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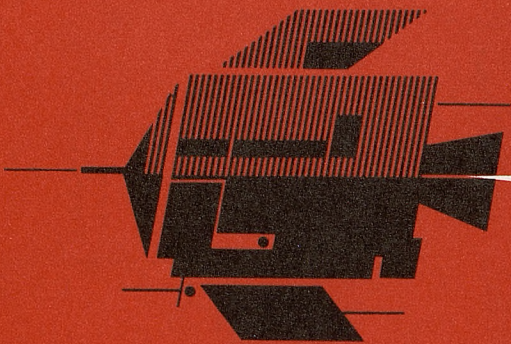
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(ITU) للاتصالات الدولي الاتحاد في والمحفوظات المكتبة قسم أجراه الضوئي بالمسح تصوير نتاج (PDF) الإلكترونية النسخة هذه والمحفوظات المكتبة قسم في المتوفرة الوثائق ضمن أصلية ورقية وثيقة من نقلًا.

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TABLE OF ARTIFICIAL SATELLITES LAUNCHED IN 1971



This list includes all artificial satellites launched in 1971. It was prepared from information provided by telecommunication administrations, the Committee on Space Research (COSPAR), the Goddard Space Flight Center (GSFC) of the United States National Aeronautics and Space Administration (NASA), the Ministry of Communications of the USSR, the Centre national d'études spatiales (CNES), France, the International Frequency Registration Board (IFRB), one of the four permanent organs of the ITU, and from details published in the specialized press. The data concerning the orbit parameters are the initial orbital data. Fragments or stages of rockets left over from launching operations and placed in orbit with the various spacecraft have not been included.



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Code name Spacecraft description	International number	Country Organization Site of launching	Date	Perigee Apogee	Period Inclination	Frequencies Transmitter power	Observations
Cosmos-390	1971-1-A	USSR (BAI)	12 Jan.	208 km 296 km	89.3 min 65°		Carried scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Reconnaissance/surveillance mission. Decayed on 25 January 1971
Cosmos-391	1971-2-A	USSR (PLE)	14 Jan.	277 km 828 km	95.4 min 71°		Carried scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Decayed on 21 February 1972
Meteor-7	1971-3-A	USSR (PLE)	20 Jan.	630 km 679 km	97.6 min 81.2°		Carries meteorological apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system
Cosmos-392	1971-4-A	USSR (BAI)	21 Jan.	207 km 300 km	89.4 min 65°	19.995 MHz	Carried scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Reconnaissance/surveillance mission. Decayed on 2 February 1971
Samos-81	1971-5-A	United States (WTR)	21 Jan.	131 km 382 km	89.6 min 110.8°		Reconnaissance/surveillance mission. Decayed on 9 February 1971
Intelsat-IV F2 weight: 720 kg; cylindrical satellite; height: 5.28 m; diameter: 2.39 m; solar cells	1971-6-A	International INTELSAT (ETR)	26 Jan.	35 740 km 36 382 km	1450.2 min 0.6°	5950; 5990; 6030; 6070; 6110; 6150; 6200; 6240; 6280; 6320; 6360; 6400 MHz (reception) 3725; 3765; 3805; 3845; 3885; 3925; 3975; 4015; 4055; 4095; 4135; 4175 MHz (transmission)	INTELSAT commercial telecommunication satellite. 3000 to 9000 telephone circuits or 12 television channels. In geostationary orbit above the Atlantic Ocean at 335.5° E longitude
Cosmos-393	1971-7-A	USSR	26 Jan.	283 km 512 km	92.2 min 71°		Carried scientific apparatus, radio system for precise measurements of orbital elements, and radio telemetry system. Decayed on 16 June 1971

Code name Spacecraft description	International number	Country Organization Site of launching	Date	Perigee Apogee	Period Inclination	Frequencies Transmitter power	Observations
Apollo-14 weight: 44 676 kg; command module; service module; lunar module; diameter: 3.90 to 6.60 m; total height: 29 m	1971-8-A	United States	31 Jan.	barycentric orbit		5765 MHz 450 W peak (radar tracking beacon) 2272.5; 2287.5 MHz 20 W (data transmitted on command from the command module) 2282.5 MHz 20 W (data transmitted from the lunar module)	Three-man spacecraft: astronauts Alan B. Shepard Jr. (commander), Stuart A. Roosa (command module pilot), Edgar D. Mitchell (lunar module pilot). Third lunar landing (Fra Mauro); 44 kg of lunar material was brought back. The command module splashed down on 9 February 1971
Nato-2 weight: 129 kg	1971-9-A	International NATO (ETR)	3 Feb.	34 429 km 35 860 km	23 h 23 min 28°	X band	Communication satellite
Cosmos-394 length: 4 m; diameter: 2 m	1971-10-A	USSR	9 Feb.	574 km 619 km	96.5 min		Carries scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Manoeuvres near <i>Cosmos-397</i>
Tansei 26-sided body; diameter across flat sides: 0.712 m; chemical batteries; reflectors for optical detection	1971-11-A	Japan	16 Feb.	989 km 1109 km	106 min 30°	136.6952 MHz 90 mW (tracking beacon—continuous transmission) 400.4971 MHz 45 mW (with real time telemetry)	Japanese technological test satellite. Estimated transmitter life is one week
4 satellites: weight: 0.730 kg; spheroid; diameter: 26 m	1971-12-A(?)	United States (WTR)	17 Feb.	763 km 833 km	100.86 min 98.8°		Study of atmospheric drag
weight: 0.730 kg; spheroid; diameter: 26 m	1971-12-B(?)	United States (WTR)	17 Feb.	765 km 834 km	100.89 min 98.8°		
weight: 0.730 kg; spheroid; diameter: 26 m	1971-12-C(?)	United States (WTR)	17 Feb.	773 km 832 km	100.95 min 98.8°		
weight: 150 kg; spacecraft	1971-12-D(?)	United States (WTR)	17 Feb.	779 km 827 km	100.96 min 98.8°		

