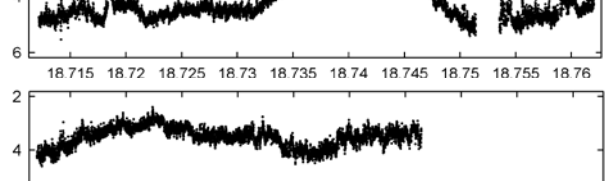
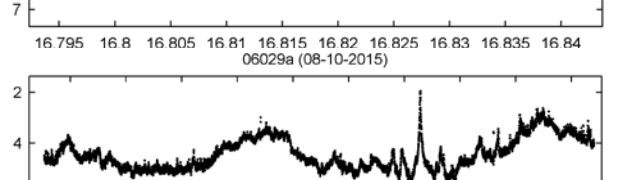
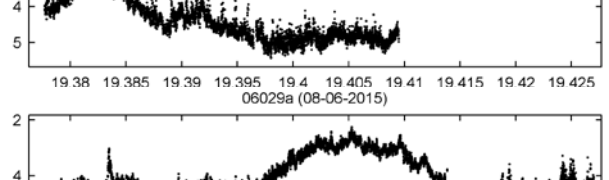
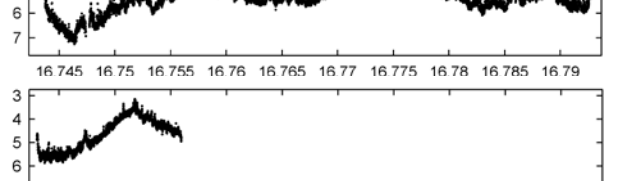
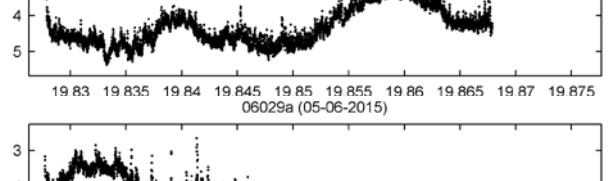
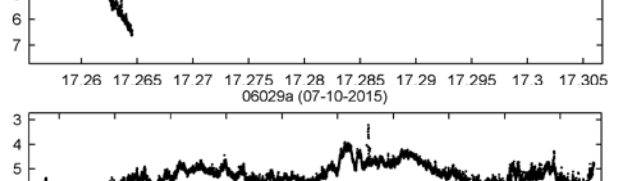
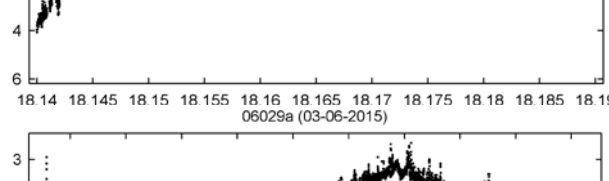
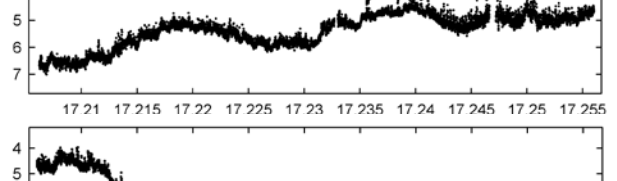
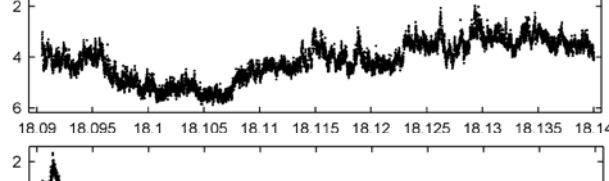
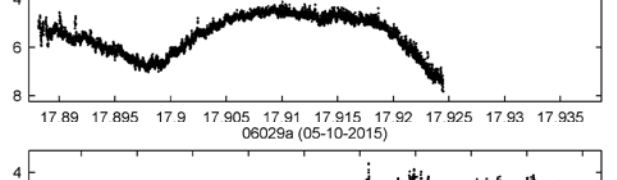
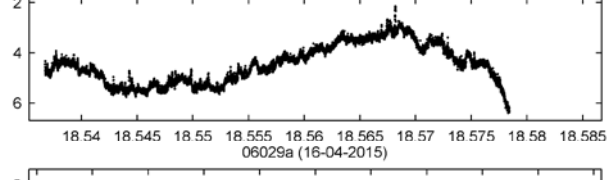
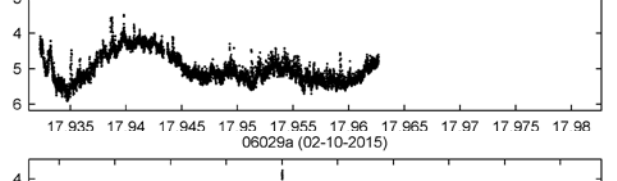
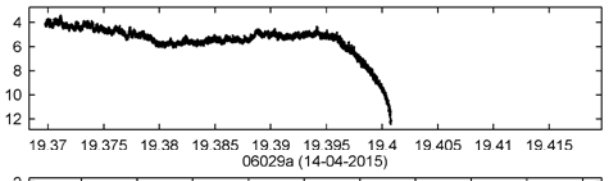
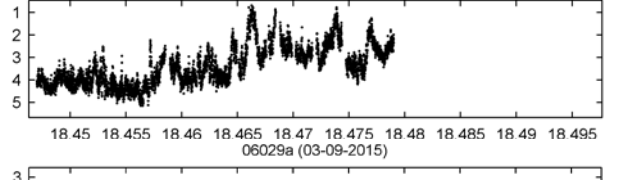
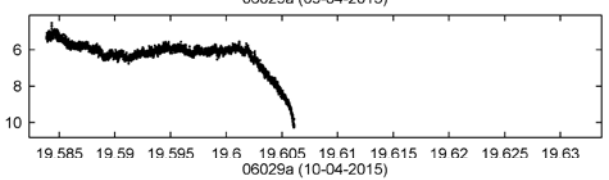
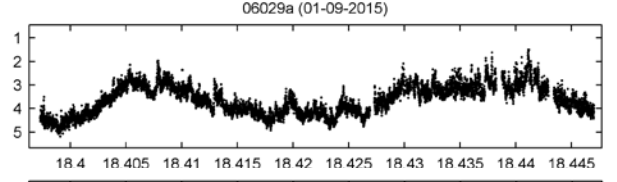
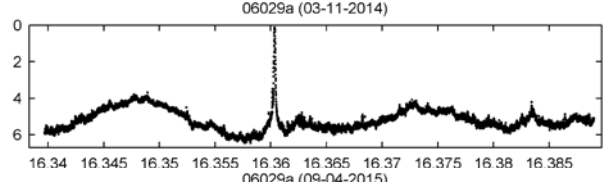
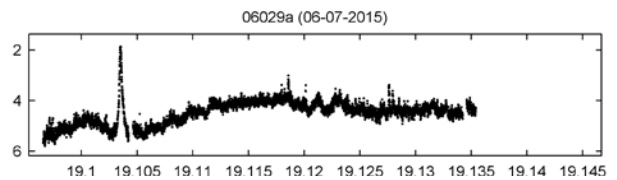
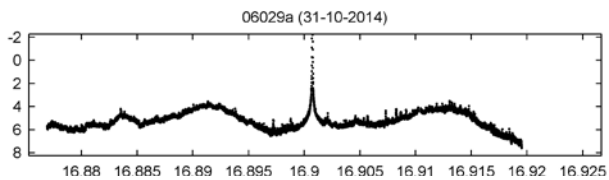
Period: 95.82 min

Eccentricity: 0.0005

Launch date: 2006-07-12

Source: United States (US)



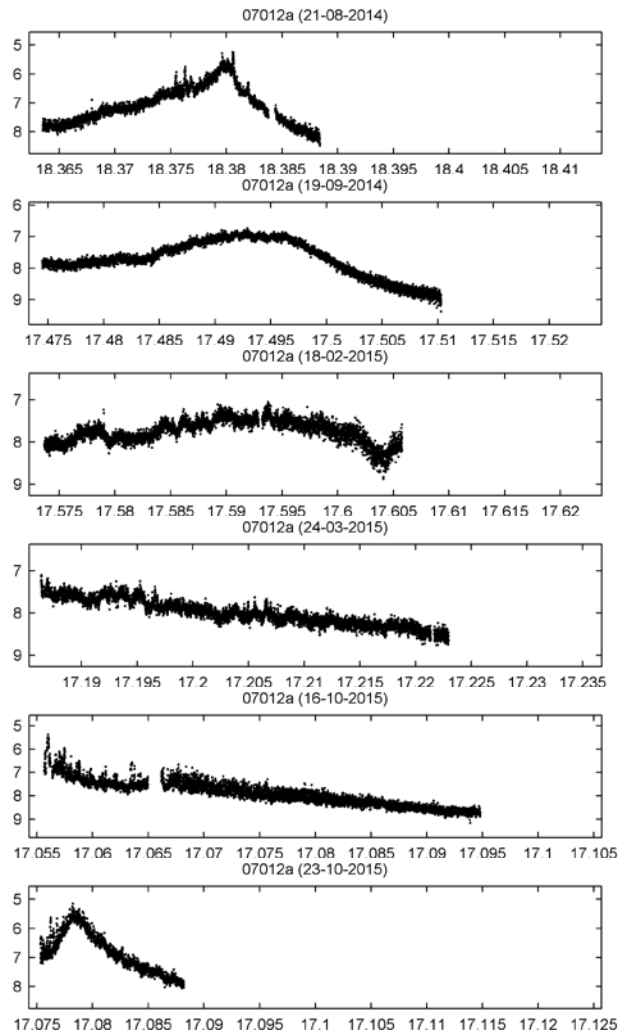
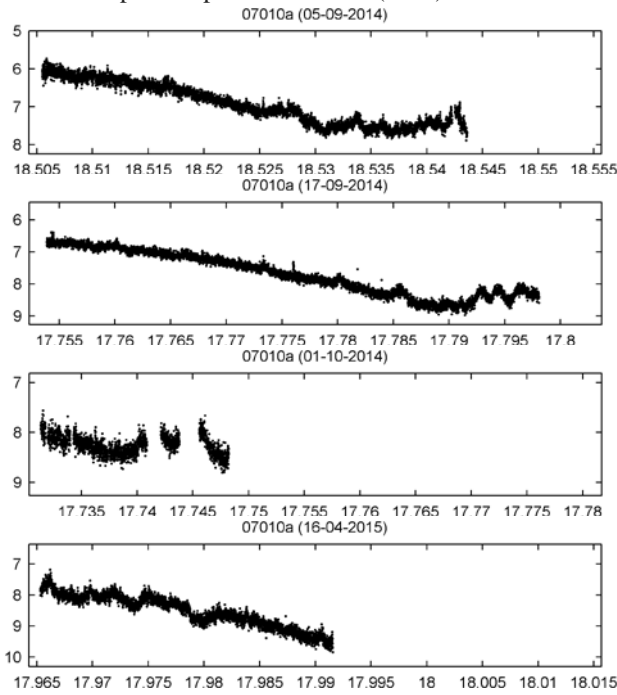


HAIYANG 1B

NORAD ID: 31113
Int'l Code: 2007-010A
Dimensions:
Initial orbit:
Perigee: 782 km
Apogee: 814 km
Inclination: 98.62°
Period: 100.83 min
Eccentricity: 0.002
Launch date: 2007-04-11

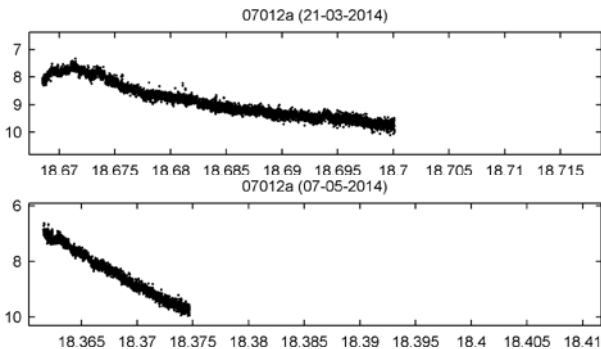
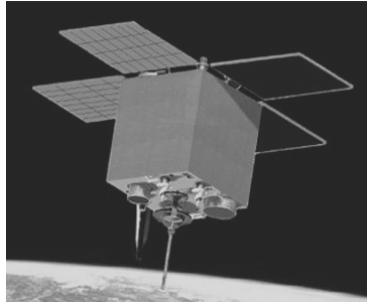


Source: People's Republic of China (PRC)



EGYPTSAT 1

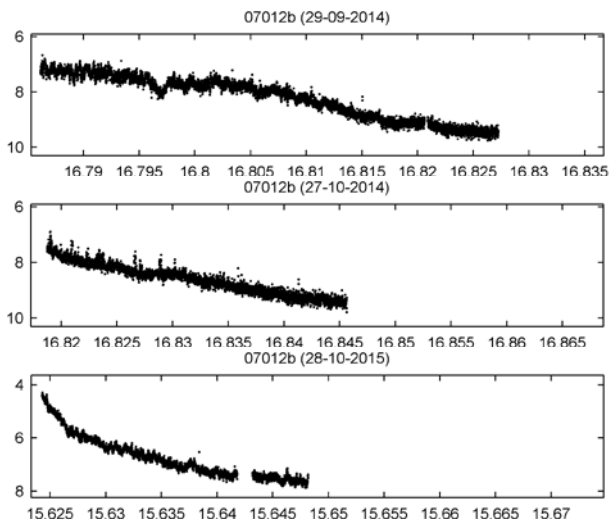
(MIRSAT 1)
NORAD ID: 31117
Int'l Code: 2007-012A
Dimensions:
Initial orbit:
Perigee: 658 km
Apogee: 665 km
Inclination: 98.09°
Period: 97.97 min
Eccentricity: 0.0005
Launch date: 2007-04-17
Source: Egypt (EGYP)



SAUDISAT 3

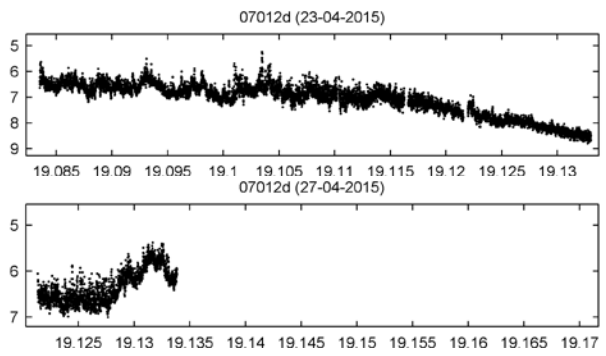
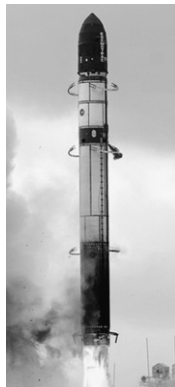
NORAD ID: 31118
Int'l Code: 2007-012B
Dimensions:
Initial orbit:
Perigee: 658 km
Apogee: 677 km
Inclination: 98.10°
Period: 98.08 min
Eccentricity: 0.001
Launch date: 2007-04-17
Source: Saudi Arabia (SAUD)





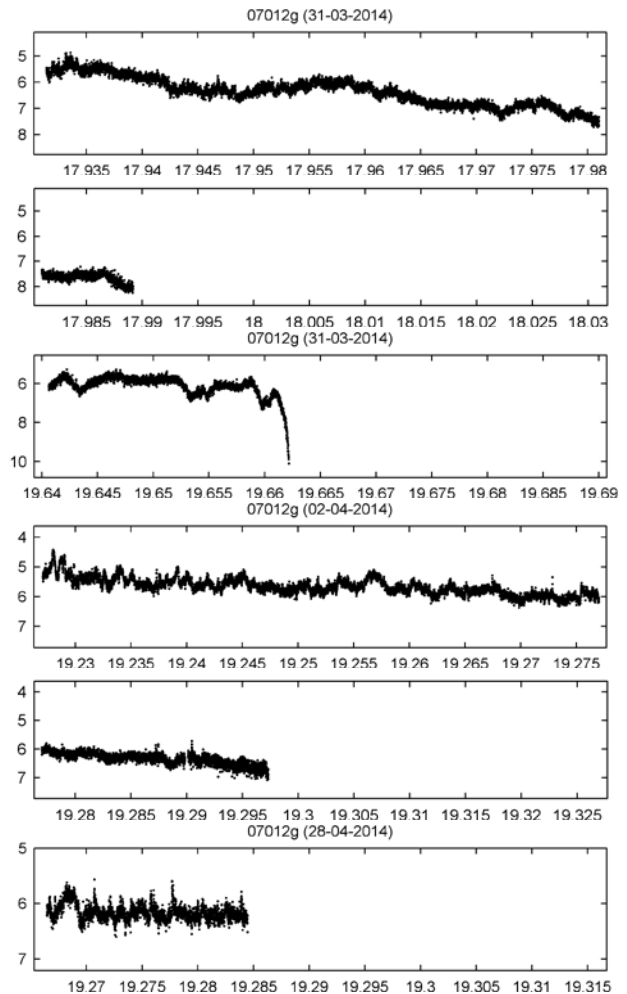
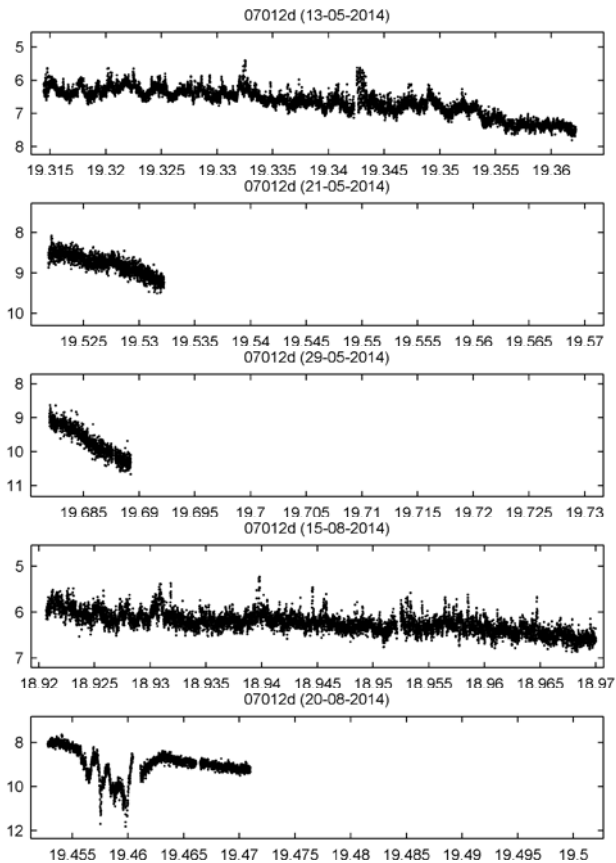
DNEPR plume shield (GDS)

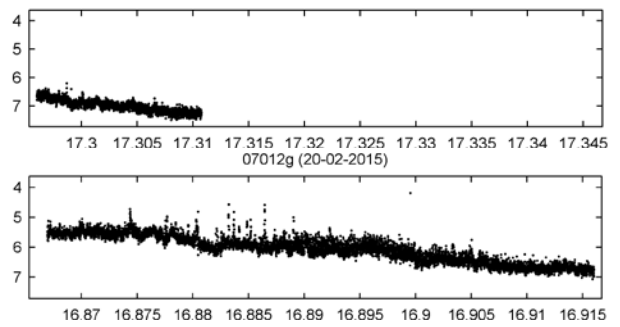
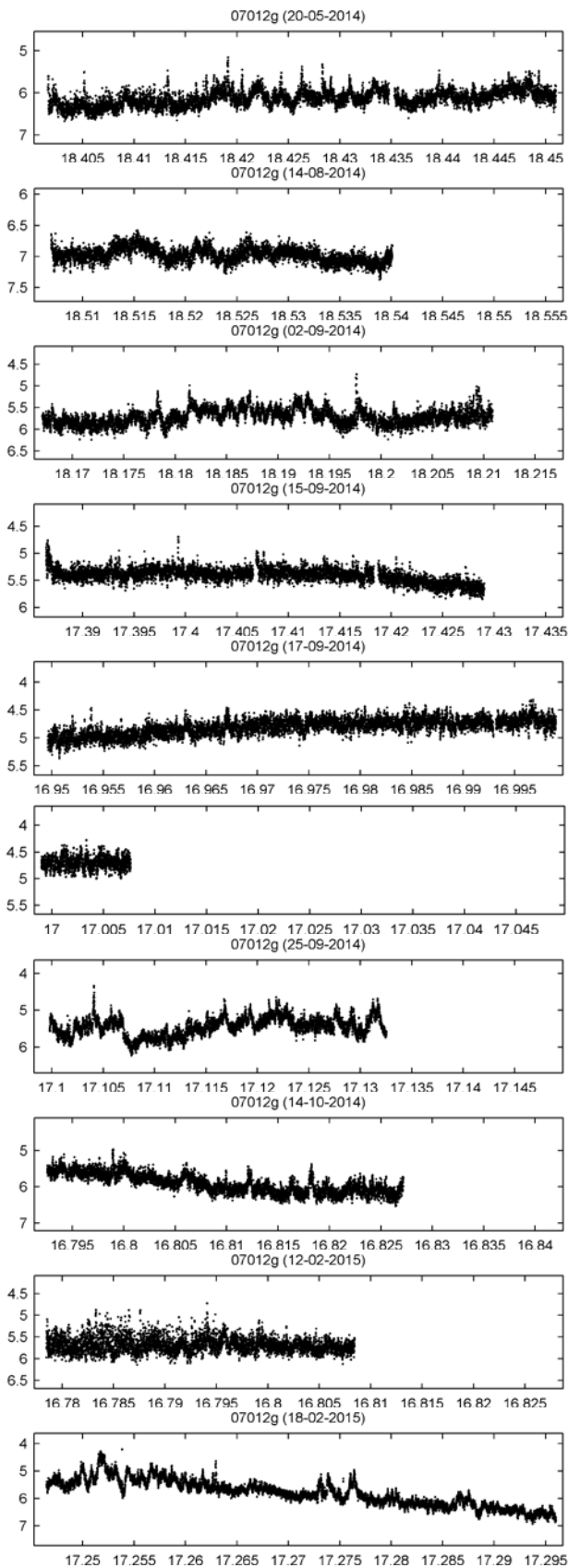
NORAD ID: 31120
 Int'l Code: 2007-012D
 Dimensions:
 Initial orbit:
 Perigee: 649 km
 Apogee: 660 km
 Inclination: 98.09°
 Period: 97.83 min
 Eccentricity: 0.0008
 Launch date: 2007-04-17
 Source: Commonwealth of Independent States (former USSR) (CIS)



Dnepr-1 (3rd stage) (R-36M2 DS)

NORAD ID: 31123
 Int'l Code: 2007-012G
 Dimensions:
 Initial orbit:
 Perigee: 625 km
 Apogee: 1079 km
 Inclination: 98.08°
 Period: 101.98 min
 Eccentricity: 0.031
 Launch date: 2007-04-17
 Source: Commonwealth of Independent States (former USSR) (CIS)





SKYMED 1 (COSMO 1)

NORAD ID: 31598

Int'l Code: 2007-023A

Dimensions:

Initial orbit:

Perigee: 622 km

Apogee: 625 km

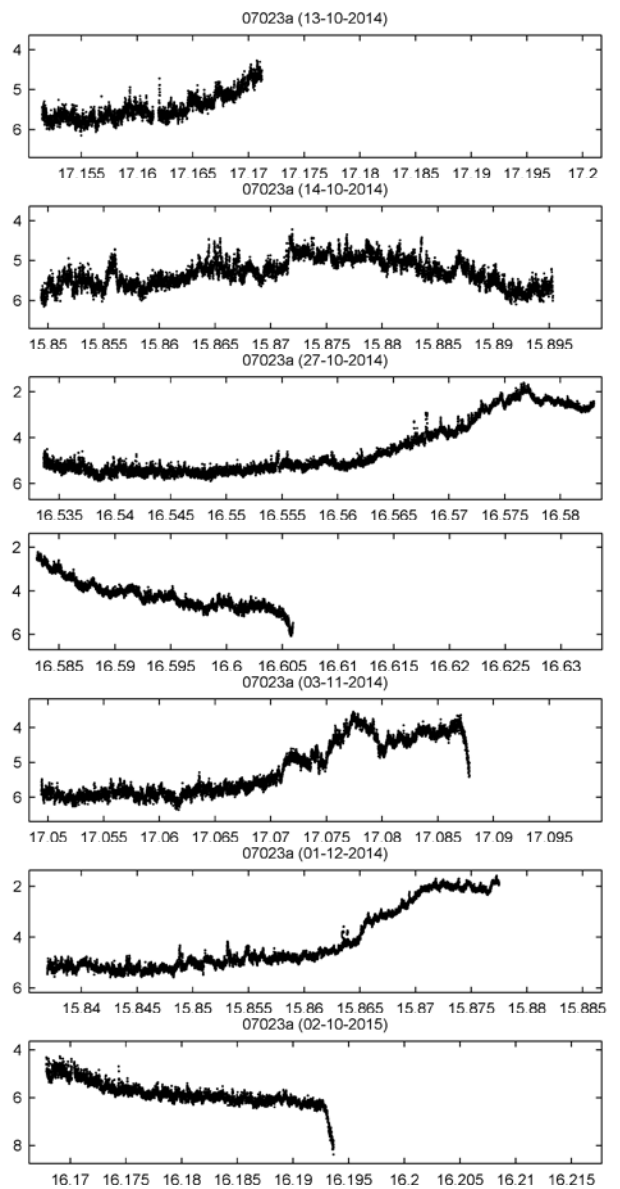
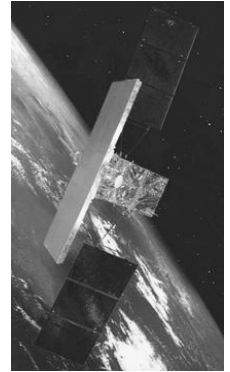
Inclination: 97.86°

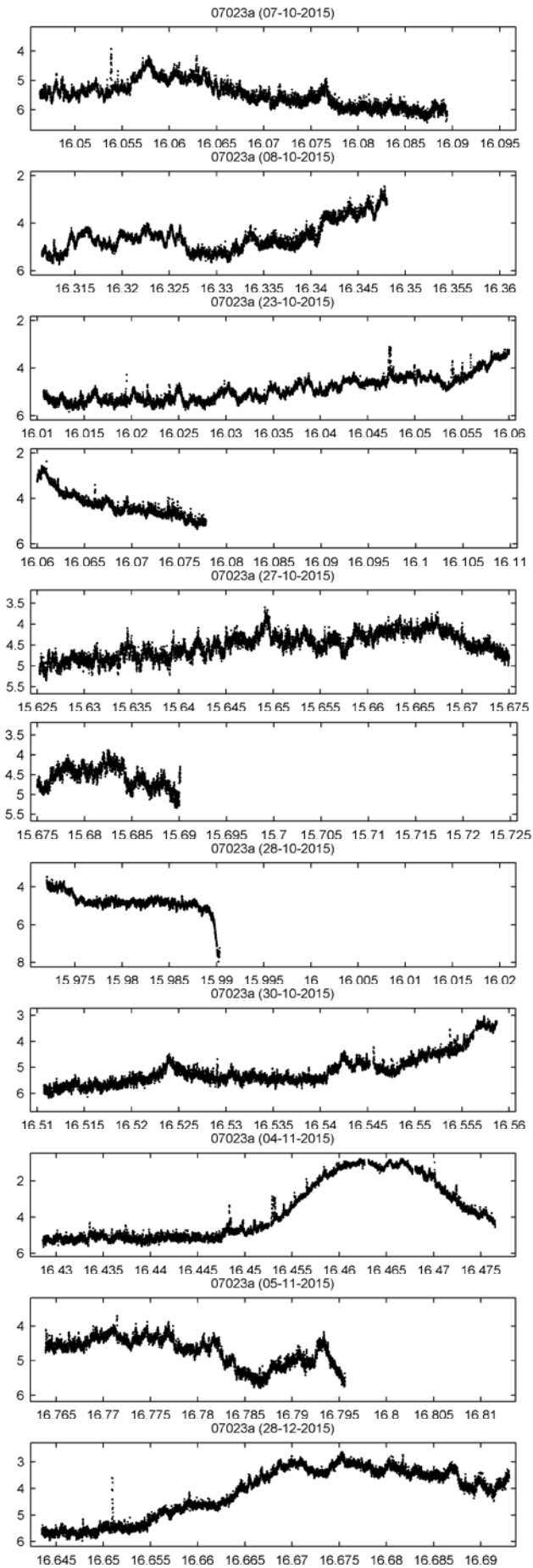
Period: 97.18 min

Eccentricity: 0.0002

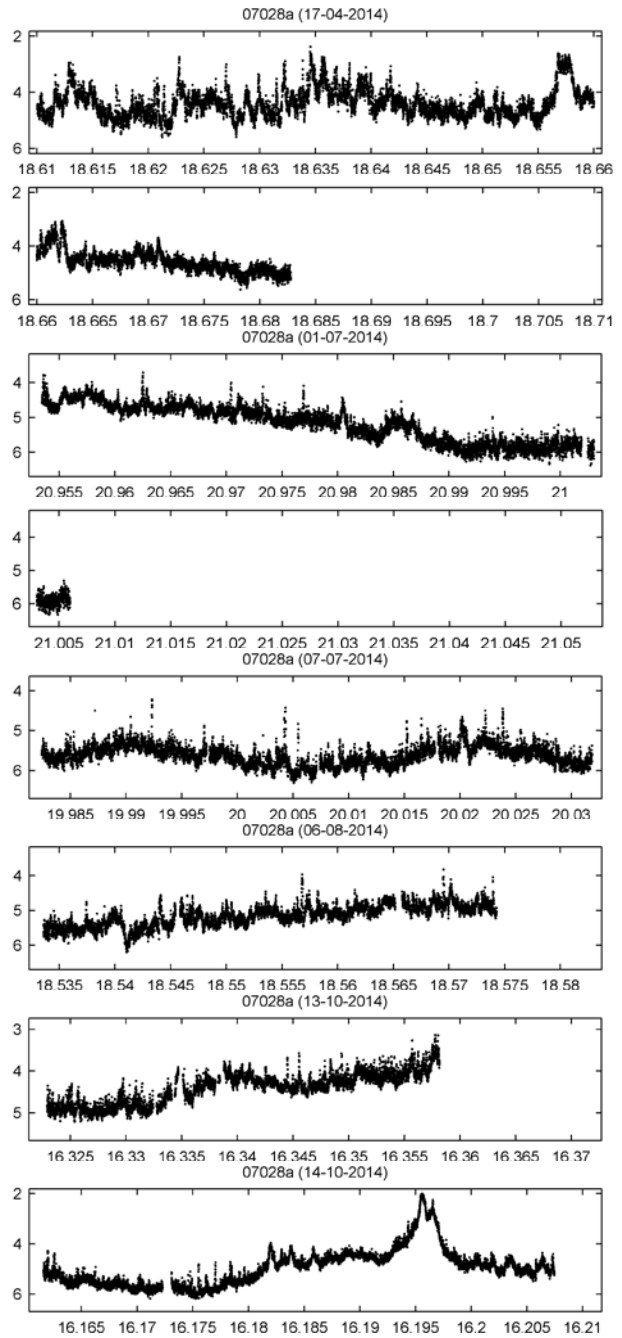
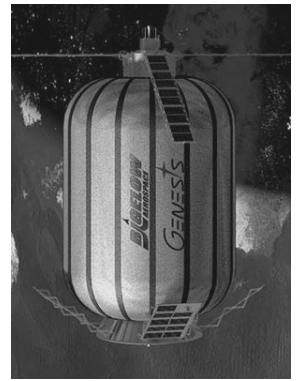
Launch date: 2007-06-08

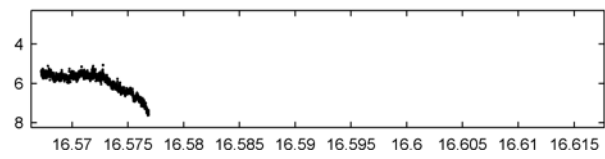
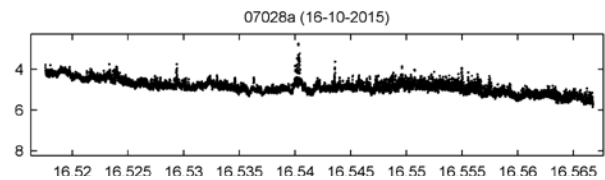
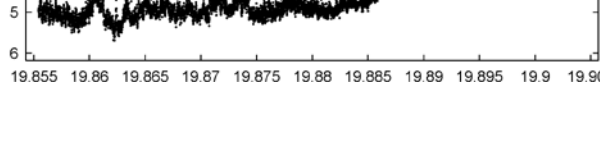
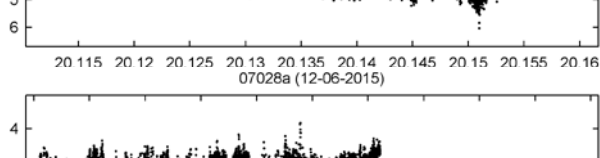
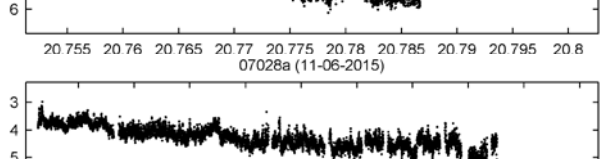
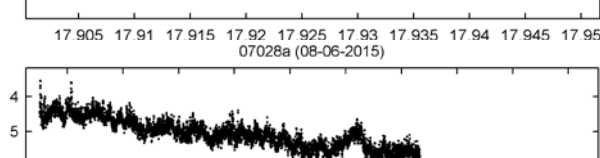
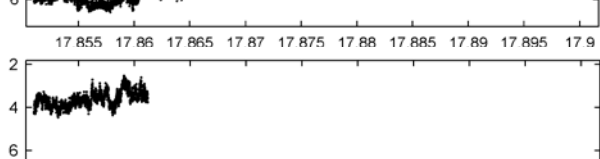
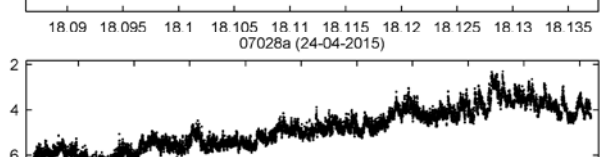
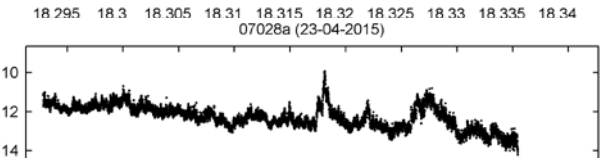
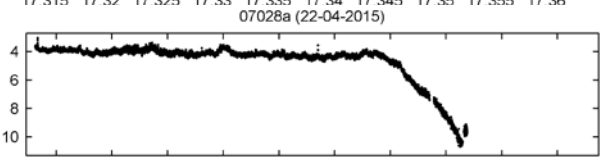
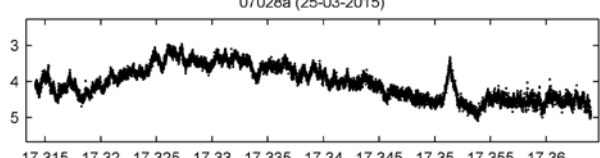
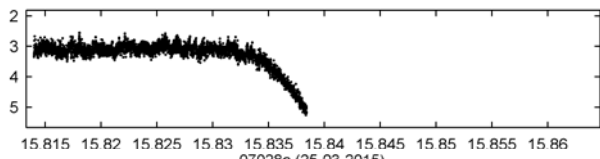
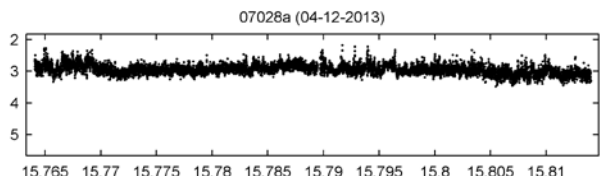
Source: Italy (IT)





