

# Space Activities in 2017

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## Preface

In this paper I present some statistics characterizing astronautical activity in calendar year 2017. In the 2014 edition of this review, I described my methodological approach and some issues of definitional ambiguity; that discussion is not repeated here, and it is assumed that the reader has consulted the earlier document, available at <http://planet4589.org/space/papers/space14.pdf> (This paper may be found as [space17.pdf](#) at the same location).

In rev 2, I have adjusted the payload mass figures in Table 5 (see note 2 to that table).

## Orbital Launch Attempts

During 2017 there were 91 orbital launch attempts.

	2009-2013 Average	2014	2015	2016	2017
USA	19.0	24	20	22	30
Russia	30.2	32	26	17	19
China	14.8	16	19	22	18
Europe		11	12	11	11
<i>Japan</i>		4	4	4	0 7
<i>India</i>		4	5	7	0 5
<i>Israel</i>		1	0	1	0 0
<i>N Korea</i>		0	0	1	0 0
<i>S Korea</i>		0	0	0	0 0
<i>Iran</i>		0	1	0	0 1
Other		9	10	13	13
Total	79.0	92	87	85	91

There were two Arianespace-managed Soyuz launches from French Guiana which are counted as European.

## Launch failures

During the year there were 4 orbital launch failures and 2 launch failures which reached orbit, tabulated below. To evaluate average launch vehicle reliability I allocate each launch a score between 0.0 (total failure) and 1.0 (success). Failures which nevertheless reach orbit get an intermediate score;

Designation	Date	LV State	LV	Payload	Type of failure	Launch Score
2017-F01	Jan 14	Japan	SS-520	TRICOM-1	Telem loss/RSO destruct	0.00
2017-F02	May 25	US*	Electron	Test payload	Telem loss/RSO destruct	0.00
2017-035	Jun 18	China	CZ-3B	ZX-9A	Stage 3 burn 2 attitude loss	0.40
2017-F03	Jul 2	China	CZ-5	SJ-18	Stage 1 failure	0.00
2017-F04	Jul 27	Iran	Simorgh	Unknown	Stage 2 failure	0.00
2017-051	Aug 31	India	PSLV-XL	IRNSS-1H	Fairing sep failure	0.20
2017-F05	Nov 28	Russia	Soyuz-2-1b	Meteor-M 2-1	Stage 4 wrong trajectory	0.00

Electron is licensed in the USA but launched from New Zealand territory

## Commercial Launches

Of the 91 orbital launch attempts, 39 were carried out by governments; 24 by commercial companies under contract to their host governments, and 28 for commercial customers, including foreign governments.

Table 3: Commercial versus government launches			
Launch provider	Launches	Type	Customers
US Launch providers			
ULA/Boeing Delta 4	1	CSP	US Gov
ULA/LM Atlas 5	6	CSP	6 US Gov
ULA/Boeing Delta 2	1	CSP	1 US Gov
SpaceX Falcon 9	18	FCS	6 US Gov, 12 Comm
Orbital Antares	1	FCS	1 US Gov
Orbital Minotaur	2	CSP	1 US Gov, 1 Comm
Rocket Labs Electron	1	FC	1 Comm Test
European Launch providers			
Arianespace Vega	3	FC?	1 Eur gov, 2 comm./foreign
Arianespace Ariane 5	6	FC	1 Eur gov, 5 comm/for.
Arianespace Soyuz	2	FC	2 comm.
Russian Launch providers			
ILS Proton	3	FC	3 commercial
Khrunichev Proton	1	GOV	1 Ru gov
Khrunichev Rokot	1	GOV	1 foreign gov.
S7 Zenit	1	FC	1 commercial
Roskosmos Soyuz	9	GOV	9 Ru.gov (civil)
VVKO Soyuz	4	GOV	4 Ru.gov (military)
Chinese Launch providers			
CALT CZ-2C	3	GOV	Chinese gov
CALT CZ-3A/B/C	5	GOV	Chinese gov
CALT CZ-5	1	GOV	Chinese gov
CALT CZ-6/7	2	GOV	1 Chinese gov, 1 commercial
CALT CZ-11	0	GOV	Chinese gov
CALT CZ-2F	0	GOV	Chinese gov
SBA CZ-2D/4B/4C	5	GOV	4 Chinese gov, 1 commercial
EXPACE KZ-1A	1	CO?	Comm
CASIC KT-2	1	GOV	Chinese gov
Other Launch providers			
MHI H-IIA/B	6	CSP	6 Japan gov
ISAS SS-520	1	GOV	1 Univ. payload
JAXA Epsilon	0	GOV	0 Japan gov
ISRO/Antrix PSLV/GSLV	5	GOV	5 Indian gov
IRSA Simorgh	1	GOV	1 Iranian gov
ISA Shaviyt	0	GOV	0 Israeli gov
NADA Kwangmyongsong	0	GOV	0 North Korean gov

*Here GOV = Government; CO = Commercial operation; CM = Commercial manufacture; CSP = Commercial service provision to government; FCS = Fully commercial service (but customers may include govt); FC = Fully commercial (no govt involved); A = Amateur, academic, non-profit. See the 2014 document for full discussion.*

## Satellite Launch Statistics

2013 and 2014 saw a dramatic increase in the numbers of satellites deployed, thanks to the launch of several clusters of cubesats. The record 440 satellites launched in 2017 include 145 with masses above 100 kg.

Failures to reach orbit are not included here. Note that the 2015 figures have been corrected for an earlier error in which satellites then aboard ISS awaiting deployment were omitted in earlier versions of this report.

Table 4: Payloads launched per year						
	2012	2013	2014	2015	2016	2017
USA	35	85	110	112	94	279
Russia	22	29	34	27	15	24
China	25	17	26	44	40	35
Other	50	75	86	53	72	102
Total	132	206	255	236	221	440

Let us break this down by class for 2017 (first the launch powers, then other countries). In 2017 the satellites launched were owned by 43 countries and two European organizations: ESA and the European Union.

## Satellite ownership by country

Table 5: 2017 payloads launched, by owner country and class						
	A Academic/ NonProfit	B Business/ Commercial	C Civil	D Defense	Total Number	Total Mass (tonne)
USA	11	243	8	18	280	166
China	4	10	7	14	35	48
Russia	3	0	13	8	24	66
Japan	1	3	5	2	11	25
India	1	0	8	0	9	14
ESA/EU/EUM	0	0	6	0	6	5
AT Austria	1	1	0	0	2	0
B Belgium	0	0	0	0	0	0
BG Bulgaria	0	1	0	0	1	4
CZ Czechia	1	0	0	0	1	0
D Germany	4	0	0	0	4	0
DK Denmark	0	0	0	0	0	0
E Spain	1	1	0	0	2	3
F France (+EUTELSAT)	3	1	0	0	4	4
FI Finland	2	0	0	0	2	0
GR Greece	2	1	0	0	3	6
I Italy	2	1	0	1	4	0
N Norway	0	0	2	0	2	0
NL Netherlands	0	0	1	0	1	0
S Sweden	1	0	0	0	1	0
SK Slovakia	1	0	0	0	1	0
UK	2	7	0	0	9	19
<i>Subtotal W/C Europe</i>					43	41
AO Angola	0	0	1	0	1	2
AR Argentina	0	0	0	0	0	0
AU Australia	4	0	0	0	4	0
BD Bangladesh	1	0	0	0	1	0
BR Brazil	0	1	0	1	2	12
BY Belarus	0	0	0	0	0	0
CA Canada	1	0	0	0	1	0
CL Chile	1	0	0	0	1	0
DZ Algeria	0	0	1	0	1	5
GH Ghana	1	0	0	0	1	0
ID Indonesia	0	1	0	0	1	3
IL Israel	2	1	1	0	4	0
(continued)						

Table 5: (continued)						
	A Academic/ NonProfit	B Business/ Commercial	C Civil	D Defense	Total Number	Total Mass (tonne)
KP N Korea	0	0	0	0	0	0
KR S Korea	3	2	0	0	5	7
KZ Kazakhstan	1	0	0	0	1	0
LT Lithuania	1	0	0	0	1	0
LV Latvia	0	0	1	0	1	0
MA Morocco	0	0	0	1	1	1
MN Mongolia	1	0	0	0	1	0
MX Mexico	0	0	0	0	0	0
NG Nigeria	1	0	0	0	1	0
PE Peru	0	0	0	0	0	0
PH Phillipines	0	0	0	0	0	0
T Thailand	0	0	0	0	0	0
TR Turkey	2	0	0	0	2	0
TW Taiwan	1	0	1	0	2	1
UA Ukraine	1	0	0	0	1	0
UAE United Arab Em.	0	0	1	0	1	0
UY Uruguay	0	1	0	0	1	0
VE Venezuela	0	0	1	0	1	1
ZA South Africa	2	0	0	0	2	0
Total Other					38	32
Total	63	275	57	45	440	392

Note: Due to the integration of the aerospace industry in the EU and its neighbouring countries, west/central European figures are grouped together.

Note 2: In rev 0 and 1 of this report the mass figures did not take into account separable parts of payloads such as Soyuz propulsion modules or the Dragon trunk. As of rev 2 I have revised the figures to include them; masses of launch vehicle rocket stages are still excluded.

## Satellite manufacture by country

Most countries build only very small (cubesat) satellites, purchasing their larger satellites from one of the main space powers. Here I tabulate the manufacturers of 2017 satellites with masses of 100 kg or more. HSF is 'Human spaceflight', including related robotic missions such as cargo ships to support ISS. 'Surv.' is surveillance, including early warning and space debris surveillance; visible and radar imaging recon satellites and weather sats are under 'Imaging'. Microgravity research and planetary probes are included under Sci (Science). Satellites built in the UK, France, Germany, Italy, Spain and the Netherlands are lumped together as 'Europe' to reflect the integration of the western European aerospace industry.

Table 6: 2017 payloads by manufacturer country - 100 kg and up only									
	HSF	Comms	Imaging	Nav	SIGINT	Surv.	Sci	Tech	Total
USA	6	54	8	0	3	2	0	1	74
China	1	4	5	2	9	0	1	1	23
Europe	0	10	3	4	0	0	0	1	18
Russia	9	2	1	1	1	0	0	0	14
India	0	3	2	1	0	0	0	0	6
Japan	0	1	2	3	0	0	0	1	7
Indonesia	0	0	0	0	0	0	0	0	0
Israel	0	0	2	0	0	0	0	0	2
N Korea	0	0	0	0	0	0	0	0	0
Taiwan	0	0	1	0	0	0	0	0	1



## Scientific Space Programs

2017 saw the launch of few major scientific missions; the most significant was Huiyan, the Chinese X-ray astronomy satellite. Also notable was the QB50 project, with a constellation of 2U cubesats to study the upper atmosphere. However, the performance of the QB50 satellites was mixed. Also of note are several small astronomy payloads - CXBN-2 and Max Valier for X-ray astronomy, and ASTERIA for exoplanet studies. It is too early to tell if these small missions will be able to return useful results.

There were no deep space missions launched in 2017.

## Military Space Activities

Military satellites include navigation, communications, and technology development missions in addition to the intelligence gathering activities that I report here.

### Military R&D

Russia carried out a proximity operations experiment in low orbit with the Kosmos-2519 host satellite and two subsatellites, Kosmos-2521 and Kosmos-2523, which carried out a variety of maneuvers.

The US NRO launched the mysterious USA 276 satellite which is in a very similar orbit to the ISS, and passed within 10 kilometers of it at one point. The mission of the satellite is unclear, and it is thought that the proximity to ISS is probably a coincidence.

The X-37 spaceplane began its 5th flight. It appears to have been placed in a different inclination and has not yet been found by independent observers. There have been reports that it has clandestinely deployed cubesats - if so, they have not been given catalog numbers in the public satellite catalog and have not yet been reported to the United Nations.

### Space surveillance

The SBIRS GEO-3 satellite was launched in January to supplement the early warning constellation; it was joined by the HEO-4 elliptical orbit payload in September. The US ORS-5 satellite was launched to an equatorial low Earth orbit, with a mission to look up and monitor the GEO belt.

Russia also launched the second EKS elliptical-orbit early warning satellite, codenamed Kosmos-2518.