Cosmos-395	1971-13-A	USSR (PLE)	18 Feb.	534 km 570 km	95.4 min 74°		Carries scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system
Cosmos-396	1971-14-A	USSR	18 Feb.	212 km 310 km	89.4 min 65.4°		Carried scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. <i>Soyuz</i> -type satellite. The orbital compartment re-entered the atmosphere on 8 March 1971. The recoverable part returned to the earth on 3 March 1971
Cosmos-397	1971-15-A	USSR	25 Feb.	593 km 2317 km	114.7 min 65.8°		Carried scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Manoeuvrable satellite. Disintegrated in space
Cosmos-398	1971-16-A	USSR	26 Feb.	196 km 276 km	88.9 min 51.63°		Carries scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Manoeuvrable satellite. Manoeuvres in space
Cosmos-399	1971-17-A	USSR (BAI)	3 March	209 km 310 km	89.5 min 65°		Carried scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Reconnaissance/surveillance mission. <i>Soyuz</i> -type satellite. The orbital compartment re-entered the atmosphere on 25 March 1971. The recoverable part returned to the earth on 17 March 1971
No name weight: 221 kg	1971-18-A	People's Republic of China * (SCSF)	3 March	269 km 1800 km	106 min 69.9°		
Explorer-43 (IMP-8) weight: 290 kg; 16-sided spacecraft; diameter: 1.35 m; height: 1.82 m; solar cells and chemical battery	1971-19-A	United States NASA (ETR)	13 March	242 km 196 574 km	5626 min 28.7°	137.170 MHz 8.0 W 136.170 MHz 4.0 W (data transmitted on command) 137.170 MHz 8.0 mW (tracking beacon)	Interplanetary Monitoring Platform. Designed to measure energetic particles, plasma and electric and magnetic fields. A radio-astronomy experiment is also included
Cosmos-400	1971-20-A	USSR (BAI)	19 March	995 km 1016 km	105 min 65.8°		Carries scientific apparatus, radio system for precise measurements of orbital elements and radiotelemetry system

Code name Spacecraft description	International number	Country Organization Site of launching	Date	Perigee Apogee	Period Inclination	Frequencies Transmitter power	Observations
No name	1971-21-A	United States (WTR)	21 March	390 km 33 800 km	597 min 63.0°		Prototype of a telecommunications satellite
No name	1971-22-A	United States USAF (WTR)	24 March	172 km 235 km	88.5 min 81.5°		Reconnaissance/surveillance mission. Decayed on 12 April 1971
Cosmos-401	1971-23-A	USSR (PLE)	27 March	216 km 322 km	89.6 min 72.9°		Carried scientific apparatus, radio system for precise measurements of orbital elements and radiotelemetry system. Reconnaissance/surveillance mission. Soyuz-type satellite. Manoeuvred in space. The orbital compartment re-entered the atmosphere on 17 April 1971. The recoverable part returned to the earth on 9 April 1971
Isis-2 weight: 264 kg; 8-sided spheroid; diameter: 1.27 m; height: 1.22 m; 2 sounder antennae; 11 000 n on p solar cells; 3 Ni-Cd batteries	1971-24-A	United States/ Canada NASA (WTR)	1 April	1358 km 1428 km	113.6 min 88.1°	136.080; 401.750 MHz 4 W 136.590 MHz 3 W 136.410; 137.950 MHz (data transmitted on command)	International Satellite for Ionospheric Studies. Carries 12 experiments (8 Canadian and 4 United States)
Cosmos-402	1971-25-A	USSR (BAI)	1 April	261 km 279 km	89.7 min 65°		Carries scientific apparatus. Manoeuvres in space
Cosmos-403	1971-26-A	USSR (PLE)	2 April	216 km 251 km	89 min 81.4°	19.995 MHz	Carried scientific apparatus, radio system for precise measurements of orbital elements and radiotelemetry system. Recovered on 14 April 1971
Cosmos-404	1971-27-A	USSR (PLE)	4 April	811 km 1009 km	103 min 65.9°		Carried scientific apparatus, radio system for precise measurements of orbital elements and radiotelemetry system. Manoeuvred in space near <i>Cosmos-400</i> . Recovered on 5 April 1971
Cosmos-405	1971-28-A	USSR (PLE)	7 April	676 km 706 km	98.3 min 81.3°		Carries scientific apparatus, radio system for precise measurements of orbital elements and radiotelemetry system