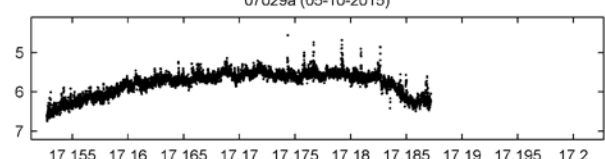
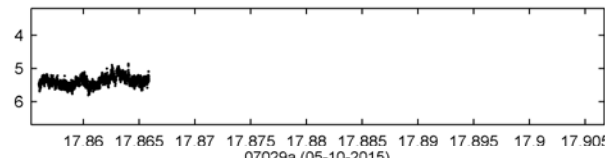
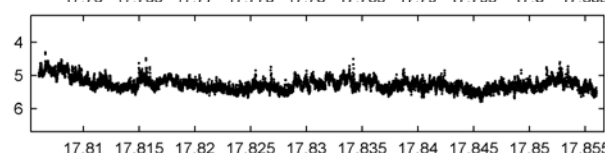
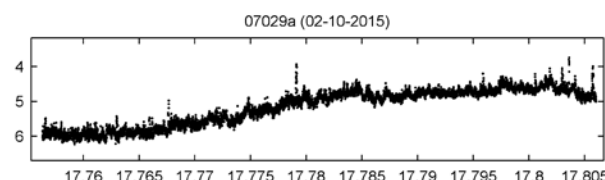
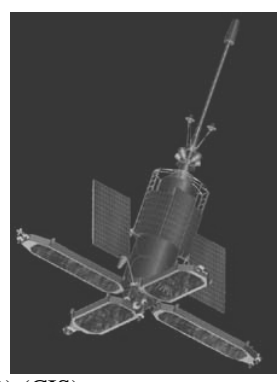
GENESIS 2
 NORAD ID: 31789
 Int'l Code: 2007-028A
 Dimensions: inflatable cyl.
 4.4m long, 2.54m dia
 Initial orbit:
 Perigee: 553 km
 Apogee: 563 km
 Inclination: 64.51°
 Period: 95.82 min
 Eccentricity: 0.007
 Launch date: 2007-06-28
 Source: United States (US)





COSMOS 2428 (TSELINA-2)

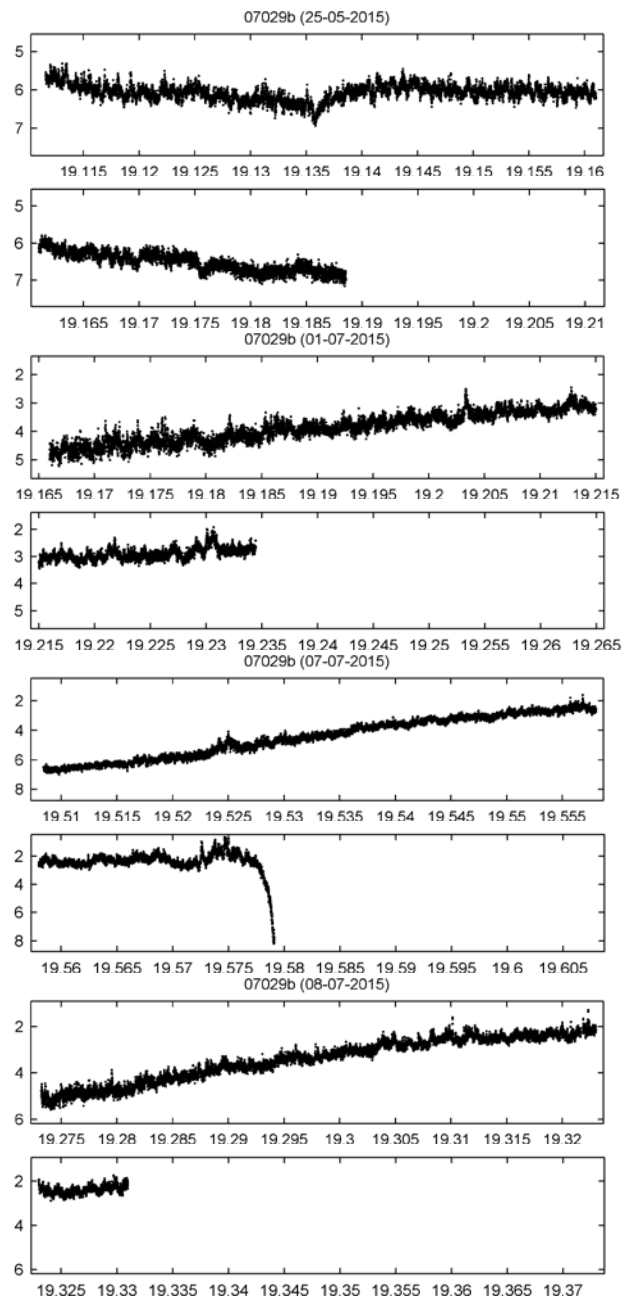
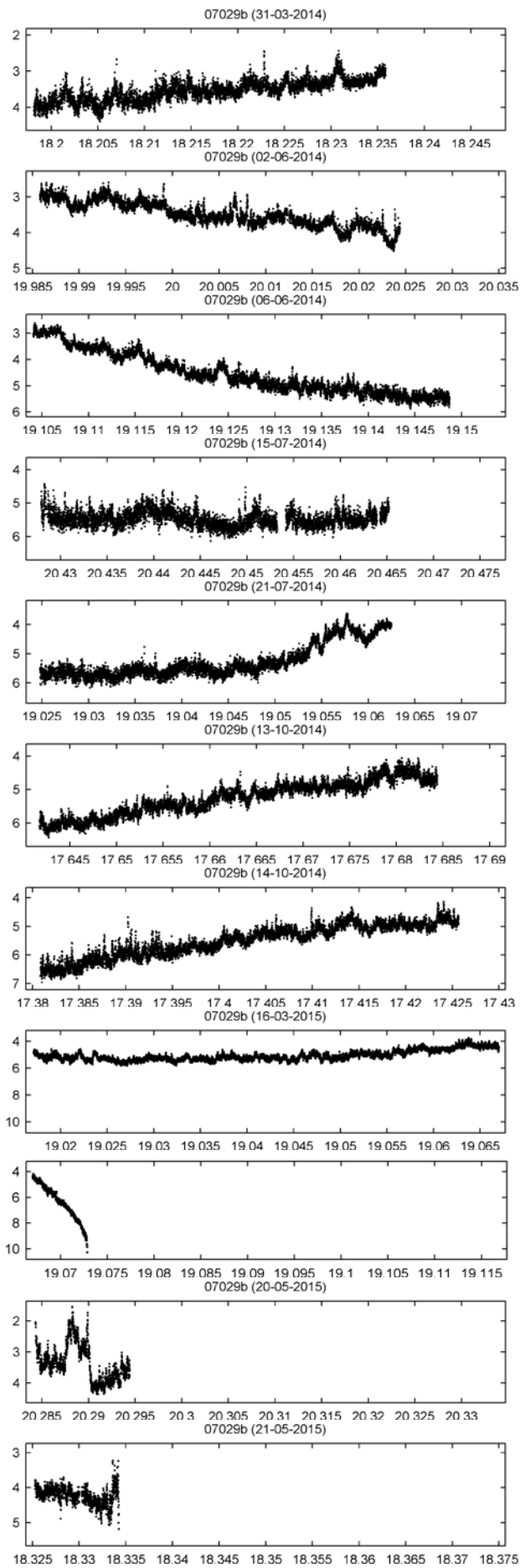
NORAD ID: 31792
 Int'l Code: 2007-029A
 Dimensions:
 Initial orbit:
 Perigee: 848 km
 Apogee: 856 km
 Inclination: 70.99°
 Period: 101.97 min
 Eccentricity: 0.0005
 Launch date: 2007-06-29
 Source: Commonwealth of Independent States (former USSR) (CIS)



Zenit-2M (2nd stage)

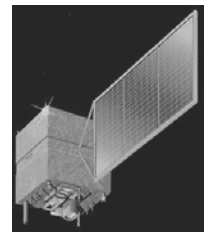
NORAD ID: 31793
 Int'l Code: 2007-029B
 Dimensions: cylinder 10.41 m long,
 3.9 m dia
 Initial orbit:
 Perigee: 836 km
 Apogee: 851 km
 Inclination: 70.9°
 Period: 101.82 min
 Eccentricity: 0.001
 Launch date: 2007-06-29
 Source: Commonwealth of Independent States (former USSR) (CIS)

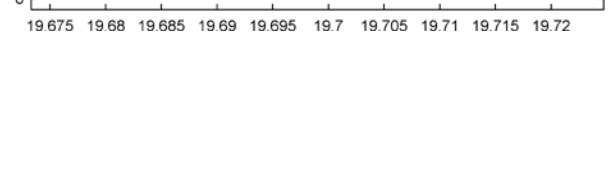
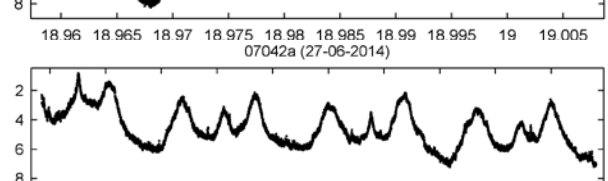
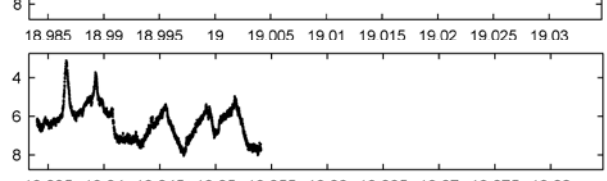
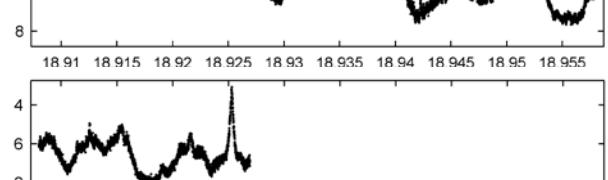
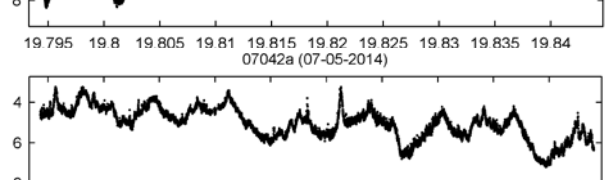
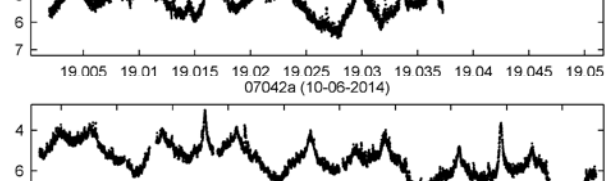
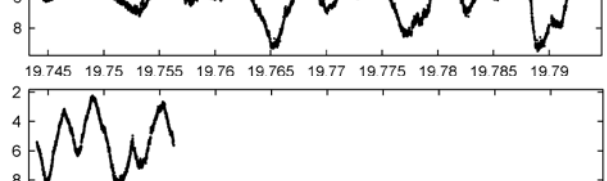
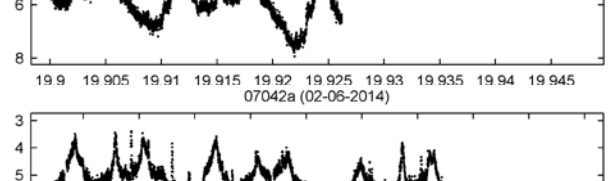
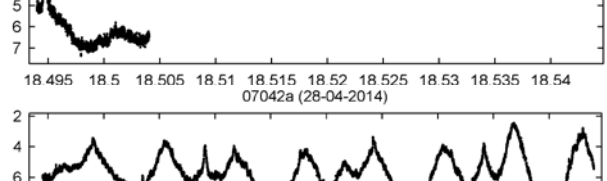
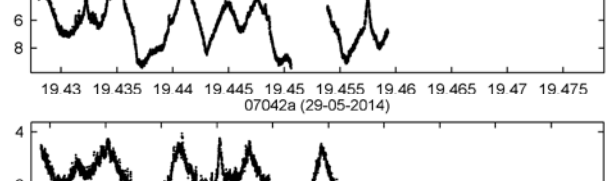
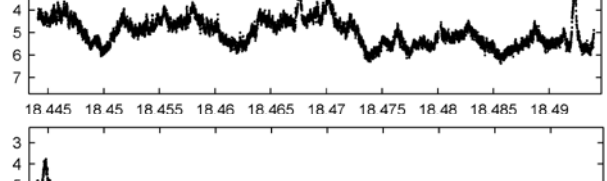
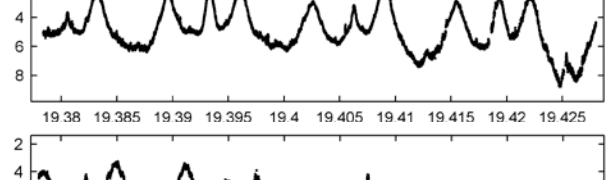
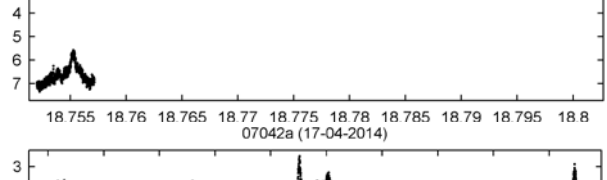
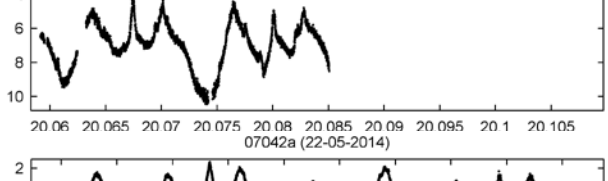
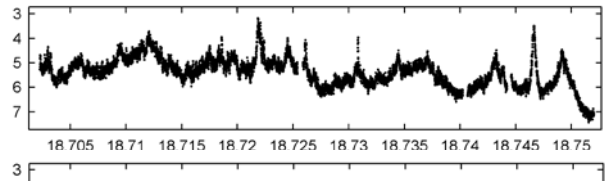
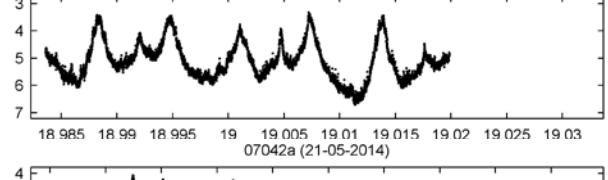
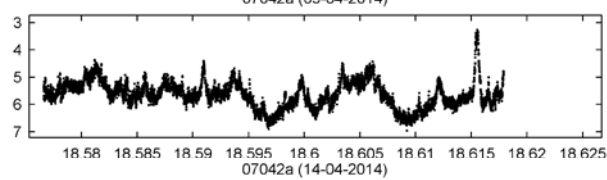
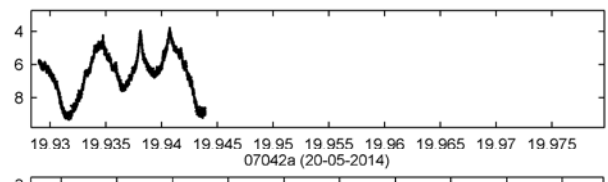
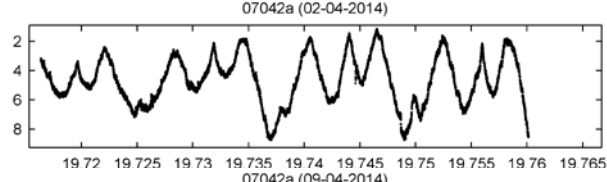
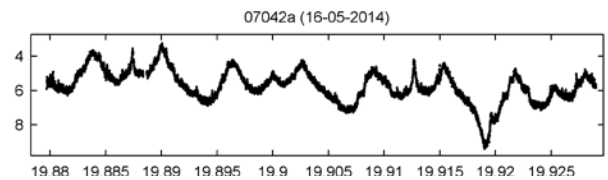
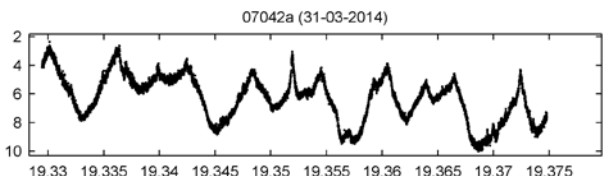


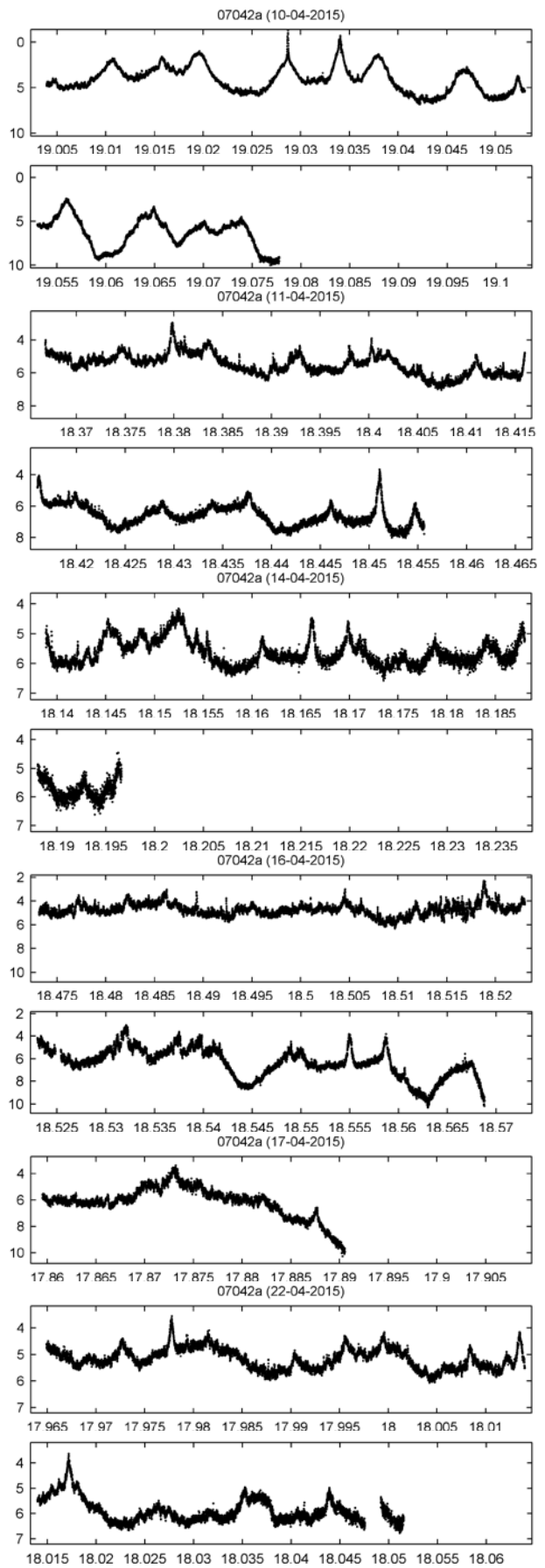
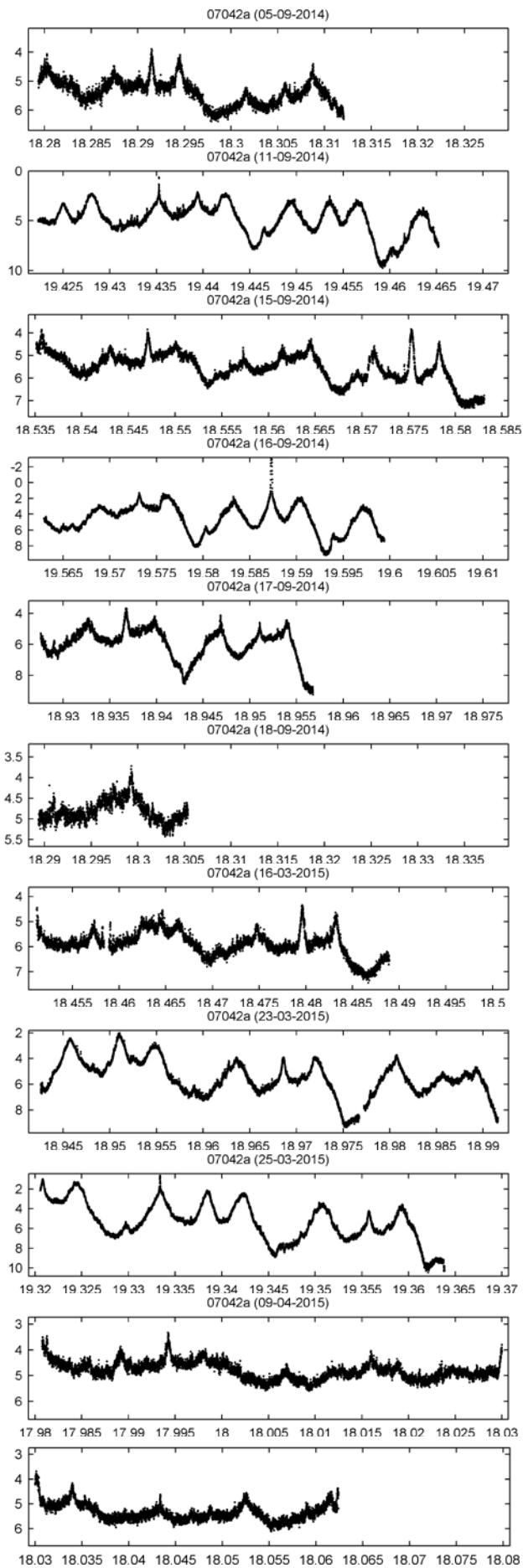


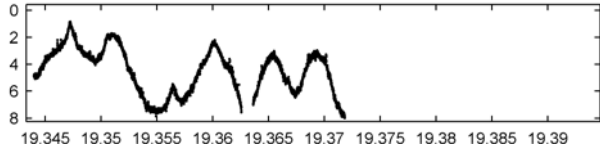
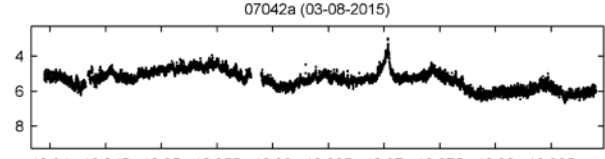
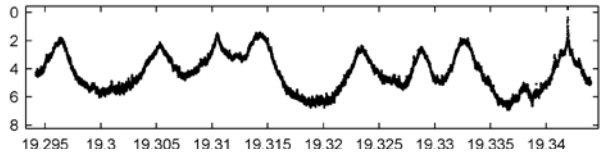
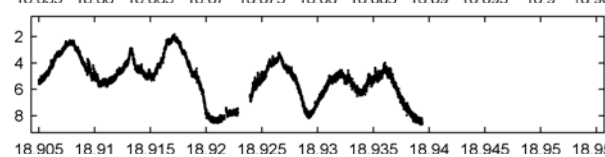
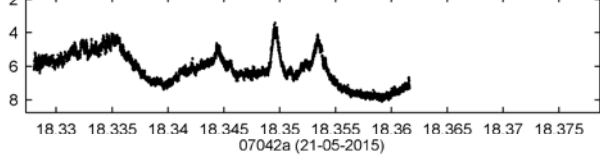
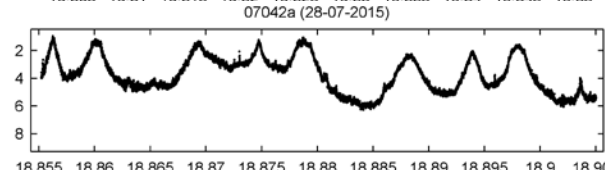
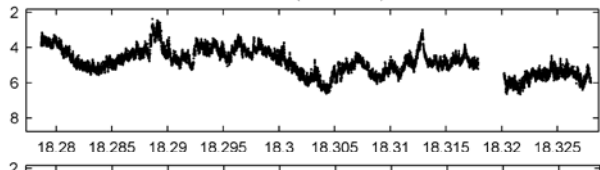
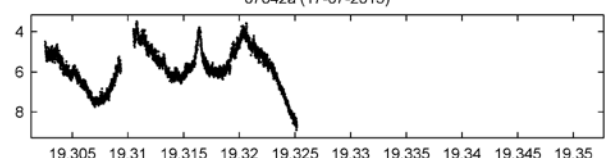
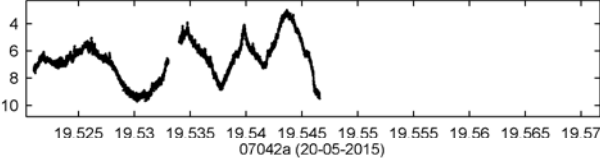
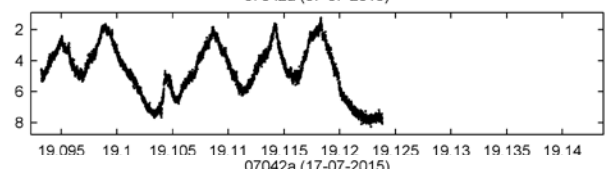
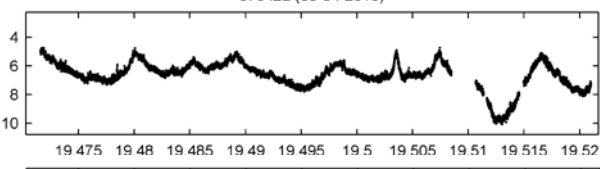
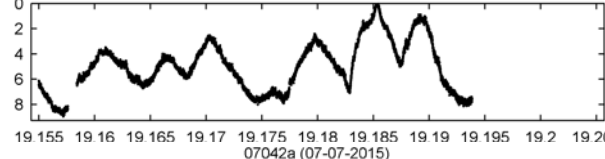
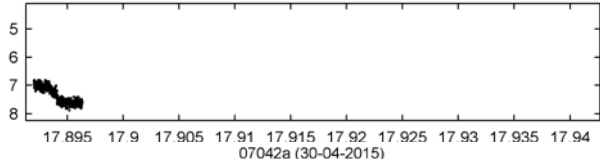
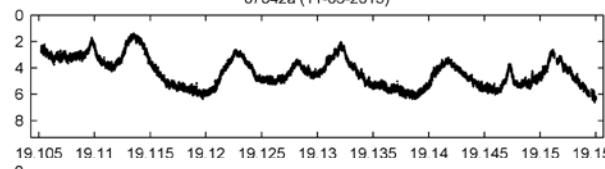
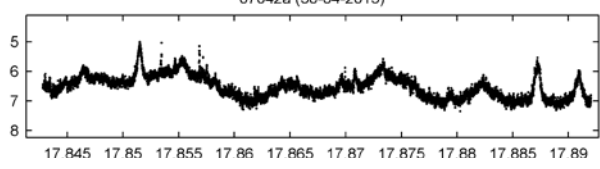
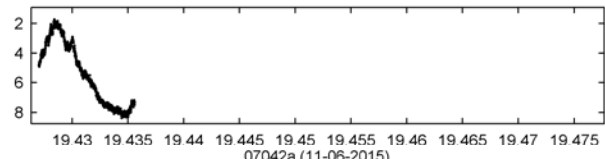
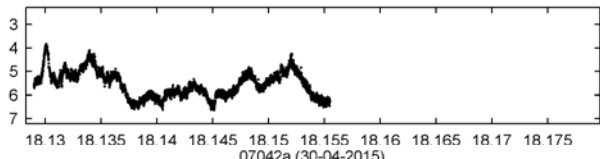
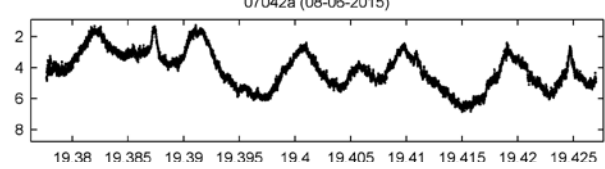
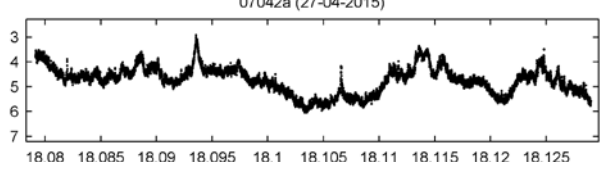
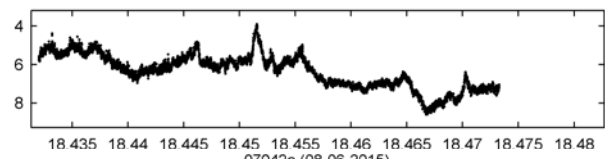
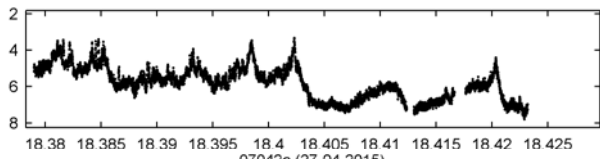
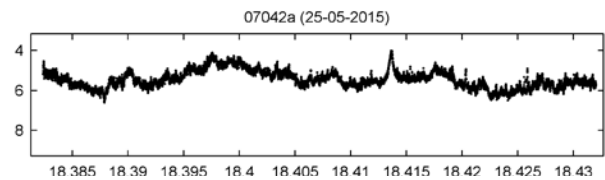
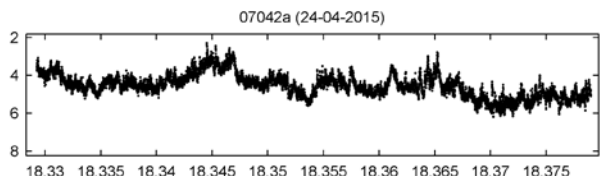
ZI YUAN 1-2B (CBERS 2B)

