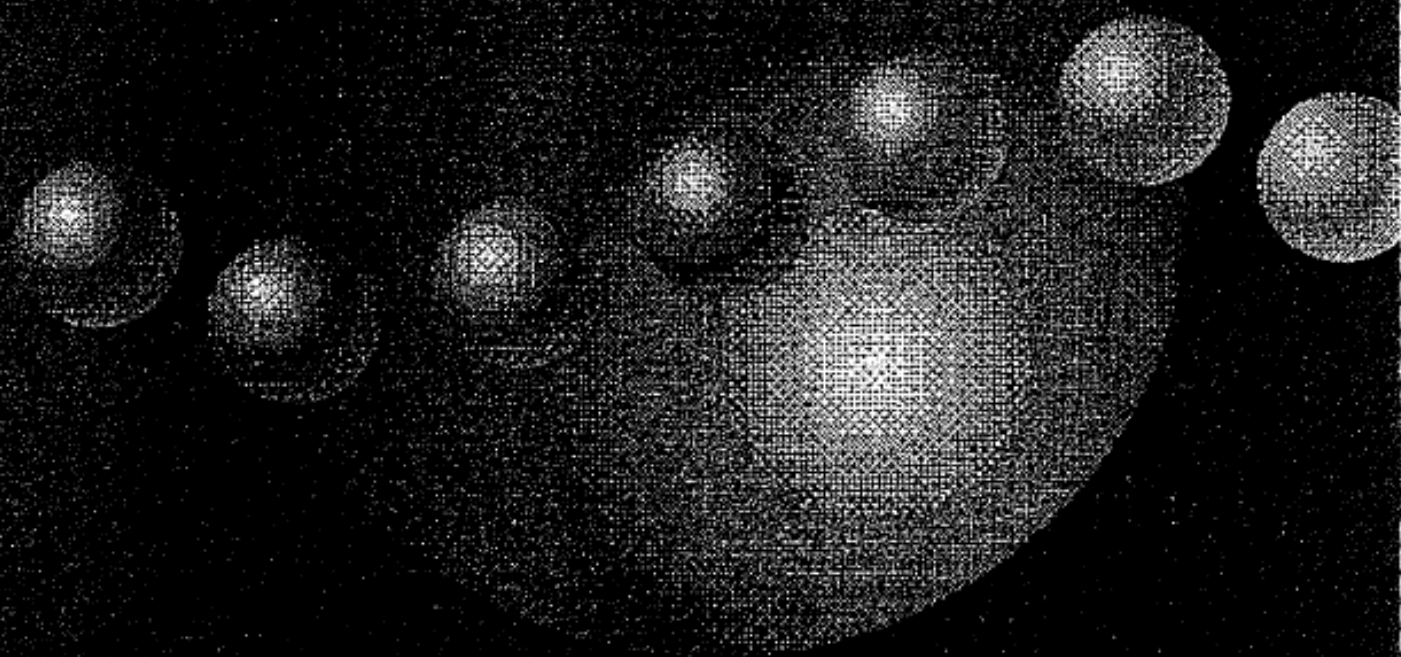


TABLE
OF ARTIFICIAL
SATELLITES
LAUNCHED IN 1989



Code name Spacecraft description	International number	Country Organization Site of launching	Date	Initial orbital data		Frequencies Transmitter power	Observations
				Perigee (km) Apogee (km)	Period (min) Inclination (degree)		
Cosmos-1987 to Cosmos-1989	1989-1-A to 1989-1-C	USSR (Baikonur)	10 Jan.	19 113 19 140	675 65		Three satellites launched into near circular orbit. Instruments to test a space navigation system for aircraft and ocean-going ships
Cosmos-1990	1989-2-A	USSR	12 Jan.	192 259	88.7 82.6		Exploration of Earth resources. Photography of seismically active regions of the USSR including Armenia. Recovered on 11 February 1989
Cosmos-1991	1989-3-A	USSR	18 Jan.	216 401	90.4 70		Recovered on 1 February 1989
Gorizont-17 3-axis stabilized; solar panels	1989-4-A	USSR (Baikonur)	26 Jan.	36 506 in geostationary-satellite orbit	1473 1.3	5.7-6.2 GHz (reception) 3.4-3.9 GHz (emission)	Television and multichannel radiocommunications
Cosmos-1992	1989-5-A	USSR (Baikonur)	26 Jan.	777 814	100.7 74		
Intelsat-5A F15 3-axis stabilized; height: 6.6 m; 2 solar arrays	1989-6-A	International INTELSAT (Kourou)	27 Jan.	35 355 35 709 in geostationary-satellite orbit at 60° E	1423.1 0.3	6/4 and 14/11 GHz bands (communications)	Commercial telecommunications. Replaces <i>Intelsat-5A F12</i> which has been moved to the Atlantic region
Cosmos-1993	1989-7-A	USSR	28 Jan.	180 382	89.9 64.8		Recovered on 27 March 1989
Progress-40 modified Soyuz spacecraft without the descent section; 7 tonnes at launch; diameter: 2.3 m; length: 7.9 m	1989-8-A	USSR (Baikonur)	10 Feb.	193 262	88.8 51.6		Expendable supply craft. Docked with the <i>Mir-1</i> space complex on 12 February 1989. Corrected <i>Mir-1's</i> flight trajectory. Undocked and disintegrated on re-entry on 5 March 1989