Cosmos-406	1971-29-A	USSR (PLE)	14 April	223 km 264 km	89.2 min 81.3°		Carried scientific apparatus, radio system for precise measurements of orbital elements and radiotelemetry system. Reconnaissance/surveillance mission. Decayed on 24 April 1971
D-2A Tournesol weight: 96 kg; cylinder; diameter: 0.70 m; height: 0.80 m; 4 solar panels	1971-30-A	France CNES (CSG)	15 April	456 km 702 km	96.2 min 46.4°	136.631 MHz (tracking beacon—continuous transmission)	Objective: to detect the probable presence of hydrogen in several directions of the celestial sphere
Meteor-8	1971-31-A	USSR (PLE)	17 April	620 km 646 km	97.2 min 81.2°		Carries meteorological apparatus, radio system for precise measurements of orbital elements and radiotelemetry system. To observe cloud formations and snow layers
Salyut-1 weight: 18 000 kg; 4-chamber orbital station: — crew transfer chamber with docking assembly — living quarters — armoured workshop (diameter: 4.50 m) — machine room; estimated length: 30 m; 2 pairs of solar panels fixed to chambers 1 and 4	1971-32-A	USSR (BAI)	19 April	200 km 222 km	88.5 min 51.6°		Objectives: scientific research and testing of on-board systems and units. Control by remote command or by crew. Decayed on 11 October 1971
Samos-82	1971-33-A	United States (WTR)	22 April	131 km 401 km	89.8 min 110.9°		Reconnaissance/surveillance mission. Recovered on 13 May 1971
Soyuz-10 3-part spaceship: 2 spherical habitable modules (orbital compartment and command module) connected in tandem to a cylindrical service module; 2 solar panels	1971-34-A	USSR (BAI)	23 April	208 km 246 km	89 min 51.6°		Three-man spacecraft. Commander: Shatalov; flight engineer Yeliseyev; research engineer: Rukavishnikov. Recovered 24 April 1971 in the Karaganda-Akmolinsk area after a mission lasting 23 h 46 min. Docking with Salyut on 24 April 1971 to test new docking equipment for the establishment of orbital space stations
Cosmos-407 solar panels	1971-35-A	USSR (PLE)	23 April	799 km 844 km	101 min 74°		Carries scientific apparatus, radio system for precise measurements of orbital elements and radiotelemetry system

Code name Spacecraft description	International number	Country Organization Site of launching	Date	Perigee Apogee	Period Inclination	Frequencies Transmitter power	Observations
San Marco-3 weight: 164 kg; spherical space- craft; diameter: 0.75 m; 4 antennae 0.48 m long; 32 solar panels; Ni-Cd batteries	1971-36-A	Italy CRA (SM)	24 April	226 km 723 km	94.05 min 3.3°	(data transmitted on command) 136.74 MHz	Carried <i>Centro Ricerche Aerospaziali</i> and NASA experi- ments for measurements of atmospheric density, temperature and composition. Decayed on 29 November 1971
Cosmos-408	1971-37-A	USSR (PLE)	24 April	211 km 1542 km	102.1 min 82°		Carried scientific apparatus, radio system for precise measurements of orbital elements and radiotelemetry system. Decayed on 29 December 1971
Cosmos-409	1971-38-A	USSR (PLE)	28 April	1185 km 1222 km	109.4 min 74°		Carries scientific apparatus, radio system for precise measurements of orbital elements and radiotelemetry system
Imews-2 weight: 820 kg; length: 6 m; diameter: 2.50 m	1971-39	United States USAF (ETR)	5 May	no information			Integrated Missile Early Warning Satellite. Infra-red detectors. Steering motor
Cosmos-410	1971-40-A	USSR (BAI)	6 May	207 km 288 km	89.4 min 65°	19.995 MHz	Carried scientific apparatus, radio system for precise measurements of orbital elements and radiotelemetry system. Reconnaissance/surveillance mission. <i>Soyuz</i> -type satellite. The orbital compartment re-entered the atmosphere on 25 May 1971. The recoverable part returned to the earth on 18 May 1971
Cosmos-411 to Cosmos-418 weight: 36 to 45 kg	1971-41-A to 1971-41-H	USSR (PLE)	7 May	1408 km 1530 km (average initial orbit)	115 min 74.5°		Eight satellites launched by one rocket. Carry scientific apparatus, radio systems for precise measurements of orbital elements and radiotelemetry systems
Cosmos-419 weight: 4650 kg	1971-42-A	USSR (BAI)	10 May	159 km 174 km	87.7 min 51.4°		Carried scientific apparatus. Failed Mars mission. Payload and trans-Mars injection stage failed to separate from upper earth orbit injection stage. Decayed on 12 May 1971