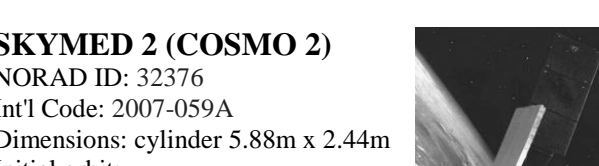
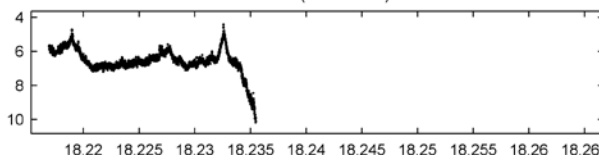
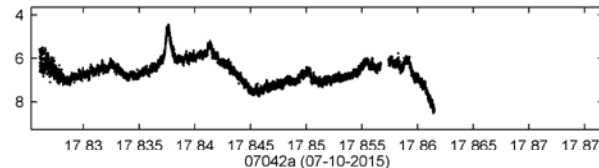
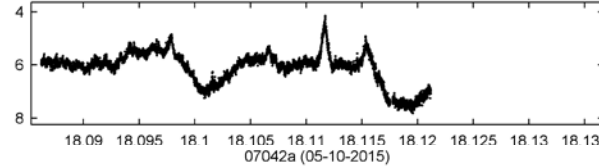
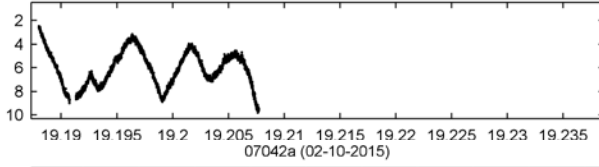
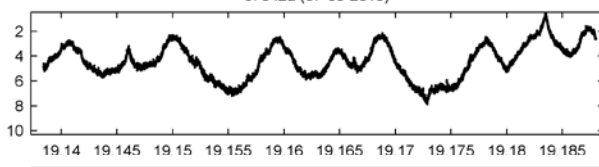
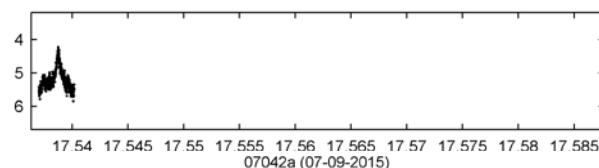
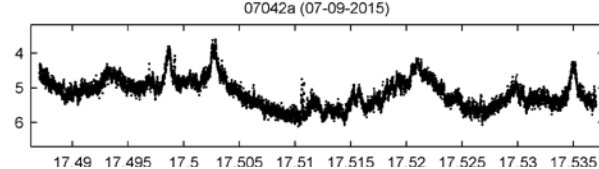
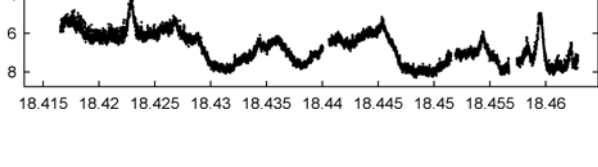
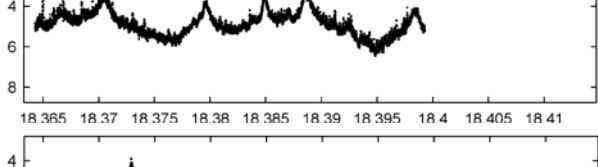
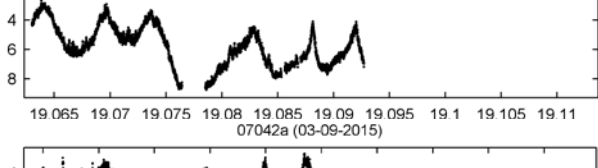
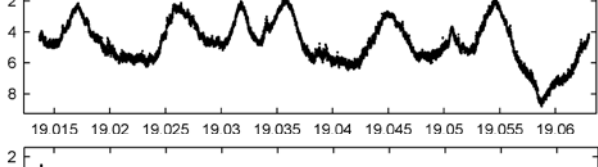
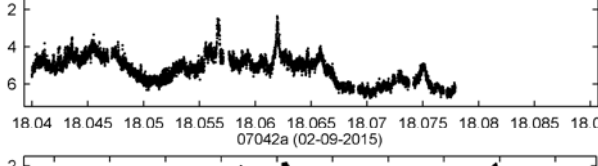
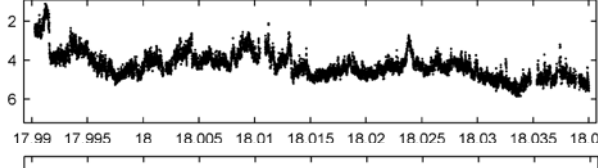
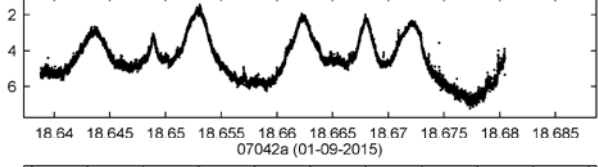
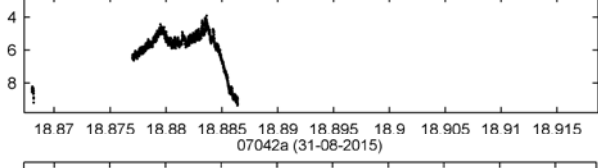
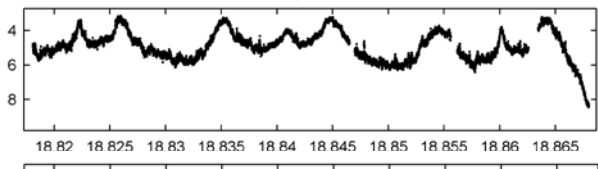
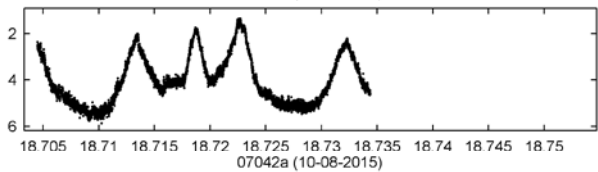
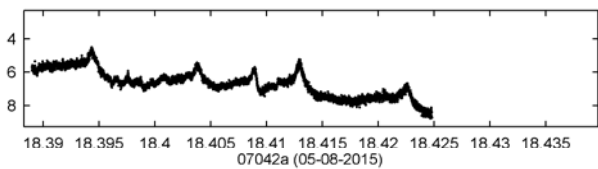
NORAD ID: 32062
 Int'l Code: 2007-042A
 Dimensions: box 1.8m x 2.0m x 2.2m,
 panel 6.3m x 2.6m
 Initial orbit:
 Perigee: 767 km
 Apogee: 770 km
 Inclination: 98.54°
 Period: 100.22 min
 Eccentricity: 0.0002
 Launch date: 2007-09-19
 Source: China/Brazil (CHBZ)











SKYMED 2 (COSMO 2)

NORAD ID: 32376

Int'l Code: 2007-059A

Dimensions: cylinder 5.88m x 2.44m

Initial orbit:

Perigee: 621 km

Apogee: 622 km

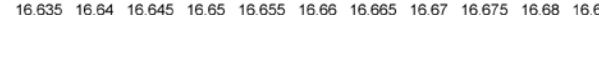
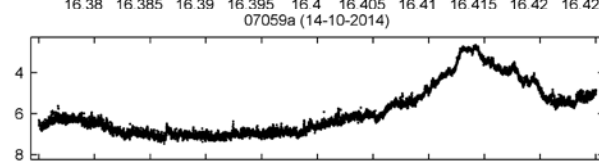
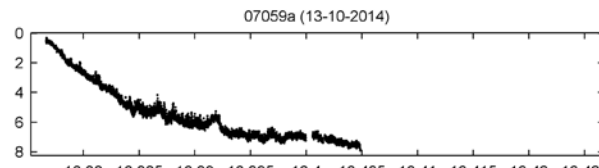
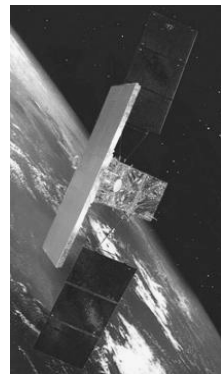
Inclination: 97.86°

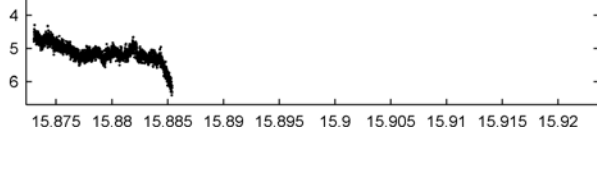
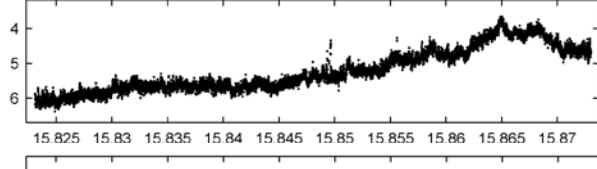
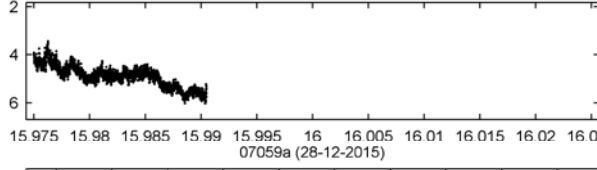
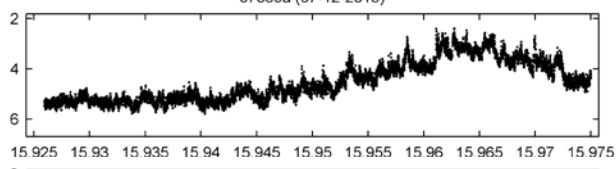
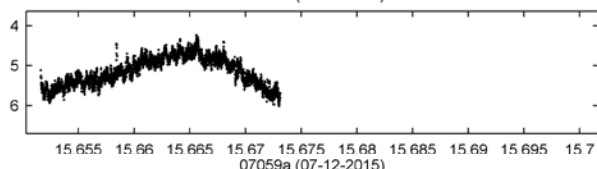
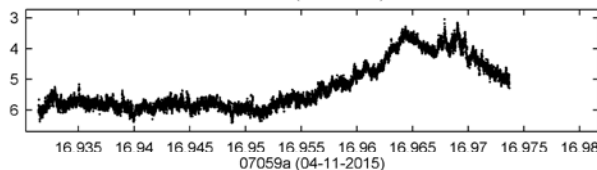
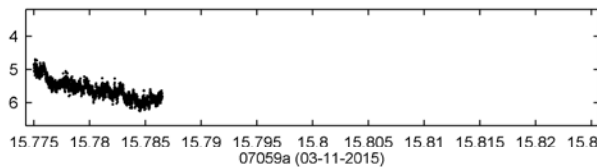
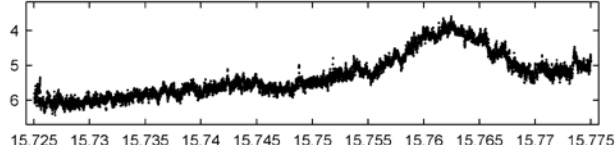
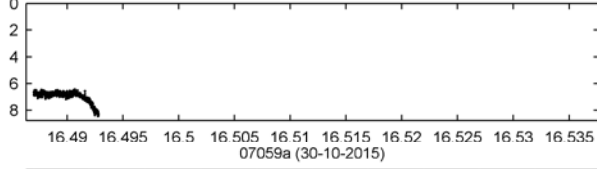
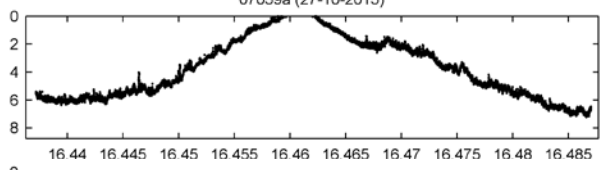
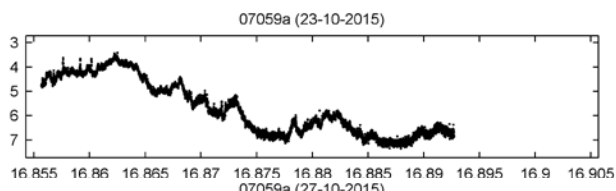
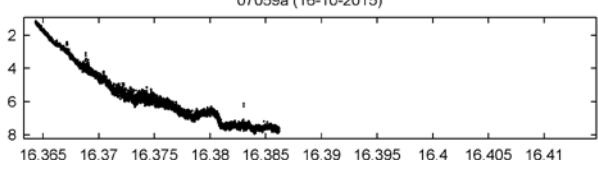
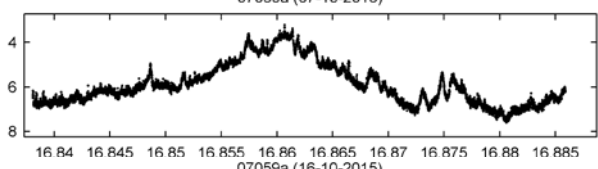
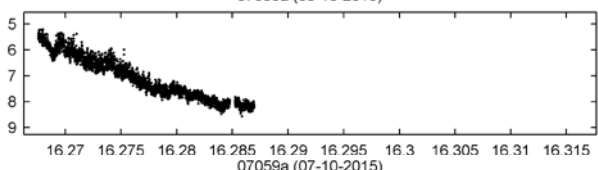
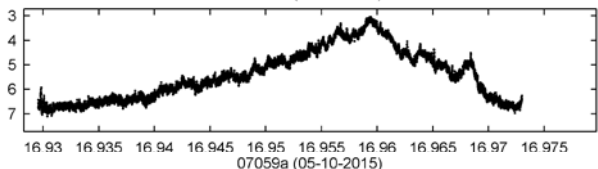
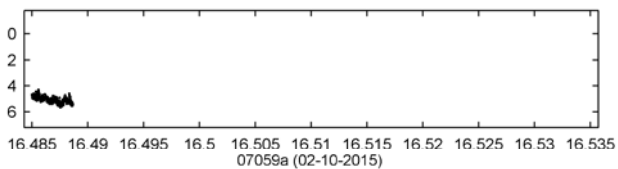
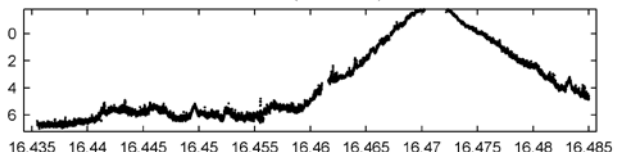
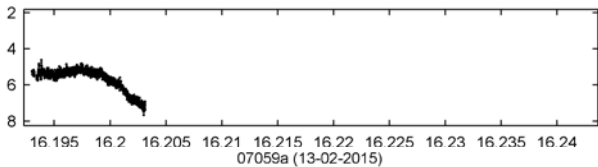
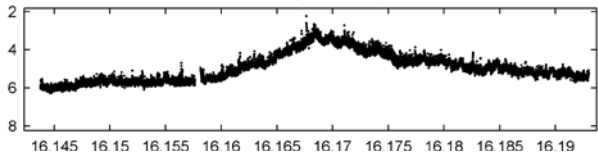
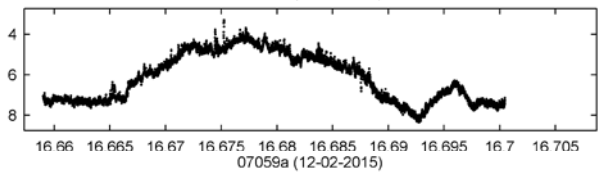
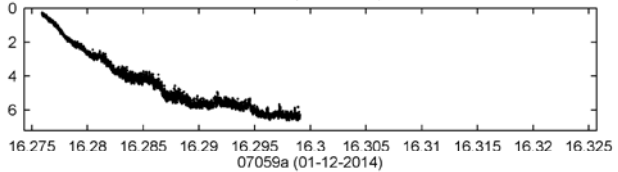
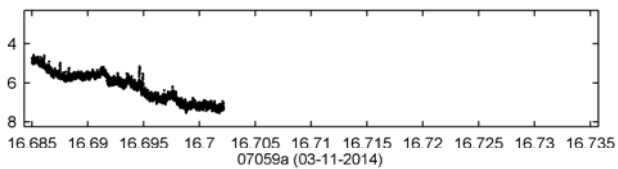
Period: 97.13 min

Eccentricity: 0.0001

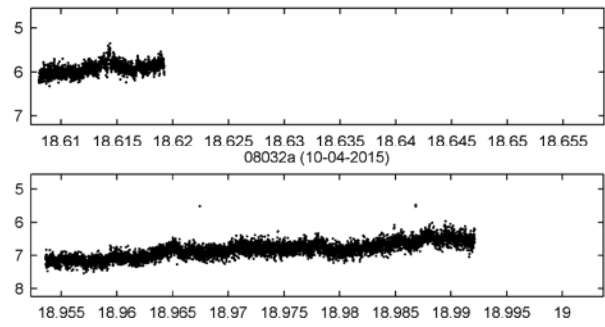
Launch date: 2007-12-09

Source: Italy (IT)



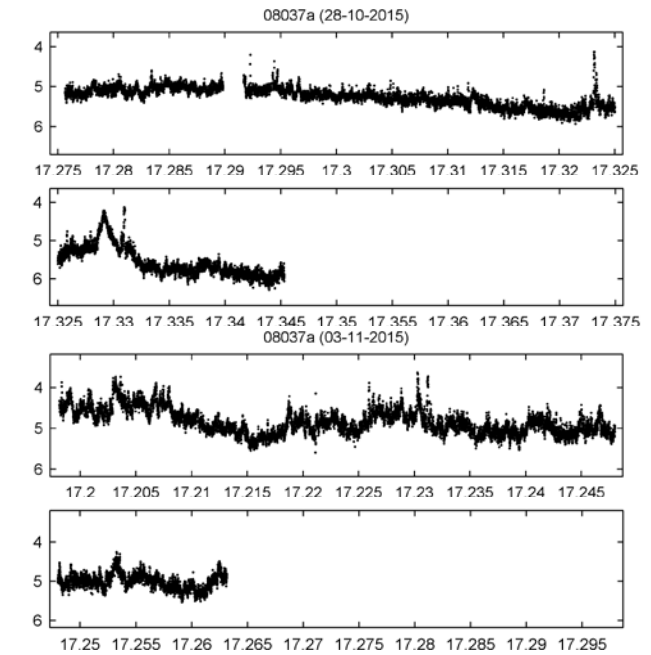
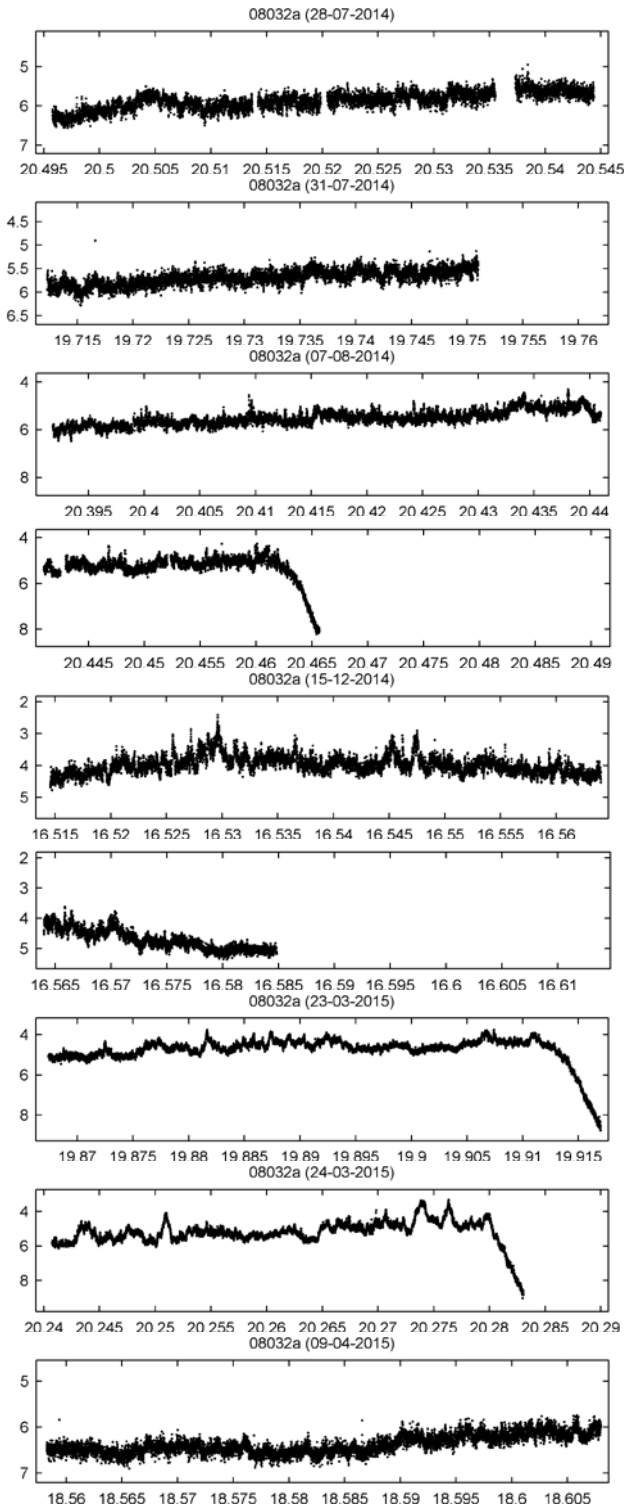
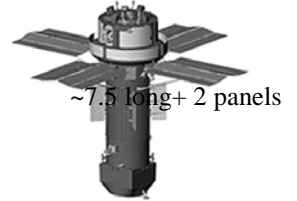


JASON 2 (OSTM)
 NORAD ID: 33105
 Int'l Code: 2008-032A
 Dimensions: box+2 panels
 ~3m high
 Initial orbit:
 Perigee: 1329 km
 Apogee: 1335 km
 Inclination: 66.04°
 Period: 112.3 min
 Eccentricity: 0.0004
 Launch date: 2008-06-20
 Source: France (FR)



COSMOS 2441
(Persona #1, Kvarts #1)

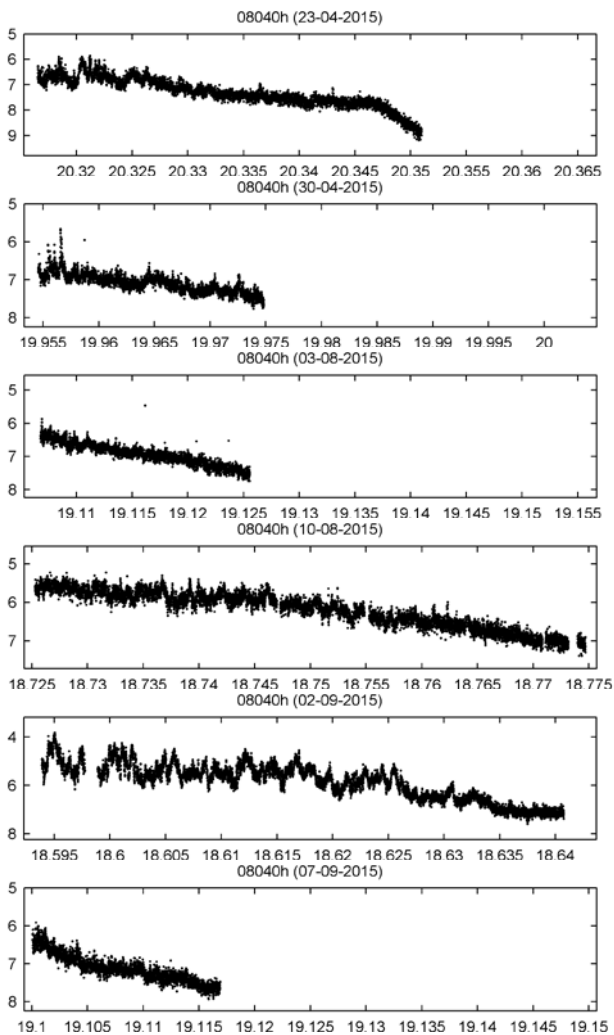
NORAD ID: 33272
 Int'l Code: 2008-037A
 Dimensions: cylinder + 2 panels
 alongside ~7.5 m long, ~2.7 m dia
 Initial orbit:
 Perigee: 714 km
 Apogee: 732 km
 Inclination: 98.31°
 Period: 99.25 min
 Eccentricity: 0.001
 Launch date: 2008-07-26
 Source: Commonwealth of Independent States (former USSR) (CIS)



Dnepr (2nd stage) (R-36M2 DS)

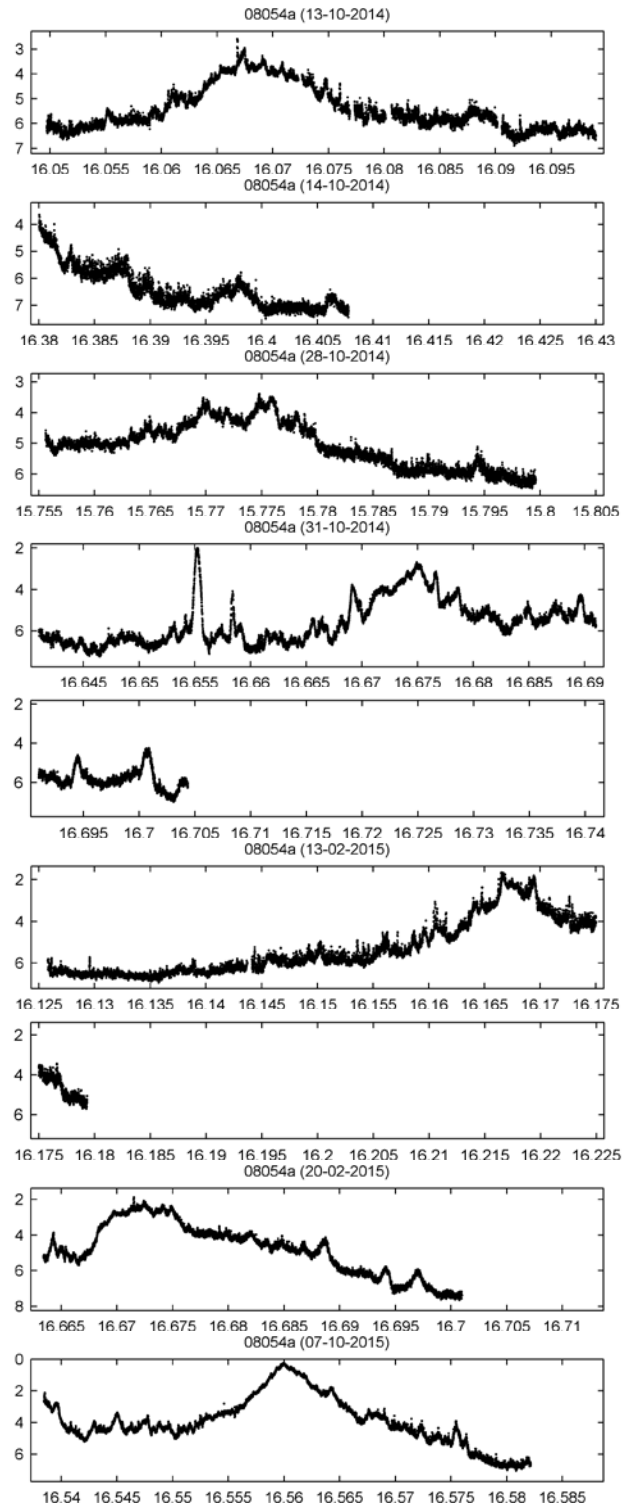
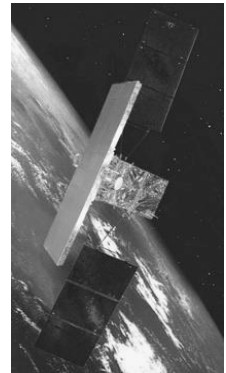
NORAD ID: 33319
 Int'l Code: 2008-040H
 Dimensions: drum 1m long, 3m dia
 Initial orbit:
 Perigee: 616 km
 Apogee: 1348 km
 Inclination: 97.9°
 Period: 104.74 min
 Eccentricity: 0.04978
 Launch date: 2008-08-29
 Source: Commonwealth of Independent States (former USSR) (CIS)





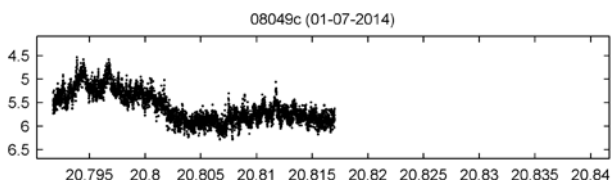
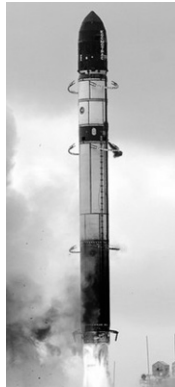
SKYMED 3 (COSMO 3)

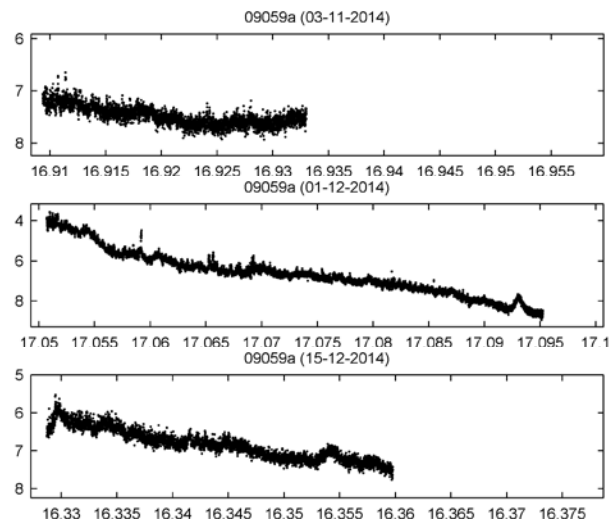
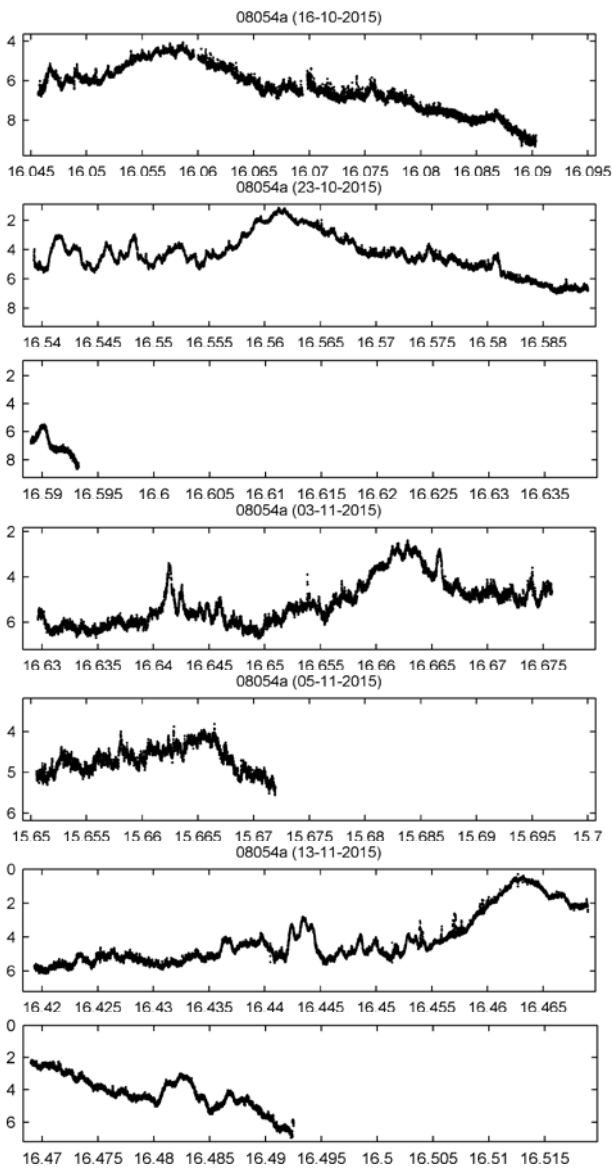
NORAD ID: 33412
 Int'l Code: 2008-054A
 Dimensions: box +2 panels
 Initial orbit:
 Perigee: 621 km
 Apogee: 624 km
 Inclination: 97.8°
 Period: 97.17 min
 Eccentricity: 0.0002
 Launch date: 2008-10-25
 Source: Italy (IT)



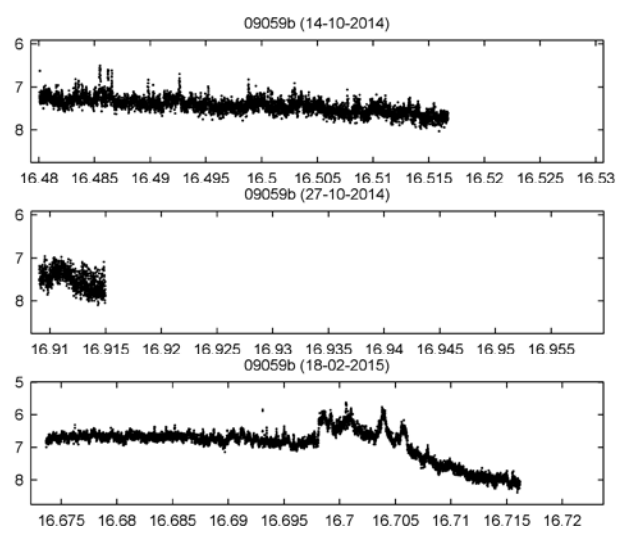
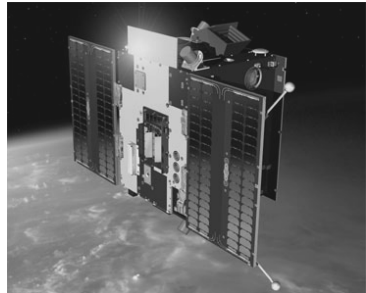
DNEPR PLUME SHIELD (GDS)

NORAD ID: 33398
 Int'l Code: 2008-049C
 Dimensions:
 Initial orbit:
 Perigee: 645 km
 Apogee: 688 km
 Inclination: 98.80°
 Period: 98.08 min
 Eccentricity: 0.003
 Launch date: 2008-10-01
 Source: Commonwealth of Independent States (former USSR) (CIS)





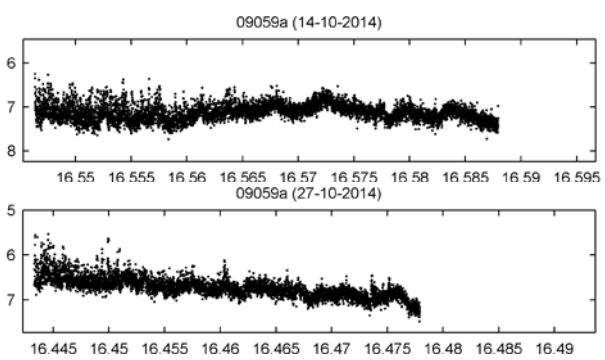
PROBA 2
 NORAD ID: 36037
 Int'l Code: 2009-059B
 Dimensions:
 Initial orbit:
 Perigee: 710 km
 Apogee: 727 km
 Inclination: 98.3°
 Period: 99.17 min
 Eccentricity: 0.001
 Launch date: 2009-11-02
 Source: European Space Agency (ESA)

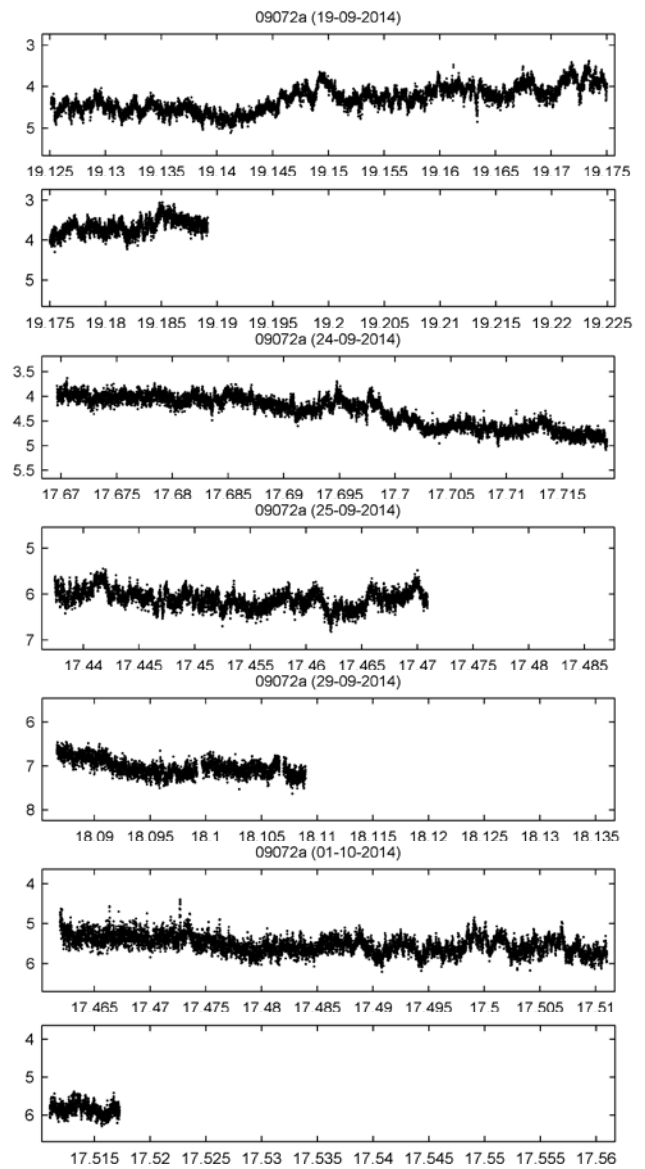
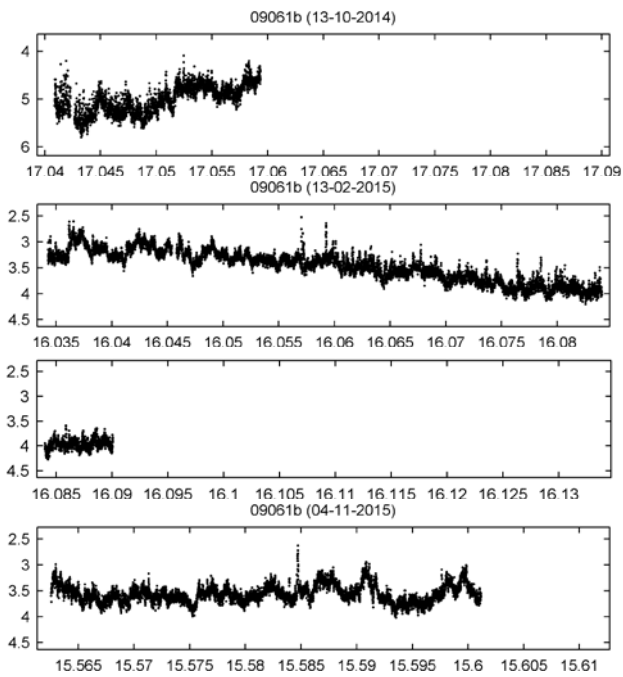