### Reconnaissance and Signals Intelligence

The USA launched an elliptical orbit sigint mission in September, USA 278 (possibly RAVEN 7?). The same satellite carries the HEO-4 early warning sensor. A low orbit Navy INTRUDER sigint system was launched in March as USA 274; the system has two maneuvering satellites, one of which is dishonestly cataloged as debris. The US Army Kestrel Eye-IIM small imaging satellite was deployed from ISS after many years of development.

China launched a constellation of nine satellites into a 35 degree low Earth orbit. They are thought to be for signals intelligence, but this not certain. The satellites are called Yaogan 30 Group satellites also given numbers in the Shanghai microsatellite team's Chuanxin-5 series. (for example, Yaogan 30 hao 03 zu 02 xing, i.e. Yaogan 30 Group 3 satellite 2, is Chuanxin-5 satellite 8). There was also a Yaogan 30 satellite launched in 2016 but it appears to be unrelated - possibly the naming is a deliberate attempt at confusion.

Two Chinese imaging satellites were launched in 2017 - LKW 1 and 2 (Land Survey Satellite). They were placed in the same 10:30 local time SSO plane but 180 degrees apart.

Russia deployed the third Lotos-class LEO sigint satellite, Kosmos-2524. The Russian Kanopus-V-IK infrared imaging mission is also thought to support military users.

Japan launched the Radar-5 SAR imaging spy satellite; Italy launched the Optsat-3000 imaging satellite which was built by Israel as part of a bilateral arms deal. Finally, Morocco joined the military space arena with the launch of a French-built spy satellite.

## Orbital Debris and Orbital Decay

At the end of 2017 there were 18411 cataloged objects in orbit and the total known mass in orbit increased to 9013 tonnes. The figures for past years given here are a bit different from previous year's reports thanks to database improvements and tweaks to how deep space objects are handled. Note that the number of active vs dead payloads is highly uncertain, but their sum should be correct.

Table 7: Debris in orbit 2014-2017

	Debris 2014		Debris 2015		Debris 2016		Debris 2017	
	Number	Mass (t)	Number	Mass(t)	Number	Mass(t)	Number	Mass(t)
Active Payloads	1302	1591	1427	1698	1548	1801	1905	1929
Dead Payloads	2523	3385	2543	3486	2572	3600	2607	3717
Rocket bodies	1680	2913	1718	3019	1752	3102	1780	3203
Operational debris	1626	148	1616	155	1620	159	1627	164
PRC ASAT/FY-1C debris	2939	-	2870	-	2849	-	2838	-
Strela/Iridium debris	1595	-	1485	-	1440	-	1420	-
Other fragment debris	5609	-	6226	-	6257	-	6232	-
Spurious catalog entry	1	-	1	-	1	-		
Total cataloged	17275	8038	17886	8360	18039	8663	18411	9013

## Reentries

Table 8 gives statistics on reentries in 2016, not including deliberate deorbit and landing.

Table 8: Uncontrolled Reentries 2017		
	Number	Mass (t)
Active Payloads	20	0.5
Dead Payloads	21	9.7
Rocket bodies	33	64.4
Operational debris	35	3.4
PRC ASAT/FY-1C debris	11	-
Strela/Iridium debris	20	-
Other fragment debris	36	-

## Controlled deorbits and landings

In addition to natural reentries, there were 8 controlled landings and 8 controlled deorbitings of spacecraft during 2017, representing the safe removal of around 0 tonnes from the orbital environment. 4 Russian Soyuz ships landed in Kazakhstan. and three Dragon spacecraft splashed down in the Pacific near California. The OTV Flight 4 spaceplane landed on a runway at Kennedy Space Center.

Six ISS cargo ships (two Cygnus, one HTV and three Progress) were deorbited over the South Pacific east of New Zealand. The Tianzhou-1 freighter was deorbited, as was the Iridium 74 satellite. (Several other Iridium satellites had their orbits lowered before being switched off, and made uncontrolled reentries after a few weeks).

Eleven objects reentered and burned up on controlled trajectories associated with landings of spacecraft (Soyuz orbital and propulsion modules, Dragon trunks).

In addition, 26 rocket stages were deorbited after only one or two Earth orbits (5 Centaur, 2 Delta, 11 Falcon 9, 3 Vega AVUM, 3 Chinese CZ-2D, a Volga and a Fregat). Only six of these were assigned catalog numbers. A further 18 rocket stages were inserted into slightly suborbital trajectories that ensured controlled disposal without the need for a deorbit burn (Ariane EPC, Vega Z9A, Proton stage 3, PSLV stage 3, some Soyuz-2 stage 3).

Table 9: Most massive reentries, 2017

COSPAR	Spacecraft	Date	Mass/kg	Location	Coords	Type
2017-021B	CZ-7 Y2	2017 Mar 18 1923	6000	Tashkent		Reentry
2016-083D	CZ-2D Y39?	2017 Jan 23 2015?	4000	Pacific?		Reentry
2013-041B	Delta 363	2017 Jul 11	3450			Reentry
2016-028B	Falcon 9-024 Stage 2	2017 Sep 16 0800?	3000	SE Asia?		Reentry
2017-038B	Falcon 9-036 Stage 2	2017 Oct 31 1813	3000	Parana, Brazil	51.7W 24.2S	Reentry
Landings and deorbits, 2017						
2017-009A	Dragon CRS-10	2017 Mar 19 1446	4510	Pacific	31.7N 121.2W	Splashdown
2016-063A	Soyuz MS-02	2017 Apr 10 1120	2877	Kazakhstan	47 22N 69 36E	Landing
2015-025A	X-37B OTV-4	2017 May 17 1145	5000	Kennedy Space Ctr		Landing
2016-070A	Soyuz MS-03	2017 Jun 2 1410	2899	Kazakhstan	47 18N 69 35E	Landing
2017-030A	Dragon CRS-11	2017 Jul 3 1214	4510	Pacific	27.1N 122.0W	Splashdown
2017-020A	Soyuz MS-04	2017 Sep 3 0121	2876	Kazakhstan		Landing
2017-045A	Dragon CRS-12	2017 Sep 17 1414	4690	Pacific	32.4N 120.9W	Splashdown
2017-043A	Soyuz MS-05	2017 Dec 14 0837	2903	Kazakhstan	47 19N 69 34E	Landing
2016-076A	Konoutori 6	2017 Feb 5 1506	9500	Pacific		Deorbit
1998-032D	Iridium 74	2017 Jun 11	556			Deorbit
2017-019A	SS John Glenn	2017 Jun 11 1702	2997	Pacific	40S 145E?	Deorbit
2016-045A	Progress MS-03	2017 Jan 31 1824	4000	Pacific		Deorbit
2017-010A	Progress MS-05	2017 Jul 20 2141	4000	Pacific		Deorbit
2017-021A	Tianzhou-1	2017 Sep 22 1000?	7000	Pacific		Deorbit
2017-071A	SS Gene Cernan	2017 Dec 18 1254	2916	Pacific		Deorbit
2017-033A	Progress MS-06	2017 Dec 28 0451	4300	Pacific		Deorbit

Table 9 (continued): Deorbited soon after launch, 2017

COSPAR	Spacecraft	Date	Mass/kg	Location	Coords	Type
2017-003	Falcon 9-030 Stage 2	2017 Jan 14	3000?			Deorbit
2017-004B	Centaur AV-066	2017 Jan 21 11:20?	2020			Deorbit
2017-009	Falcon 9-032 Stage 2	2017 Feb 19 15:40?	3000?	S Ocean		Deorbit
2017-011	Centaur AV-068	2017 Mar 1 19:56?	2020		103W 46S?	Deorbit
2017-013	Vega AVUM VV09	2017 Mar 7 04:20?	660	Indian O.		Deorbit
2017-016B	Delta 377	2017 Mar 19 12:30	3450	Philipp. Sea		Deorbit
2017-019	Centaur AV-070	2017 Apr 18 16:18	2020	S of Australia		Deorbit
2017-022B	Falcon 9-035 Stage 2	2017 May 1 15:12?	3000?		50E 40S?	Deorbit
2017-030	Falcon 9-036 Stage 2	2017 Jun 3 22:30?	3000?	S Ocean		Deorbit
2017-037B	Volga 14S46 No. 3?	2017 Jun 24 10:50?	1120	S Pacific		Deorbit
2017-039	Falcon 9-038 Stage 2	2017 Jun 25 22:25?	3000?			Deorbit
2017-042	Fregat 122-02	2017 Jul 14 15:18	1000	Indian O.		Deorbit
2017-044	Vega AVUM VV10	2017 Aug 2 03:47	660	Pacific		Deorbit
2017-045	Falcon 9-040 Stage 2	2017 Aug 14 17:31?	3000	S Ocean		Deorbit
2017-049	Falcon 9-041 Stage 2	2017 Aug 24 21:00?	3000?	S Pacific		Deorbit
2017-052B	Falcon 9-042 Stage 2	2017 Sep 7 16:35?	3000?	S Pacific?		Deorbit
2017-056	Centaur AV-072	2017 Sep 14 16:00?	2020			Deorbit
2017-060	CZ-2D Stage 2	2017 Oct 9?	4000?			Deorbit
2017-061	Falcon 9-043 Stage 2	2017 Oct 9 14:37?	3000?			Deorbit
2017-066	Centaur AV-075	2017 Oct 15 15:57	2020		155W 12N	Deorbit
2017-070	Vega AVUM VV11	2017 Nov 8 04:14?	660	Indian O.?		Deorbit
2017-073	Delta 378	2017 Nov 18 11:59	924			Deorbit
2017-077	CZ-2D Stage 2	2017 Dec 3 04:54?	4000?	Antarctic?		Deorbit
2017-080	Falcon 9-046 Stage 2	2017 Dec 15 16:30?	3000		102E 40S?	Deorbit
2017-083	Falcon 9-047 Stage 2	2017 Dec 23 03:27?	3000?			Deorbit
2017-084	CZ-2D Stage 2	2017 Dec 23 04:57?	4000?	Antarctic?		Deorbit

## **Debris events**

On Jun 17 the AMC-9 satellite failed and generated debris, either due to a internal failure or a debris impact. Enough control was regained to safely raise the satellite's orbit to the GEO graveyard, but some amount of debris remains in the GEO band.

Telkom-1 suffered a similar failure on Aug 26. It is drifting uncontrolled in the GEO belt.

On Sep 3, a SOZ motor from the Sep 2010 GLONASS launch disintegrated. It is the 48th known SOZ motor disintegration.

## **Retirements in the GEO belt**

During 2017 17 satellites were retired to the graveyard above the GEO. In order of increasing final perigee they are: Kodama, Amos 2, Insat 3C, ABS-3, Intelsat 701, Artemis, Hispasat 84W-1, AMC 9, Zhongxing 20, Kiku 8, Echostar 3, JCSAT 1B, UHF FO6, Echostar 8, Amazonas 1, and Meteosat 7. It appears that Kodama's orbit is somewhat lower than IADC guidelines would require.

In addition, in late 2017 Asiasat 4, Astra 1H, and Afristar are drifting above GEO, but below the graveyard. It is as yet unclear whether they are retired or just relocating.

## **Acknowledgements**

The data presented here are extracted from my satellite and launch database, generated from open source media reports combined with analysis of US Space-Track orbital elements. The analysis has benefited from the opinions of many colleagues, notably Dwayne Day, Brian Weeden, Jeffrey Lewis, Laura Grego, David Wright, Phillip Clark, Rui Barbosa and posters on the forums at nasaspaceflight.com. Thanks to Gil Denis for catching the error in Table 5 in rev 1 of this edition.

The author is an employee of the Smithsonian Institution, but the work reported here was performed independently and does not represent the views of the Smithsonian.