Cosmos-420	1971-43-A	USSR	18 May	200 km 242 km	88.8 min 51.8°		Carried scientific apparatus, radio system for precise measurements of orbital elements and radiotelemetry system. Reconnaissance/surveillance mission. Soyuz-type satellite. The orbital compartment re-entered the atmosphere on 3 June 1971. The recoverable part returned to the earth on 29 May 1971
Cosmos-421	1971-44-A	USSR (PLE)	19 May	283 km 492 km	92 min 71°		Carried scientific apparatus, radio system for precise measurements of orbital elements and radiotelemetry system. Military monitoring mission. Decayed on 8 November 1971
Mars-2 weight: 4650 kg; cylindrical body: — orbital module; — jettisonable module; 2 solar panels	1971-45-A	USSR (BAI)	19 May	heliocentric orbit		928.4 MHz	Automatic interplanetary station. Main objectives: investigations of Mars and of interplanetary space. Two television camera systems: one for wide-range and one for narrow-range photography. Photos taken of the planet. Attempt made to jettison a module on the surface of Mars
Cosmos-422	1971-46-A	USSR (PLE)	22 May	994 km 1020 km	105.1 min 74°		Carries scientific apparatus, radio system for precise measurements of orbital elements and radiotelemetry system. Special monitoring flight
Cosmos-423 weight: 408 kg; diameter: 1.20 m; length: 1.80 m	1971-47-A	USSR (PLE)	27 May	282 km 511 km	92.2 min 71°		Carried scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Military electronics monitor. Decayed on 26 November 1971
Cosmos-424	1971-48-A	USSR (PLE)	28 May	214 km 309 km	89.4 min 65.4°		Carried scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Reconnaissance/surveillance mission. Decayed on 10 June 1971
Mars-3 weight: 4650 kg; cylindrical body: — orbital module; — jettisonable module; 2 solar panels	1971-49-A	USSR (BAI)	28 May	heliocentric orbit		928.4 MHz	Automatic interplanetary station. Main objectives are investigations of Mars and interplanetary space. Two television camera systems: one for wide-angle and one for narrow-angle photography. Photos taken of the planet. On 2 December 1971 jettisoned module descended on Martian soil; 90 s after arriving, the module transmitted for 20 s a video signal, which was relayed by the orbital module of Mars-3
Cosmos-425	1971-50-A	USSR (PLE)	29 May	511 km 556 km	95.2 min 74°		Carries scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Multimission monitor

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Mariner-9 weight: 448 kg (without propellants); octagonal structure 1.27 m across the flats; 2.29 m high; 4 solar panels and Ni-Cd battery	1971-51-A	United States NASA (ETR)	30 May	heliocentric orbit		2296.11 MHz 10 or 20 W (tracking signals and data)	<i>Mariner-9</i> combines the original mission objectives of both <i>Mariner-8</i> (which failed) and <i>Mariner-9</i> . Objectives are to map 70% of the Martian surface and to observe temporal changes over small regions. Data on the atmospheric composition, density, pressure and temperature and the surface composition, temperature and topography of Mars will be collected. <i>Mariner-9</i> entered the orbit of Mars on 13 November 1971
Cosmos-426	1971-52-A	USSR (PLE)	4 June	394 km 2012 km	109.3 min 74°		Carries scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Reconnaissance/surveillance mission
Soyuz-11 weight: 6100 kg; 3-part spacecraft: 2 spherical habitable modules (orbital compartment and command module) connected in tandem to a cylindrical service module; 2 solar panels	1971-53-A	USSR (BAI)	6 June	185 km 217 km	88.3 min 51.6°		Three-man spacecraft: commander Dobrovolsky; flight engineer Volkov; research engineer Patsaev. <i>Soyuz-11</i> was docked with <i>Salyut</i> on 7 June 1971 and Patsaev and Volkov occupied <i>Salyut</i> to check systems and conduct biological experiments on the effect of weightlessness. The two spacecraft were separated, after the return of the crew to <i>Soyuz-11</i> , on 29 June. On 30 June 1971 the crew all died during re-entry
No name	1971-54-A	United States	8 June	544 km 580 km	95.8 min 90.2°		
Cosmos-427	1971-55-A	USSR	11 June	211 km 337 km	89.7 min 72.9°		Carried scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. <i>Soyuz</i> -type satellite. The orbital compartment re-entered the atmosphere on 28 June 1971. The recoverable part returned to the earth on 23 June 1971
Samos-83 (LASP-1) weight: 11 340 kg; length: 15 m	1971-56	United States USAF (WTR)	15 June	181 km 299 km	89.3 min 96.4°		<i>Low Altitude Surveillance Platform</i> . Decayed on 6 August 1971
Cosmos-428	1971-57-A	USSR (BAI)	24 June	208 km 271 km	89.1 min 51.8°	19.995 MHz	Carried scientific apparatus, radio system for precise measurements of orbital elements and radiotelemetry system. Reconnaissance/surveillance satellite. <i>Soyuz</i> -type satellite. The orbital compartment re-entered the atmosphere on 13 July 1971. The recoverable part returned to the earth on 6 July 1971