SMOS
 NORAD ID: 36036
 Int'l Code: 2009-059A
 Dimensions: box + 3 panels
 Initial orbit:
 Perigee: 758 km
 Apogee: 760 km
 Inclination: 98.45°
 Period: 100.02 min
 Eccentricity: 0.0002
 Launch date: 2009-11-02
 Source: European Space Agency (ESA)



CZ-2C (Chang Zheng-2C)
(2nd stage)
 NORAD ID: 36089
 Int'l Code: 2009-061B
 Dimensions: cylinder ~11m x 3.35m
 Initial orbit:
 Perigee: 675 km
 Apogee: 784 km
 Inclination: 98.35°
 Period: 99.4 min
 Eccentricity: 0.008
 Launch date: 2009-11-12
 Source: People's Republic of China (PRC)





COSMOS 2455

(Lotos-S #1)

NORAD ID: 36095

Int'l Code: 2009-063A

Dimensions:

Initial orbit:

Perigee: 199 km

Apogee: 904 km

Inclination: 67.17°

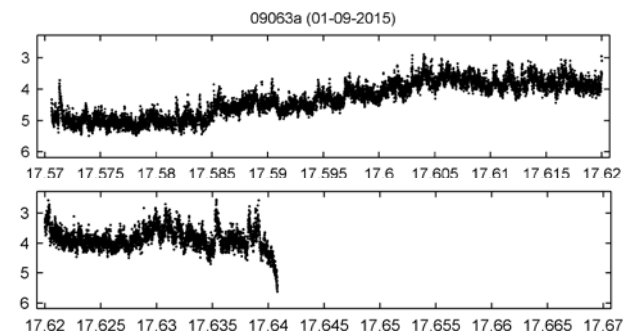
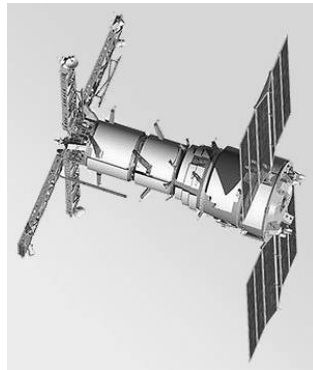
Period: 95.68 min

Eccentricity: 0.051

Launch date: 2009-11-20

Source: Commonwealth of

Independent States (former USSR) (CIS)



YAOGAN 8

NORAD ID: 36121

Int'l Code: 2009-072A

Dimensions:

Initial orbit:

Perigee: 1192 km

Apogee: 1204 km

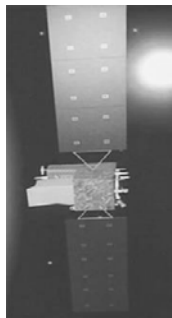
Inclination: 100.50°

Period: 109.38 min

Eccentricity: 0.0008

Launch date: 2009-12-15

Source: People's Republic of China (PRC)



CRYOSAT 2

NORAD ID: 36508

Int'l Code: 2010-013A

Dimensions: box + roof

4.6m long, 2.4m wide, 2.2m high

Initial orbit:

Perigee: 710 km

Apogee: 726 km

Inclination: 92.02°

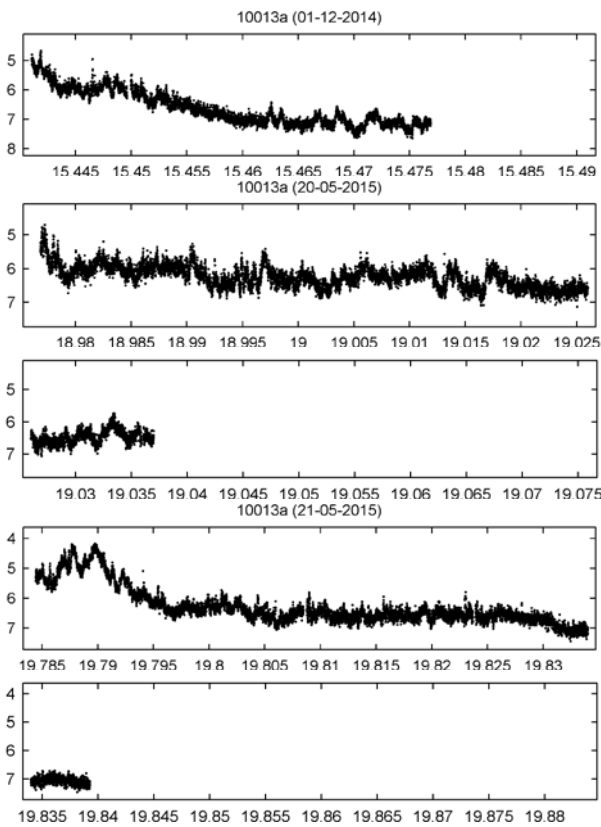
Period: 99.15 min

Eccentricity: 0.001

Launch date: 2010-04-08

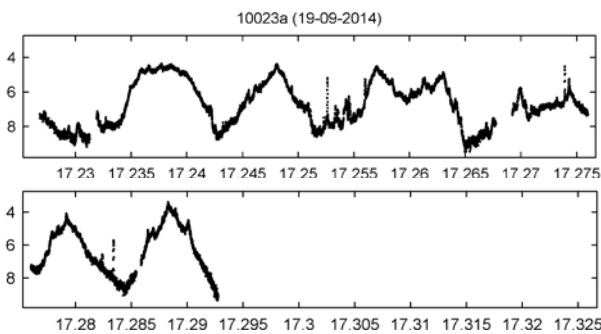
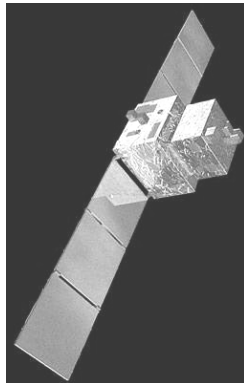
Source: European Space Agency (ESA)





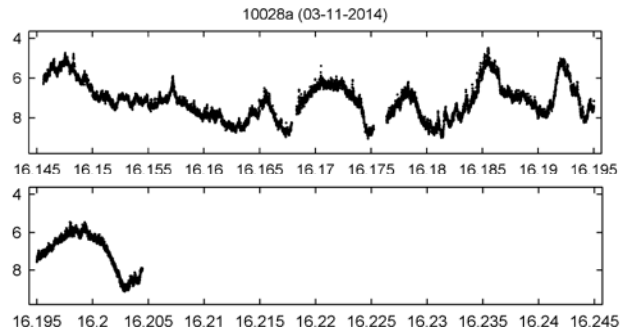
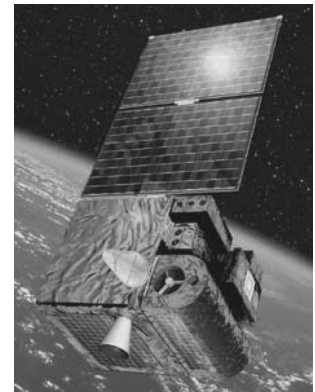
SERVIS 2

NORAD ID: 36588
 Int'l Code: 2010-023A
 Dimensions: box + 2 panels
 10.2m x 2.5m
 Initial orbit:
 Perigee: 1183 km
 Apogee: 1211 km
 Inclination: 100.45°
 Period: 109.37 min
 Eccentricity: 0.002
 Launch date: 2010-06-02
 Source: Japan (JPN)



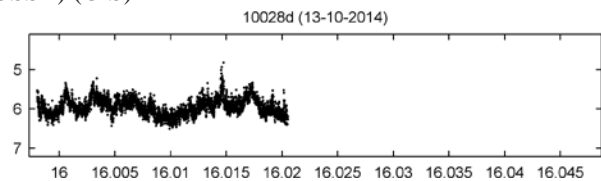
PICARD

NORAD ID: 36598
 Int'l Code: 2010-028A
 Dimensions: box
 0.9m x 1.2m x 2.7m
 Initial orbit:
 Perigee: 726 km
 Apogee: 728 km
 Inclination: 98.29°
 Period: 99.35 min
 Eccentricity: 0.0001
 Launch date: 2010-06-15
 Source: France (FR)



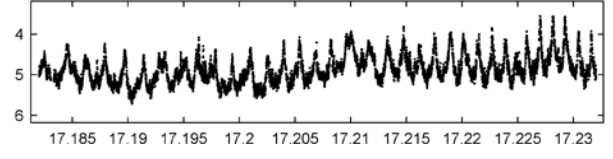
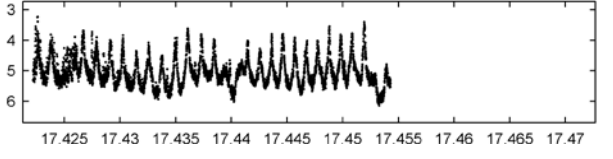
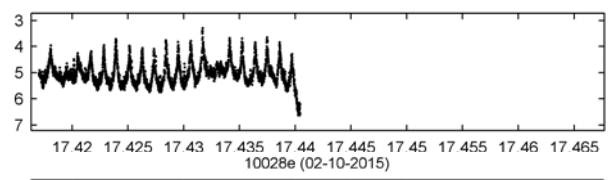
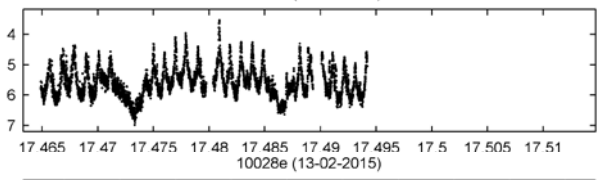
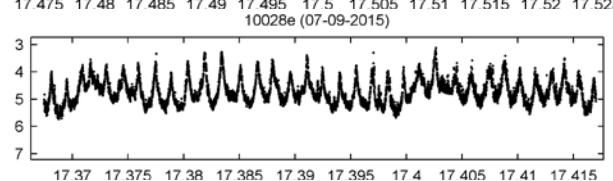
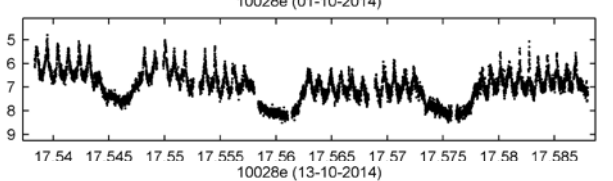
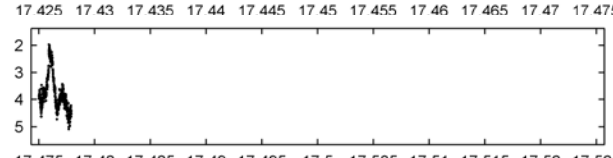
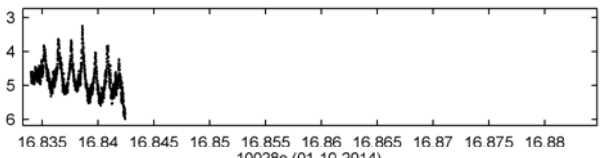
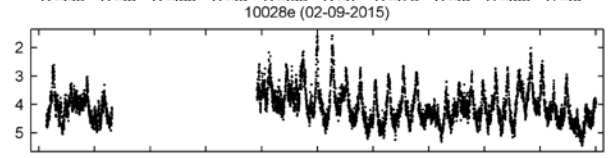
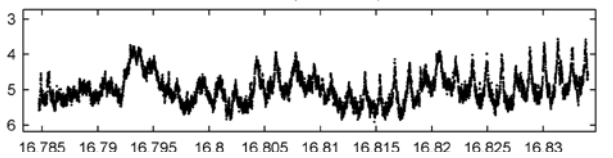
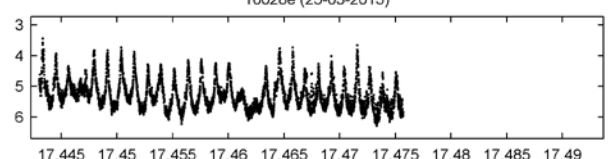
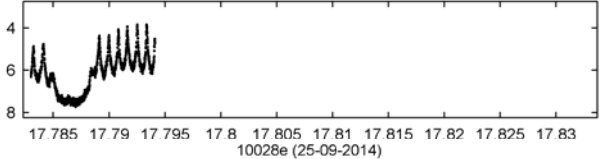
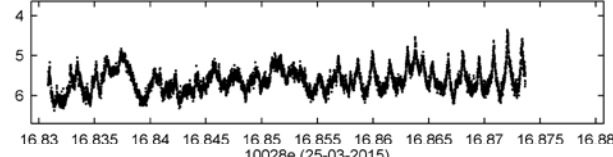
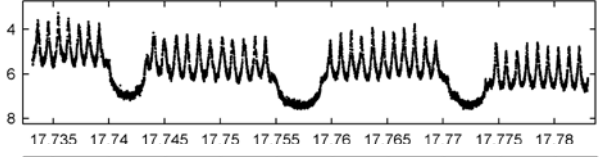
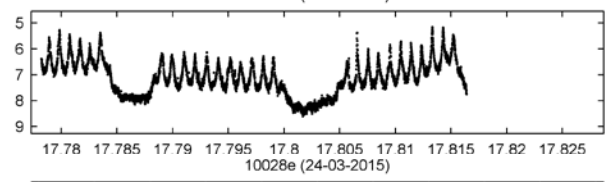
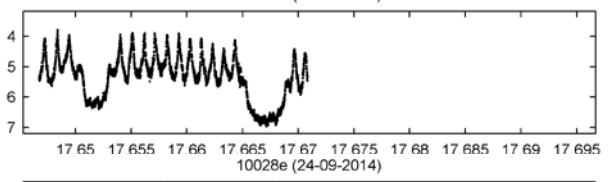
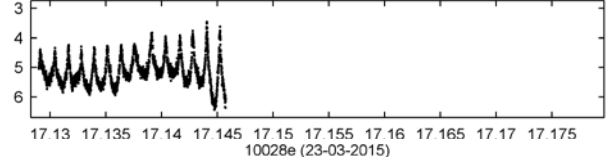
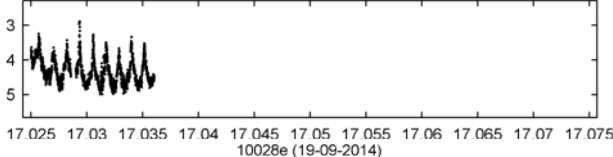
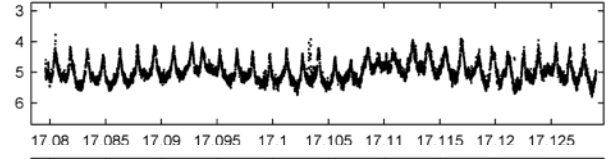
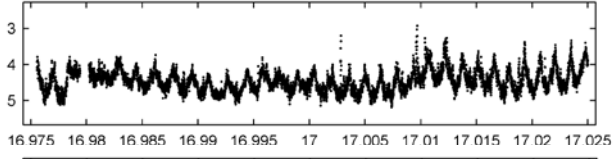
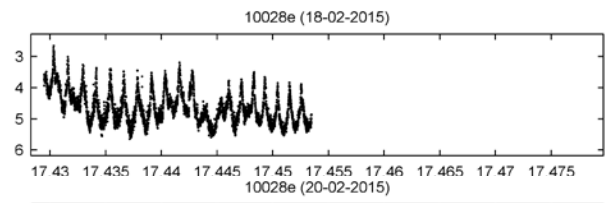
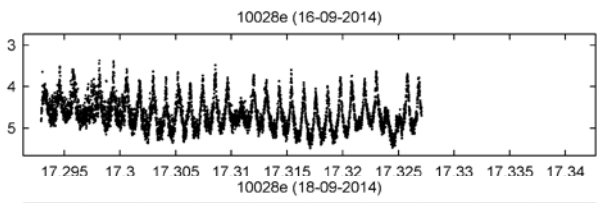
SL-24 DEB (fragment)

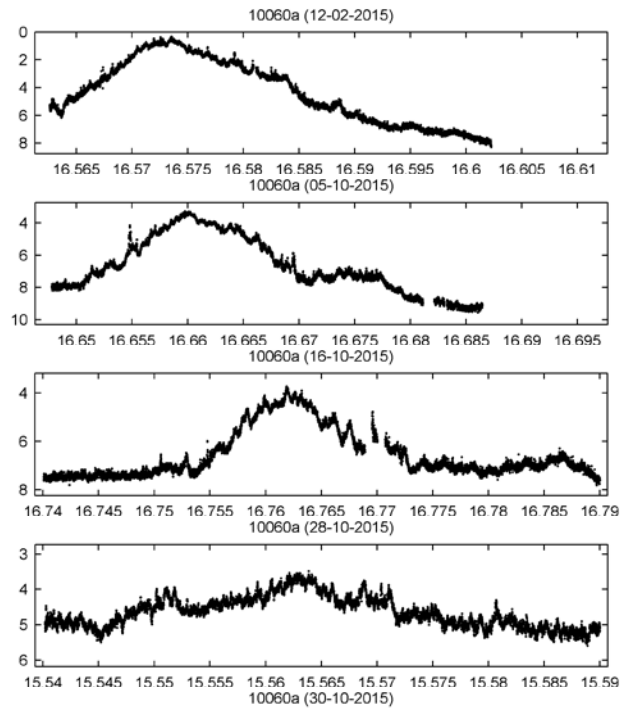
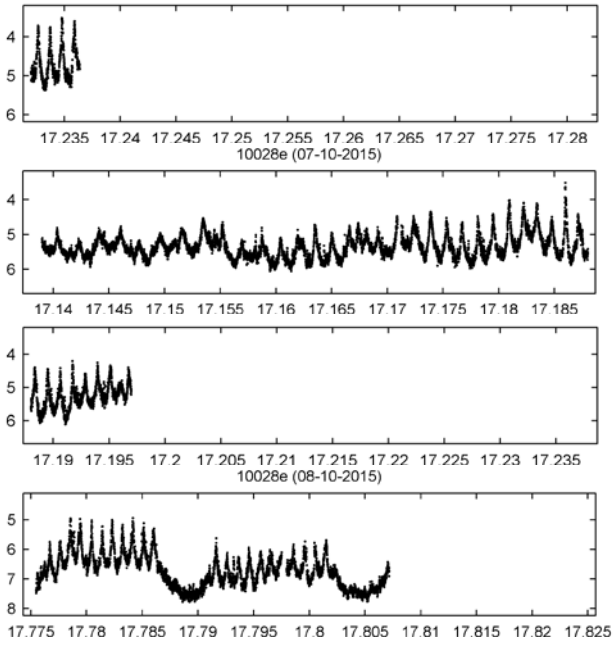
NORAD ID: 36601
 Int'l Code: 2010-028D
 Dimensions:
 Initial orbit:
 Perigee: 726 km
 Apogee: 728 km
 Inclination: 98.29°
 Period: 99.33 min
 Eccentricity: 0.0001
 Launch date: 2010-06-15
 Source: Commonwealth of Independent States (former USSR) (CIS)



SL-24 DEB

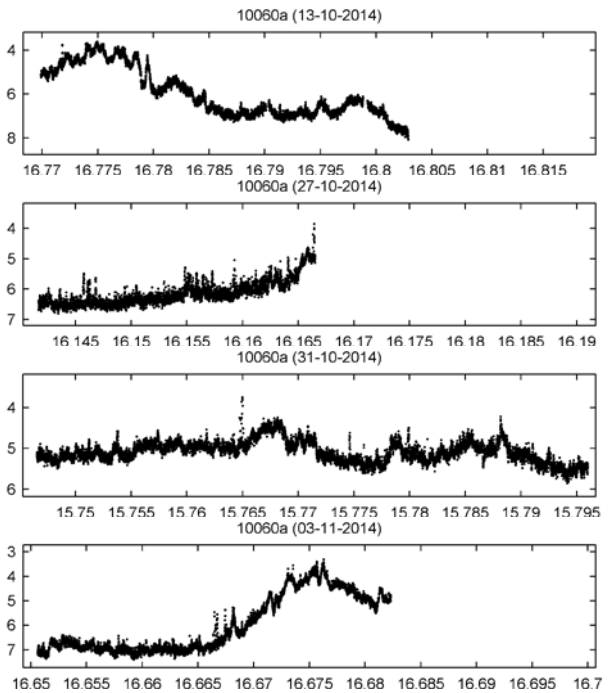
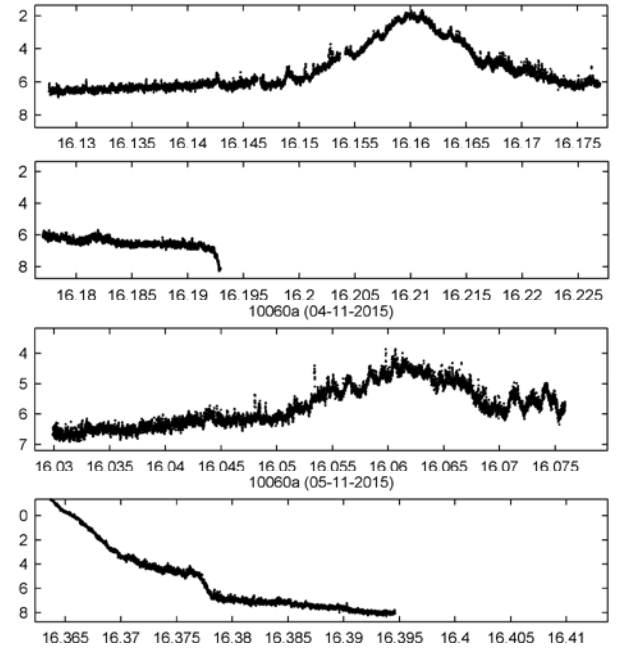
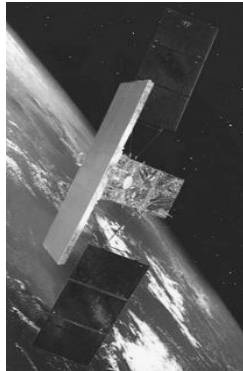
NORAD ID: 36602
 Int'l Code: 2010-028E
 Dimensions:
 Initial orbit:
 Perigee: 725 km
 Apogee: 785 km
 Inclination: 98.28°
 Period: 99.93 min
 Eccentricity: 0.004
 Launch date: 2010-06-15
 Source: Commonwealth of Independent States (former USSR) (CIS)





SKYMED 4 (COSMO 4)

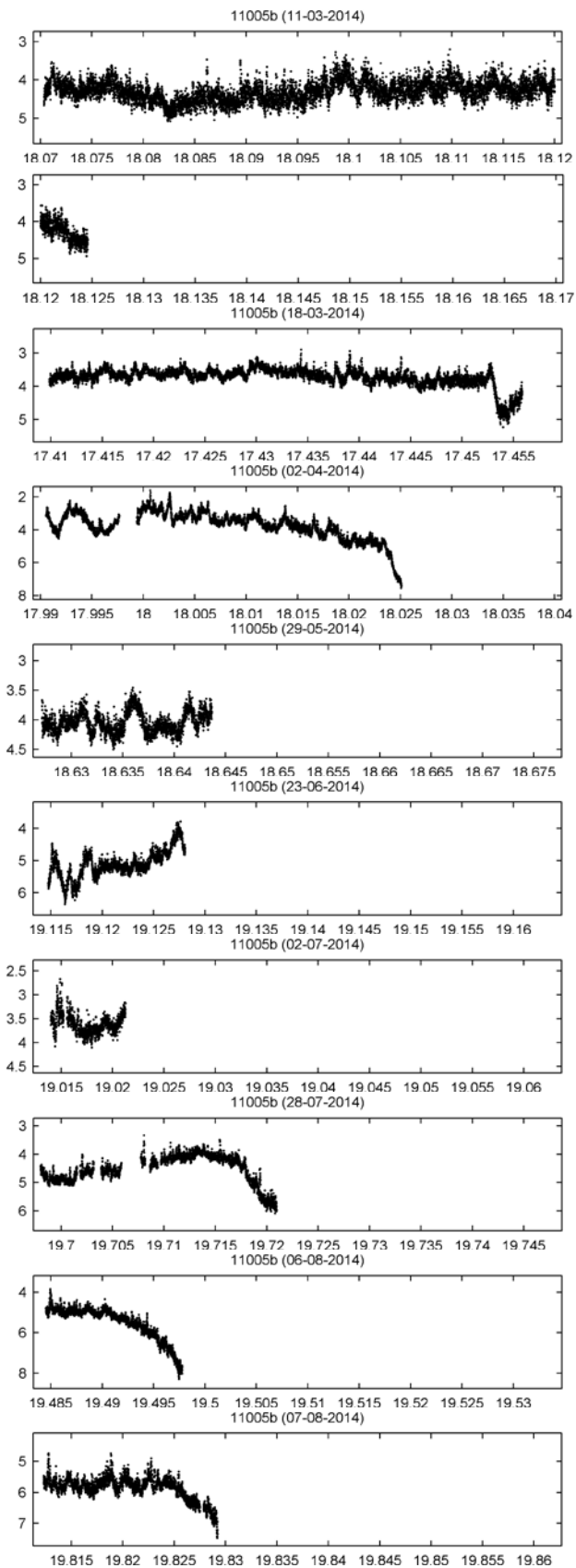
NORAD ID: 37216
 Int'l Code: 2010-060A
 Dimensions: box + 2 panels
 + SAR antenna
 Initial orbit:
 Perigee: 612 km
 Apogee: 614 km
 Inclination: 97.86°
 Period: 96.97 min
 Eccentricity: 0.0002
 Launch date: 2010-11-06
 Source: Italy (IT)



**SL-19 R/B
 (Rokot-KM 3rd stage)
 (KOSMOS 2470 (GEO-IK-2 1)
 ROKET)**

NORAD ID: 37363
 Int'l Code: 2011-005B
 Dimensions:
 cylinder 3m long, 2.5m dia
 Initial orbit:
 Perigee: 318 km
 Apogee: 1050 km
 Inclination: 99.46°
 Period: 98.43 min
 Eccentricity: 0.052
 Launch date: 2011-02-01
 Source: Commonwealth of Independent States
 (former USSR) (CIS)





RESOURCESAT 2

NORAD ID: 37387

Int'l Code: 2011-015A

Dimensions: box + 2 panels

Initial orbit:

Perigee: 821 km

Apogee: 823 km

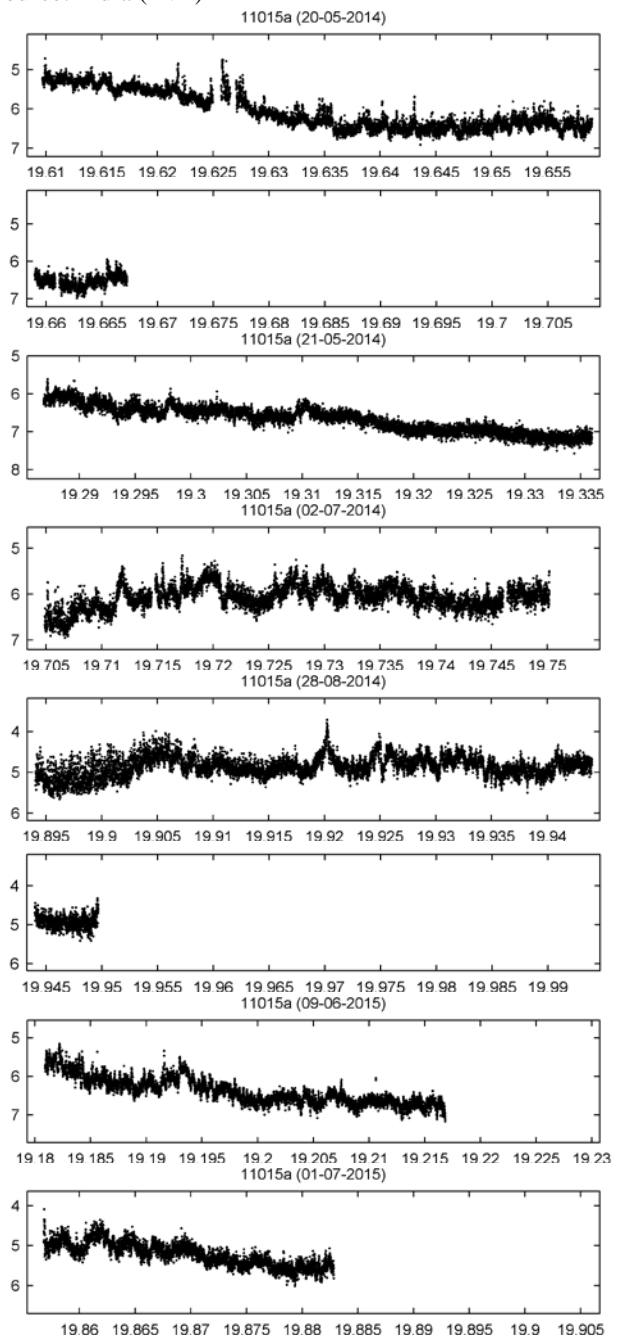
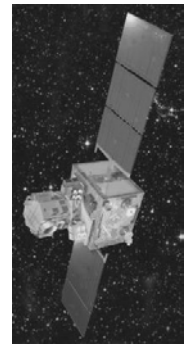
Inclination: 98.78°

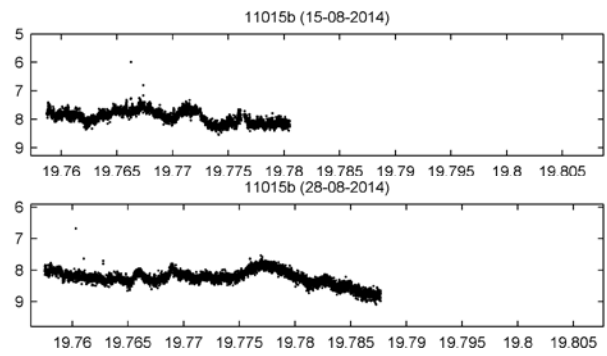
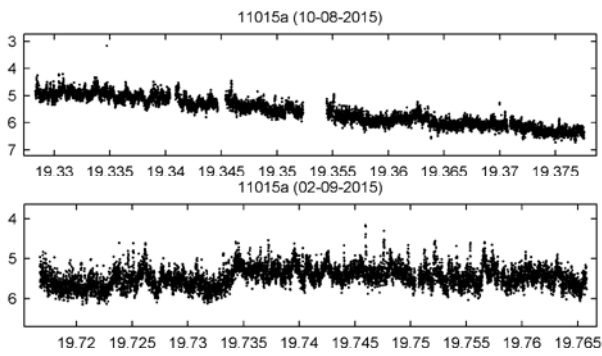
Period: 101.33 min

Eccentricity: 0.0002

Launch date: 2011-04-20

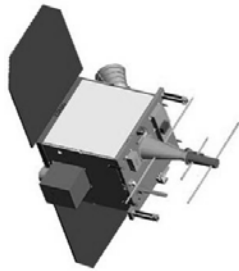
Source: India (IND)





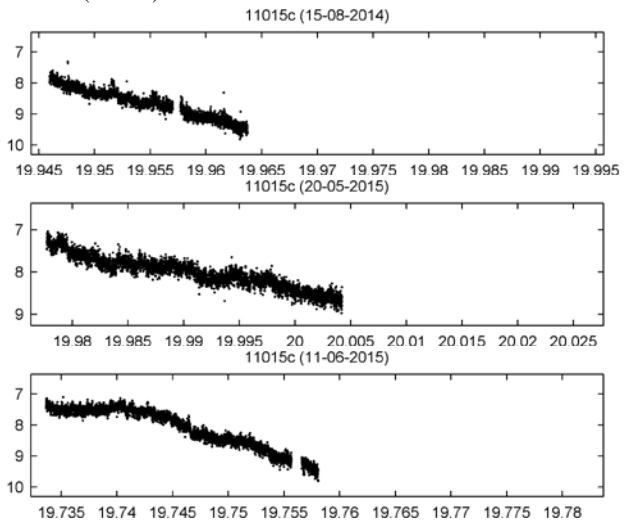
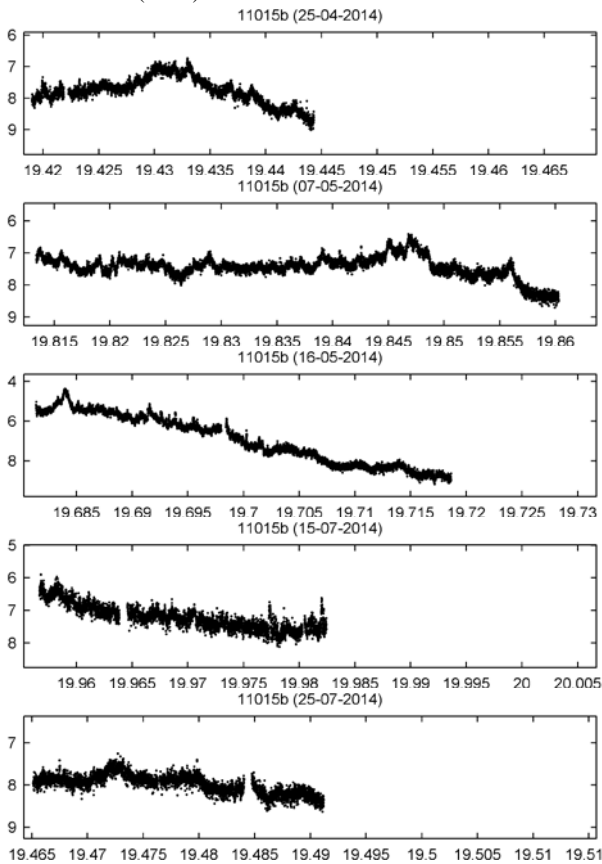
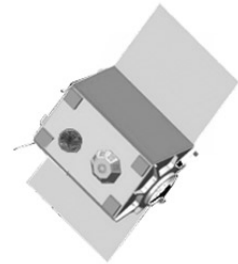
YOUTHSAT (IMS 1A)