# Appendix 1: 2017 Orbital Launch Attempts

LAUNCH ID	Launch date UTC	Launch vehicle	LV Flight ID	Site	Agency
2017-001	2017 Jan 5 1518:04	Chang Zheng 3B	Y39	XSC LC2	CALT
2017-002	2017 Jan 9 0411:12	Kuaizhou-1A	1	JQ SLS-E	EXPSPACE
2017-003	2017 Jan 14 1754:39	Falcon 9	030/B1029	VS SLC4E	SPX
2017-F01	2017 Jan 14 2333	SS-520	SS-520-4	USC K	JAXA
2017-004	2017 Jan 21 0042	Atlas V 401	AV-066	CC SLC41	ULAL
2017-005	2017 Jan 24 0744:00	H-IIA 204	H-IIA-32	TNSC Y	MHI
2017-006	2017 Jan 28 0103:34	Soyuz-ST-B	R 15000-012 012/006	CSG ELS	AE
2017-007	2017 Feb 14 2139	Ariane 5ECA	VA235 (588)	CSG ELA3	AE
2017-008	2017 Feb 15 0358	PSLV-XL	PSLV-C37	SHAR FLP	ISRO
2017-009	2017 Feb 19 1439:00	Falcon 9	032/B1031	KSC LC39A	SPX
2017-010	2017 Feb 22 0558:33	Soyuz-U-PVB	T 15000-145 145	GIK-5 LC1	FKA
2017-011	2017 Mar 1 1749:51	Atlas V 401	AV-068	VS SLC3E	ULAL
2017-012	2017 Mar 2 2353	KT-2	Y1	JQ	CASIC4A
2017-013	2017 Mar 7 0149:24	Vega	VV09	CSG ZLV	AE
2017-014	2017 Mar 16 0600	Falcon 9	031/B1030	KSC LC39A	SPX
2017-015	2017 Mar 17 0120	H-IIA 202	H-IIA-33	TNSC Y	MHI
2017-016	2017 Mar 19 0018:00	Delta 4M+(5,4)	D4-35 (377)	CC SLC37B	ULAB
2017-017	2017 Mar 30 2227	Falcon 9	033/B1021	KSC LC39A	SPX
2017-018	2017 Apr 12 1104:04	Chang Zheng 3B	Y43	XSC LC2	CALT
2017-019	2017 Apr 18 1511:26	Atlas V 401	AV-070	CC SLC41	ULAL
2017-020	2017 Apr 20 0713:43	Soyuz-FG	U 15000-065 065	GIK-5 LC1	FKA
2017-021	2017 Apr 20 1141:35	Chang Zheng 7	Y2	WEN LC201	CALT
2017-022	2017 May 1 1115	Falcon 9	035/B1032	KSC LC39A	SPX
2017-023	2017 May 4 2150	Ariane 5ECA	VA236 (589)	CSG ELA3	AE
2017-024	2017 May 5 1127	GSLV Mk II	GSLV-F09	SHAR SLP	ISRO
2017-025	2017 May 15 2321	Falcon 9	034/B1034	KSC LC39A	SPX
2017-026	2017 May 18 1154:53	Soyuz-ST-A	R 15000-007 007/009	CSG ELS	AE
2017-F02	2017 May 25 0420:00	Electron	1	MAHIA LC1	RLABU
2017-027	2017 May 25 0633:41	Soyuz-2-1B	780-72- 183/111-301	GIK-1 LC43/4	VVKO
2017-028	2017 Jun 1 0017:36	H-IIA 202	H-IIA-34	TNSC Y	MHI
2017-029	2017 Jun 1 2345:07	Ariane 5ECA	VA237 (590)	CSG ELA3	AE
2017-030	2017 Jun 3 2107:38	Falcon 9	036/B1035	KSC LC39A	SPX
2017-031	2017 Jun 5 1158	GSLV Mk III	D1	SHAR SLP	ISRO
2017-032	2017 Jun 8 0345:47	Proton-M/Briz-M	935-61/99571	GIK-5 LC81/24	ILSK
2017-033	2017 Jun 14 0920:13	Soyuz-2-1A	U 15000-028	GIK-5 LC31	FKA
2017-034	2017 Jun 15 0300	Chang Zheng 4B	Y31	JQ Pad 603	SAST
2017-035	2017 Jun 18 1611	Chang Zheng 3B	-	XSC LC2	CALT
2017-036	2017 Jun 23 0359	PSLV-XL	PSLV-C38	SHAR FLP	ISRO
2017-037	2017 Jun 23 1804:33	Soyuz-2-1V	780-72- 003	GIK-1 LC43/4	VVKO
2017-038	2017 Jun 23 1910	Falcon 9	037/B1029	KSC LC39A	SPX
2017-039	2017 Jun 25 2025:14	Falcon 9	038/B1036	VS SLC4E	SPX
2017-040	2017 Jun 28 2115	Ariane 5ECA	VA238 (591)	CSG ELA3	AE
2017-F03	2017 Jul 2 1123:23	Chang Zheng 5	Y2	WEN LC101	CALT
2017-041	2017 Jul 5 2338	Falcon 9	039/B1037	KSC LC39A	SPX
2017-042	2017 Jul 14 0636:49	Soyuz-2-1A	T 15000-018/122-02	GIK-5 LC31	FKA
2017-F04	2017 Jul 27 0930?	Simorgh	2	SEM	IRSA
2017-043	2017 Jul 28 1541:12	Soyuz-FG	R 15000-058	GIK-5 LC1	FKA
2017-044	2017 Aug 2 0158:33	Vega	VV10	CSG ZLV	AE
2017-045	2017 Aug 14 1631:37	Falcon 9	040/B1039	KSC LC39A	SPX
2017-046	2017 Aug 16 2207:00	Proton-M/Briz-M	535-45?/88534?	GIK-5 LC81/24	KHRU
2017-047	2017 Aug 18 1229	Atlas V 401	AV-074	CC SLC41	ULAL
2017-048	2017 Aug 19 0529	H-IIA 204	H-IIA-35	TNSC Y	MHI
2017-049	2017 Aug 24 1851	Falcon 9	041/B1038	VS SLC4E	SPX
2017-050	2017 Aug 26 0604	Minotaur IV	6	SPFL SLC46	OATK
2017-051	2017 Aug 31 1330	PSLV-XL	PSLV-C39	SHAR SLP	ISRO
2017-052	2017 Sep 7 1400	Falcon 9	042/B1040	KSC LC39A	SPX
2017-053	2017 Sep 11 1923:41	Proton-M/Briz-M	935-65/99573?	GIK-5 LC200/39	ILSK
2017-054	2017 Sep 12 2117:02	Soyuz-FG	U 15000-063	GIK-5 LC1	FKA
2017-055	2017 Sep 22 0002:32	Soyuz-2-1B	15000-	GIK-1 LC43/4	VVKO
2017-056	2017 Sep 24 0549:47	Atlas V 541	AV-072	VS SLC3E	ULAL
2017-057	2017 Sep 28 1852:16	Proton-M/Briz-M	937-02/99572	GIK-5 LC200/39	ILSK
2017-058	2017 Sep 29 0421:05	Chang Zheng 2C	Y29	XSC LC3	CALT
2017-059	2017 Sep 29 2156	Ariane 5ECA	VA239 (5100)	CSG ELA3	AE
2017-060	2017 Oct 9 0413:14	Chang Zheng 2D	Y30	JQ Pad 603	SAST
2017-061	2017 Oct 9 1237:01	Falcon 9	043/B1041	VS SLC4E	SPX
2017-062	2017 Oct 9 2201:37	H-IIA 202	H-IIA-36	TNSC Y	MHI
2017-063	2017 Oct 11 2253	Falcon 9	044/B1031	KSC LC39A	SPX
2017-064	2017 Oct 13 0927	Rokot	-	GIK-1 LC133/3	KVR
2017-065	2017 Oct 14 0846:53	Soyuz-2-1A	U 15000-029	GIK-5 LC31	FKA
2017-066	2017 Oct 15 0728	Atlas V 421	AV-075	CC SLC41	ULAL
2017-067	2017 Oct 30 1934	Falcon 9	045/B1042	KSC LC39A	SPX
2017-068	2017 Oct 31 2137	Minotaur-C 3210	T10 (XL)	V 576E	OATK
2017-069	2017 Nov 5 1145	Chang Zheng 3B	Y46	XSC LC3	CALT
2017-070	2017 Nov 8 0142:30	Vega	VV11	CSG ZLV	AE
2017-071	2017 Nov 12 1219:51	Antares 230	7/2TRS2S1.8	MARS Pad 0A	OSC
2017-072	2017 Nov 14 1835:55	Chang Zheng 4C	Y21	TYSC LC9	SAST
2017-073	2017 Nov 18 0947:36	Delta 7290-10C	D378	V SLC2W	ULAB
2017-074	2017 Nov 21 0450	Chang Zheng 6	Y2	TYSC LC16	CALT
2017-075	2017 Nov 24 1810:05	Chang Zheng 2C	Y33?	XSC LC3	CALT
2017-F05	2017 Nov 28 0541:46	Soyuz-2-1B	N 15000-001/122-04	VOST PU1S	FKA
2017-076	2017 Dec 2 1043	Soyuz-2-1B	-	GIK-1 LC43/4	VVKO
2017-077	2017 Dec 3 0411	Chang Zheng 2D	Y47	JQ Pad 603	SAST
2017-078	2017 Dec 10 1640:04	Chang Zheng 3B	Y40	XSC LC2	CALT
2017-079	2017 Dec 12 1836	Ariane 5ES	VA240 (595)	CSG ELA3	AE
2017-080	2017 Dec 15 1536:09	Falcon 9	046/B1035	CC LC40	SPX
2017-081	2017 Dec 17 0721	Soyuz-FG	R 15000-061	GIK-5 LC1	FKA
2017-082	2017 Dec 23 0126:22	H-IIA 202	H-IIA-37	TNSC Y	MHI



2017-083	2017 Dec 23 0127:34	Falcon 9	047/B1036	VS SLC4E	SPX
2017-084	2017 Dec 23 0414	Chang Zheng 2D	Y48	JQ Pad 603	SAST
2017-085	2017 Dec 25 1944	Chang Zheng 2C	-	XSC LC3	CALT
2017-086	2017 Dec 26 1900:04	Zenit-3SLBF	SB80.5/2006	GIK-5 LC45/1	KVR?

Note: Owner, Agency and Country codes in the tables are defined in <http://planet4589.org/space/lvdb/sdb/Orgs>.  
Launch Sites are defined in <http://planet4589.org/space/lvdb/sdb/Sites>.