Solrad-10 (Explorer-44) weight: 118 kg; 12-sided satellite; diameter: 0.76 m; height: 0.59 m; 4 solar panels	1971-58-A	United States NRL (WI)	8 July	436 km 630 km	95.3 min 51.0°	137.710 MHz 0.5 W (tracking and telemetry) 136.380 MHz 3 W (telemetry)	Carries 14 experiments designed to monitor continuously solar electromagnetic radiation and to measure on command stellar radiation from other sources
Meteor-9	1971-59-A	USSR	16 July	618 km 650 km	97.3 min 81.2°		Carries meteorological apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system
No name	1971-60-A	United States DOD (WTR)	16 July	488 km 507 km	94.5 min 75°		
Cosmos-429	1971-61-A	USSR (BAI)	20 July	— 260 km	89 min 51.8°		Carried scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Reconnaissance/surveillance satellite. Decayed on 2 August 1971
Cosmos-430	1971-62-A	USSR (PLE)	23 July	206 km 322 km	89.6 min 65.4°		Carried scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Reconnaissance/surveillance satellite. Decayed on 5 August 1971
Apollo-15 weight: 44 676 kg; command module, service module, lunar module; diameter: 3.90 to 6.60 m; total height: 29 m	1971-63-A	United States NASA (ETR)	26 July	barycentric orbit		5765 MHz 450 W (radar tracking beacon) 2272.5 MHz 20 W (data transmission from command module) 2282.5 MHz 20 W (data transmission from lunar module)	Manned lunar mission. Commander, David R. Scott; command module pilot, Alfred M. Worden; lunar module pilot, James B. Irwin. Exploration of Hadley-Appenine region with aid of a Lunar Roving Vehicle (LRV). 77.6 kg of lunar surface samples were collected. Command module splashed down in Pacific Ocean north of Oahu on 7 August 1971
Apollo-15 sub-satellite weight: 36 kg; hexagon shaped; length: 0.78 m; diameter: 0.35 m; solar cells and rechargeable battery	1971-63-D	United States	4 Aug.	103.49 km 135.90 km	119.75 min 151.28° (selenographic orbital elements)		The sub-satellite was launched from the Scientific Instrument Module (SIM) aboard <i>Apollo-15</i> while in lunar orbit. Carried 3 experiments: a magnetometer to measure interplanetary and earth magnetic fields near the moon; charged particle sensors; and equipment to detect variations in lunar gravity caused by mass concentrations within the moon

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Molnya-1R weight: approx. 1 ton; hermetically-sealed cylinder with conical ends	1971-64-A	USSR	28 July	470 km 39 300 km	11 h 45 min 65.4°	800 MHz (transmission) 1000 MHz (reception) 3400-4100 MHz (television retransmission)	Carries apparatus for transmitting television programmes and multichannel radiocommunications, apparatus of the command measuring complex, orientation system, orbit correction system, and power supply
Cosmos-431	1971-65-A	USSR	30 July	202 km 262 km	89 min 51.8°	19.995 MHz	Carried scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Decayed on 11 August 1971
Cosmos-432	1971-66-A	USSR (BAI)	5 Aug.	209 km 262 km	89.0 min 51.8°		Carried scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Reconnaissance/surveillance satellite. Decayed on 18 August 1971
OV1-20	1971-67-A	United States USAF (WTR)	7 Aug.	136 km 1932 km	105.9 92.0°		Decayed on 28 August 1971
OV1-21	1971-67-B	United States USAF (WTR)	7 Aug.	789 km 917 km	101.9 min 87.6°		Study of the effect of plasma on the ionosphere and LF and VLF wave propagation
Cannon Ball-2 (OAR-901) weight: 363 kg; spherical brass satellite; diameter: 0.66 m; solar cells and batteries	1971-67-C	United States USAF (WTR)	7 Aug.	132 km 1968 km	106.2 min 92.0°	136.530; 136.860 MHz (on command)	Maximum density satellite capable of holding a very low orbit. Carried a super-sensitive accelerometer, tape recorder and radar beacon. Released and orbited from OV1-20 Decayed on 31 January 1972
Musket Ball (OAR-907) weight: 61.2 kg; spherical satellite; diameter: 0.32 m	1971-67-D	United States USAF (WTR)	7 Aug.	130 km 654 km	92.3 min 87.6°		Smaller and simplified version of <i>Cannon Ball-2</i> . Carried radar beacon and power supply. Released and orbited from OV1-21. Decayed on 19 September 1971
Cosmos-433	1971-68-A	USSR (BAI)	9 Aug.	159 km 259 km	89.1 min 49.5°		Carried scientific apparatus. Decayed on 9 August 1971

Cosmos-434	1971-69-A	USSR (BAI)	12 Aug.	197 km 285 km	89.0 min 51.6°		Carries scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Manœuvrable orbit-to-orbit shuttle vehicle
Samos-84	1971-70-A	United States (WTR)	12 Aug.	137 km 424 km	90.1 min 111°		Decayed on 3 September 1971
Eole weight: 84.7 kg; octagonal spacecraft; width: 0.71 m; length: 0.56 m; solar panels; Ag-Cd battery	1971-71-A	France/ United States CNES NASA (VI)	16 Aug.	677 km 906 km	100.7 min 50°	136.350 MHz 250 mW (telemetry)	The spacecraft has been developed as part of a joint effort of CNES and NASA. Primary mission objective is to carry out interrogations of free-floating, constant-level balloons to obtain data on winds, temperature and pressure along a constant density surface corresponding to a nominal pressure level of 200 millibars
Cosmos-435	1971-72-A	USSR (PLE)	27 Aug.	282 km 505 km	92.1 min 71°		Carried scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Military electronics monitor. Decayed on 28 January 1972
Luna-18	1971-73-A	USSR (BAI)	2 Sept.	earth-moon trajectory			Automatic lunar station. Main objectives were investigation of the moon and of circumlunar space. Crash-landed on the moon on 11 September 1971 and was lost to ground control
Cosmos-436	1971-74-A	USSR (PLE)	7 Sept.	514 km 550 km	95.2 min 74.0°		Carries scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Military monitoring mission
Cosmos-437	1971-75-A	USSR (PLE)	10 Sept.	523 km 558 km	95.3 min 74°		Carries scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Military monitoring mission
No name	1971-76-A	United States (WTR)	10 Sept.	489 km 508 km	94.6 min 75.1°		Military monitoring mission. Decayed on 5 October 1971
Cosmos-438	1971-77-A	USSR (PLE)	14 Sept.	212 km 321 km	89.5 min 65.4°		Carried scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Reconnaissance/surveillance mission. Decayed on 27 September 1971
Cosmos-439	1971-78-A	USSR (PLE)	21 Sept.	219 km 308 km	89.4 min 65.4°	19.995 MHz	Carried scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Reconnaissance/surveillance mission. Decayed on 2 October 1971