NORAD ID: 37388
 Int'l Code: 2011-015B
 Dimensions: cube +
 2 panels 1.02m x 0.604m x 1.34m
 Initial orbit:
 Perigee: 803 km
 Apogee: 821 km
 Inclination: 98.79°
 Period: 101.13 min
 Eccentricity: 0.001
 Launch date: 2011-04-20
 Source: India (IND)



X-SAT

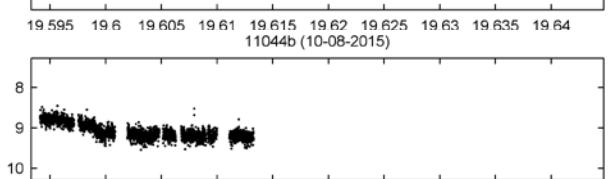
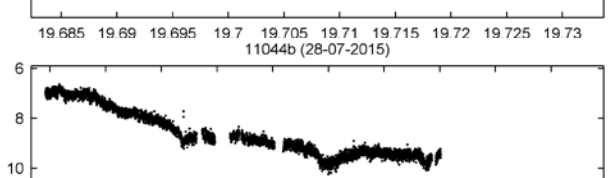
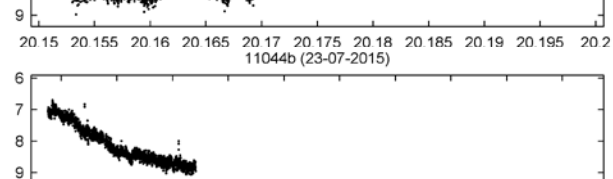
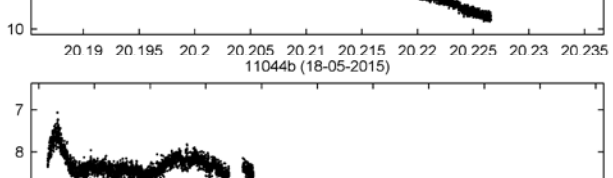
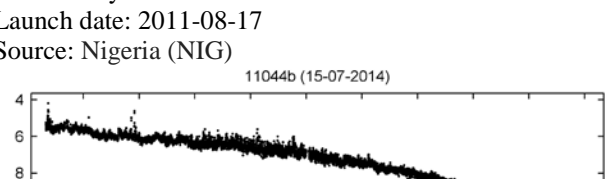
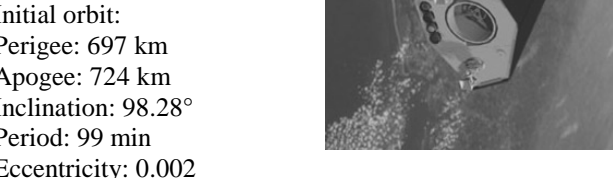
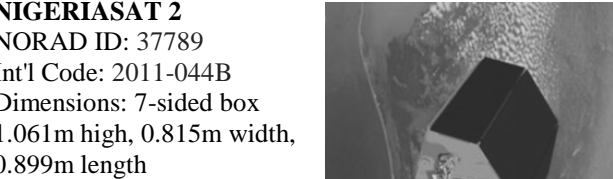
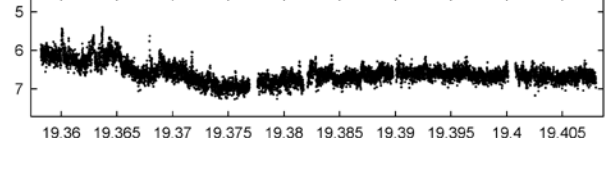
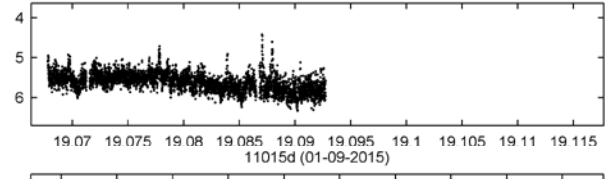
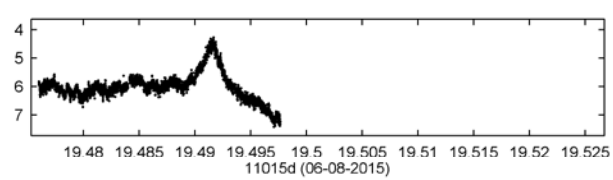
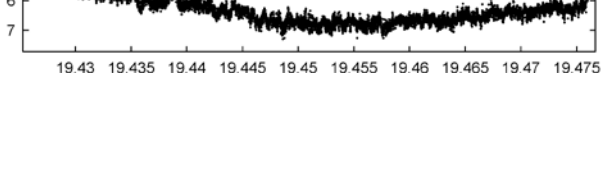
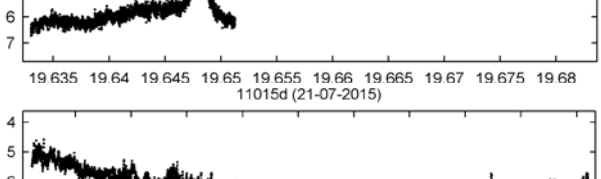
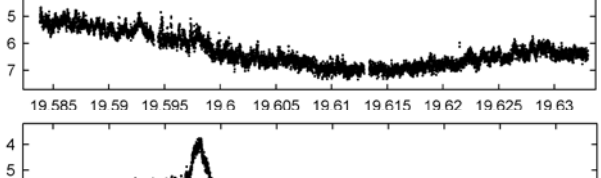
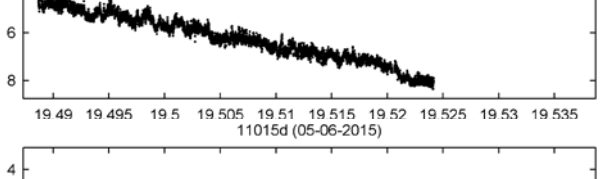
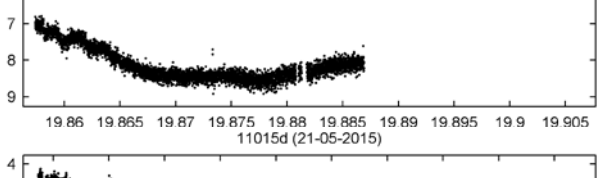
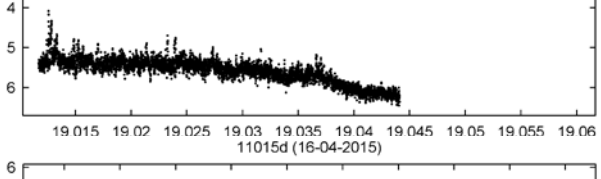
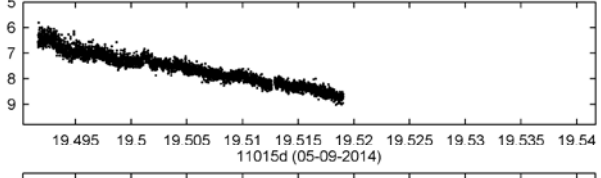
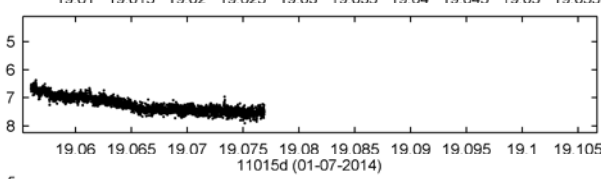
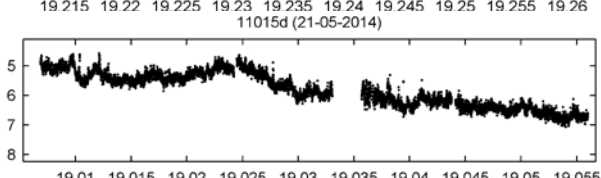
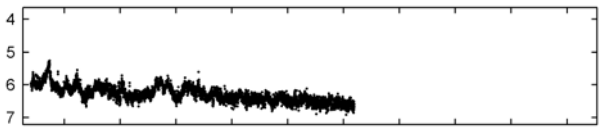
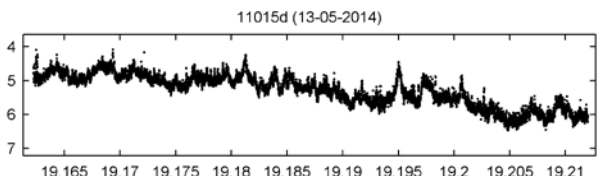
NORAD ID: 37389
 Int'l Code: 2011-015C
 Dimensions: box +
 2 panels 0.6m x 0.6m x 0.8m
 Initial orbit:
 Perigee: 805 km
 Apogee: 823 km
 Inclination: 98.77°
 Period: 101.17 min
 Eccentricity: 0.001
 Launch date: 2011-04-20
 Source: (SING)



PSLV R/B (4th stage)

NORAD ID: 37390
 Int'l Code: 2011-015D
 Dimensions: cylinder 2.6m long, 2.8m dia
 Initial orbit:
 Perigee: 789 km
 Apogee: 816 km
 Inclination: 98.66°
 Period: 100.92 min
 Eccentricity: 0.002
 Launch date: 2011-04-20
 Source: India (IND)





NIGERIASAT 2

NORAD ID: 37789

Int'l Code: 2011-044B

Dimensions: 7-sided box

1.061m high, 0.815m width,
0.899m length

Initial orbit:

Perigee: 697 km

Apogee: 724 km

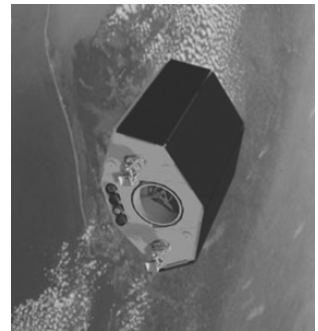
Inclination: 98.28°

Period: 99 min

Eccentricity: 0.002

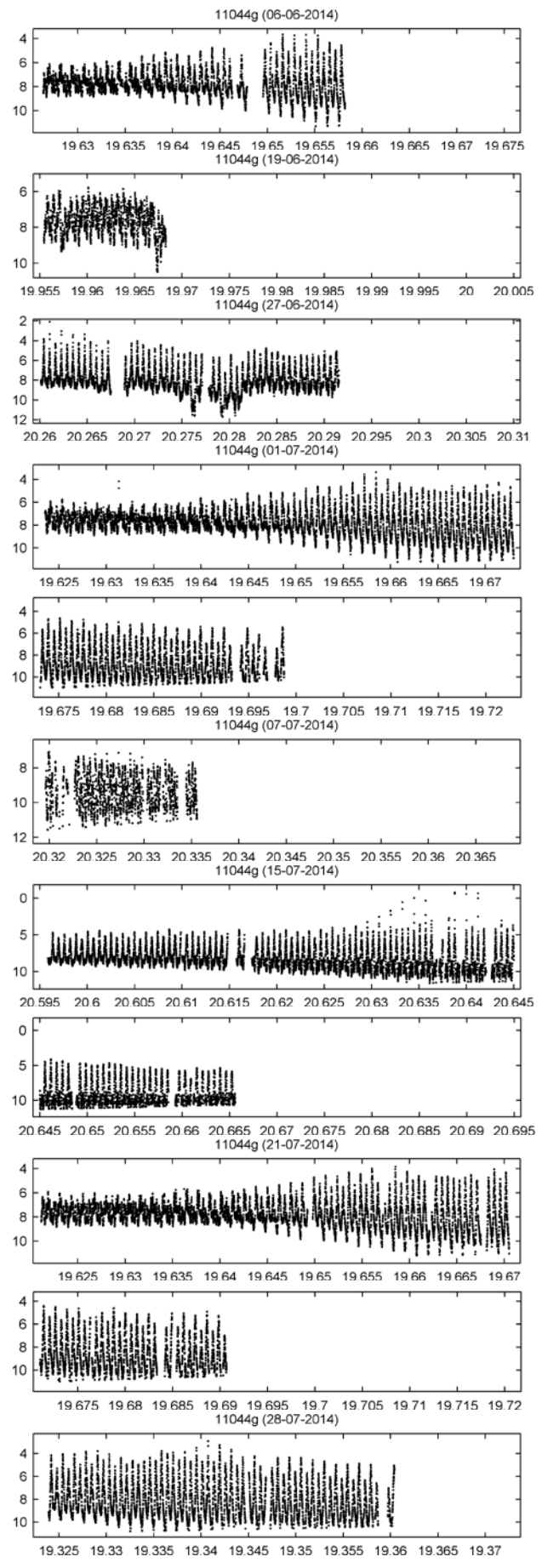
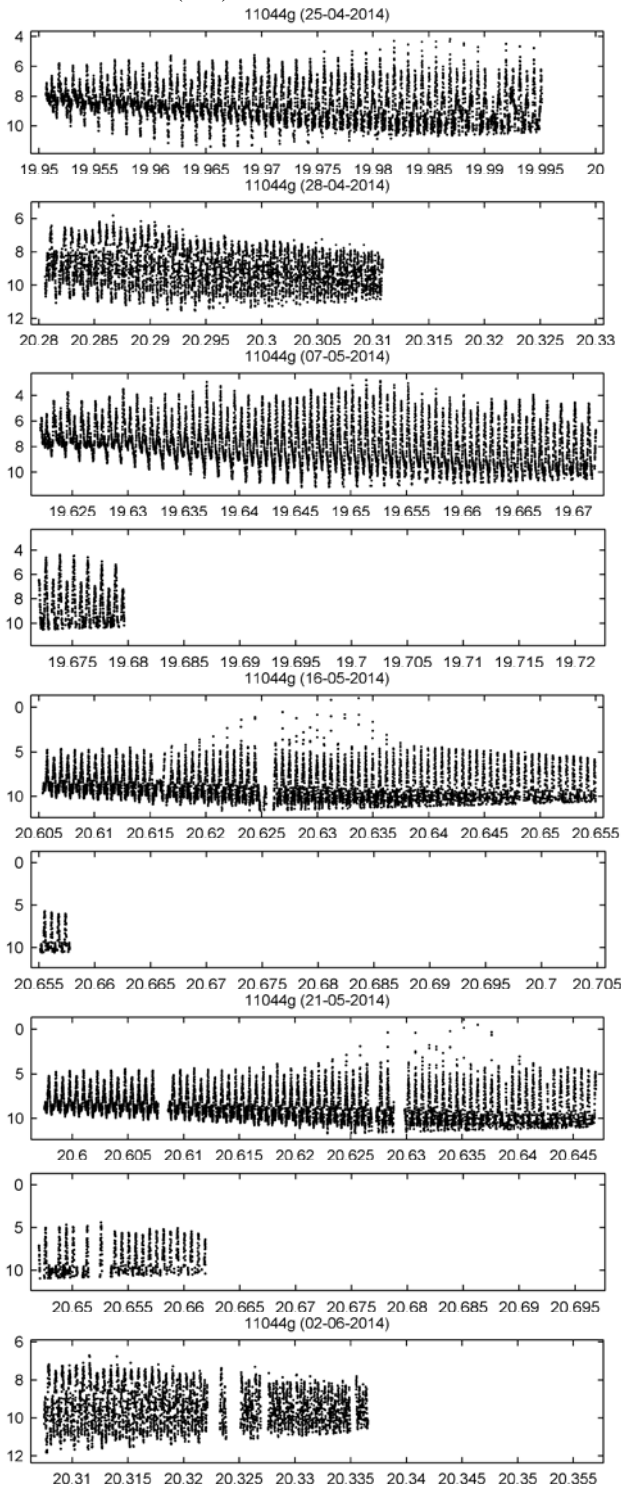
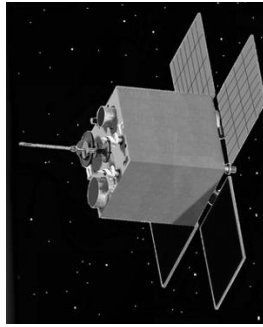
Launch date: 2011-08-17

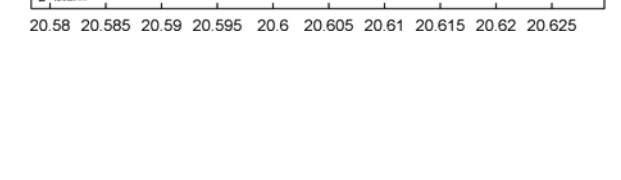
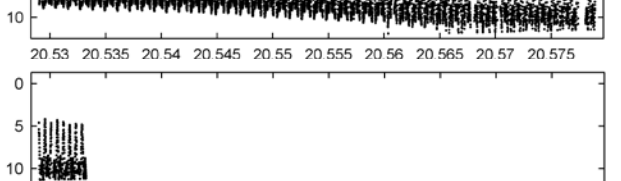
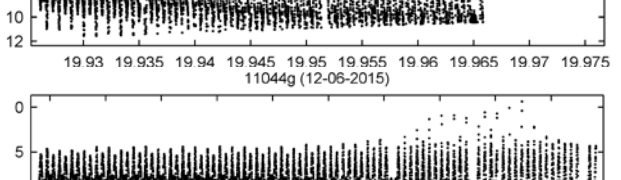
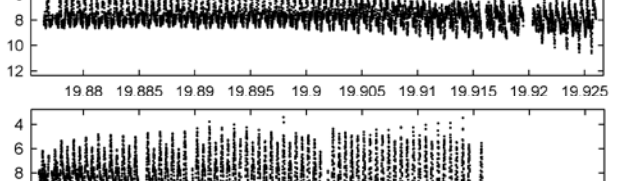
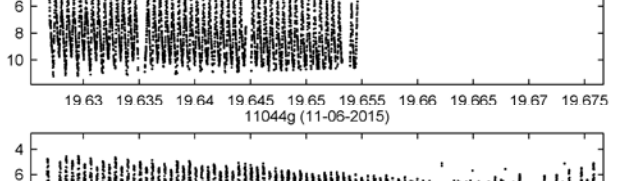
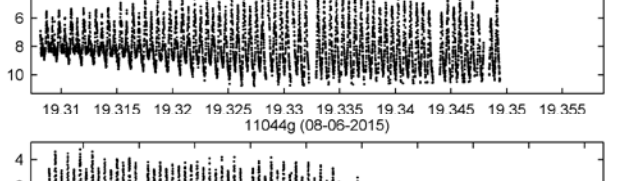
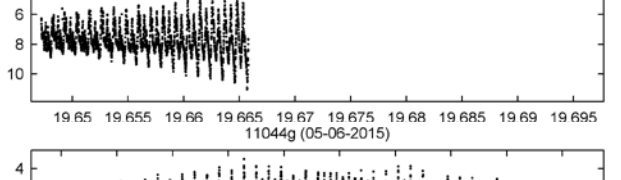
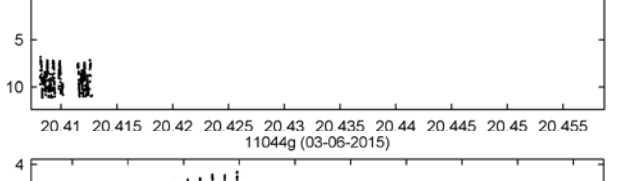
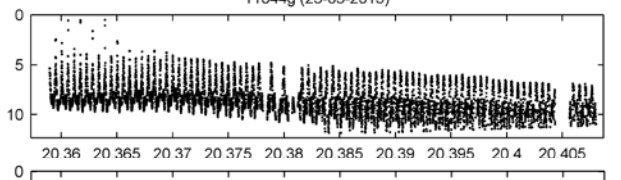
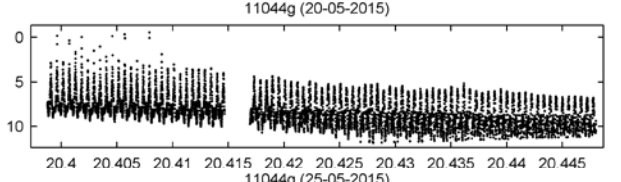
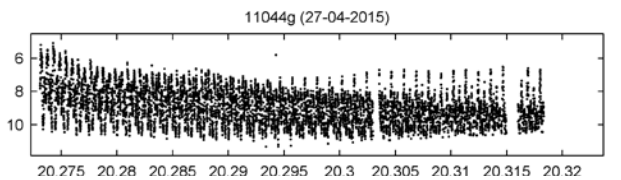
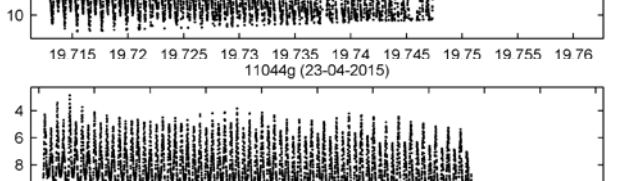
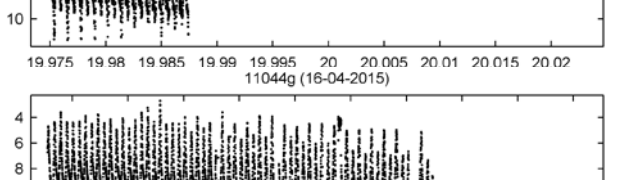
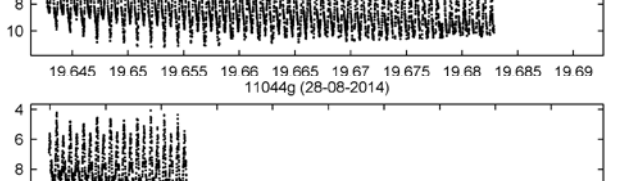
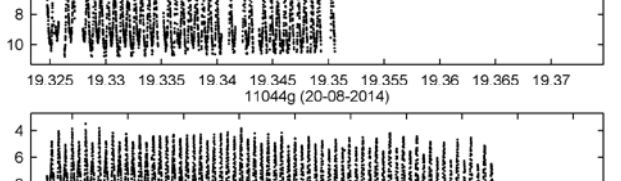
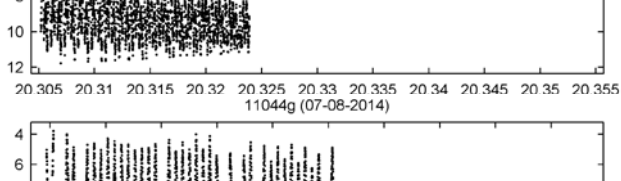
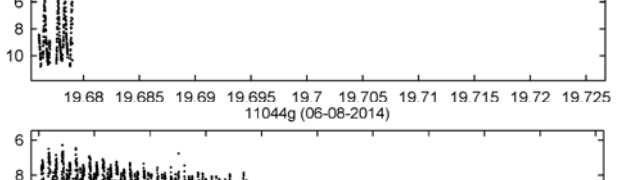
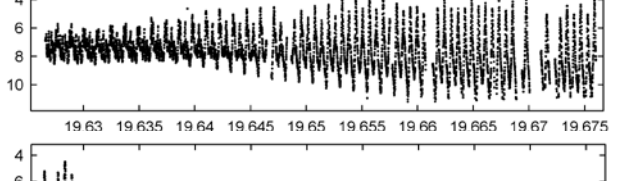
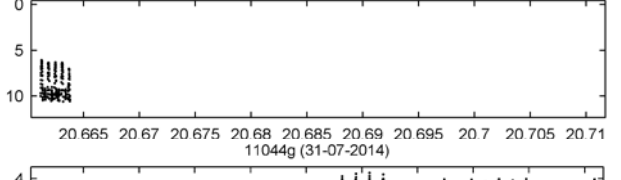
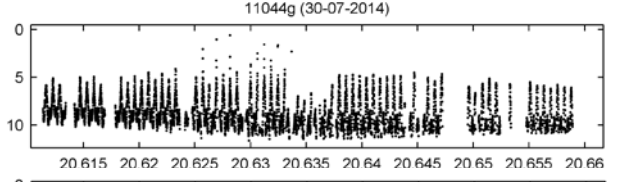
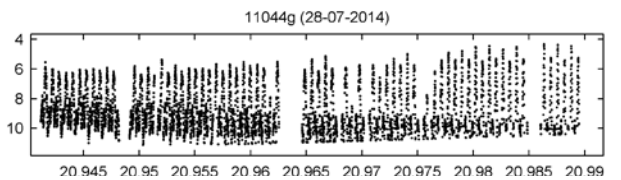
Source: Nigeria (NIG)

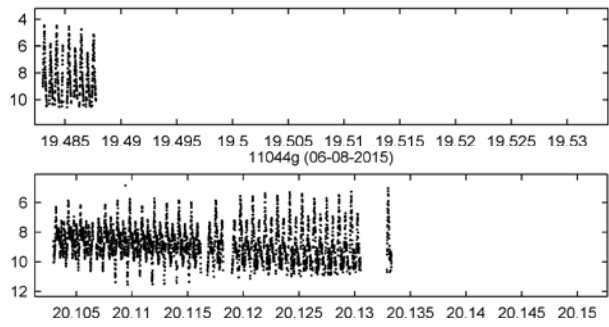
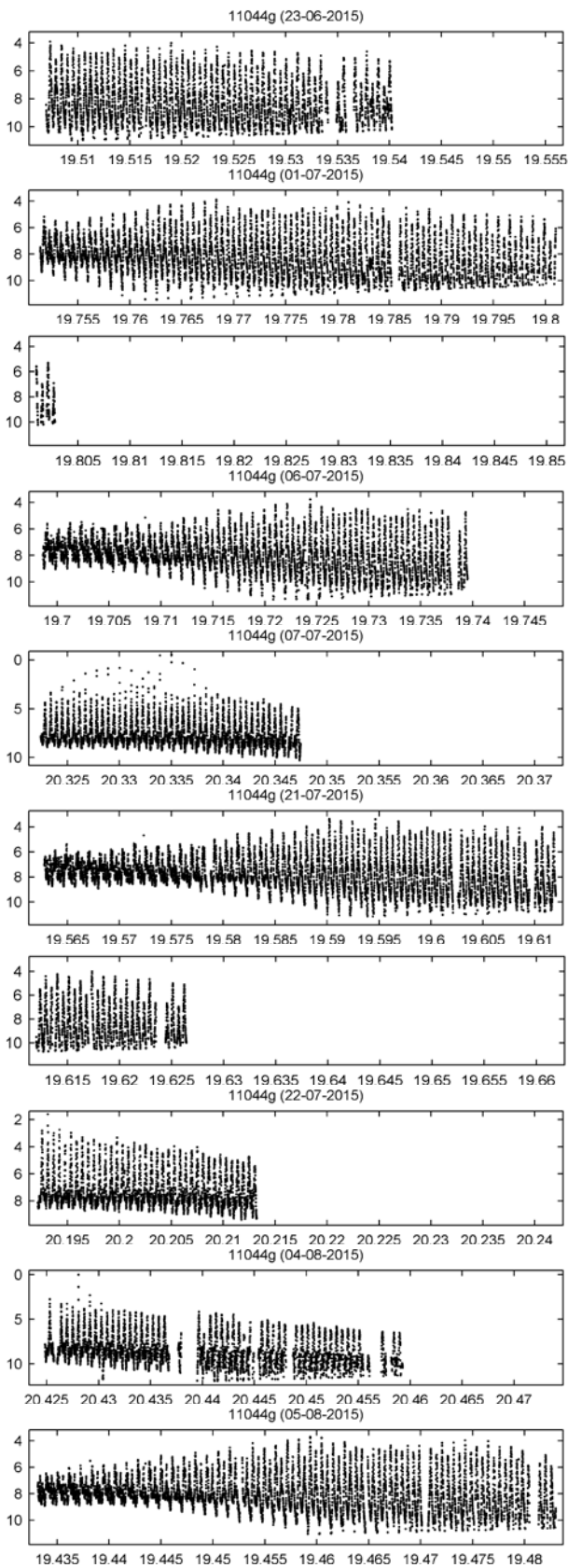


SICH 2

NORAD ID: 37794
Int'l Code: 2011-044G
Dimensions: box + 4 panels
Initial orbit:
Perigee: 684 km
Apogee: 702 km
Inclination: 98.26°
Period: 98.63 min
Eccentricity: 0.001
Launch date: 2011-08-17
Source: Ukraine (UA)







SL-24 DEB (Fragment of Satellite)

NORAD ID: 37796

Int'l Code: 2011-044J

Dimensions:

Initial orbit:

Perigee: 692 km

Apogee: 710 km

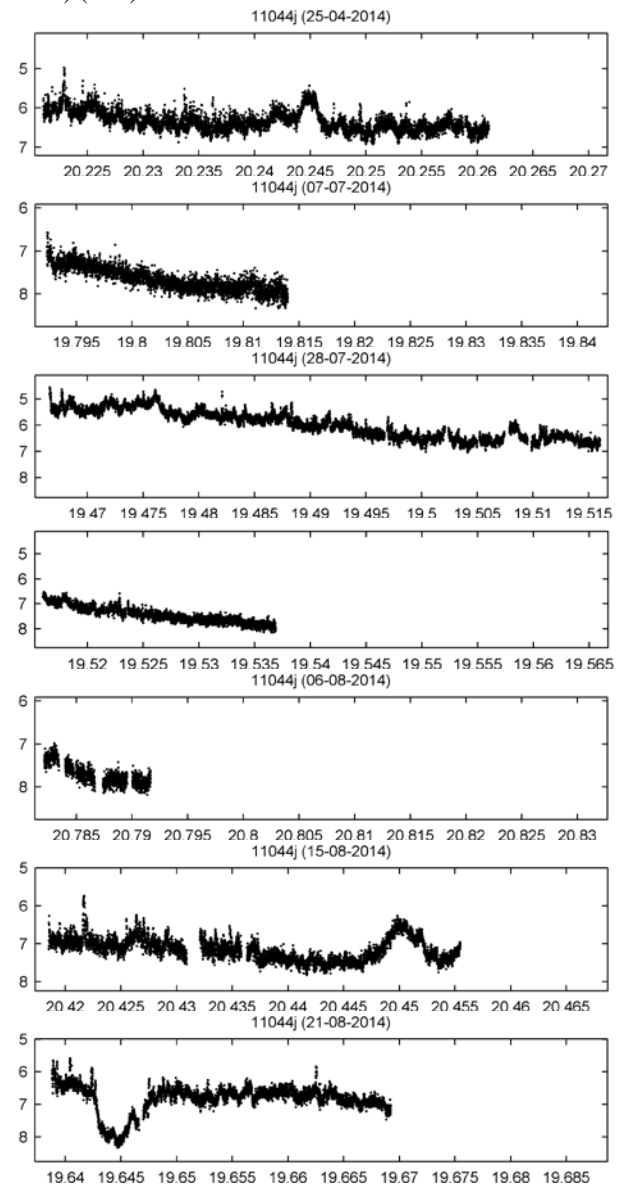
Inclination: 98.26°

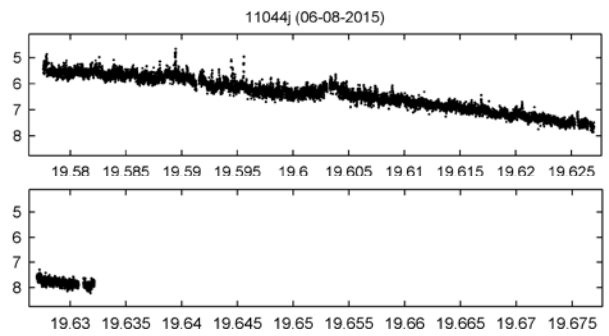
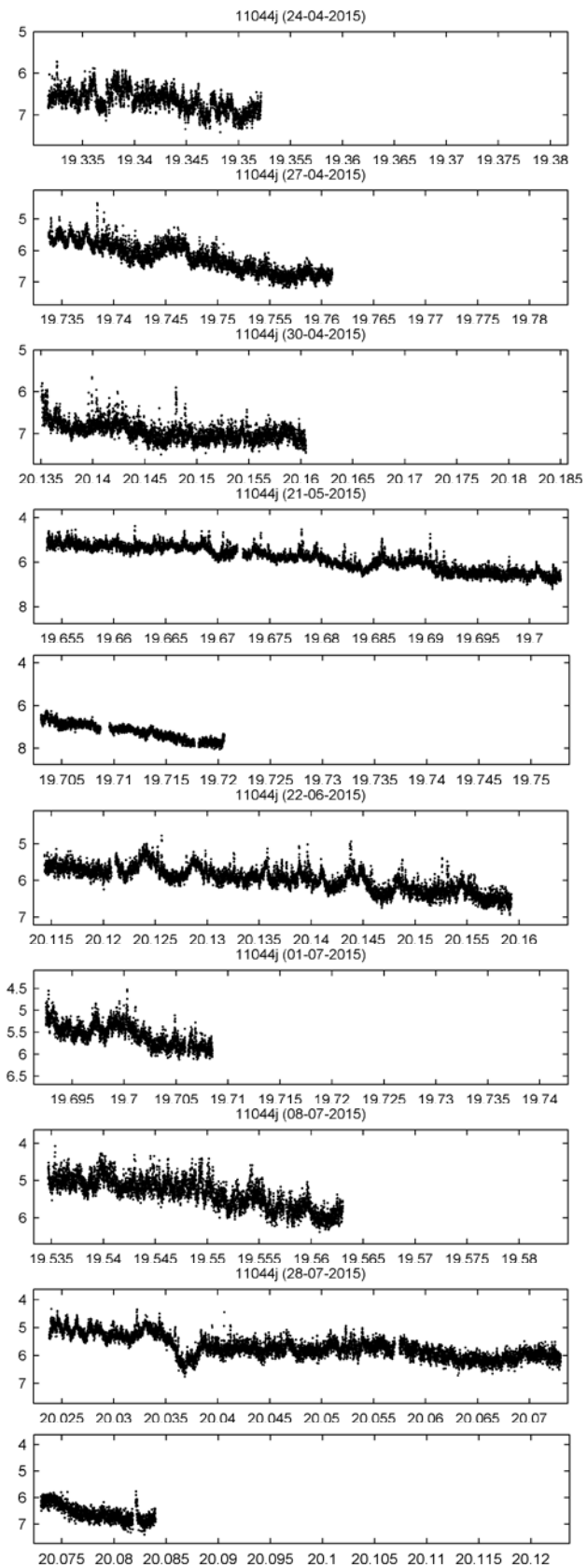
Period: 98.78 min