## Appendix 2: Satellite payloads launched in 2017

CATID	LAUNCH ID	Name	Deploy date UTC	Owner	Country	Perigee	Apogee	Inc	Status
S41911	2017-001A	Tongxin Jishu Shiyao 2	2017 Jan 5 15:43:00	CASC	CN	35780	35795	0.96	In Earth orbit
S41913	2017-002A	Xingyun Shiyao-1	2017 Jan 9 04:30:00	SANJ9	CN	529	541	97.54	In Earth orbit
S41914	2017-002B	Jilin-1 Shipin 3	2017 Jan 9 04:28:00	CGSTL	CN	531	545	97.54	In Earth orbit
S41915	2017-002C	Kaidun-1	2017 Jan 9 04:30:00	CATON	CN	530	546	97.54	In Earth orbit
S41917	2017-003A	Iridium Next SV106	2017 Jan 14 19:00:00	IRID	US	701	704	86.53	In Earth orbit
S41918	2017-003B	Iridium Next SV103	2017 Jan 14 18:55:00	IRID	US	610	623	86.67	In Earth orbit
S41919	2017-003C	Iridium Next SV109	2017 Jan 14 19:03:00	IRID	US	610	622	86.67	In Earth orbit
S41920	2017-003D	Iridium Next SV102	2017 Jan 14 18:53:00	IRID	US	609	622	86.67	In Earth orbit
S41921	2017-003E	Iridium Next SV105	2017 Jan 14 18:58:00	IRID	US	608	623	86.67	In Earth orbit
S41922	2017-003F	Iridium Next SV104	2017 Jan 14 18:57:00	IRID	US	608	622	86.66	In Earth orbit
S41923	2017-003G	Iridium Next SV114	2017 Jan 14 19:08:00	IRID	US	608	622	86.66	In Earth orbit
S41924	2017-003H	Iridium Next SV108	2017 Jan 14 19:02:00	IRID	US	608	622	86.66	In Earth orbit
S41925	2017-003J	Iridium Next SV112	2017 Jan 14 19:07:00	IRID	US	607	622	86.66	In Earth orbit
S41926	2017-003K	Iridium Next SV111	2017 Jan 14 19:05:00	IRID	US	607	622	86.67	In Earth orbit
S41937	2017-004A	SBIRS GEO-3	2017 Jan 21 02:15:00	AFSPC	US	35779	35795	0.01	In Earth orbit
S41940	2017-005A	Kirameki 2	2017 Jan 24 08:18:00	DSNC	J	190	35000	19.00	In Earth orbit
S41942	2017-006A	Hispasat 36W-1	2017 Jan 28 01:35:00	HISP	E	35781	35793	0.06	In Earth orbit
S41944	2017-007A	Telkom-3S	2017 Feb 14 22:18:00	TELK	ID	35527	35778	0.03	In Earth orbit
S41945	2017-007B	Sky Brasil-1	2017 Feb 14 22:06:00	DVFLA/INTELU	US	35619	35752	0.09	In Earth orbit
S41948	2017-008A	Cartosat-2 Series Satellite	2017 Feb 15 04:15:00	ISRO	IN	491	508	97.51	In Earth orbit
S41949	2017-008B	INS-1A	2017 Feb 15 04:15:00	ISRO	IN	496	508	97.51	In Earth orbit
S41950	2017-008C	Flock 3p-20	2017 Feb 15 04:16:00	PLABS	US	495	501	97.51	In Earth orbit
S41951	2017-008D	Flock 3p-8	2017 Feb 15 04:16:00	PLABS	US	496	506	97.51	In Earth orbit
S41952	2017-008E	Flock 3p-51	2017 Feb 15 04:16:00	PLABS	US	494	504	97.51	In Earth orbit
S41953	2017-008F	Flock 3p-37	2017 Feb 15 04:16:00	PLABS	US	497	497	97.51	In Earth orbit
S41954	2017-008G	INS-1B	2017 Feb 15 04:15:00	ISRO	IN	496	508	97.51	In Earth orbit
S41955	2017-008H	Flock 3p-19	2017 Feb 15 04:16:00	PLABS	US	496	507	97.51	In Earth orbit
S41956	2017-008I	Flock 3p-24	2017 Feb 15 04:16:00	PLABS	US	496	507	97.51	In Earth orbit
S41957	2017-008J	Flock 3p-18	2017 Feb 15 04:16:00	PLABS	US	496	507	97.51	In Earth orbit
S41958	2017-008K	Flock 3p-22	2017 Feb 15 04:16:00	PLABS	US	496	507	97.51	In Earth orbit
S41959	2017-008M	Flock 3p-21	2017 Feb 15 04:16:00	PLABS	US	496	507	97.51	In Earth orbit
S41960	2017-008N	Flock 3p-28	2017 Feb 15 04:16:00	PLABS	US	496	507	97.51	In Earth orbit
S41961	2017-008P	Flock 3p-26	2017 Feb 15 04:16:00	PLABS	US	496	507	97.51	In Earth orbit
S41962	2017-008Q	Flock 3p-17	2017 Feb 15 04:16:00	PLABS	US	496	507	97.51	In Earth orbit
S41963	2017-008R	Flock 3p-27	2017 Feb 15 04:16:00	PLABS	US	496	507	97.51	In Earth orbit
S41964	2017-008S	Flock 3p-25	2017 Feb 15 04:16:00	PLABS	US	496	507	97.51	In Earth orbit
S41965	2017-008T	Flock 3p-4	2017 Feb 15 04:16:00	PLABS	US	496	506	97.51	In Earth orbit
S41966	2017-008U	Flock 3p-2	2017 Feb 15 04:16:00	PLABS	US	496	507	97.51	In Earth orbit
S41967	2017-008V	Flock 3p-1	2017 Feb 15 04:16:00	PLABS	US	496	507	97.51	In Earth orbit
S41968	2017-008W	Flock 3p-3	2017 Feb 15 04:16:00	PLABS	US	496	506	97.51	In Earth orbit
S41969	2017-008X	Flock 3p-6	2017 Feb 15 04:16:00	PLABS	US	496	506	97.51	In Earth orbit
S41970	2017-008Y	Flock 3p-7	2017 Feb 15 04:16:00	PLABS	US	496	506	97.51	In Earth orbit
S41971	2017-008Z	Flock 3p-5	2017 Feb 15 04:16:00	PLABS	US	496	506	97.51	In Earth orbit
S41972	2017-008AA	Flock 3p-12	2017 Feb 15 04:16:00	PLABS	US	496	506	97.51	In Earth orbit
S41973	2017-008AB	Flock 3p-9	2017 Feb 15 04:16:00	PLABS	US	496	506	97.51	In Earth orbit
S41974	2017-008AC	Flock 3p-10	2017 Feb 15 04:16:00	PLABS	US	496	506	97.51	In Earth orbit
S41975	2017-008AD	Flock 3p-11	2017 Feb 15 04:16:00	PLABS	US	496	506	97.51	In Earth orbit
S41976	2017-008AE	Flock 3p-60	2017 Feb 15 04:16:00	PLABS	US	496	506	97.51	In Earth orbit
S41977	2017-008AF	Flock 3p-58	2017 Feb 15 04:16:00	PLABS	US	495	506	97.51	In Earth orbit
S41978	2017-008AG	Flock 3p-57	2017 Feb 15 04:16:00	PLABS	US	496	506	97.51	In Earth orbit
S41979	2017-008AH	Flock 3p-75	2017 Feb 15 04:16:00	PLABS	US	495	506	97.51	In Earth orbit
S41980	2017-008AJ	Flock 3p-70	2017 Feb 15 04:16:00	PLABS	US	495	506	97.52	In Earth orbit
S41981	2017-008AK	Flock 3p-73	2017 Feb 15 04:16:00	PLABS	US	496	505	97.51	In Earth orbit
S41982	2017-008AL	Flock 3p-88	2017 Feb 15 04:16:00	PLABS	US	495	506	97.51	In Earth orbit
S41983	2017-008AM	Flock 3p-85	2017 Feb 15 04:16:00	PLABS	US	495	505	97.51	In Earth orbit
S41984	2017-008AN	Flock 3p-79	2017 Feb 15 04:16:00	PLABS	US	496	505	97.51	In Earth orbit
S41985	2017-008AP	Flock 3p-86	2017 Feb 15 04:16:00	PLABS	US	495	505	97.51	In Earth orbit
S41986	2017-008AQ	Flock 3p-36	2017 Feb 15 04:16:00	PLABS	US	496	505	97.51	In Earth orbit
S41987	2017-008AR	Flock 3p-30	2017 Feb 15 04:16:00	PLABS	US	496	505	97.51	In Earth orbit
S41988	2017-008AS	Flock 3p-34	2017 Feb 15 04:16:00	PLABS	US	496	505	97.51	In Earth orbit
S41989	2017-008AT	Flock 3p-35	2017 Feb 15 04:16:00	PLABS	US	496	505	97.51	In Earth orbit

S41990	2017-008AU	Flock 3p-33	2017 Feb 15 0416:00	PLABS	US	495	505	97.51	In Earth orbit
S41991	2017-008AV	Lemur-2-Satchmo	2017 Feb 15 0424:00	SPIRE	US	496	507	97.51	In Earth orbit
S41992	2017-008AW	Lemur-2-Mia-Grace	2017 Feb 15 0424:00	SPIRE	US	496	507	97.51	In Earth orbit
S41993	2017-008AX	Lemur-2-Smita-Sharad	2017 Feb 15 0424:00	SPIRE	US	496	507	97.51	In Earth orbit
S41994	2017-008AY	Lemur-2-Spire-Minitons	2017 Feb 15 0424:00	SPIRE	US	496	507	97.51	In Earth orbit
S41995	2017-008AZ	Lemur-2-RDeaton	2017 Feb 15 0424:00	SPIRE	US	496	507	97.51	In Earth orbit
S41996	2017-008BA	Lemur-2-NoguesCorreig	2017 Feb 15 0424:00	SPIRE	US	496	507	97.51	In Earth orbit
S41997	2017-008BB	Lemur-2-Jobanputra	2017 Feb 15 0424:00	SPIRE	US	496	507	97.51	In Earth orbit
S41998	2017-008BC	Lemur-2-Tachikoma	2017 Feb 15 0424:00	SPIRE	US	496	506	97.51	In Earth orbit
S42000	2017-008BE	Dido-2	2017 Feb 15 0426:00	BGU	IL	496	508	97.51	In Earth orbit
S42001	2017-008BF	Flock 3p-49	2017 Feb 15 0416:00	PLABS	US	495	505	97.51	In Earth orbit
S42002	2017-008BG	Flock 3p-67	2017 Feb 15 0416:00	PLABS	US	495	505	97.51	In Earth orbit
S42003	2017-008BH	Flock 3p-68	2017 Feb 15 0416:00	PLABS	US	495	505	97.51	In Earth orbit
S42004	2017-008BJ	Flock 3p-41	2017 Feb 15 0416:00	PLABS	US	495	504	97.51	In Earth orbit
S42005	2017-008BK	Flock 3p-45	2017 Feb 15 0416:00	PLABS	US	495	504	97.51	In Earth orbit
S42006	2017-008BL	Flock 3p-48	2017 Feb 15 0416:00	PLABS	US	495	504	97.51	In Earth orbit
S42007	2017-008BL	Flock 3p-43	2017 Feb 15 0416:00	PLABS	US	495	504	97.51	In Earth orbit
S42008	2017-008BN	Flock 3p-42	2017 Feb 15 0416:00	PLABS	US	494	504	97.51	In Earth orbit
S42009	2017-008BP	Flock 3p-61	2017 Feb 15 0416:00	PLABS	US	494	504	97.51	In Earth orbit
S42010	2017-008BQ	Flock 3p-40	2017 Feb 15 0416:00	PLABS	US	494	503	97.51	In Earth orbit
S42011	2017-008BR	Flock 3p-16	2017 Feb 15 0416:00	PLABS	US	494	503	97.51	In Earth orbit
S42012	2017-008BS	Flock 3p-14	2017 Feb 15 0416:00	PLABS	US	495	503	97.51	In Earth orbit
S42013	2017-008BT	Flock 3p-53	2017 Feb 15 0416:00	PLABS	US	495	503	97.51	In Earth orbit
S42014	2017-008BU	Flock 3p-54	2017 Feb 15 0416:00	PLABS	US	494	503	97.51	In Earth orbit
S42015	2017-008BV	PEASSS	2017 Feb 15 0426:00	TNO/ISISBV	NL	494	504	97.51	In Earth orbit
S42016	2017-008BW	Al-Farabi 1	2017 Feb 15 0426:00	KAZNU	KZ	497	497	97.51	In Earth orbit
S42017	2017-008BX	Emirates OSCAR 88	2017 Feb 15 0426:00	MBRSC	UA.E	496	507	97.51	In Earth orbit
S42018	2017-008BY	Flock 3p-23	2017 Feb 15 0416:00	PLABS	US	495	507	97.51	In Earth orbit
S42019	2017-008BZ	Flock 3p-76	2017 Feb 15 0416:00	PLABS	US	495	506	97.51	In Earth orbit
S42020	2017-008CA	Flock 3p-69	2017 Feb 15 0416:00	PLABS	US	495	506	97.51	In Earth orbit
S42021	2017-008CB	Flock 3p-84	2017 Feb 15 0416:00	PLABS	US	495	506	97.51	In Earth orbit
S42022	2017-008CC	Flock 3p-59	2017 Feb 15 0416:00	PLABS	US	495	506	97.51	In Earth orbit
S42023	2017-008CD	Flock 3p-32	2017 Feb 15 0416:00	PLABS	US	495	506	97.51	In Earth orbit
S42024	2017-008CE	Flock 3p-71	2017 Feb 15 0416:00	PLABS	US	495	506	97.51	In Earth orbit
S42025	2017-008CF	Flock 3p-77	2017 Feb 15 0416:00	PLABS	US	495	506	97.51	In Earth orbit
S42026	2017-008CG	Flock 3p-80	2017 Feb 15 0416:00	PLABS	US	495	506	97.51	In Earth orbit
S42027	2017-008CH	Flock 3p-66	2017 Feb 15 0416:00	PLABS	US	495	504	97.51	In Earth orbit
S42028	2017-008CJ	Flock 3p-65	2017 Feb 15 0416:00	PLABS	US	494	505	97.51	In Earth orbit
S42029	2017-008CK	Flock 3p-50	2017 Feb 15 0416:00	PLABS	US	494	505	97.51	In Earth orbit
S42030	2017-008CL	Flock 3p-52	2017 Feb 15 0416:00	PLABS	US	494	505	97.51	In Earth orbit
S42031	2017-008CM	Flock 3p-46	2017 Feb 15 0416:00	PLABS	US	494	504	97.51	In Earth orbit
S42032	2017-008CN	Flock 3p-47	2017 Feb 15 0416:00	PLABS	US	494	504	97.51	In Earth orbit
S42033	2017-008CP	Flock 3p-44	2017 Feb 15 0416:00	PLABS	US	494	504	97.51	In Earth orbit
S42034	2017-008CQ	Flock 3p-64	2017 Feb 15 0416:00	PLABS	US	494	504	97.51	In Earth orbit
S42035	2017-008CR	Flock 3p-63	2017 Feb 15 0416:00	PLABS	US	494	503	97.51	In Earth orbit
S42036	2017-008CS	Flock 3p-62	2017 Feb 15 0416:00	PLABS	US	494	504	97.51	In Earth orbit
S42037	2017-008CT	Flock 3p-38	2017 Feb 15 0416:00	PLABS	US	494	504	97.51	In Earth orbit
S42038	2017-008CU	Flock 3p-39	2017 Feb 15 0416:00	PLABS	US	494	503	97.51	In Earth orbit
S42039	2017-008CV	Flock 3p-15	2017 Feb 15 0416:00	PLABS	US	495	502	97.51	In Earth orbit
S42040	2017-008CW	Flock 3p-13	2017 Feb 15 0416:00	PLABS	US	495	502	97.51	In Earth orbit
S42041	2017-008CX	Flock 3p-55	2017 Feb 15 0416:00	PLABS	US	494	503	97.51	In Earth orbit
S42042	2017-008CY	Flock 3p-56	2017 Feb 15 0416:00	PLABS	US	494	503	97.51	In Earth orbit
S42043	2017-008CZ	Flock 3p-81	2017 Feb 15 0416:00	PLABS	US	494	506	97.51	In Earth orbit
S42044	2017-008DA	Flock 3p-87	2017 Feb 15 0416:00	PLABS	US	494	506	97.51	In Earth orbit
S42045	2017-008DB	Flock 3p-29	2017 Feb 15 0416:00	PLABS	US	496	508	97.51	In Earth orbit
S42046	2017-008DC	Flock 3p-82	2017 Feb 15 0416:00	PLABS	US	494	506	97.51	In Earth orbit
S42047	2017-008DD	Flock 3p-78	2017 Feb 15 0416:00	PLABS	US	494	506	97.51	In Earth orbit
S42048	2017-008DE	Flock 3p-74	2017 Feb 15 0416:00	PLABS	US	494	506	97.51	In Earth orbit
S42049	2017-008DF	Flock 3p-31	2017 Feb 15 0416:00	PLABS	US	494	506	97.51	In Earth orbit
S42050	2017-008DG	Flock 3p-83	2017 Feb 15 0416:00	PLABS	US	494	507	97.51	In Earth orbit
S42051	2017-008DH	Flock 3p-72	2017 Feb 15 0416:00	PLABS	US	495	506	97.51	In Earth orbit
S42053	2017-009A	Dragon CRS-10	2017 Mar 19 0911:00	SPX	US	357	364	51.63	Landed
S42055	2017-009A	Progress MS-05	2017 Jul 20 1746:00	RRKE	RU	173	188	51.60	Deorbited
S42058	2017-010A	USA 274	2017 Mar 1 1910:00	NROC/USN	US	1009	1204	63.45	In Earth orbit
S42059	2017-011A	USA 274 P/L 2	2017 Mar 1 0000:00	NROC/USN	US	1009	1203	63.45	In Earth orbit