Code name Spacecraft description	International number	Country Organization Site of launching	Date	Perigee Apogee	Period Inclination	Frequencies Transmitter power	Observations
Cosmos-440	1971-79-A	USSR (PLE)	24 Sept.	282 km 816 km	95.3 min 71.0°		Carries scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Military monitoring mission
Shinsei weight: 65 kg; 26-sided body; diameter: 0.712 m; 5180 silicon solar cells; Ni-Cd batteries	1971-80-A	Japan Space and Aeronautics Research Institute of Tokyo University (USC)	28 Sept.	874 km 1871 km	113 min 32°	136.695 MHz 90 mW (tracking beacon- continuous transmission) 400.695 MHz 45 mW (with real time telemetry)	Scientific observation satellite. Objective: to measure solar and cosmic radiation
Cosmos-441	1971-81-A	USSR (BAI)	28 Sept.	209 km 288 km	89.2 min 65.0°		Carried scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Reconnaissance/surveillance mission. Decayed on 10 October 1971
Luna-19	1971-82-A	USSR (BAI)	28 Sept.	barycentric orbit			Automatic lunar station. Main objectives are investigations of the moon and of circumlunar space. Entered lunar orbit on 2 October 1971
OSO-7 weight: 635 kg; consists of a sail- like structure and a rotating octagonal section	1971-83-A	United States (ETR)	29 Sept.	321 km 572 km	93.2 min 33.1°	136.290 MHz 0.57 W (tracking beacon and tele- metry transmit continuously)	<i>Orbiting Solar Observatory</i> . Carries 6 experiments to study the solar corona
TETR-3 weight: 20 kg	1971-83-B	United States (ETR)	29 Sept.	400 km 571 km	94.3 min 33.1°	136.620 MHz 100 mW (tracking beacon and tele- metry—continuous trans- mission) 259.700; 2282.5 MHz 0.5 W (command tracking frequencies)	<i>TEst and TRaining</i> satellite. Objectives are evaluation and development of ground systems and the training of personnel in NASA's Manned Space Flight Network. Carries an S-band transponder which receives and transmits signals simulating those of the <i>Apollo</i> spacecraft
Cosmos-442	1971-84-A	USSR (PLE)	29 Sept.	211 km 321 km	89.5 min 72.9°		Carried scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Reconnaissance/surveillance mission. Decayed on 12 October 1971

Cosmos-443	1971-85-A	USSR (PLE)	7 Oct.	211 km 325 km	89.6 min 65.4°	19.995 MHz	Carried scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Reconnaissance/surveillance mission. Decayed on 19 October 1971
Cosmos-444 to Cosmos-451 weight: 40 kg (approx.) each	1971-86-A to 1971-86-H	USSR (PLE)	13 Oct.	1415 km 1550 km	115 min 74.0°		Eight satellites launched by a single rocket. Carry scientific apparatus, radio system for precise measurements of orbital elements and radiotelemetry system
No name	1971-87	United States	14 Oct.	795 km 879 km	101.6 min 98.9°		
Cosmos-452	1971-88-A	USSR (BAI)	14 Oct.	201 km 270 km	89.1 min 65.0°		Carried scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Reconnaissance/surveillance mission. Decayed on 27 October 1971
STP	1971-89-A	United States USAF (WTR)	17 Oct.	774 km 801 km	100.5 min 92.7°		Space Technology Program satellite. Carries among other experiments a flexible rolled-up solar array (FRUSA) 1.68 x 4.88 m, containing 34 000 solar cells and producing 1.5 kW
Cosmos-453 weight: 360-400 kg; cylindrical satellite; diameter: 1.20 m; length: 1.80 m	1971-90-A	USSR (PLE)	19 Oct.	281 km 522 km	92.2 min 71.0°		Carries scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Military monitoring mission
Itos-B weight: 311 kg	1971-91-A to 1971-91-D	United States NASA/ESSA (WTR)	21 Oct.	—	—		Failed to enter orbit and decayed. Debris from <i>ITOS-B</i> that attained earth orbit were assigned identifying designations
Samos-85	1971-92-A	United States DOD (WTR)	23 Oct.	133 km 393 km	89.7 min 110.9°		Reconnaissance/surveillance satellite. Decayed on 17 November 1971
Prospero weight: 65.8 kg; flattened sphere with equatorial diameter of 1.20 m; height: 0.70 m	1971-93-A	United Kingdom (WVS)	28 Oct.	550 km 1600 km	107 min 82°	137.56 MHz 300 mW (phase modulator with PCM at 2048 bits/s)	Objective: to test in space the equipment and techniques needed for future satellites. Experiments include: testing of new type light-weight solar cell, technique for control of temperature inside satellite by special reflecting and radiating paints, measure incidence of micrometeoroids