Eccentricity: 0.001

Launch date: 2011-08-17

Source: Commonwealth of Independent States (former USSR) (CIS)





SL-24 DEB (Fragment of Satellite)

NORAD ID: 37797

Int'l Code: 2011-044K

Dimensions:

Initial orbit:

Perigee: 656 km

Apogee: 706 km

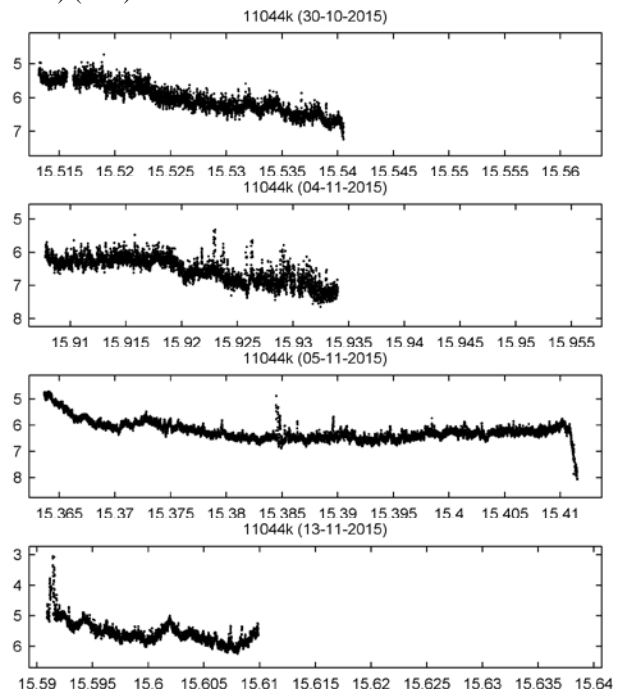
Inclination: 98.26°

Period: 98.37 min

Eccentricity: 0.004

Launch date: 2011-08-17

Source: Commonwealth of Independent States (former USSR) (CIS)



TIANGONG 1

NORAD ID: 37820

Int'l Code: 2011-053A

Dimensions:

Initial orbit:

Perigee: 198 km

Apogee: 332 km

Inclination: 42.78°

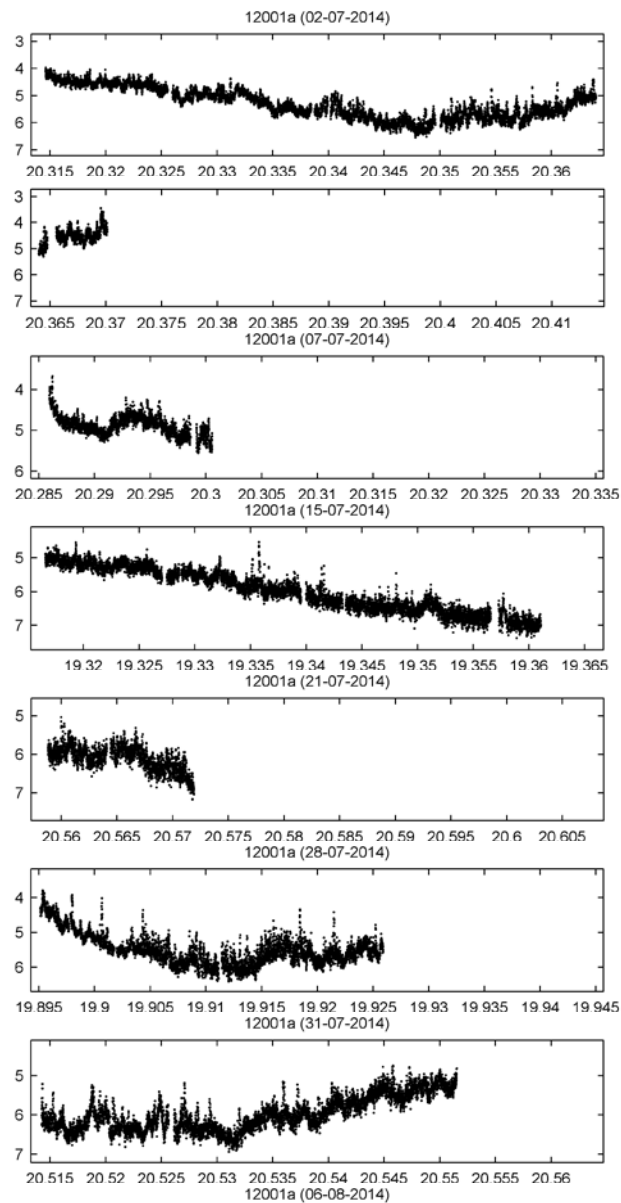
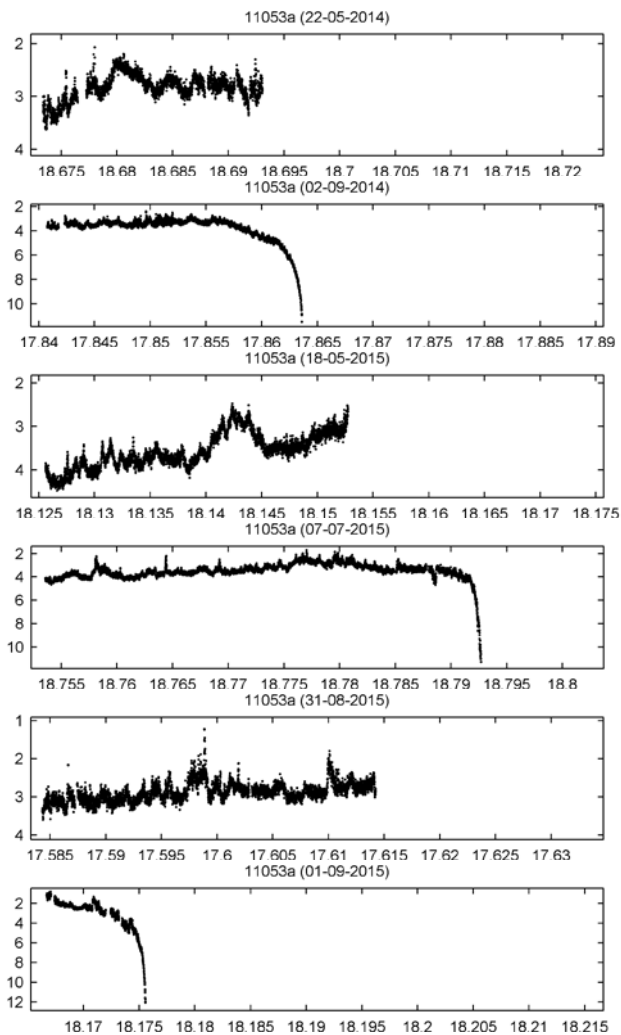
Period: 89.8 min

Eccentricity: 0.010

Launch date: 2011-09-29

Source: People's Republic of China (PRC)





ZY 3 (Ziyuan 3)

NORAD ID: 38046

Int'l Code: 2012-001A

Dimensions: box + 2 panels

Initial orbit:

Perigee: 493 km

Apogee: 502 km

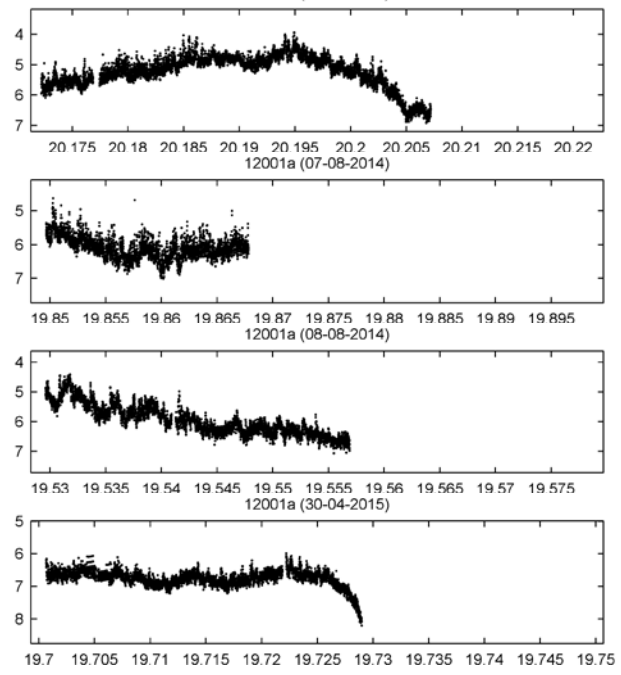
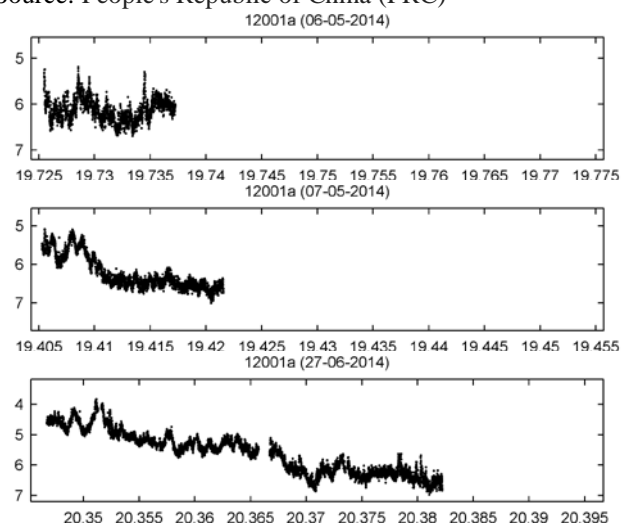
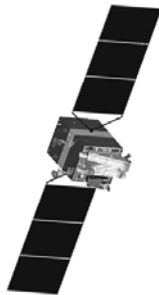
Inclination: 97.48°

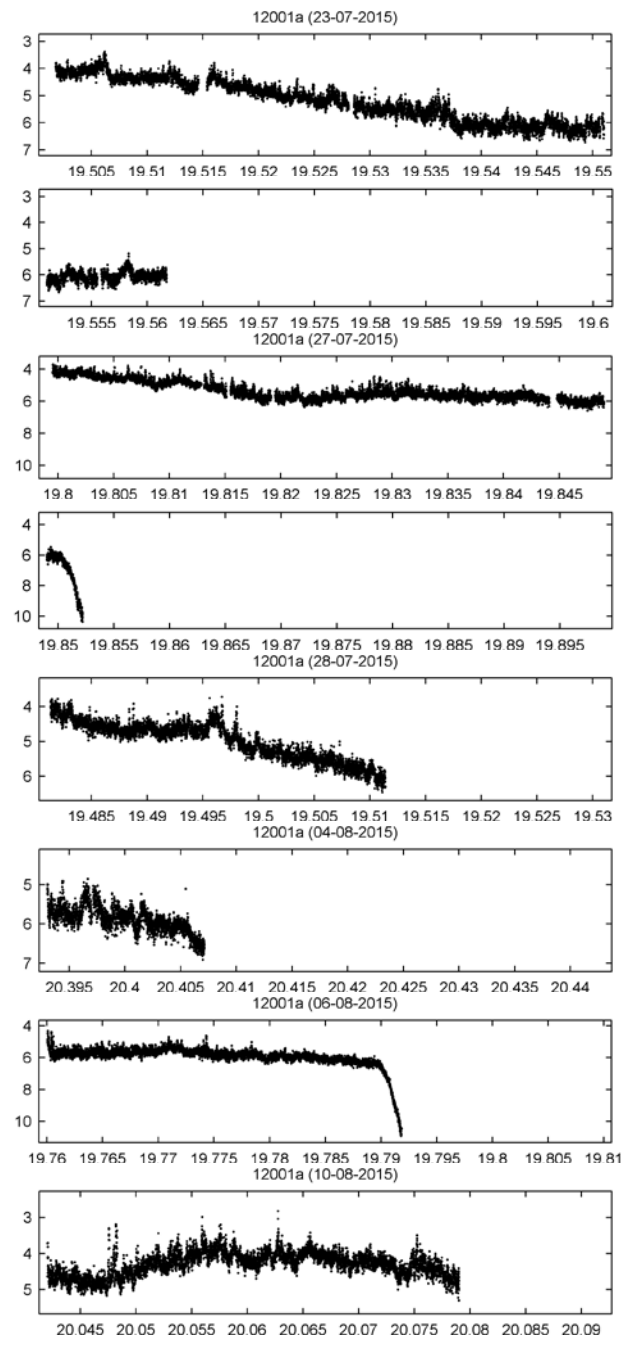
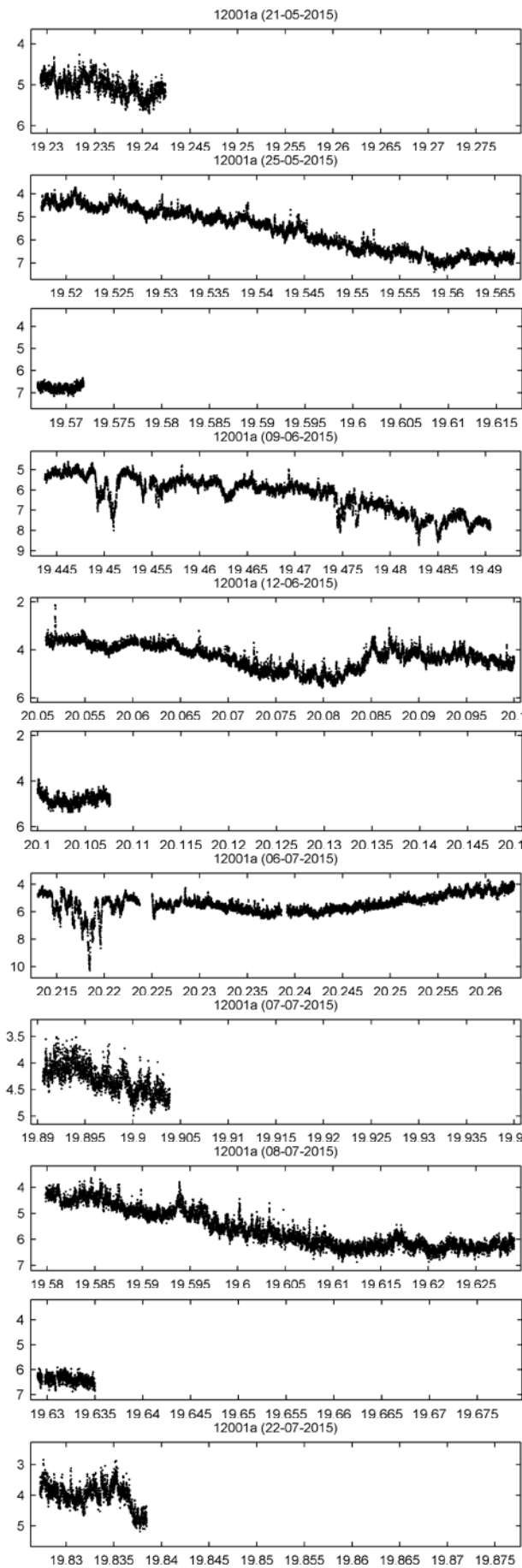
Period: 94.57 min

Eccentricity: 0.0006

Launch date: 2012-01-09

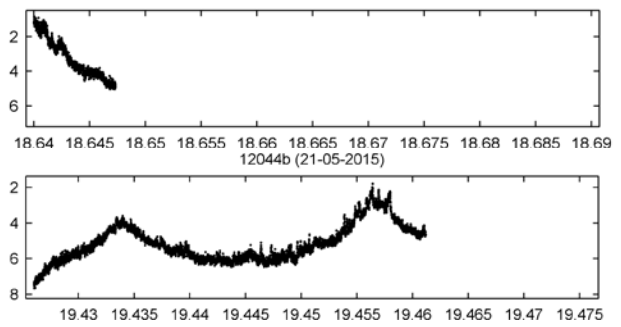
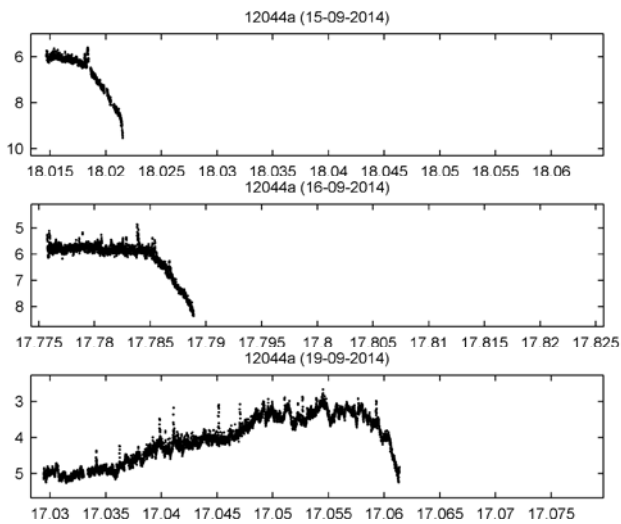
Source: People's Republic of China (PRC)





TELKOM 3
 NORAD ID: 38744
 Int'l Code: 2012-044A
 Dimensions:
 Initial orbit:
 Perigee: 266 km
 Apogee: 5013 km
 Inclination: 49.92°
 Period: 142.05 min
 Eccentricity: 0.263
 Launch date: 2012-08-06
 Source: Indonesia (INDO)





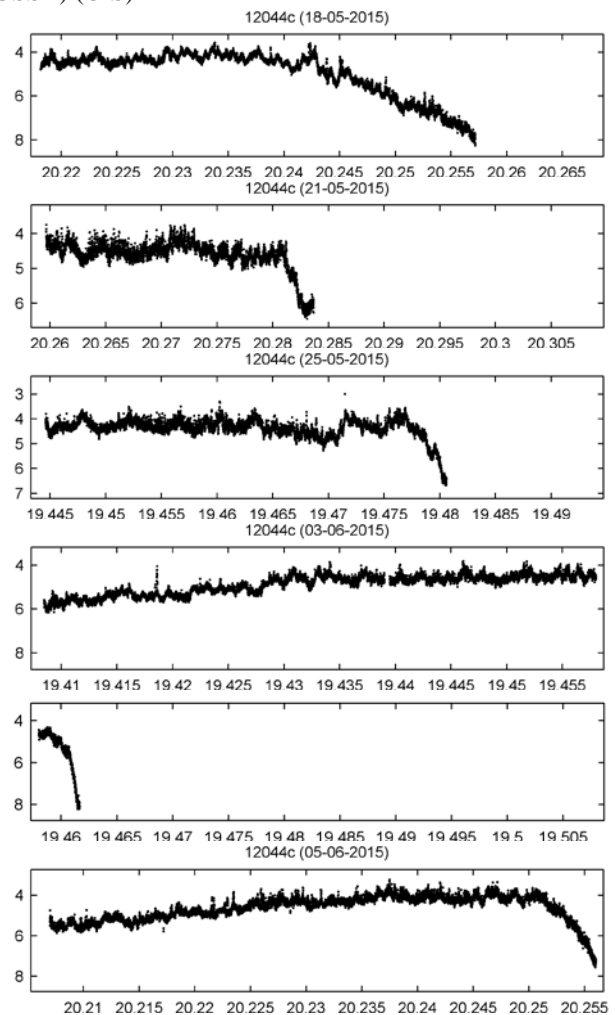
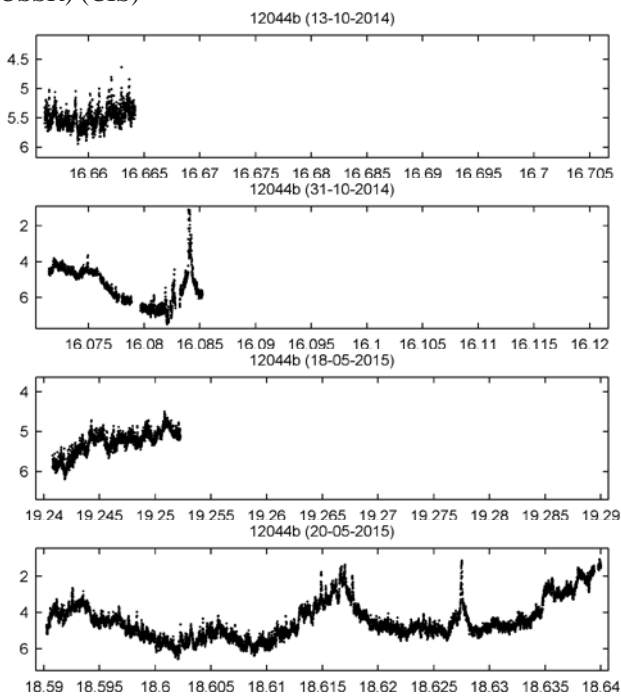
EXPRESS MD2

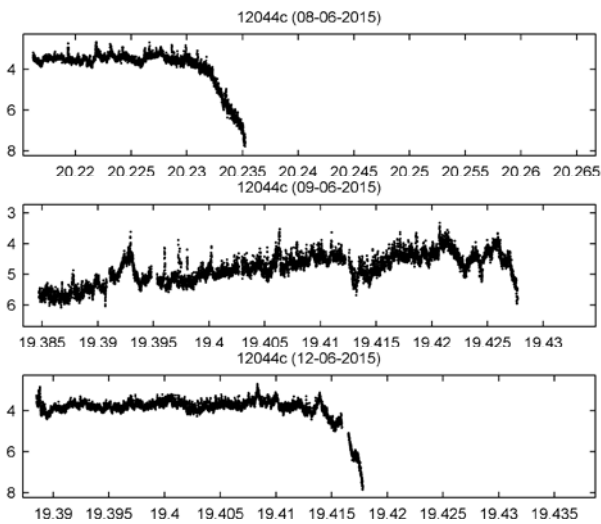
NORAD ID: 38745
 Int'l Code: 2012-044B
 Dimensions: box + 2 panels
 Initial orbit:
 Perigee: 266 km
 Apogee: 5013 km
 Inclination: 49.91°
 Period: 142.03 min
 Eccentricity: 0.263
 Launch date: 2012-08-06
 Source: Commonwealth of Independent States (former USSR) (CIS)



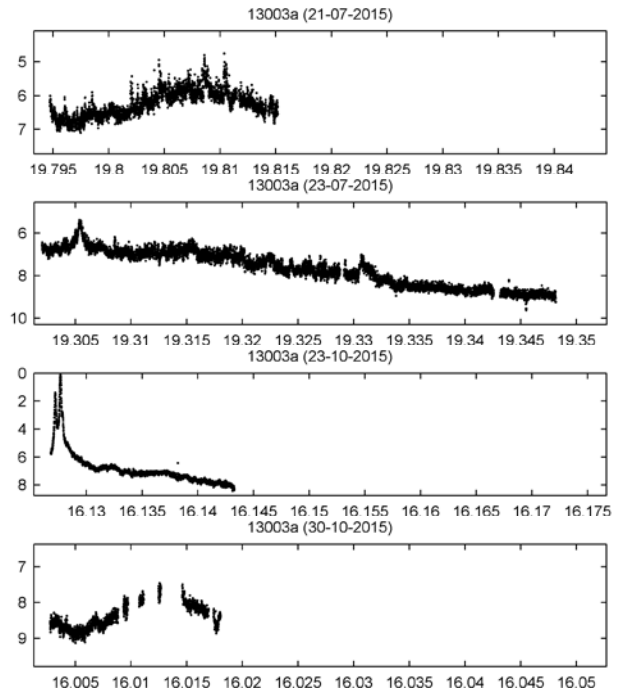
BREEZE-M R/B (Proton-M)

NORAD ID: 38746
 Int'l Code: 2012-044C
 Dimensions: stubby cyl
 2.62m long, ~2.4m dia
 Initial orbit:
 Perigee: 266 km
 Apogee: 5015 km
 Inclination: 49.91°
 Period: 142.07 min
 Eccentricity: 0.263
 Launch date: 2012-08-06
 Source: Commonwealth of Independent States (former USSR) (CIS)



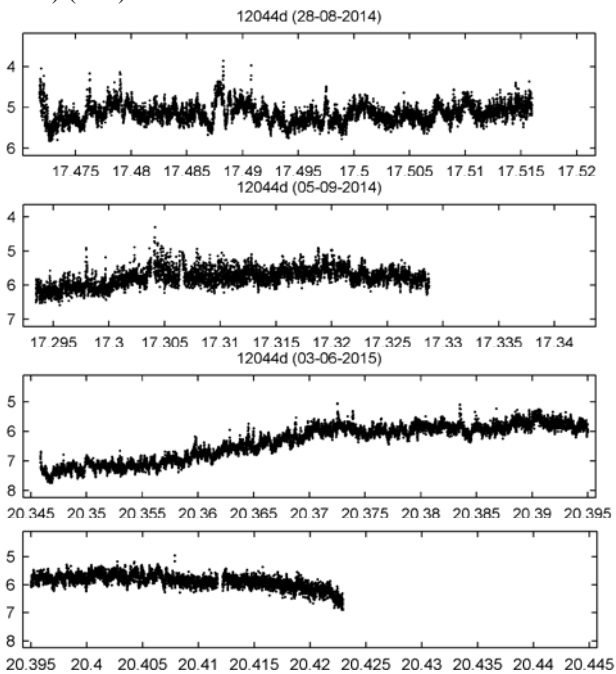


Period: 93.02 min
 Eccentricity: 0.084
 Launch date: 2013-01-30
 Source: South Korea (SKOR)



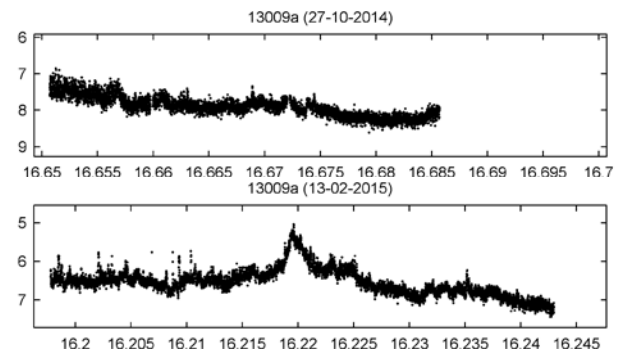
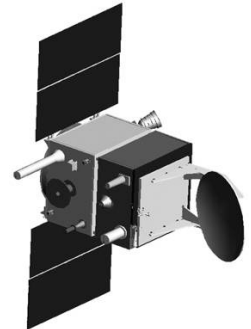
BREEZE-M DEB

NORAD ID: 38747
 Int'l Code: 2012-044D
 Dimensions: torus 2.1m long,
 4.1m dia, 0.8m cross
 Initial orbit:
 Perigee: 266 km
 Apogee: 5017 km
 Inclination: 49.91°
 Period: 142.08 min
 Eccentricity: 0.263
 Launch date: 2012-08-06
 Source: Commonwealth of Independent States (former USSR) (CIS)



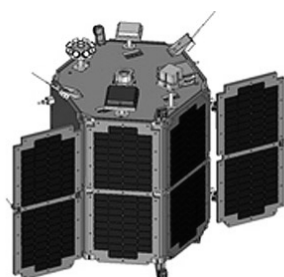
SARAL 1

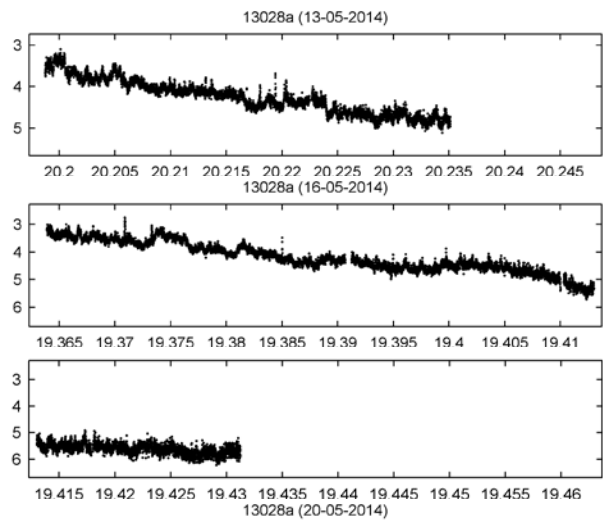
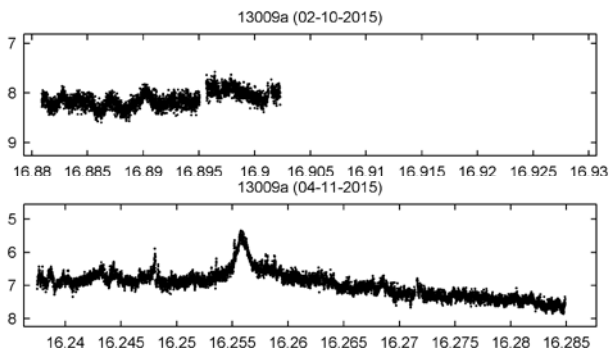
NORAD ID: 39086
 Int'l Code: 2013-009A
 Dimensions: box + 2 panels
 Initial orbit:
 Perigee: 776 km
 Apogee: 784 km
 Inclination: 98.52°
 Period: 100.45 min
 Eccentricity: 0.0006
 Launch date: 2013-02-25
 Source: India (IND)



STSAT 2C

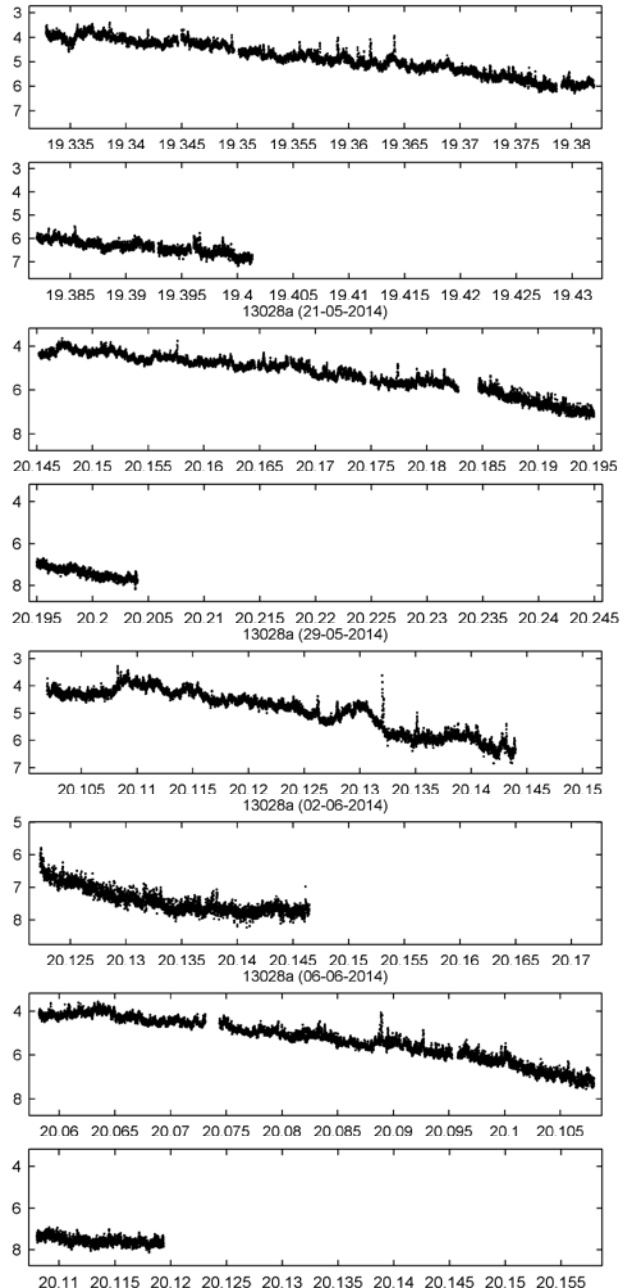
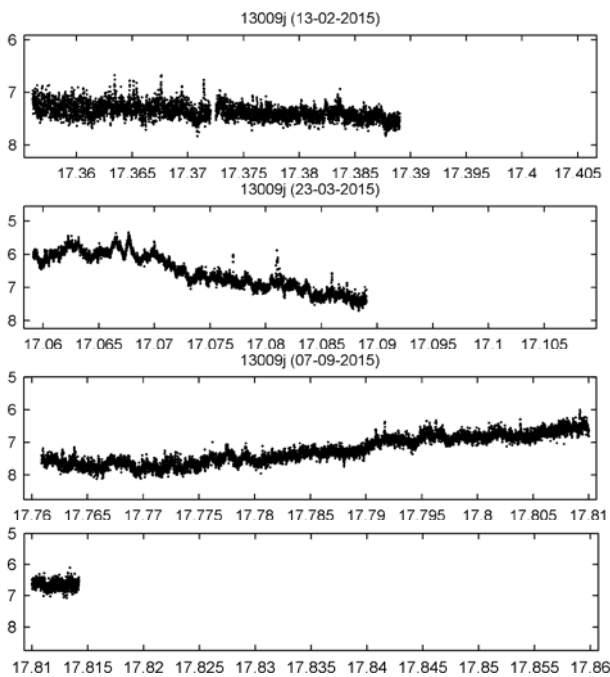
NORAD ID: 39068
 Int'l Code: 2013-003A
 Dimensions:
 Initial orbit:
 Perigee: 292 km
 Apogee: 1511 km
 Inclination: 80.29°