S42061	2017-012A	Tiankun-1	2017 Mar 3 0003:00	CHFEN	CN	384	406	96.93	In Earth orbit
S42063	2017-013A	Sentinel-2B	2017 Mar 7 0257:00	ESA	I-ESA	777	779	98.56	In Earth orbit
S42070	2017-014A	Echosat 23	2017 Mar 16 0634:00	ECHOC	US	3924	35884	13.69	In Earth orbit
S42072	2017-015A	JSE reda-5 gouki	2017 Mar 17 0140:00	CSICE	J	485	499	97.23	In Earth orbit
S42075	2017-016A	WGS SV-9	2017 Mar 19 0059:00	USAF	US	433	44364	27.00	In Earth orbit
S42432	2017-017A	SESS-10	2017 Mar 30 2259:00	SESSL	UK	31185	35722	0.79	In Earth orbit
S42862	2017-018A	Shi Jian 13	2017 Apr 12 1129:00	CAST	CN	35768	35805	0.07	In Earth orbit
S42681	2017-019A	SS John Glenn	2017 Jun 4 1310:00	OSC	US	395	404	51.64	Deorbited
S42700	1998-067LH	SOMP 2	2017 May 16 0825:00	TUD	D	398	406	51.64	In Earth orbit
S42701	1998-067LJ	HAVELSAT	2017 May 16 0825:00	ITUTR	TR	397	408	51.63	In Earth orbit
S42702	1998-067LK	Columbia Sat	2017 May 16 0825:00	TURAB/QBUS	PR	401	404	51.64	In Earth orbit
S42703	1998-067LL	SGSAT	2017 May 16 1155:00	KYSP	US	401	404	51.64	In Earth orbit
S42704	1998-067LM	CXEN-2	2017 May 16 1155:00	MSUKY	US	400	406	51.64	In Earth orbit
S42705	1998-067LN	IceCube	2017 May 16 1155:00	GSFC	US	401	404	51.64	In Earth orbit
S42706	1998-067LP	Phoenix	2017 May 17 0145:00	NCKU	TW	402	403	51.63	In Earth orbit
S42707	1998-067LQ	X-Cubesat	2017 May 17 0145:00	POLY	F	401	403	51.64	In Earth orbit
S42708	1998-067LR	qbee50-LTU-OC	2017 May 17 0145:00	LTU/OCOS	S	401	403	51.64	In Earth orbit
S42711	1998-067LS	Altair Pathfinder	2017 May 17 0813:00	MILLES	US	401	404	51.64	In Earth orbit
S42712	1998-067LT	SHARC	2017 May 17 1240:00	AFRL	US	400	406	51.64	In Earth orbit
S42713	1998-067LU	ZA-AeroSat	2017 May 18 0100:00	CUBESP/STBO	ZA	402	403	51.65	In Earth orbit
S42714	1998-067LV	LINK	2017 May 18 0100:00	KAIST	KR	401	404	51.63	In Earth orbit
S42715	1998-067LW	CSUNSat 1	2017 May 18 0415:00	CSUN/JPL	US	402	404	51.65	In Earth orbit
S42716	1998-067LX	UPSat	2017 May 18 0825:00	PATRAS	GR	399	407	51.64	In Earth orbit
S42717	1998-067LY	SpaceCube	2017 May 18 0825:00	MINES	F	400	404	51.64	In Earth orbit
S42718	1998-067LZ	Hoopoe	2017 May 18 0825:00	HSCIL	IL	400	404	51.64	In Earth orbit
S42721	1998-067MA	Challenger	2017 May 25 0525:00	UCO/QBUS	US	398	408	51.64	In Earth orbit
S42722	1998-067MB	NJUST-1	2017 May 25 0525:00	NJUST	CN	398	408	51.65	In Earth orbit
S42723	1998-067MC	UNSW-ECO	2017 May 25 0525:00	UNSW	AU	397	408	51.64	In Earth orbit
S42724	1998-067MD	DUTHSAT	2017 May 25 0835:00	DUTH	GR	399	407	51.64	In Earth orbit
S42725	1998-067ME	Zidingxiang-1	2017 May 25 0835:00	HARB	CN	402	403	51.64	In Earth orbit
S42726	1998-067MF	NSIGHT 1	2017 May 25 0835:00	SCSS	ZA	399	406	51.64	In Earth orbit
S42727	1998-067MG	SNUSAT 1b	2017 May 25 2340:00	SNU	KR	397	408	51.64	In Earth orbit
S42728	1998-067MH	QBITO	2017 May 25 1155:00	UPM	E	400	406	51.64	In Earth orbit
S42729	1998-067MJ	Aalto-2	2017 May 25 1155:00	AALTO	FI	399	409	51.64	In Earth orbit
S42730	1998-067MK	Susat	2017 May 25 1155:00	ADEL	AU	397	409	51.63	In Earth orbit
S42731	1998-067ML	i-INSPIRE 2	2017 May 26 0400:00	USYD	AU	398	407	51.64	In Earth orbit
S42732	1998-067MM	PolyTAN-2-SAU	2017 May 26 0400:00	KPI	UA	397	408	51.63	In Earth orbit
S42733	1998-067MN	SNUSAT 1	2017 May 26 0400:00	SNU	KR	398	408	51.64	In Earth orbit
S42734	1998-067MP	Ex-Alfa 1	2017 May 26 0855:00	ALB	CA	397	409	51.64	In Earth orbit
S42735	1998-067MQ	Aoxiang yi hao	2017 May 26 1215:00	SELM	CN	397	409	51.64	In Earth orbit
S42736	1998-067MR	BeEagleSat	2017 May 26 1215:00	ITUTR/TUAFSA	TR	395	411	51.63	In Earth orbit
S42737	1998-067MS	Atlantis	2017 May 26 1215:00	UMI/QBUS	US	396	409	51.63	In Earth orbit
S42752	2017-019B	Lemur-2-JennyBarna	2017 Jun 8 1753:00	SPIRE	US	476	490	51.64	In Earth orbit
S42753	2017-019C	Lemur-2-Angela	2017 Jun 8 1753:00	SPIRE	US	476	490	51.64	In Earth orbit
S42754	2017-019D	Lemur-2-Spirovision	2017 Jun 8 2103:00	SPIRE	US	477	489	51.64	In Earth orbit
S42755	2017-019E	Lemur-2-RobMoore	2017 Jun 8 2103:00	SPIRE	US	476	491	51.64	In Earth orbit
S42682	2017-020A	Soyuz MS-04	2017 Sep 2 2158:00	RKKE	RU	399	409	51.64	Landed
S42684	2017-021A	Tianzhou-1	2017 Sep 17 0929:00	CMSEO	CN	367	377	42.78	Deorbited
S42903	2017-021F	Sihl-1	2017 Aug 1 0703:00	XCYS	CN	386	395	42.79	Deorbited
S42689	2017-022A	USA 276	2017 May 1 1130:00	NROC	US	300	300	51.00	In Earth orbit
S42691	2017-023A	Koreasat 7	2017 May 4 2226:00	KTSAT	KR	35686	35791	0.05	In Earth orbit
S42692	2017-023B	SGDC	2017 May 4 2226:00	TELB	BR	35557	35757	0.05	In Earth orbit
S42695	2017-024A	South Asia Satellite	2017 May 5 1144:00	ISRO	IN	35633	35851	0.06	In Earth orbit
S42698	2017-025A	Inmarsat 5F4	2017 May 15 2351:00	INMRL	UK	384	70118	24.52	In Earth orbit
S42709	2017-026A	SES-15	2017 May 18 1713:00	SESSL	UK	2215	38116	5.94	In Earth orbit
S42719	2017-027A	Kosmos-2518	2017 May 25 1320:00	KVSR	RU	1650	38511	63.81	In Earth orbit
S42738	2017-028A	Michibiki-2	2017 Jun 1 0046:00	JAXA/SPAC	J	35912	35991	44.76	In Earth orbit
S42740	2017-029A	Viasat-2	2017 Jun 2 0014:00	VIA	US	303	54424	5.89	In Earth orbit
S42741	2017-029B	EUTELSAT 172B	2017 Jun 2 0026:00	EUTSA	F	524	35910	5.89	In Earth orbit
S42744	2017-030A	Dragon CRS-11	2017 Jul 3 0641:00	SPX	US	402	408	51.64	Landed
S42820	1998-067MU	TOKI	2017 Jul 7 0850:00	KYUT	J	401	402	51.65	In Earth orbit
S42821	1998-067MV	Ghanasat-1	2017 Jul 7 0850:00	ANUC	GH	401	404	51.64	In Earth orbit
S42822	1998-067MW	Mazatlai	2017 Jul 7 0850:00	NUM	MX	401	411	51.67	In Earth orbit
S42823	1998-067MX	BRAC ONNESHIA	2017 Jul 7 0910:00	BRAC	BD	401	404	51.67	In Earth orbit
S42824	1998-067MY	Nigeria EduSat-1	2017 Jul 7 0910:00	FUTA	NG	396	410	51.65	In Earth orbit
S42747	2017-031A	GSAT-19E	2017 Jun 5 1214:00	ISRO	IN	162	34513	21.73	In Earth orbit