Cosmos-1994 to Cosmos-1999	1989-9-A to 1989-9-F	USSR (Plesetsk)	10 Feb.	1403 1442	114.1 82.6		
Cosmos-2000	1989-10-A	USSR	10 Feb	191 275	88.8 82.3		Earth resources exploration. Recovered on 3 March 1989

2

Cosmos-2001	1989-11-A	USSR (Plesetsk)	14 Feb	613 39 342	709 62.8		
Cosmos-2002	1989-12-A	USSR	14 Feb	187 2315	110.4 65.8		Decayed on 15 October 1989
USA-35	1989-13-A	United States	14 Feb.	20 010 20 455	720.0 55.1		
Molnya-1 (75) hermetically sealed cylinder with conical ends; 1000 kg; 6 solar panels	1989-14-A	USSR (Plesetsk)	15 Feb.	486 38 937	698 62.5	800 MHz band 40 W (emission) 1000 MHz band (reception) 3400-4100 MHz (retransmission of television)	Television and multichannel radiocommunications
Cosmos-2003	1989-15-A	USSR	17 Feb.	249 271	89.5 62.8		Recovered on 3 March 1989
EXOS-D (Akebono)	1989-16-A	Japan Institute of Space and Aeronautical Science (Kagoshima)	21 Feb.	276 10 474	211.3 75.1	2280.5 MHz 400.45 MHz	Study of formation of auroras in the upper atmosphere
Cosmos-2004	1989-17-A	USSR	22 Feb.	993 1031	105.1 83		
Meteor-2 (18) cylinder; 2750 kg; 2 solar panels	1989-18-A	USSR (Plesetsk)	28 Feb.	951 974	104.1 82.5		Meteorology. Instruments for obtaining global of cloud layers and the underlying surface in the visible and infra-red ranges of the spectrum, and for the constant observation of the streams of penetrating radiation in circumterrestrial space
Cosmos-2005	1989-19-A	USSR	2 March	197 347	89.7 62.8		Recovered on 25 April 1989
JCSAT-1 Hughes-type HS 393 spin-stabilized cylinder; diameter: 3.7 m; height: 10 m	1989-20-A	Japan (Kourou)	6 March	35 782 35 793 in geostationary-satellite orbit at 150° E	1436.2 0.1		Japanese communications satellite. Thirty-two transponders of 20 W
MOP-1	1989-20-B	International EUMETSAT (Kourou)	6 March	35 214 35 886	1424.0 1.2		Meteorology