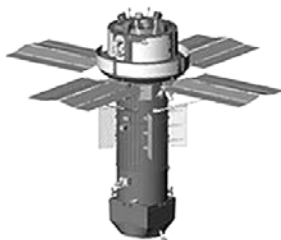
PSLV DEB

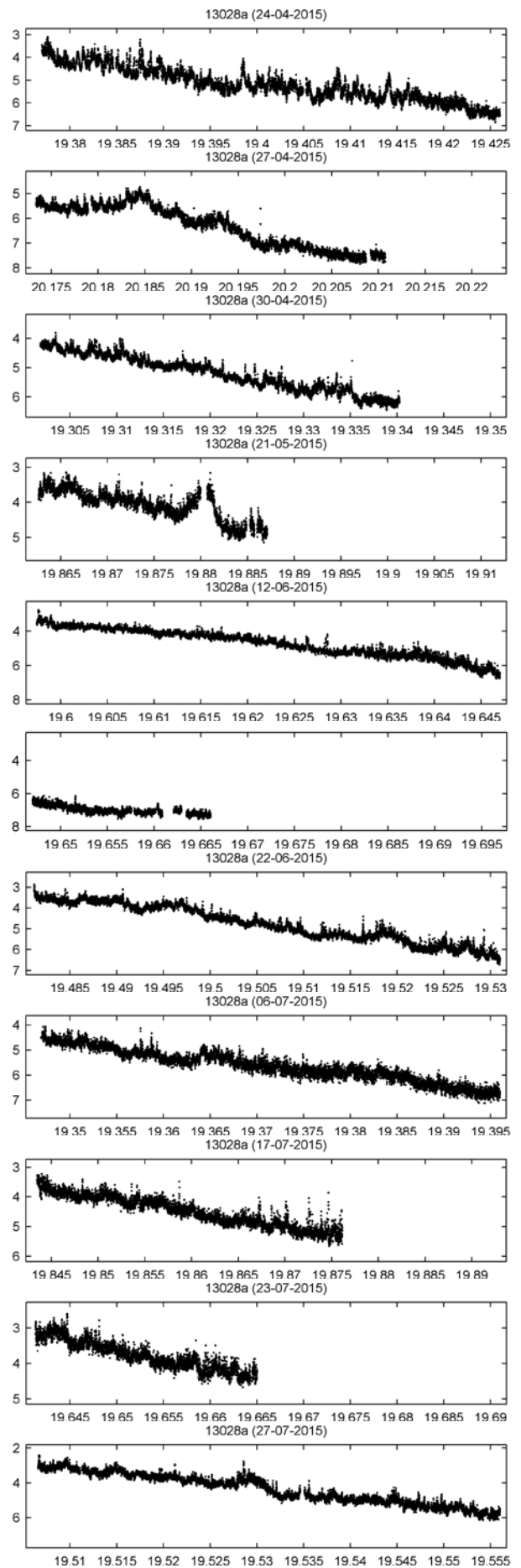
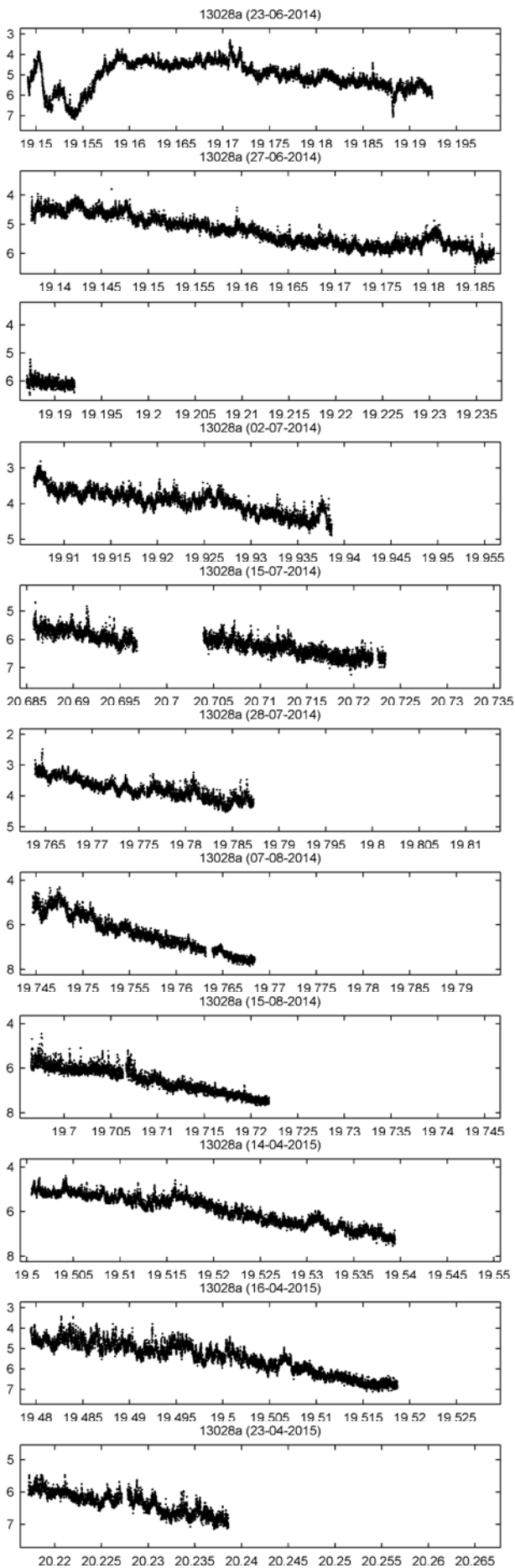
NORAD ID: 39094
 Int'l Code: 2013-009J
 Dimensions: bowl
 Initial orbit:
 Perigee: 770 km
 Apogee: 783 km
 Inclination: 98.61°
 Period: 100.38 min
 Eccentricity: 0.0009
 Launch date: 2013-02-25
 Source: India (IND)

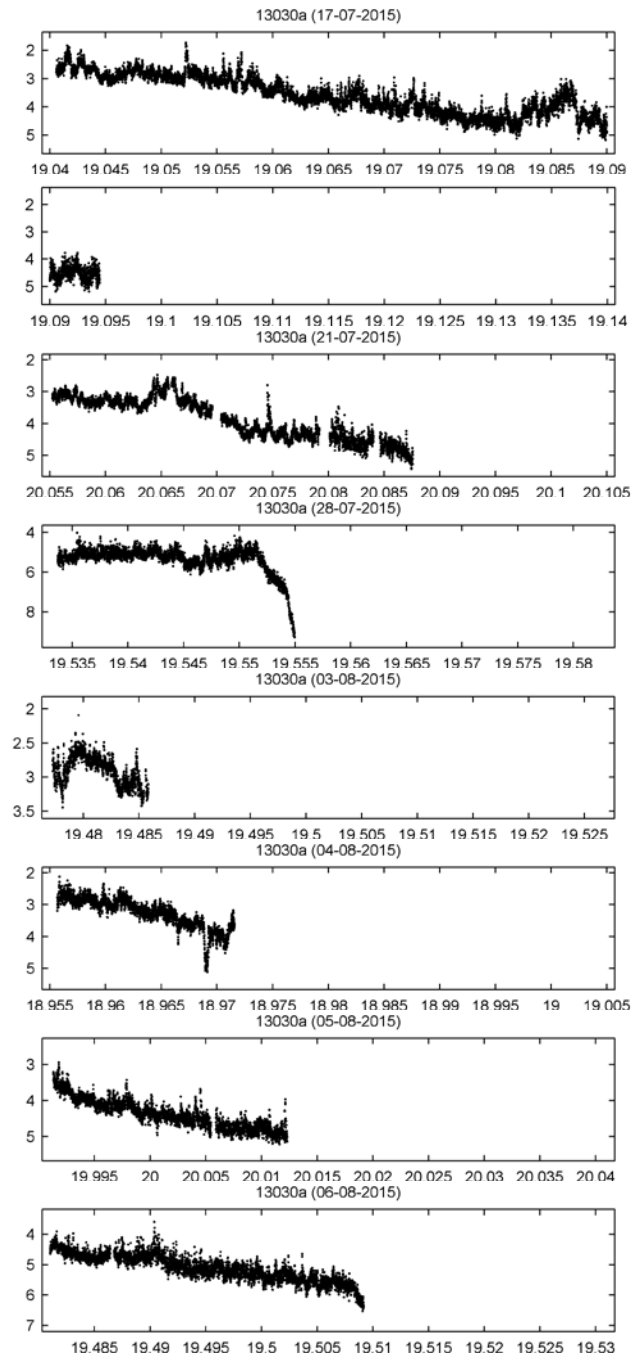
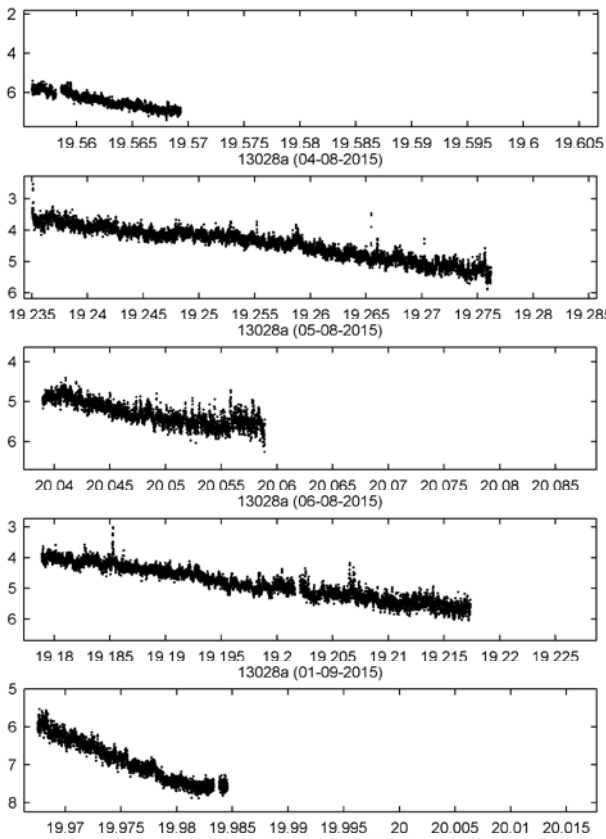


**COSMOS 2486
 (PERSONA 2) (KVARTS 2)**

NORAD ID: 39177
 Int'l Code: 2013-028A
 Dimensions: cylinder
 + 2 panels
 Initial orbit:
 Perigee: 711 km
 Apogee: 732 km
 Inclination: 98.2°
 Period: 99.2 min
 Eccentricity: 0.00148
 Launch date: 2013-06-07
 Source: Commonwealth of Independent States (former USSR) (CIS)

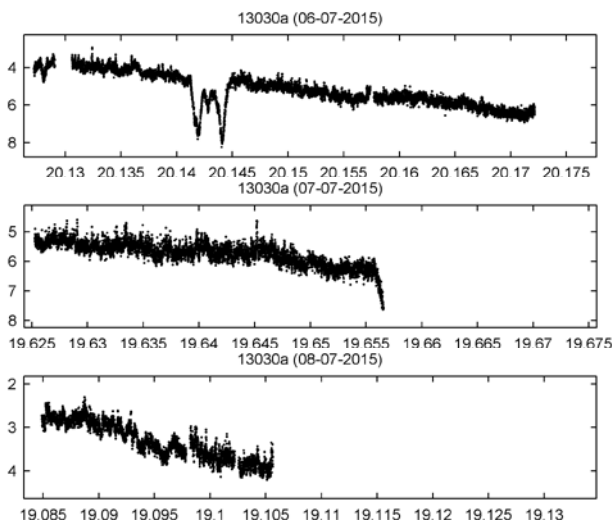






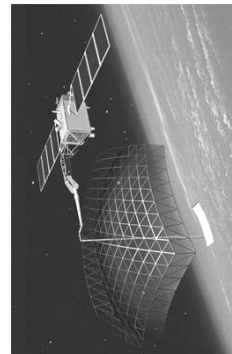
RESURS P1

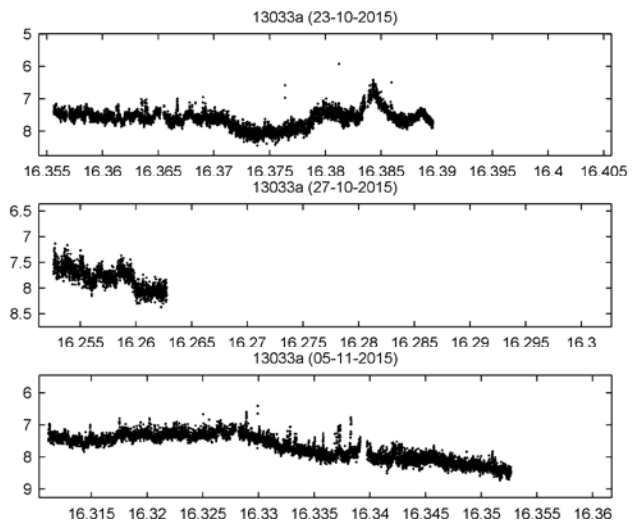
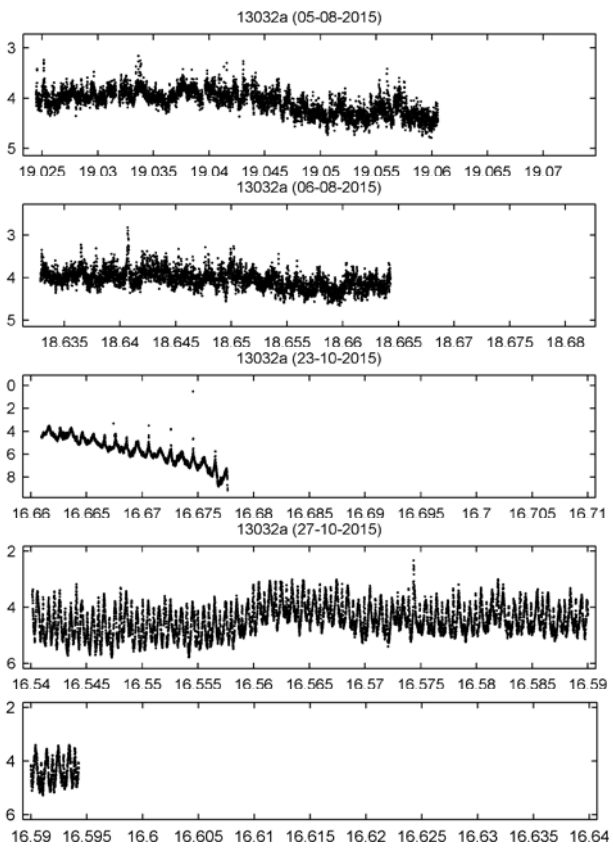
NORAD ID: 39186
 Int'l Code: 2013-030A
 Dimensions: cylinder + 2 panels
 Initial orbit:
 Perigee: 246 km
 Apogee: 455 km
 Inclination: 97.29°
 Period: 91.55 min
 Eccentricity: 0.016
 Launch date: 2013-06-25
 Source: Commonwealth of Independent States (former USSR) (CIS)



COSMOS 2487 (Kondor #1)

NORAD ID: 39194
 Int'l Code: 2013-032A
 Dimensions:
 Initial orbit:
 Perigee: 453 km
 Apogee: 544 km
 Inclination: 74.90°
 Period: 94.92 min
 Eccentricity: 0.007
 Launch date: 2013-06-27
 Source: Commonwealth of Independent States (former USSR) (CIS)

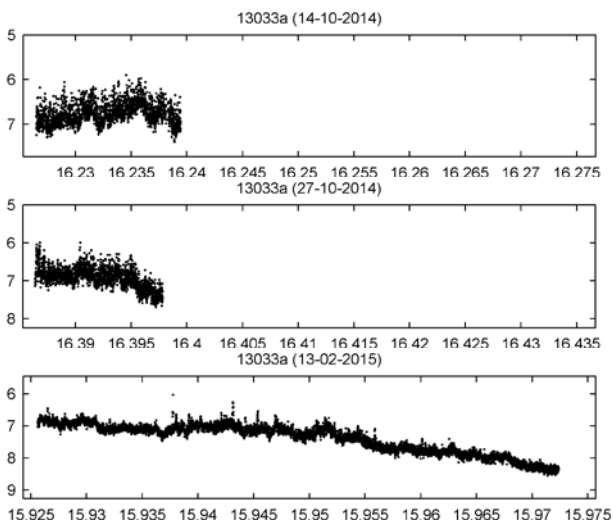
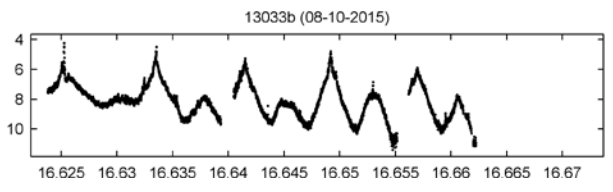
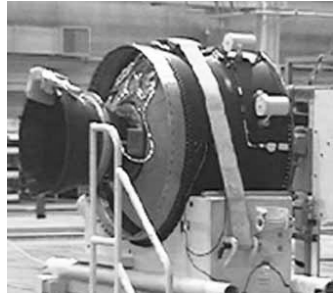




IRIS (SMEX 12)
 NORAD ID: 39197
 Int'l Code: 2013-033A
 Dimensions: cylinder + 2 panels
 3.17m x 1.82m x 5.45m
 Initial orbit:
 Perigee: 620 km
 Apogee: 663 km
 Inclination: 97.91°
 Period: 97.55 min
 Eccentricity: 0.003
 Launch date: 2013-06-28
 Source: United States (US)

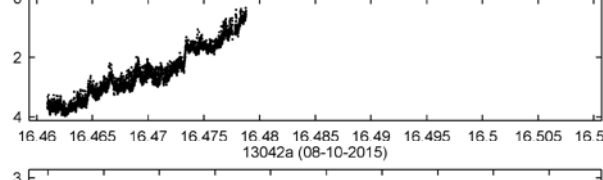
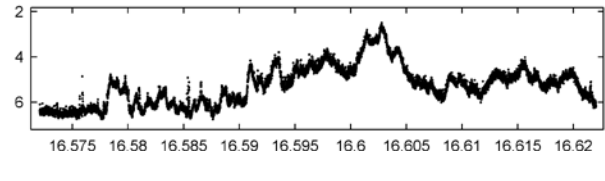
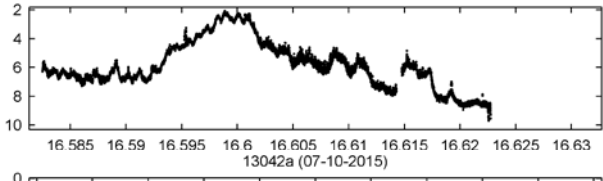
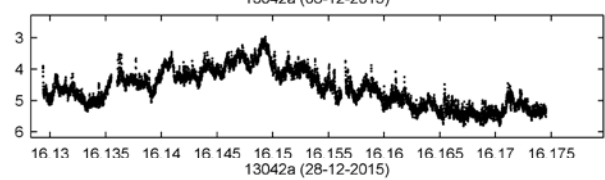
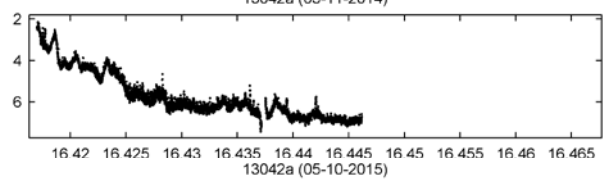
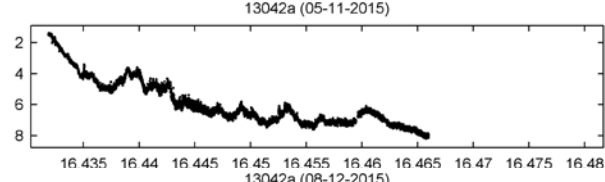
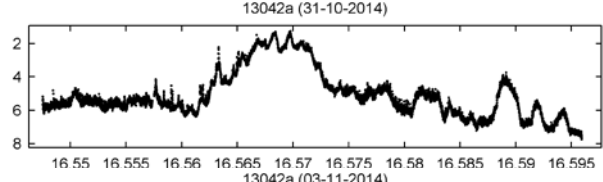
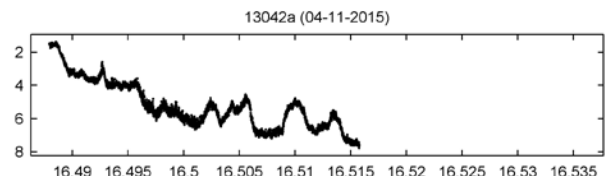
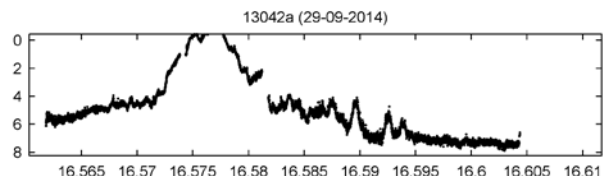


PEGASUS-XL (3rd stage)
(Orion 38)
 NORAD ID: 39198
 Int'l Code: 2013-033B
 Dimensions: cylinder
 1.34 m long, 0.97 m dia
 Initial orbit:
 Perigee: 620 km
 Apogee: 656 km
 Inclination: 97.91°
 Period: 97.48 min
 Eccentricity: 0.003
 Launch date: 2013-06-28
 Source: United States (US)

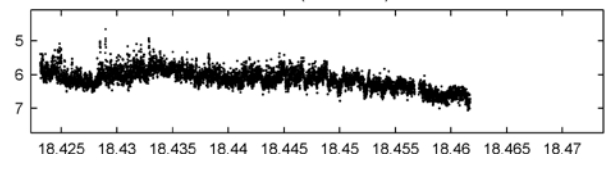
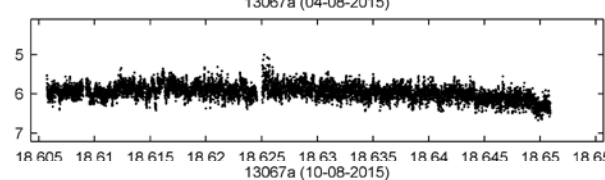
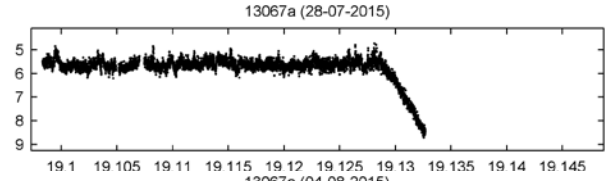
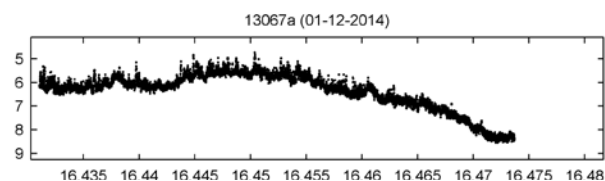
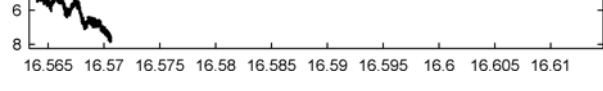
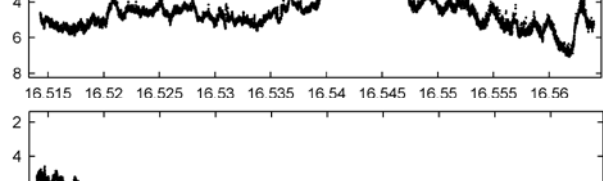
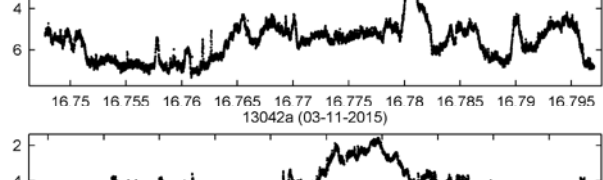
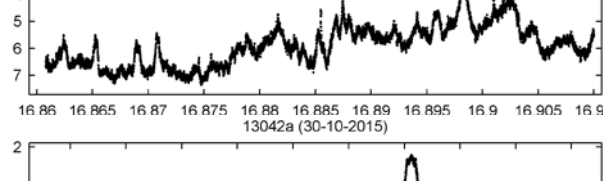
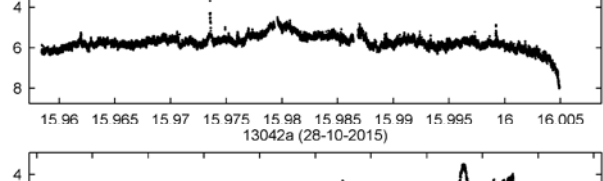
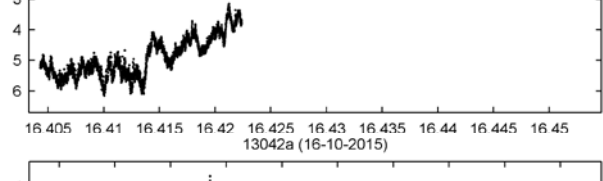
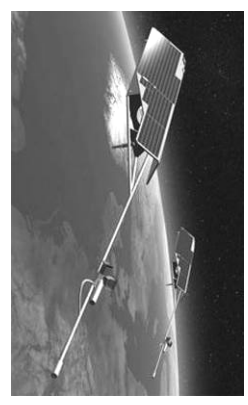


KOMPSAT 5 (Arirang 5)
 NORAD ID: 39227
 Int'l Code: 2013-042A
 Dimensions: octagonal cylinder
 +2 panels + radar panel
 Initial orbit:
 Perigee: 533 km
 Apogee: 552 km
 Inclination: 97.6°
 Period: 95.48 min
 Eccentricity: 0.001
 Launch date: 2013-08-22
 Source: South Korea (SKOR)





SWARM B (FM-2)
(Earth Explorer 5)
 NORAD ID: 39451
 Int'l Code: 2013-067A
 Dimensions: trapezoidal + boom
 9.1m x 1.5m x 0.85m, 4m long
 Initial orbit:
 Perigee: 490 km
 Apogee: 501 km
 Inclination: 87.55°
 Period: 94.52 min
 Eccentricity: 0.0008
 Launch date: 2013-11-22
 Source: European Space Agency (ESA)



SWARM A (FM-1)

(Earth Explorer 5)

NORAD ID: 39452

Int'l Code: 2013-067B

Dimensions: trapezoidal + boom

9.1m x 1.5m x 0.85m, 4m long

Initial orbit:

Perigee: 489 km

Apogee: 501 km

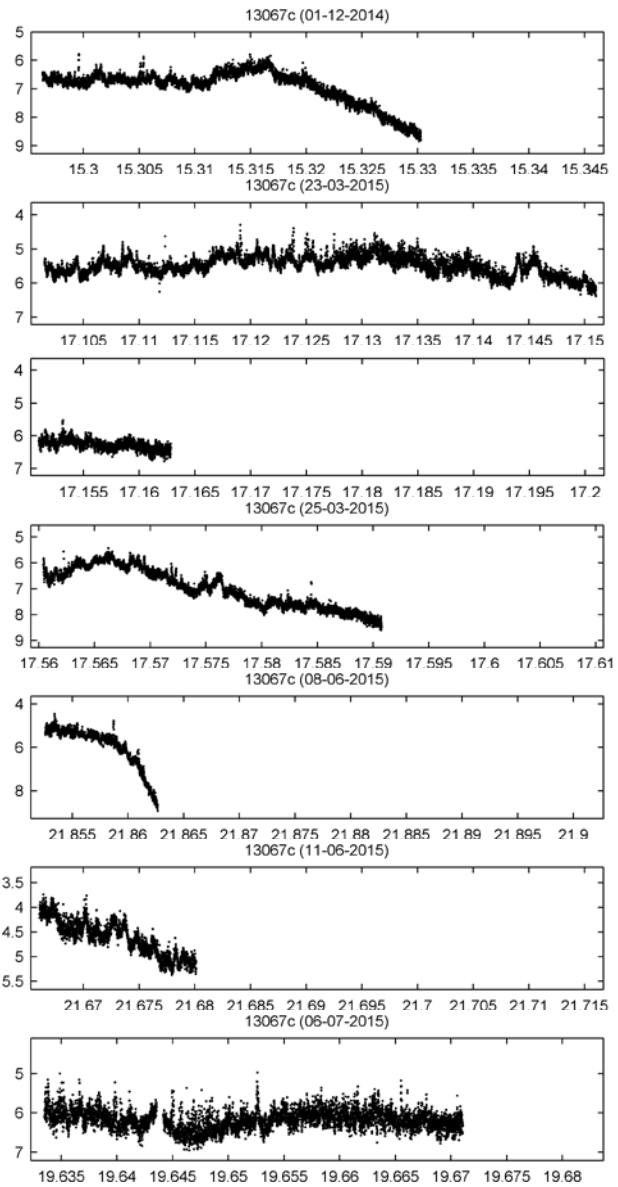
Inclination: 87.55°

Period: 94.52 min

Eccentricity: 0.0009

Launch date: 2013-11-22

Source: European Space Agency (ESA)



SWARM C (FM-3)

(Earth Explorer 5)

NORAD ID: 39453

Int'l Code: 2013-067C

Dimensions: trapezoidal + boom

9.1m x 1.5m x 0.85m, 4m long

Initial orbit:

Perigee: 490 km

Apogee: 501 km

Inclination: 87.55°

Period: 94.52 min

Eccentricity: 0.0008

Launch date: 2013-11-22

Source: European Space Agency (ESA)



EGYPTSAT 2 (MIRSAT 2)

NORAD ID: 39678

Int'l Code: 2014-021A

Dimensions: hexagonal cyl

+ 3 panels

Initial orbit:

Perigee: 436 km

Apogee: 702 km

Inclination: 51.60°

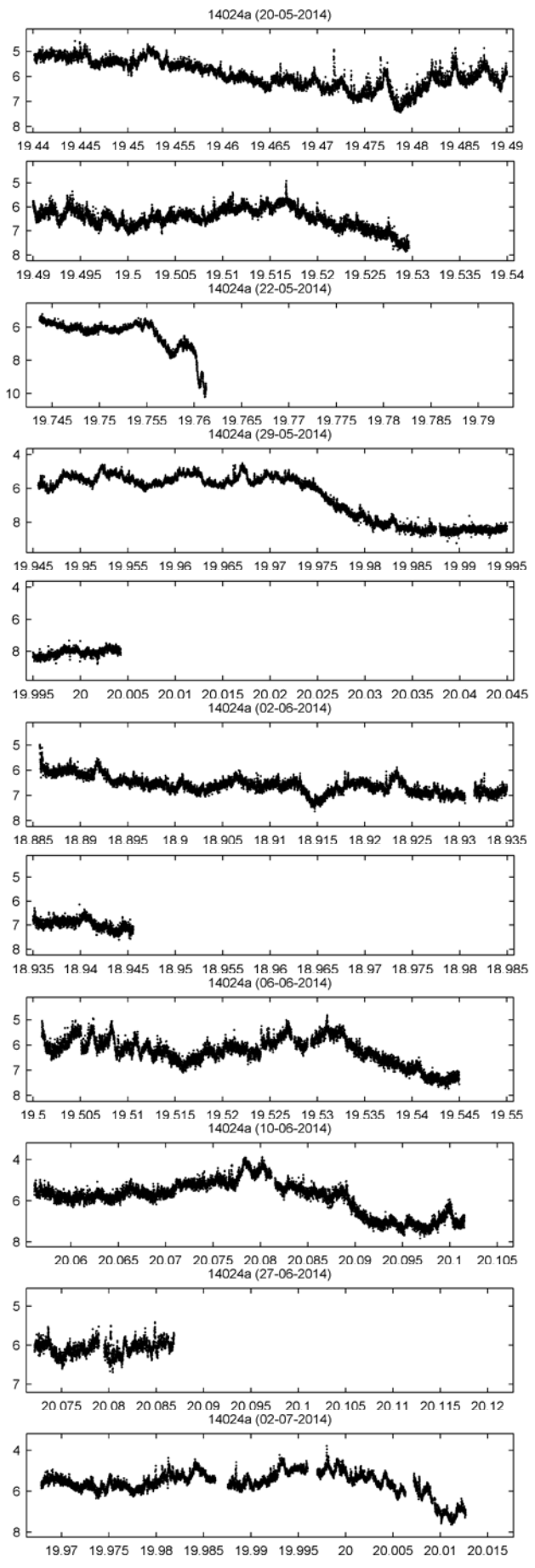
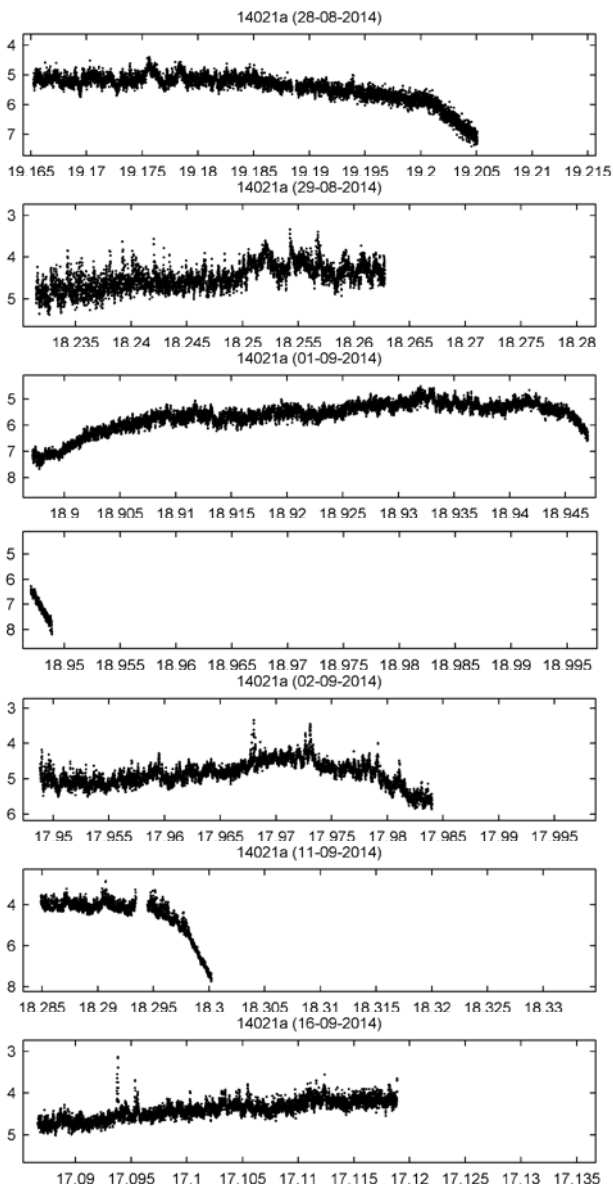
Period: 96.05 min