S42749	2017-032A	Echostar 21	2017 Jun 8 12:58:00	ECHOM	US	24526	35804	9.89	In Earth orbit
S42756	2017-033A	Progress MS-06	2017 Dec 28 01:03:00	RKKE	RU	401	407	51.64	Deorbited
S42911	1998-067NA	Tanyusha YuZGU No. 1	2017 Aug 17 15:15:00	YUZGU	RU	397	409	51.64	In Earth orbit
S42912	1998-067NB	Tanyusha YuZGU No. 2	2017 Aug 17 15:16:00	YUZGU	RU	398	409	51.64	In Earth orbit
S42913	1998-067NC	TS530-Zerkalo	2017 Aug 17 15:21:00	RKKE	RU	398	407	51.64	In Earth orbit
S42914	1998-067ND	TNS-0-2 Nanosputnik	2017 Aug 17 15:21:00	RKKE	RU	398	407	51.64	In Earth orbit
S42758	2017-034A	Huiyan	2017 Jun 15 03:15:00	CNSA	CN	536	545	43.02	In Earth orbit
S42759	2017-034B	OVS-1B	2017 Jun 15 03:15:00	ZHUORB	CN	533	545	43.02	In Earth orbit
S42760	2017-034C	Milanesat	2017 Jun 15 03:15:00	URUGUS	UY	535	545	43.02	In Earth orbit
S42761	2017-034D	OVS-1A	2017 Jun 15 03:15:00	ZHUORB	CN	533	545	43.02	In Earth orbit
S42763	2017-035A	Zhongxing 9A	2017 Jun 18 16:36:00	ZBB	CN	193	16357	25.68	In Earth orbit
S42765	2017-036A	UCLSat	2017 Jun 23 04:20:00	UCL	UK	496	513	97.45	In Earth orbit
S42766	2017-036B	NIUSAT-Keralashree	2017 Jun 23 04:15:00	NIUTN	IN	496	518	97.45	In Earth orbit
S42767	2017-036C	Cartosat-2 Series Satellite	2017 Jun 23 04:15:00	ISRO	IN	334	347	96.92	In Earth orbit
S42768	2017-036D	LituanicaSAT 2	2017 Jun 23 04:20:00	VILN	LT	496	512	97.45	In Earth orbit
S42769	2017-036E	CE-SAT-1	2017 Jun 23 04:16:00	CANON	J	497	517	97.45	In Earth orbit
S42770	2017-036F	InflateSat	2017 Jun 23 04:20:00	SURREY	UK	496	512	97.45	Reentered
S42771	2017-036G	Lemur-2-ShainalJohl	2017 Jun 23 04:22:00	SPIRE	US	496	511	97.45	In Earth orbit
S42772	2017-036H	Lemur-2-Xuenniference	2017 Jun 23 04:22:00	SPIRE	US	496	511	97.45	In Earth orbit
S42773	2017-036J	Lemur-2-LucyBryce	2017 Jun 23 04:22:00	SPIRE	US	496	511	97.45	In Earth orbit
S42774	2017-036K	Lemur-2-KungFoo	2017 Jun 23 04:22:00	SPIRE	US	496	510	97.45	In Earth orbit
S42775	2017-036L	Aalto-1	2017 Jun 23 04:22:00	AALTO	FI	497	517	97.45	In Earth orbit
S42776	2017-036M	URSA MAIOR	2017 Jun 23 04:20:00	ROSAP	I	496	512	97.45	In Earth orbit
S42777	2017-036N	COMPASS-2	2017 Jun 23 04:20:00	AAACH	D	496	514	97.45	In Earth orbit
S42778	2017-036P	Max Valier	2017 Jun 23 04:20:00	GOBBZ/GOBME	I	496	517	97.45	In Earth orbit
S42779	2017-036Q	Lemur-2-Lynsey-Symo	2017 Jun 23 04:22:00	SPIRE	US	496	508	97.45	In Earth orbit
S42780	2017-036R	Lemur-2-Lisasaurus	2017 Jun 23 04:22:00	SPIRE	US	496	509	97.45	In Earth orbit
S42781	2017-036S	Lemur-2-Sam-Amelia	2017 Jun 23 04:22:00	SPIRE	US	496	510	97.45	In Earth orbit
S42782	2017-036T	Lemur-2-McPeake	2017 Jun 23 04:22:00	SPIRE	US	496	510	97.45	In Earth orbit
S42783	2017-036U	Diamond Red	2017 Jun 23 04:20:00	SASG	UK	496	511	97.45	In Earth orbit
S42784	2017-036V	Pegasus	2017 Jun 23 04:20:00	FHWN	AT	497	516	97.45	In Earth orbit
S42785	2017-036W	Diamond Green	2017 Jun 23 04:20:00	SASG	UK	496	511	97.45	In Earth orbit
S42786	2017-036X	Diamond Blue	2017 Jun 23 04:20:00	SASG	UK	496	511	97.45	In Earth orbit
S42787	2017-036Y	NUDTFSat	2017 Jun 23 04:20:00	NUDTFC	CN	497	515	97.45	In Earth orbit
S42788	2017-036Z	SUCHAI	2017 Jun 23 04:20:00	UCH	CL	496	512	97.45	In Earth orbit
S42789	2017-036AA	skCUBE	2017 Jun 23 04:20:00	SOSA	SK	496	512	97.45	In Earth orbit
S42790	2017-036AB	VZLUSat	2017 Jun 23 04:20:00	VZLU	CZ	497	515	97.45	In Earth orbit
S42791	2017-036AC	Venta-1	2017 Jun 23 04:21:00	VATP	LV	496	508	97.45	In Earth orbit
S42792	2017-036AD	ROBUSTA 1B	2017 Jun 23 04:20:00	MONTP2	F	496	512	97.45	In Earth orbit
S42793	2017-036AE	CICERO-6	2017 Jun 23 04:17:00	GEOPT	US	496	516	97.45	In Earth orbit
S42794	2017-036AF	D-SAT	2017 Jun 23 04:20:00	DORBIT	I	497	516	97.45	In Earth orbit
S42795	2017-036AG	TYVAK-53b	2017 Jun 23 04:20:00	TYVAK	US	497	516	97.45	In Earth orbit
S42798	2017-037A	Kosmos-2519	2017 Jun 23 19:00:00	TSVS	RU	653	669	98.05	In Earth orbit
S42919	2017-037E	Kosmos-2521	2017 Aug 23 00:00:00	KVR	RU	650	676	97.92	In Earth orbit
S42986	2017-037E	Kosmos-2523?	2017 Oct 30 00:00:00	KVR	RU	554	663	97.88	In Earth orbit
S42801	2017-038A	BulgariaSat-1	2017 Jun 23 19:44:00	BGSAT	BG	196	65360	23.95	In Earth orbit
S42803	2017-039A	Iridium Next SV113	2017 Jun 25 21:22:00	IRID	US	607	624	86.67	In Earth orbit
S42804	2017-039B	Iridium Next SV123	2017 Jun 25 21:24:00	IRID	US	607	624	86.67	In Earth orbit
S42805	2017-039C	Iridium Next SV120	2017 Jun 25 21:25:00	IRID	US	607	625	86.67	In Earth orbit
S42806	2017-039D	Iridium Next SV115	2017 Jun 25 21:27:00	IRID	US	606	624	86.67	In Earth orbit
S42807	2017-039E	Iridium Next SV118	2017 Jun 25 21:29:00	IRID	US	608	625	86.67	In Earth orbit
S42808	2017-039F	Iridium Next SV117	2017 Jun 25 21:30:00	IRID	US	606	624	86.67	In Earth orbit
S42809	2017-039G	Iridium Next SV126	2017 Jun 25 21:32:00	IRID	US	606	624	86.67	In Earth orbit
S42810	2017-039H	Iridium Next SV124	2017 Jun 25 21:34:00	IRID	US	608	625	86.67	In Earth orbit
S42811	2017-039J	Iridium Next SV128	2017 Jun 25 21:35:00	IRID	US	609	625	86.67	In Earth orbit
S42812	2017-039K	Iridium Next SV121	2017 Jun 25 21:37:00	IRID	US	608	625	86.67	In Earth orbit
S42814	2017-040A	Hellas Sat 3-Inmarsat S E AN	2017 Jun 28 21:43:00	HELLSA	GR	35685	35788	0.05	In Earth orbit
S42815	2017-040B	GSAT-17	2017 Jun 28 21:56:00	ISRO	IN	35497	35843	0.11	In Earth orbit
S42818	2017-041A	Intelsat IS-35e	2017 Jul 6 00:10:00	INTELU	US	35274	37389	0.13	In Earth orbit
S42825	2017-042A	Kanopus-V-1K No. 2	2017 Jul 14 07:38:00	VNIEM	RU	505	509	97.44	In Earth orbit
S42826	2017-042B	NORSAT-1	2017 Jul 14 09:02:00	NSC	N	586	605	97.62	In Earth orbit
S42827	2017-042C	Iskra-MAI-85	2017 Jul 14 09:20:00	MAIO	RU	586	602	97.61	In Earth orbit
S42828	2017-042D	NORSAT-2	2017 Jul 14 09:05:00	NSC	N	586	605	97.61	In Earth orbit
S42829	2017-042E	Technosat	2017 Jul 14 09:05:00	TUB	D	586	605	97.61	In Earth orbit
S42830	2017-042F	Mayak	2017 Jul 14 09:20:00	MPU	RU	586	602	97.61	In Earth orbit
S42831	2017-042G	FLP	2017 Jul 14 09:01:00	IRSS	D	586	606	97.61	In Earth orbit