Code name Spacecraft description	International number	Country Organization Site of launching	Date	Perigee Apogee	Period Inclination	Frequencies Transmitter power	Observations
Cosmos-454	1971-94-A	USSR (PLE)	2 Nov.	210 km 284 km	89.2 min 65.4°		Carried scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Reconnaissance/surveillance mission. Decayed on 16 November 1971
DSCS-1 weight: 522 kg; 2.70 m × 4 m; cylindrical satellite; diameter: 2.70 m; height: 4 m; solar cells	1971-95-A	United States (ETR)	3 Nov.	synchronous orbit		X band	Defense Satellite Communication System. Synchronous satellite carrying multichannel communications payload. Four antennae, two for wide earth coverage and two with narrow beams for ground controlled direction beaming for high-volume communications. Capacity: 1300 circuits
DSCS-2 weight: 522 kg; 2.70 m × 4 m; cylindrical satellite; diameter: 2.70 m; height: 4 m; solar cells	1971-95-B	United States (ETR)	3 Nov.	synchronous orbit		X band	Defense Satellite Communication System (see DSCS-1)
Explorer-45 (SSS-A) weight: 49 kg; rechargeable battery; solar cells	1971-96-A	United States (SM)	15 Nov.	224 km 27 031 km	469.3 min 3.5°	136.83 MHz 0.5 W (continuous transmission of tracking and telemetry signals) 137.95 MHz 3 W (commanded on and off) 148.98 MHz (command frequency)	Small Scientific Satellite. Objective: to study inner magnetosphere of the earth. Carries 7 scientific and 3 engineering experiments, 4 dipole antennae and a two-mode (high and low power) transmitter
Cosmos-455	1971-97-A	USSR (PLE)	17 Nov.	282 km 516 km	92.2 min 71°		Carries scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system
Cosmos-456	1971-98-A	USSR (PLE)	19 Nov.	218 km 328 km	89.7 min 72.9°		Carried scientific apparatus, radio system for precise measurements of orbital elements and radiotelemetry system. Decayed on 2 December 1971
Cosmos-457	1971-99-A	USSR (PLE)	20 Nov.	1192 km 1229 km	109.5 min 74.0°		Carries scientific apparatus, radio system for precise measurements of orbital elements and radiotelemetry system

Molnya-2A	1971-100-A	USSR (PLE)	24 Nov.	460 km 39 370 km	11 h 46 min 65.4°	5.7-6.0 GHz (reception) 3.4-3.9 MHz (transmission)	Carries apparatus for transmitting television programmes and multichannel radiocommunications, apparatus of the command measuring complex, orientation system, and orbit correction system, and power supplies
Cosmos-458	1971-101-A	USSR (PLE)	29 Nov.	283 km 523 km	92.3 min 71.0°		Carries scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Radiation and communications monitoring mission
Cosmos-459 diameter: 2 m; length: 4 m	1971-102-A	USSR	29 Nov.	226 km 277 km	89.4 min 65.8°		Carried scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Space interceptor programme. Decayed on 27 December 1971
Cosmos-460	1971-103-A	USSR (PLE)	30 Nov.	520 km 553 km	95.2 min 74.0°		Carries scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system
Intercosmos-5	1971-104-A	USSR	2 Dec.	205 km 1200 km	98.5 min 48.4°		Contains instrumentation designed in Czechoslovakia and USSR. Objective: to measure upper atmosphere and radiation belts
Cosmos-461	1971-105-A	USSR (PLE)	2 Dec.	490 km 524 km	94.6 min 69.2°		Carries scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system
Cosmo-462	1971-106-A	USSR	3 Dec.	237 km 1840 km	105.7 min 65.8°		Carried scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Space interceptor programme. Was a target vehicle for interceptor satellite <i>Cosmos-459</i> . Immediately after interception <i>Cosmos-462</i> had disintegrated into at least ten pieces
Cosmos-463	1971-107-A	USSR (BAI)	6 Dec.	215 km 307 km	89.4 min 65.0°		Carried scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Reconnaissance/surveillance mission. Decayed on 11 December 1971
Cosmos-464	1971-108-A	USSR (PLE)	10 Dec.	206 km 405 km	90.3 min 72.9°		Carried scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Reconnaissance/surveillance mission. Decayed on 16 December 1971