Eccentricity: 0.019

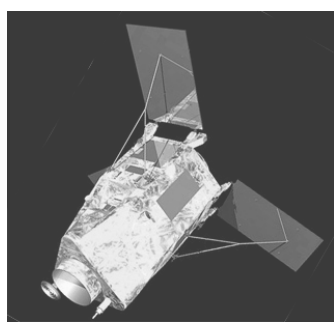
Launch date: 2014-04-16

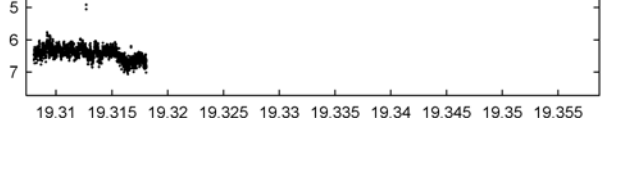
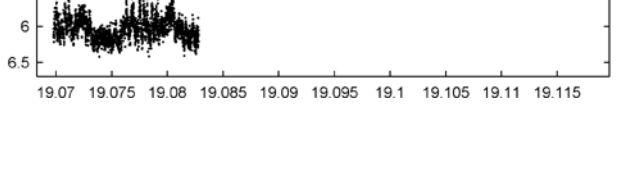
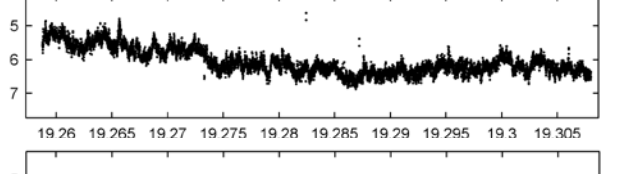
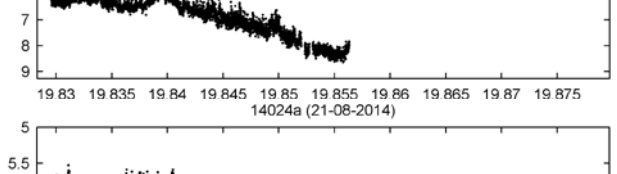
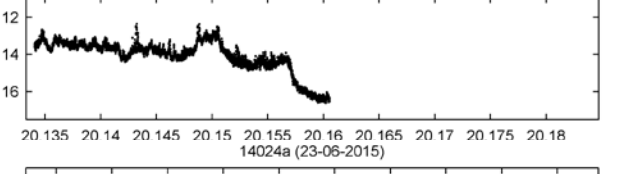
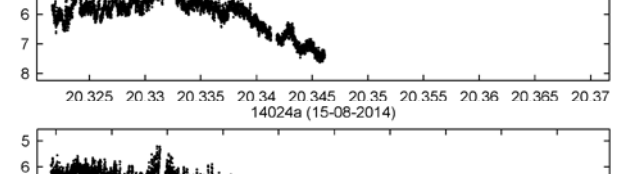
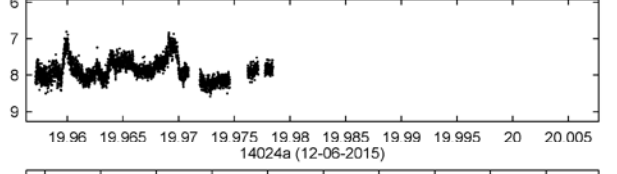
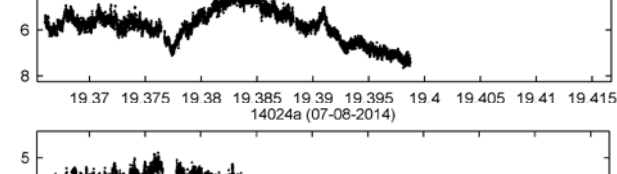
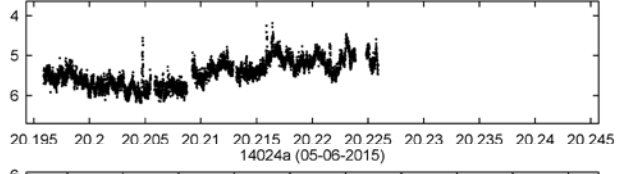
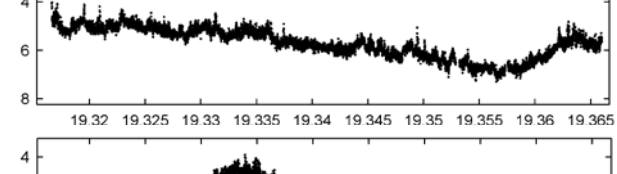
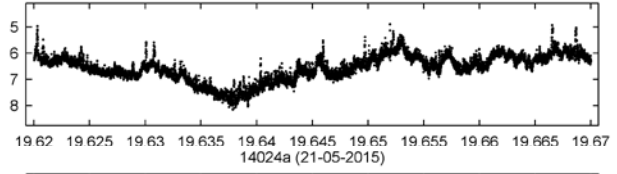
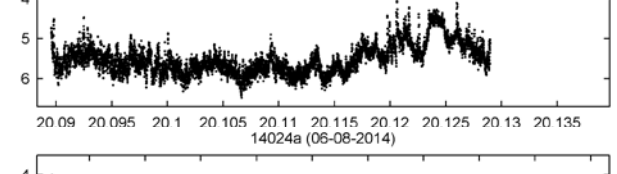
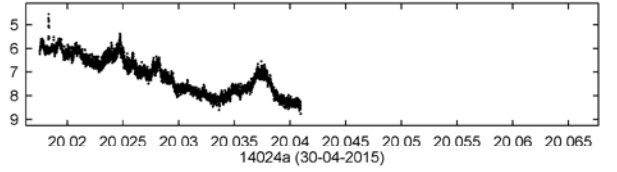
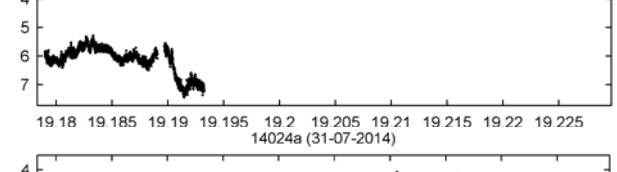
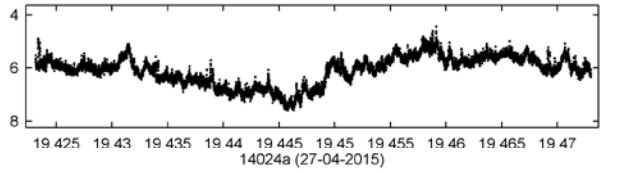
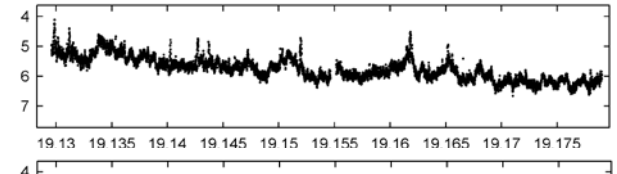
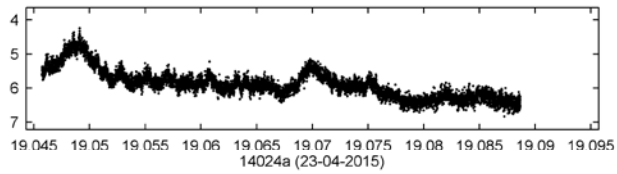
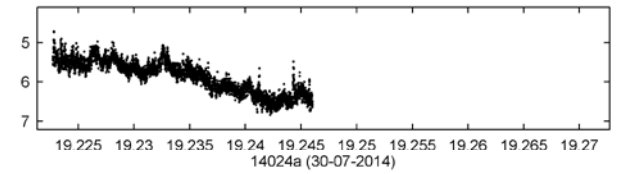
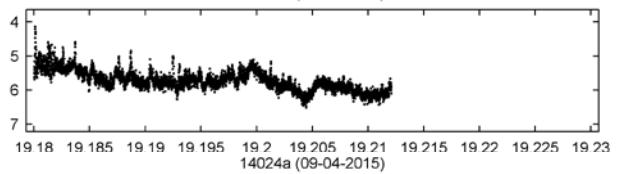
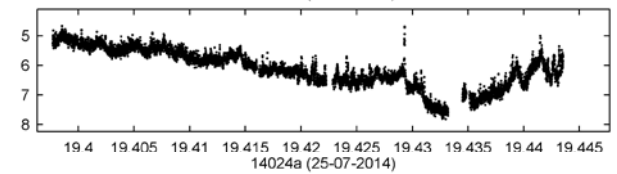
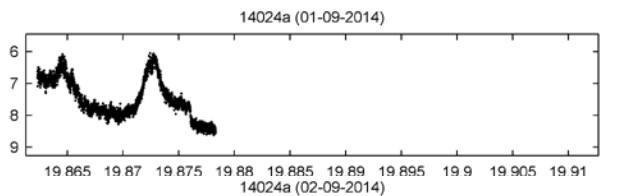
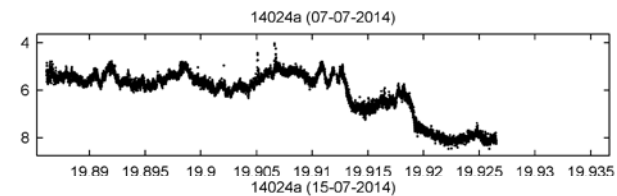
Source: Egypt (EGYP)

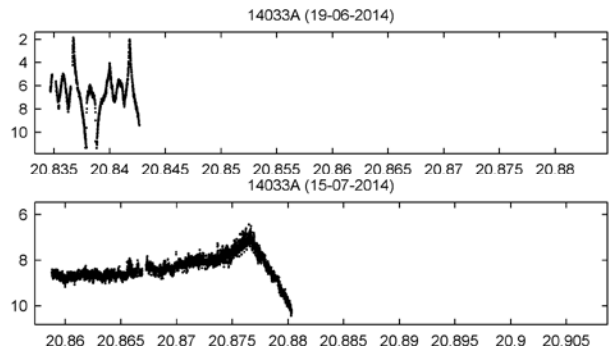
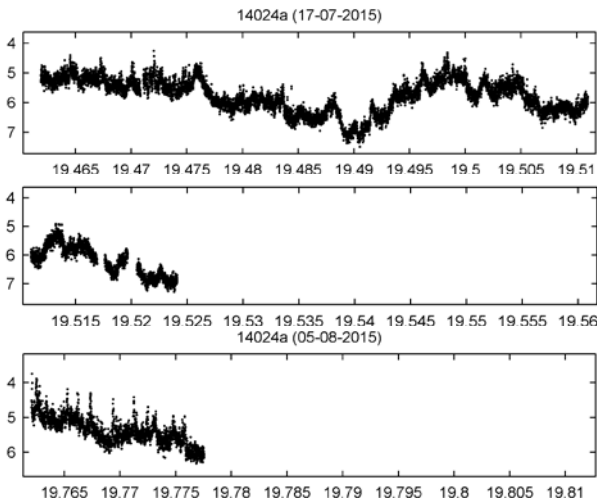




KAZEOSAT 1 (DZZ-HR)
 NORAD ID: 39731
 Int'l Code: 2014-024A
 Dimensions: hexagonal box
 3.7m long + 3 panels
 Initial orbit:
 Perigee: 750 km
 Apogee: 753 km
 Inclination: 98.53°
 Period: 99.85 min
 Eccentricity: 0.0003
 Launch date: 2014-04-30
 Source: Kazakhstan (KAZ)





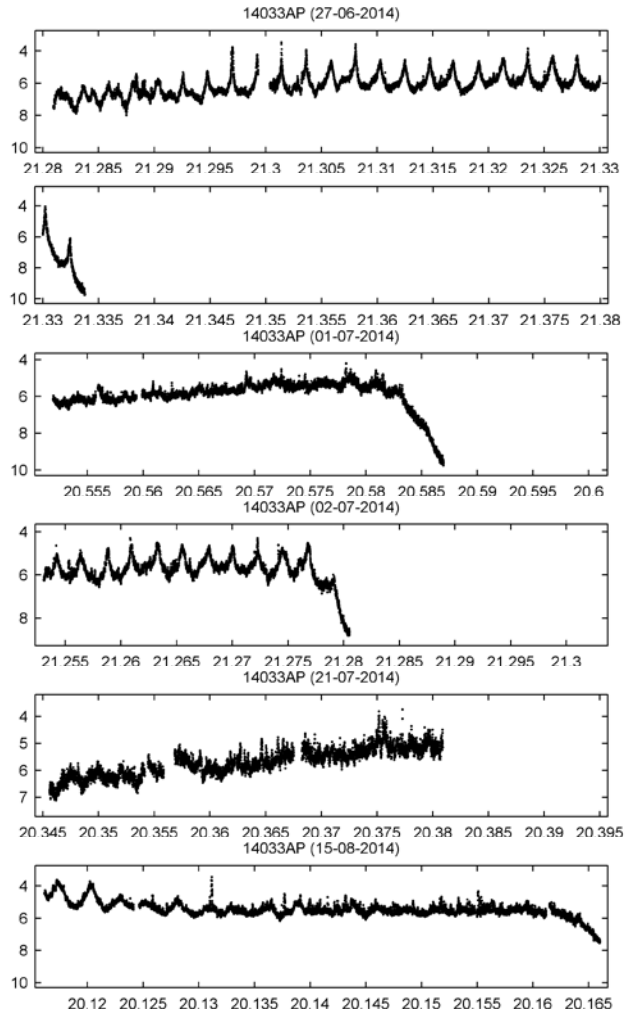
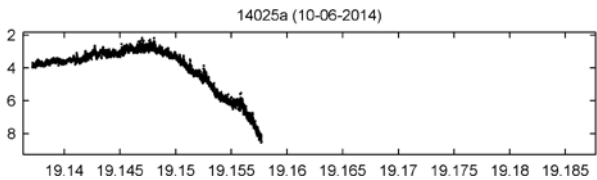


COSMOS 2495
(YANTAR-4K2M)
(KOBALT-M, 11F695M)
 NORAD ID: 39732
 Int'l Code: 2014-025A
 Dimensions: cone +2 panels
 6.3m x 2.6m x 14.6m
 Initial orbit:
 Perigee: 176 km
 Apogee: 284 km
 Inclination: 81.41°
 Period: 89.10 min
 Eccentricity: 0.008
 Launch date: 2014-05-06
 Decay date: 2014-09-03
 Source: Commonwealth of Independent States (former USSR) (CIS)

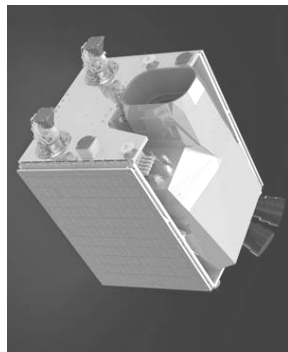


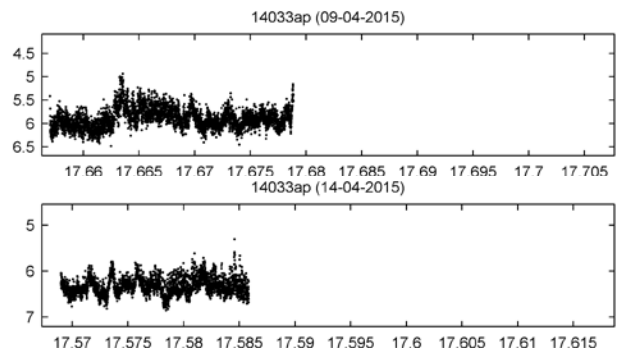
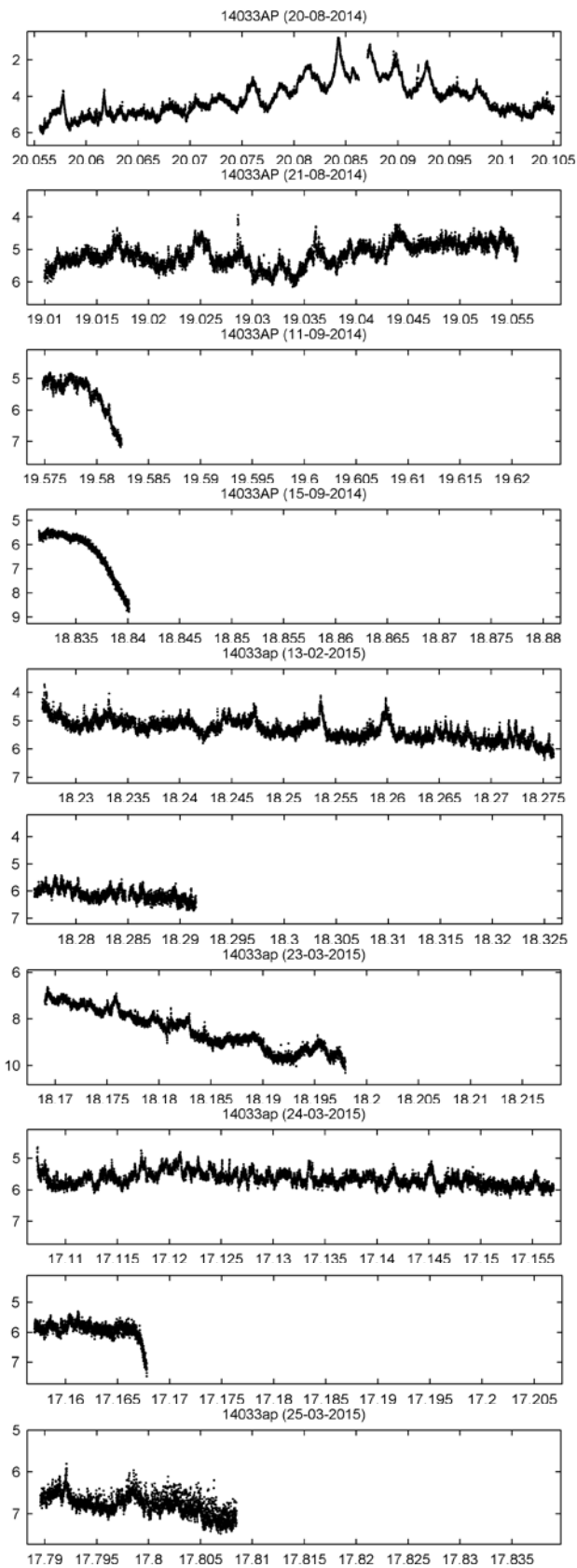
SL-24 R/B (Dnepr 3rd stage)

NORAD ID: 40047
 Int'l Code: 2014-033AP
 Dimensions:
 Initial orbit:
 Perigee: 601 km
 Apogee: 7404 km
 Inclination: 97.9°
 Period: 105.68 min
 Eccentricity: 0.057
 Launch date: 2014-06-19
 Source: Commonwealth of Independent States (former USSR) (CIS)



KazEOSat 2
(DZZ-MR, MRES)
 NORAD ID: 40010
 Int'l Code: 2014-033A
 Dimensions: box 0.70m x
 0.80m x 0.90m
 Initial orbit:
 Perigee: 604 km
 Apogee: 635 km
 Inclination: 97.99°
 Period: 97.10 min
 Eccentricity: 0.002
 Launch date: 2014-06-19
 Source: Kazakhstan (KAZ)





SL-24 DEB (Fragment)

NORAD ID: 40048

Int'l Code: 2014-033AQ

Dimensions:

Initial orbit:

Perigee: 528 km

Apogee: 581 km

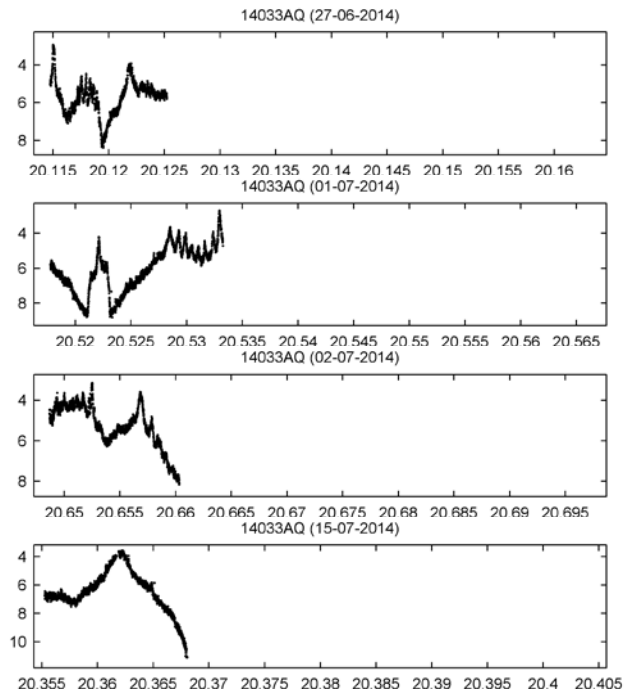
Inclination: 98°

Period: 95.7 min

Eccentricity: 0.003826

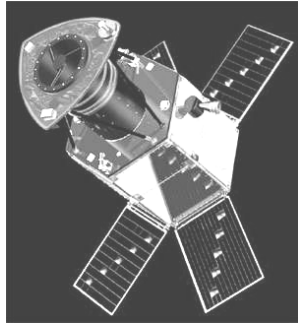
Launch date: 2014-06-19

Source: Commonwealth of Independent States (former USSR) (CIS)

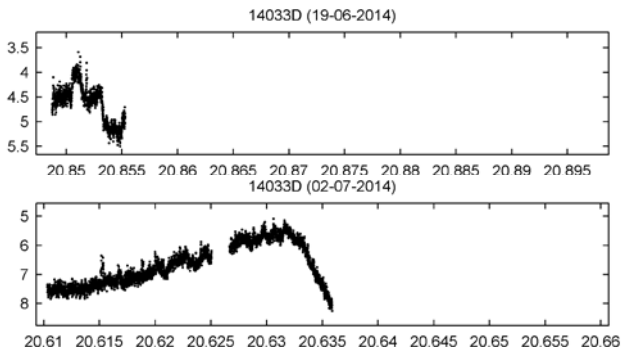
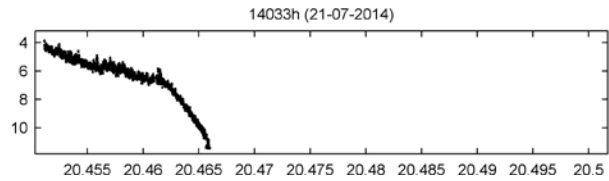


DEIMOS 2

NORAD ID: 40013
 Int'l Code: 2014-033D
 Dimensions: hexagonal cyl
 + cyl + 4 panels
 1.95m high 1.5m dia
 Initial orbit:
 Perigee: 596 km
 Apogee: 619 km
 Inclination: 98°
 Period: 96.85 min
 Eccentricity: 0.002
 Launch date: 2014-06-19
 Source: Spain (SPN)

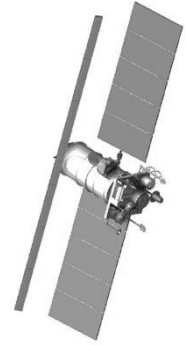


Period: 96.68 min
 Eccentricity: 0.003
 Launch date: 2014-06-19
 Source: Commonwealth of Independent States (former USSR) (CIS)



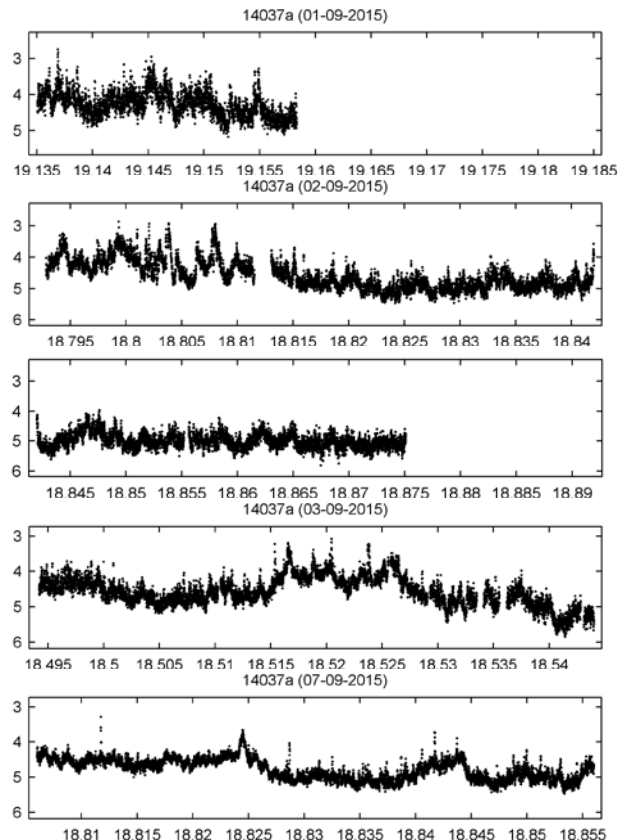
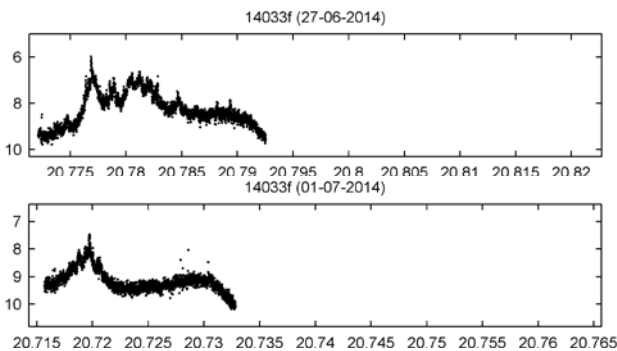
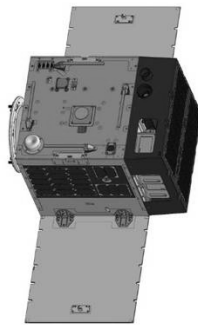
METEOR M2

NORAD ID: 40069
 Int'l Code: 2014-037A
 Dimensions: cylinder + 2 panels
 + SAR ant.
 Initial orbit:
 Perigee: 818 km
 Apogee: 827 km
 Inclination: 98.80°
 Period: 101.35 min
 Eccentricity: 0.0007
 Launch date: 2014-07-08
 Source: Commonwealth of Independent States (former USSR) (CIS)



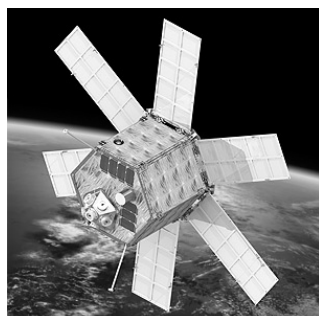
HODOYOSHI 3

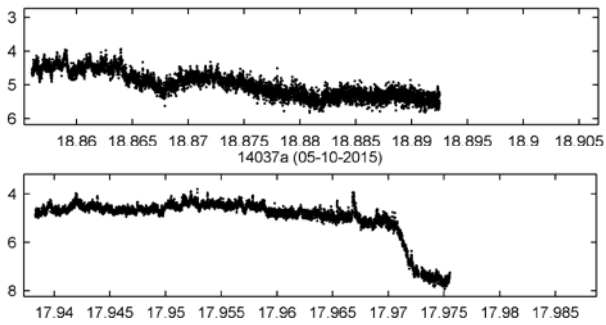
NORAD ID: 40015
 Int'l Code: 2014-033F
 Dimensions: box + 2 panels
 0.5m x 0.5m x 0.65m, 1.5m span
 Initial orbit:
 Perigee: 613 km
 Apogee: 665 km
 Inclination: 97.99°
 Period: 97.5 min
 Eccentricity: 0.004
 Launch date: 2014-06-19
 Source: Japan (JPN)



TABLETSAT-AURORA

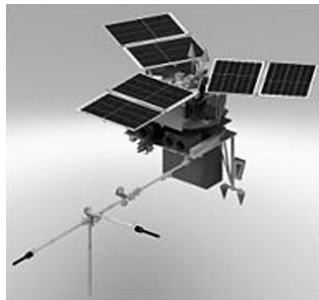
NORAD ID: 40017
 Int'l Code: 2014-033H
 Dimensions: hexagonal cyl
 + 6 panels
 Initial orbit:
 Perigee: 583 km
 Apogee: 617 km
 Inclination: 97.99°



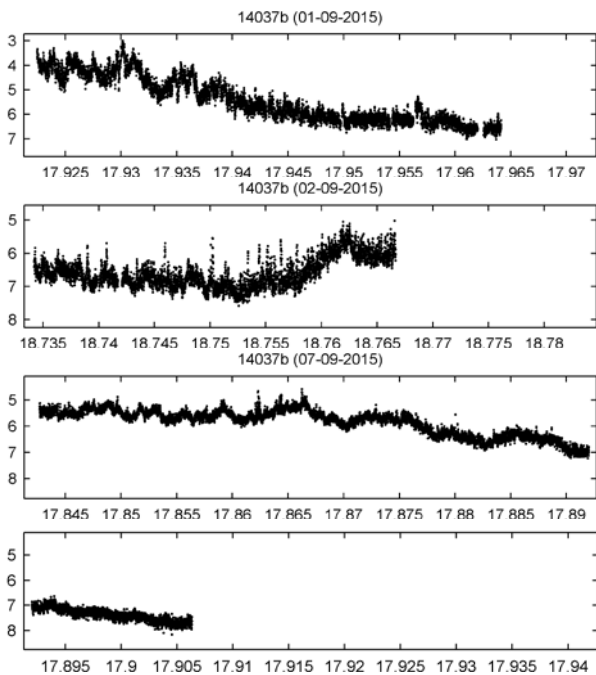


MKA PN2 (RELEK)

NORAD ID: 40070
 Int'l Code: 2014-037B
 Dimensions: triangular box
 +3 panels
 Initial orbit:
 Perigee: 623 km
 Apogee: 819 km
 Inclination: 98.38°
 Period: 99.22 min
 Eccentricity: 0.014
 Launch date: 2014-07-08

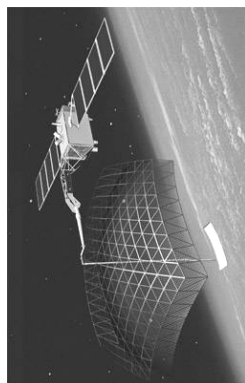


Source: Commonwealth of Independent States (former USSR) (CIS)

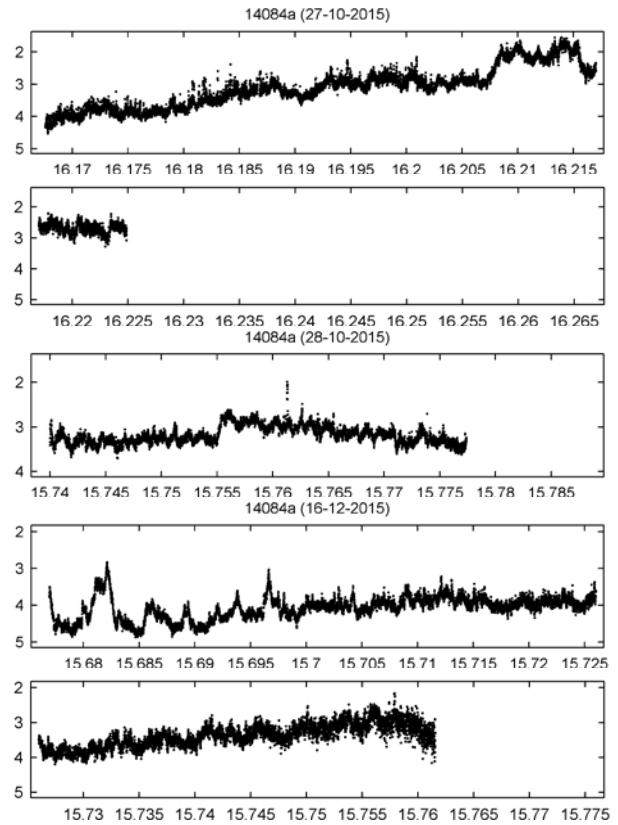


KONDOR E

NORAD ID: 40353
 Int'l Code: 2014-084A
 Dimensions: box + 2 panels
 + mesh dish 6 m dia
 Initial orbit:
 Perigee: 498 km
 Apogee: 501 km
 Inclination: 74.75°
 Period: 94.62 min
 Eccentricity: 0.0002
 Launch date: 2014-12-18

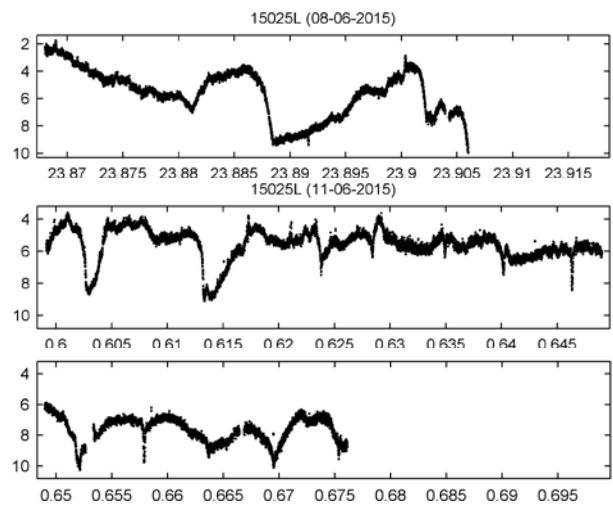
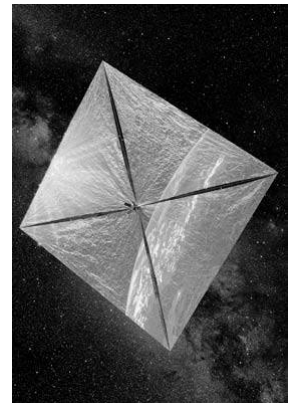


Source: South Africa (SAFR)

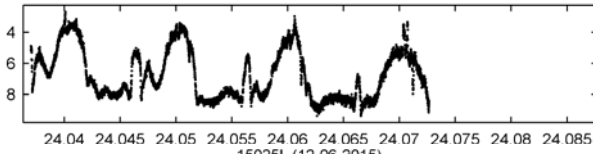
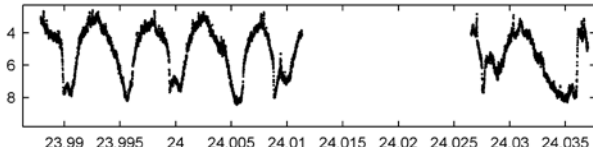


LIGHTSAIL-A

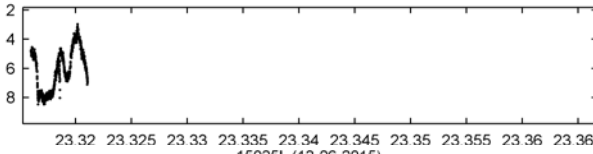
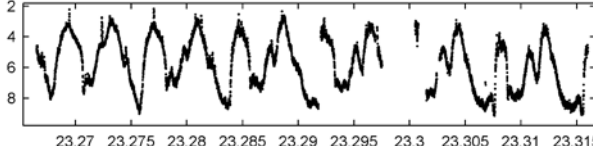
NORAD ID: 40661
 Int'l Code: 2015-025L
 Dimensions:
 Initial orbit:
 Perigee:
 Apogee:
 Inclination:
 Period:
 Eccentricity:
 Launch date: 2015-05-20
 Decay date: 2015-06-16
 Source: United States (US)



15025L (11-06-2015)



15025L (12-06-2015)



15025L (13-06-2015)