S42832	2017-042H	Ekvador-UTE-YuZGU	2017 Jul 14 0920:00	YUZGU/UTE	RU	585	602	97.61	In Earth orbit
S42833	2017-042K	MKA-N 1	2017 Jul 14 0910:00	RAKA	RU	586	604	97.61	In Earth orbit
S42834	2017-042L	WNISAT-1R	2017 Jul 14 0902:00	WNI	J	586	606	97.61	In Earth orbit
S42835	2017-042M	MKA-N 2	2017 Jul 14 0910:00	RAKA	RU	586	603	97.61	In Earth orbit
S42836	2017-042N	Lemur-2-Greenberg	2017 Jul 14 0926:00	SPIRE	US	585	602	97.61	In Earth orbit
S42837	2017-042P	Lemur-2-Andis	2017 Jul 14 0926:00	SPIRE	US	586	598	97.61	In Earth orbit
S42838	2017-042Q	Lemur-2-Monson	2017 Jul 14 0926:00	SPIRE	US	585	601	97.61	In Earth orbit
S42839	2017-042R	Lemur-2-Furtaus	2017 Jul 14 0926:00	SPIRE	US	584	601	97.61	In Earth orbit
S42840	2017-042S	Lemur-2-PeterG	2017 Jul 14 0926:00	SPIRE	US	586	596	97.61	In Earth orbit
S42841	2017-042T	Lemur-2-Dembitz	2017 Jul 14 0926:00	SPIRE	US	586	593	97.61	In Earth orbit
S42842	2017-042U	CICERO-1	2017 Jul 14 0910:00	GEOOPT	US	586	603	97.61	In Earth orbit
S42843	2017-042V	NanoACE	2017 Jul 14 0910:00	TYVAK	US	586	603	97.61	In Earth orbit
S42844	2017-042W	Lemur-2-Zachary	2017 Jul 14 0926:00	SPIRE	US	587	598	97.61	In Earth orbit
S42845	2017-042X	Landmapper-BC 2	2017 Jul 14 0910:00	ADIG	US	586	604	97.61	In Earth orbit
S42846	2017-042Y	Landmapper-BC 1	2017 Jul 14 0910:00	ADIG	US	586	604	97.61	In Earth orbit
S42847	2017-042Z	CICERO-2	2017 Jul 14 0910:00	GEOOPT	US	586	603	97.61	In Earth orbit
S42848	2017-042A	CICERO-3	2017 Jul 14 0910:00	GEOOPT	US	586	603	97.61	In Earth orbit
S42849	2017-042AA	Flock 2k-3	2017 Jul 14 1418:00	PLABS	US	461	476	97.00	In Earth orbit
S42850	2017-042AB	Flock 2k-4	2017 Jul 14 1418:00	PLABS	US	461	475	97.00	In Earth orbit
S42851	2017-042AC	Flock 2k-1	2017 Jul 14 1418:00	PLABS	US	461	476	97.00	In Earth orbit
S42852	2017-042AD	Flock 2k-2	2017 Jul 14 1418:00	PLABS	US	461	476	97.00	In Earth orbit
S42853	2017-042AE	Flock 2k-47	2017 Jul 14 1441:00	PLABS	US	457	474	97.00	In Earth orbit
S42854	2017-042AF	Flock 2k-48	2017 Jul 14 1441:00	PLABS	US	457	474	97.00	In Earth orbit
S42855	2017-042AG	Flock 2k-45	2017 Jul 14 1441:00	PLABS	US	457	474	97.00	In Earth orbit
S42856	2017-042AH	Flock 2k-24	2017 Jul 14 1428:00	PLABS	US	459	475	97.00	In Earth orbit
S42857	2017-042AJ	Flock 2k-46	2017 Jul 14 1441:00	PLABS	US	457	474	97.00	In Earth orbit
S42858	2017-042AK	Flock 2k-5	2017 Jul 14 1418:00	PLABS	US	461	475	97.00	In Earth orbit
S42859	2017-042AL	Flock 2k-40	2017 Jul 14 1428:00	PLABS	US	460	475	97.00	In Earth orbit
S42860	2017-042AM	Flock 2k-21	2017 Jul 14 1428:00	PLABS	US	460	475	97.00	In Earth orbit
S42861	2017-042AN	Flock 2k-22	2017 Jul 14 1428:00	PLABS	US	460	475	97.00	In Earth orbit
S42862	2017-042AP	Flock 2k-7	2017 Jul 14 1418:00	PLABS	US	461	475	97.00	In Earth orbit
S42863	2017-042AQ	Flock 2k-8	2017 Jul 14 1418:00	PLABS	US	461	475	97.00	In Earth orbit
S42864	2017-042AR	Flock 2k-5	2017 Jul 14 1418:00	PLABS	US	461	475	97.00	In Earth orbit
S42865	2017-042AS	Flock 2k-40	2017 Jul 14 1438:00	PLABS	US	458	474	97.00	In Earth orbit
S42866	2017-042AT	Flock 2k-39	2017 Jul 14 1438:00	PLABS	US	458	475	97.00	In Earth orbit
S42867	2017-042AU	Flock 2k-37	2017 Jul 14 1438:00	PLABS	US	458	475	97.00	In Earth orbit
S42868	2017-042AV	Flock 2k-38	2017 Jul 14 1438:00	PLABS	US	458	475	97.00	In Earth orbit
S42869	2017-042AW	Flock 2k-31	2017 Jul 14 1433:00	PLABS	US	459	475	97.00	In Earth orbit
S42870	2017-042AX	Flock 2k-32	2017 Jul 14 1433:00	PLABS	US	458	475	97.00	In Earth orbit
S42871	2017-042AY	Flock 2k-29	2017 Jul 14 1433:00	PLABS	US	459	475	97.00	In Earth orbit
S42872	2017-042AZ	Flock 2k-30	2017 Jul 14 1433:00	PLABS	US	459	475	97.00	In Earth orbit
S42873	2017-042BA	Flock 2k-44	2017 Jul 14 1441:00	PLABS	US	457	474	97.00	In Earth orbit
S42874	2017-042BB	Flock 2k-43	2017 Jul 14 1441:00	PLABS	US	458	474	97.00	In Earth orbit
S42875	2017-042BC	Flock 2k-41	2017 Jul 14 1441:00	PLABS	US	458	474	97.00	In Earth orbit
S42876	2017-042BD	Flock 2k-36	2017 Jul 14 1438:00	PLABS	US	458	475	97.00	In Earth orbit
S42877	2017-042BE	Flock 2k-35	2017 Jul 14 1438:00	PLABS	US	458	475	97.00	In Earth orbit
S42878	2017-042BF	Flock 2k-34	2017 Jul 14 1438:00	PLABS	US	458	475	97.00	In Earth orbit
S42879	2017-042BG	Flock 2k-33	2017 Jul 14 1438:00	PLABS	US	458	475	97.00	In Earth orbit
S42880	2017-042BH	Flock 2k-28	2017 Jul 14 1433:00	PLABS	US	459	475	97.00	In Earth orbit
S42881	2017-042BJ	Lemur-2-ArtFisher	2017 Jul 14 0926:00	SPIRE	US	585	601	97.61	In Earth orbit
S42882	2017-042BK	Flock 2k-27	2017 Jul 14 1433:00	PLABS	US	459	475	97.00	In Earth orbit
S42883	2017-042BL	Flock 2k-26	2017 Jul 14 1433:00	PLABS	US	459	475	97.00	In Earth orbit
S42884	2017-042BM	Flock 2k-25	2017 Jul 14 1433:00	PLABS	US	459	475	97.00	In Earth orbit
S42885	2017-042BN	Flock 2k-20	2017 Jul 14 1428:00	PLABS	US	460	475	97.00	In Earth orbit
S42886	2017-042BP	Flock 2k-19	2017 Jul 14 1428:00	PLABS	US	460	475	97.00	In Earth orbit
S42887	2017-042BQ	Flock 2k-18	2017 Jul 14 1428:00	PLABS	US	461	475	97.00	In Earth orbit
S42888	2017-042BR	Flock 2k-17	2017 Jul 14 1428:00	PLABS	US	460	475	97.00	In Earth orbit
S42889	2017-042BS	Flock 2k-16	2017 Jul 14 1423:00	PLABS	US	461	475	97.00	In Earth orbit
S42890	2017-042BT	Flock 2k-15	2017 Jul 14 1423:00	PLABS	US	461	475	97.00	In Earth orbit
S42891	2017-042BU	Flock 2k-13	2017 Jul 14 1423:00	PLABS	US	461	475	97.00	In Earth orbit
S42892	2017-042BV	Flock 2k-12	2017 Jul 14 1423:00	PLABS	US	461	475	97.00	In Earth orbit
S42893	2017-042BW	Flock 2k-12	2017 Jul 14 1423:00	PLABS	US	461	475	97.00	In Earth orbit
S42894	2017-042BX	Flock 2k-11	2017 Jul 14 1423:00	PLABS	US	461	475	97.00	In Earth orbit
S42895	2017-042BY	Flock 2k-10	2017 Jul 14 1423:00	PLABS	US	461	475	97.00	In Earth orbit
S42896	2017-042BZ	Flock 2k-9	2017 Jul 14 1423:00	PLABS	US	461	475	97.00	In Earth orbit
S42897	2017-042CA	Flock 2k-6	2017 Jul 14 1418:00	PLABS	US	461	475	97.00	In Earth orbit
A09055	2017-042Z	Flock 2k-42	2017 Jul 14 1441:00	PLABS	US	458	474	97.00	Reentered Att