Code name Spacecraft description	International number	Country Organization Site of launching	Date	Perigee Apogee	Period Inclination	Frequencies Transmitter power	Observations
Ariel-4 (UK-4) weight: 99 kg; cylindrical satellite with conical top; height: 0.838 m; diameter: 0.711 m; solar cells	1971-109-A	United Kingdom SRC (WTR)	11 Dec.	458 km 590 km	95.1 min 83.0°	137.050 MHz 250 mW (tracking and telemetry signals) 148.250 MHz (command frequency)	The spacecraft and the experiments have been designed to operate for one year in orbit. Objective: to investi- gate the earth's ionosphere
No name	1971-110-A	United States USAF (WTR)	14 Dec.	983 km 998 km	105.0 min 70.0°		Military monitoring mission
Cosmos-465	1971-111-A	USSR (PLE)	15 Dec.	984 km 1023 km	105.0 min 74.0°		Carries scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Military monitoring mission
Cosmos-466	1971-112-A	USSR (BAI)	16 Dec.	207 km 302 km	89.4 min 65.0°		Carried scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Reconnaissance/surveillance mission. Decayed on 27 December 1971
Cosmos-467	1971-113-A	USSR (PLE)	17 Dec.	279 km 502 km	92.0 min 71.0°		Carries scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Electronic intelligence monitoring mission
Cosmos-468	1971-114-A	USSR (PLE)	17 Dec.	788 km 830 km	100.8 min 74°		Carries scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Military electronics monitor
Molnya-1S	1971-115-A	USSR (PLE)	20 Dec.	490 km 39 200 km	703 min 65.5°		Carries apparatus for transmitting television programmes and multichannel radiocommunications, apparatus of the command measuring complex, orientation system, orbit correction system and power supplies
Intelsat-IV F3 weight: 720 kg; cylindrical satellite; height: 5.28 m; diameter: 2.39 m; solar cells	1971-116-A	Interna- tional INTELSAT (ETR)	20 Dec.	35 750 km 35 827 km	1436.2 min 0.4°	5950; 5990; 6030; 6070; 6110; 6150; 6200; 6240; 6280; 6320; 6360; 6400 MHz (reception) 3725; 3765; 3805; 3845; 3885; 3925; 3975; 4015; 4055; 4095 4135; 4175 MHz (transmission)	INTELSAT commercial telecommunication satellite. 3000 to 9000 telephone circuits or 12 television channels. In geostationary orbit above the Atlantic Ocean at 340.5° E longitude

Cosmos-469	1971-117-A	USSR (BAI)	25 Dec.	259 km 276 km	89.7 min 65°	Carries scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Orbit-to-orbit shuttle stage test
Cosmos-470	1971-118-A	USSR (PLE)	27 Dec.	195 km 272 km	89.1 min 65.4°	Carries scientific apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Reconnaissance/surveillance mission
Oreol-1 weight: 300 kg; diameter: 1.50 m; length: 1.50 m; solar panels	1971-119-A	France/USSR (PLE)	27 Dec.	410 km 2500 km	114.6 min 74°	Objective: to study the polar aurora, including proton intensity and ion composition. Arcade Franco-Soviet equipment
Meteor-10	1971-120-A	USSR	29 Dec.	880 km 905 km	102.7 min 81.2°	Carries meteorological apparatus, radio system for precise measurements of orbital elements, and radiotelemetry system. Equipped with an automatic picture transmission system. Transmits high-resolution images of earth's cloud cover

* The designation employed and the publication of this information imply no recognition by the ITU of the status of this territory in relation to the Union.

BAI = Baikonur (USSR)

CNES = Centre national d'études spatiales (France)

CRA = Centro Ricerche Aerospaziali (Italy)

CSG = Centre spatial guyanais, Kourou

DOD = Department of Defense (United States)

ESSA = Environmental Science Services Administration (United States)

ETR = Eastern Test Range (United States)

INTELSAT = International Telecommunications Satellite Consortium

NASA = National Aeronautics and Space Administration (United States)

NATO = North Atlantic Treaty Organization

NRL = Naval Research Laboratory (United States)

PLE = Plesetsk (USSR)

SCSF = Swang Chentze Space Facility in north-west China

SM = San Marco platform (Italy/Kenya)

SRC = Science Research Council (United Kingdom)

USAF = United States Air Force

WI = Wallops Island (United States)

WS = Woomera Space Centre (Australia)

WTR = Western Test Range (United States)

Any complementary information or remarks concerning the contents or presentation of this table will be welcome. They should be addressed to: Information Division, International Telecommunication Union, Place des Nations, 1211 Geneva 20 (Switzerland).

The following satellites have decayed since the publication, in the May 1971 issue of the "Telecommunication Journal", of the "Table of Artificial Satellites Launched from 1957 to 1970"

Satellite	International number	Decay	Satellite	International number	Decay
Discoverer-1	1959-β-1	early March 1959	No name	1969-79-B	16 May 1971
Discoverer-2	1959-γ-1	26 April 1959	Cosmos-327	1970-20-A	19 January 1971
Transit-1B	1960-γ-2	5 October 1967	Cosmos-362	1970-73-A	13 October 1971
No name	1963-30-D	12 April 1971	Cosmos-369	1970-81-A	22 January 1971
OV3-2	1966-97-A	29 September 1971	Intercosmos-4	1970-84-A	17 January 1971
Molnya-1E	1967-52-A	26 November 1971	OFO-1	1970-94-A	9 May 1971
Iris (Esro-II)	1968-41-A	8 May 1971	RM-1	1970-94-B	7 February 1971
Molnya-1I	1968-57-A	15 May 1971	Cosmos-380	1970-100-A	17 June 1971
No name	1968-86-A	26 March 1971	Cosmos-388	1970-112-A	10 May 1971
No name	1969-26-B	6 December 1971	OAR-901	1971-67-A	31 January 1972
Molnya-1L	1969-61-A	18 June 1971	Cosmos-435	1971-72-A	28 January 1972

Corrigendum to the "Table of Artificial Satellites Launched from 1957 to 1970"

Satellite	International number	Observations
Lunik-2	1959-ξ-1	Lunar impact on 15 September 1959
Lunik-3	1959-θ-1	Decayed on 29 April 1960
Sputnik-4	1960-ε-1	Decayed on 15 October 1962
OSO-1	1962-ζ-1	Delete: "Decayed on 3 May 1970"
Cosmos-92	1965-83-A	Re-entered on 24 October 1965