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Fregat

S42898	2017-043A	Soyuz MS-05	2017 Dec 14 05:14:00	RKKE	RU	400	408	51.64	Landed
S42900	2017-044A	Optsat 3000	2017 Aug 2 02:41:00	MDDI	I	452	454	97.20	In Earth orbit
S42901	2017-044B	Venus	2017 Aug 2 03:35:00	ISA/CNES	IL	719	724	98.35	In Earth orbit
S42904	2017-045A	Dragon CRS-12	2017 Sep 17 08:40:00	SPX	US	400	408	51.64	Landed
S42982	1998-067NE	KestrelEye HIM	2017 Oct 24 09:45:00	SMDC	US	400	407	51.64	In Earth orbit
S43020	1998-067NH	ASTERIA	2017 Nov 20 12:25:00	JPL/MIT	US	400	405	51.64	In Earth orbit
S43021	1998-067NJ	Dellingr	2017 Nov 20 17:02:00	CSFC	US	401	404	51.64	In Earth orbit
S43027	1998-067NL	OSIRIS-3U	2017 Nov 21 11:40:00	PSU	US	394	409	51.65	In Earth orbit
S42907	2017-046A	Kosmos-2520	2017 Aug 17 07:08:00	KVR/VOENT	RU	35788	35864	0.03	In Earth orbit
S42915	2017-047A	TDRS 13	2017 Aug 18 14:22:00	GSFC	US	35768	35804	6.99	In Earth orbit
S42917	2017-048A	Michibiki-3	2017 Aug 19 05:57:00	JAXA/SPAC	J	35767	35808	0.08	In Earth orbit
S42920	2017-049A	FORMOSAT 5	2017 Aug 24 19:02:00	NPO	TW	710	729	98.30	In Earth orbit
S42921	2017-050A	ORS-5	2017 Aug 26 06:32:00	AFORS	US	599	604	0.02	In Earth orbit
S42922	2017-050B	DHPR	2017 Aug 26 06:21:00	DARPA	US	309	605	24.52	In Earth orbit
S42923	2017-050C	Prometheus 2.2	2017 Aug 26 06:21:00	SOCOM	US	388	602	24.52	In Earth orbit
S42924	2017-050D	Prometheus 2.4	2017 Aug 26 06:21:00	SOCOM	US	384	603	24.53	In Earth orbit
S42928	2017-051A	IRNSS-R1H	2017 Aug 31 13:49:00	ISRO	IN	157	6287	19.18	Reentered
S42932	2017-052A	X-37B OTV-5	2017 Sep 7 14:10:00	AFRCO	US	0	0	0.00	Attached to PSLV-C39 PS4
S42934	2017-053A	Amazonas 5	2017 Sep 12 04:35:00	HISPM/HISP	BR	35785	35789	0.04	In Earth orbit
S42937	2017-054A	Soyuz MS-02	2017 Sep 13 02:55:00	RKKE	RU	402	407	51.64	In Earth orbit
S42939	2017-055A	Kosmos-2522	2017 Sep 22 03:33:00	KVR/IACG	RU	19103	19156	64.80	In Earth orbit
S42941	2017-056A	USA 278	2017 Sep 24 07:30:00	NROC	US	1744	38112	63.82	In Earth orbit
S42942	2017-057A	Asiasat 9	2017 Sep 29 04:05:00	ASIA	HK	35783	35791	0.02	In Earth orbit
S42945	2017-058A	Yaogan 30 hao 01 zu 01 xing	2017 Sep 29 04:33:00	ZZB	CN	592	600	35.00	In Earth orbit
S42946	2017-058B	Yaogan 30 hao 01 zu 02 xing	2017 Sep 29 04:33:00	ZZB	CN	592	600	35.00	In Earth orbit
S42947	2017-058C	Yaogan 30 hao 01 zu 03 xing	2017 Sep 29 04:33:00	ZZB	CN	592	600	35.00	In Earth orbit
S42950	2017-059A	Intelsat IS-37e	2017 Sep 29 22:25:00	INTELU	US	35795	0.02	0.02	In Earth orbit
S42951	2017-059B	BSAT-4a	2017 Sep 29 22:43:00	BSAT	J	35719	35725	0.02	In Earth orbit
S42954	2017-060A	Antonio Jose de Sucre	2017 Oct 9 04:24:00	ABAE	VE	629	654	98.02	In Earth orbit
S42955	2017-061A	Iridium Next SV133	2017 Oct 9 13:34:00	IRID	US	622	635	86.66	In Earth orbit
S42956	2017-061B	Iridium Next SV127	2017 Oct 9 13:36:00	IRID	US	611	626	86.68	In Earth orbit
S42957	2017-061C	Iridium Next SV122	2017 Oct 9 13:37:00	IRID	US	611	626	86.68	In Earth orbit
S42958	2017-061D	Iridium Next SV129	2017 Oct 9 13:39:00	IRID	US	611	626	86.68	In Earth orbit
S42959	2017-061E	Iridium Next SV119	2017 Oct 9 13:41:00	IRID	US	610	626	86.68	In Earth orbit
S42960	2017-061F	Iridium Next SV107	2017 Oct 9 13:42:00	IRID	US	610	626	86.68	In Earth orbit
S42961	2017-061G	Iridium Next SV132	2017 Oct 9 13:44:00	IRID	US	609	626	86.68	In Earth orbit
S42962	2017-061H	Iridium Next SV136	2017 Oct 9 13:46:00	IRID	US	609	626	86.68	In Earth orbit
S42963	2017-061J	Iridium Next SV139	2017 Oct 9 13:47:00	IRID	US	609	626	86.68	In Earth orbit
S42964	2017-061K	Iridium Next SV125	2017 Oct 9 13:49:00	IRID	US	609	626	86.68	In Earth orbit
S42965	2017-062A	Michibiki-4	2017 Oct 11 23:29:00	SESSL	J	32634	38933	40.45	In Earth orbit
S42967	2017-063A	Sentinel-5 Precursor	2017 Oct 13 10:46:00	ESA	UK	35640	35928	0.07	In Earth orbit
S42971	2017-065A	Progress MS-07	2017 Oct 16 11:04:00	RKKE	RU	816	819	98.72	In Earth orbit
S42949	2017-066A	USA 279	2017 Oct 15 08:01:00	NROC	US	306	337	51.64	Attached to Pirs
S42984	2017-067A	Mungunghwa 5A	2017 Oct 30 20:09:00	KTSAT	KR	16380	35799	8.14	In Earth orbit
S42987	2017-068A	SkySat 13	2017 Oct 31 21:50:00	PLABST	US	500	528	97.35	In Earth orbit
S42988	2017-068B	SkySat 12	2017 Oct 31 21:50:00	PLABST	US	500	528	97.35	In Earth orbit
S42989	2017-068C	SkySat 11	2017 Oct 31 21:51:00	PLABST	US	500	527	97.35	In Earth orbit
S42990	2017-068D	SkySat 10	2017 Oct 31 21:51:00	PLABST	US	500	527	97.35	In Earth orbit
S42991	2017-068E	SkySat 9	2017 Oct 31 21:53:00	PLABST	US	500	527	97.35	In Earth orbit
S42992	2017-068F	SkySat 8	2017 Oct 31 21:54:00	PLABST	US	500	527	97.35	In Earth orbit
S42995	2017-068J	Flock 3m-1	2017 Oct 31 21:55:00	PLABS	US	499	524	97.34	In Earth orbit
S42996	2017-068K	Flock 3m-3 (POD-1)	2017 Oct 31 21:55:00	PLABS	US	499	522	97.34	In Earth orbit
S42997	2017-068L	Flock 3m-4	2017 Oct 31 21:56:00	PLABS	US	499	522	97.36	In Earth orbit
S42998	2017-068M	Flock 3m-2	2017 Oct 31 21:56:00	PLABS	US	500	520	97.35	In Earth orbit
S43001	2017-069A	Beidou DW 24	2017 Nov 5 15:30:00	CNSA	CN	21506	21549	55.01	In Earth orbit
S43002	2017-069B	Beidou DW 25	2017 Nov 5 15:30:00	CNSA	CN	21541	22194	55.01	In Earth orbit
S43005	2017-070A	Mohammed VI-A	2017 Nov 8 02:38:00	RMAF	MA	636	638	97.96	In Earth orbit
S43006	2017-071A	SS Gene Cernan	2017 Dec 6 13:11:00	OSC	US	198	316	51.59	Deorbited
S43019	1998-067NG	ECAMSat	2017 Nov 20 08:05:00	ARC	US	397	408	51.65	In Earth orbit
S43026	1998-067NK	TechEdSat-6	2017 Nov 21 08:25:00	ARC/SJSU	US	397	406	51.65	In Earth orbit
S43041	2017-071E	Lenur-2-YongLin	2017 Dec 6 19:24:00	SPIRE	US	450	452	51.64	In Earth orbit
S43042	2017-071F	Lenur-2-Kevin	2017 Dec 6 19:24:00	SPIRE	US	450	456	51.64	In Earth orbit
S43043	2017-071G	CHERFSat	2017 Dec 6 19:24:00	NRL	US	437	469	51.63	In Earth orbit
S43044	2017-071H	Aerocube 7B	2017 Dec 6 19:24:00	AERO	US	449	456	51.64	In Earth orbit
S43045	2017-071J	Aerocube 7C	2017 Dec 6 19:24:00	AERO	US	449	454	51.64	In Earth orbit

S43046	2017-071K	Lemur-2-BrianDavie	2017 Dec 6 2240:00	SPiRE	US	449	454	51.64	In Earth orbit
S43047	2017-071L	Lemur-2-RomaCoste	2017 Dec 6 2240:00	SPiRE	US	451	455	51.64	In Earth orbit
S43048	2017-071M	PropCube Fauna	2017 Dec 6 2240:00	USNPS	AT	451	455	51.64	In Earth orbit
S43049	2017-071N	Asgardia 1	2017 Dec 6 2240:00	ASGARD	AT	451	454	51.64	In Earth orbit
S43050	2017-071P	ISARA	2017 Dec 6 2240:00	JPL	US	450	454	51.64	In Earth orbit
S43051	2017-071Q	Lemur-2-RocketJonah	2017 Dec 7 0200:00	SPiRE	US	451	454	51.64	In Earth orbit
S43052	2017-071R	Lemur-2-Liu-Poh-Chun	2017 Dec 7 0200:00	SPiRE	US	451	454	51.64	In Earth orbit
S43053	2017-071S	Lemur-2-McCullagh	2017 Dec 7 0200:00	SPiRE	US	451	454	51.64	In Earth orbit
S43054	2017-071T	Lemur-2-Dumlop	2017 Dec 7 0200:00	SPiRE	US	451	453	51.64	In Earth orbit
S43010	2017-072A	Feng Yun 3D	2017 Nov 14 1855:00	NSMC	CN	803	812	98.66	In Earth orbit
S43011	2017-072B	HEAD-1	2017 Nov 14 1855:00	GNSA	CN	796	809	98.65	In Earth orbit
S43013	2017-073A	NOAA-20	2017 Nov 18 1045:00	GSFC/NOAA	US	817	820	98.71	In Earth orbit
S43014	2017-073B	Buccaneer-RMM	2017 Nov 18 1110:00	UNSWC/DSTO	AU	459	819	97.69	In Earth orbit
S43015	2017-073C	MIRa TA	2017 Nov 18 1112:00	MIT/MITLL	US	455	818	97.69	In Earth orbit
S43016	2017-073D	Makersat-0	2017 Nov 18 1109:00	NWNAZ	US	454	818	97.69	In Earth orbit
S43017	2017-073E	RadFxBat	2017 Nov 18 1109:00	VANDU	US	454	818	97.69	In Earth orbit
S43018	2017-073F	EagleSat	2017 Nov 18 1109:00	ERAU	US	454	818	97.69	In Earth orbit
S43022	2017-074A	Jilin-1 Shipin 4	2017 Nov 21 0505:00	CGSTL	CN	532	545	97.54	In Earth orbit
S43023	2017-074B	Jilin-1 Shipin 5	2017 Nov 21 0505:00	CGSTL	CN	531	545	97.54	In Earth orbit
S43024	2017-074C	Jilin-1 Shipin 6	2017 Nov 21 0505:00	CGSTL	CN	531	545	97.54	In Earth orbit
S43028	2017-075A	Yaogan 30 hao 02 zu 01 xing	2017 Nov 24 1822:00	ZZB	CN	590	603	35.00	In Earth orbit
S43029	2017-075B	Yaogan 30 hao 02 zu 02 xing	2017 Nov 24 1822:00	ZZB	CN	589	603	35.00	In Earth orbit
S43030	2017-075C	Yaogan 30 hao 02 zu 03 xing	2017 Nov 24 1822:00	ZZB	CN	589	603	35.00	In Earth orbit
S43032	2017-076A	Kosmos-2524	2017 Dec 2 1053:00	KVR	RU	244	899	67.14	In Earth orbit
S43034	2017-077A	Ludi Kancha Weixing yi hao	2017 Dec 3 0421:00	GCDX?	CN	489	502	97.46	In Earth orbit
S43039	2017-078A	Alcomsat 1	2017 Dec 10 1707:00	ASAL	DZ	35776	35795	0.05	In Earth orbit
S43055	2017-079A	GalileoSat-19	2017 Dec 12 2211:00	GSAEU	1-EU	22904	22949	57.02	In Earth orbit
S43056	2017-079B	GalileoSat-20	2017 Dec 12 2211:00	GSAEU	1-EU	22904	22928	57.01	In Earth orbit
S43057	2017-079C	GalileoSat-21	2017 Dec 12 2224:00	GSAEU	1-EU	22905	22918	56.95	In Earth orbit
S43058	2017-079D	GalileoSat-22	2017 Dec 12 2224:00	GSAEU	1-EU	22898	22913	57.02	In Earth orbit
S43060	2017-080A	Dragon CRS-13	2017 Dec 17 1326:00	SPX	US	303	464	51.76	Attached to Harmony
S43063	2017-081A	Soyuz MS-07	2017 Dec 19 0839:00	RKKE	RU	254	262	51.64	Attached to Rassvet
S43065	2017-082A	Shikisai	2017 Dec 23 0142:00	JAXA	J	790	793	98.70	In Earth orbit
S43066	2017-082B	Tsubame	2017 Dec 23 0314:00	JAXA	J	457	628	98.32	In Earth orbit
S43070	2017-083A	Iridium Next SV135	2017 Dec 23 0231:00	IRID	US	610	626	86.69	In Earth orbit
S43071	2017-083B	Iridium Next SV138	2017 Dec 23 0234:00	IRID	US	609	626	86.69	In Earth orbit
S43072	2017-083C	Iridium Next SV116	2017 Dec 23 0224:00	IRID	US	611	627	86.69	In Earth orbit
S43073	2017-083D	Iridium Next SV130	2017 Dec 23 0226:00	IRID	US	611	626	86.69	In Earth orbit
S43074	2017-083E	Iridium Next SV151	2017 Dec 23 0237:00	IRID	US	609	625	86.69	In Earth orbit
S43075	2017-083F	Iridium Next SV134	2017 Dec 23 0229:00	IRID	US	610	626	86.69	In Earth orbit
S43076	2017-083G	Iridium Next SV137	2017 Dec 23 0232:00	IRID	US	609	626	86.69	In Earth orbit
S43077	2017-083H	Iridium Next SV141	2017 Dec 23 0236:00	IRID	US	609	625	86.69	In Earth orbit
S43078	2017-083J	Iridium Next SV153	2017 Dec 23 0239:00	IRID	US	609	625	86.69	In Earth orbit
S43079	2017-083K	Iridium Next SV131	2017 Dec 23 0227:00	IRID	US	611	626	86.69	In Earth orbit
S43080	2017-084A	Ludi Kancha Weixing er hao	2017 Dec 23 0424:00	GCDX?	CN	489	502	97.46	In Earth orbit
S43081	2017-085A	Yaogan 30 hao 03 zu 01 xing	2017 Dec 25 1956:00	ZZB	CN	590	602	35.00	In Earth orbit
S43082	2017-085B	Yaogan 30 hao 03 zu 02 xing	2017 Dec 25 1956:00	ZZB	CN	590	602	35.00	In Earth orbit
S43083	2017-085C	Yaogan 30 hao 03 zu 03 xing	2017 Dec 25 1956:00	ZZB	CN	591	602	35.00	In Earth orbit
S43087	2017-086A	Angosat 1	2017 Dec 27 0354:00	GCPEN	AO	35963	36116	0.06	In Earth orbit

Note: It appears that Flock 3e-42 was never deployed, it is nevertheless counted in the figure of 440 satellites given in the launch statistics section.