3

Code name Spacecraft description	International number	Country Organisation Site of launching	Date	Initial orbital data		Frequencies Transmitter power	Observations
				Perigee (km) Apogee (km)	Period (min) Inclination (degree)		
STS-29 space shuttle <i>Discovery</i>	1989-21-A	United States NASA (Kennedy Space Center)	13 March	305 337	91.0 28.5		Reusable spacecraft. Crew: M. L. Coats, J. F. Buchli, J. E. Blaha, R. C. Springer and J. P. Bagian. Landed at Edwards Air Force Base on 19 March 1989
TDRS-4	1989-21-B	United States launched from STS-29	13 March	35 653 35 832	1433.9 0.2	2 and 14-15 MHz bands	Tracking and data relay satellite for the United States Space Programme
				in geostationary-satellite orbit at 41° W			
Cosmos-2006	1989-22-A	USSR	16 March	249 402	90.8 62.9		Recovered on 31 March 1989
Progress-41 modified <i>Soyuz</i> spacecraft without the descent section; 7 tonnes at launch; diameter: 2.3 m, length: 7.5 m	1989-23-A	USSR (Baikonur)	16 March	193 260	89.7 51.6		Expendable supply craft. Docked with <i>Mir-1</i> on 18 March 1989. Undocked and disintegrated on re-entry on 25 April 1989
Cosmos-2007	1989-24-A	USSR	23 March	190 300	89.1 64.8		Decayed on 22 September 1989
Cosmos-2008 to Cosmos-2015	1989-25-A to 1989-25-H	USSR (Plesetsk)	24 March	1445 1510	115.2 74		
USA-36	1989-26-A	United States	24 March	482 503	94.5 47.7		Experimental missile hunting satellite equipped with a laser radar, seven video imaging cameras and an infra-red imager
Tele-X	1989-27-A	Scandinavia (Kourou)	2 April	30 510 35 817	1304.1 0.1	14/12 GHz band	Scandinavian telecommunications and television Six transponders
Cosmos-2016	1989-28-A	USSR	4 April	973 1026	104.9 82.9		
Cosmos-2017	1989-29-A	USSR	6 April	244 284	89.7 62.8		Recovered on 19 April 1989

4

Raduga-23 3-axis stabilized, 5 tonnes, solar panels	1989-30-A	USSR (Baikonur)	14 April	36 523	1474 1.4	5.7-6.2 GHz (reception) 3.4-3.9 GHz (emission)	Television and multichannel radiocommunications
				in geostationary-satellite orbit			
Cosmos-2018	1989-31-A	USSR	20 April	194 350	89.7 62.8		Recovered on 19 June 1989
Foton-2	1989-32-A	USSR	26 April	225 402	90.5 62.8		Space material studies. Recovered on 11 May 1989
STS-30 space shuttle <i>Atlantis</i>	1989-33-A	United States NASA (Kennedy Space Center)	4 May	297 331	90.8 28.9	S band UHF	Reusable spacecraft. Landed at Edwards Air Force Base on 8 May 1989
Magellan	1989-33-B	United States launched from STS-30	4 May	trans-Venus trajectory			Global mapping of Venus by means of a radar mapping device
Cosmos-2019	1989-34-A	USSR	5 May	247 268	89.5 62.9		Recovered on 18 May 1989
USA-37	1989-35-A	United States Department of Defense	10 May				
Cosmos-2020	1989-36-A	USSR	17 May	180 365	89.7 64.8		Recovered on 15 July 1989
Cosmos-2021	1989-37-A	USSR	24 May	204 302	89.3 70		Space research, orbital measurement and radio telemetry. Recovered on 6 July 1989
Resurs-F	1989-38-A	USSR	25 May	188 263	88.7 82.3		Large scale multizonal and spectrozonal spanning. Recovered on 17 June 1989
Cosmos-2022	1989-39-A	USSR (Baikonur)	31 May	19 133 19 158	676.0 64.8		
Cosmos-2023	1989-39-B	USSR (Baikonur)	31 May	18 582 19 140	664.5 64.8		
Cosmos-2024	1989-39-C	USSR (Baikonur)	31 May	19 118 19 155	675.4 64.8		
Cosmos-2025	1989-40-A	USSR	1 June	252 275	89.6 62.8		Space research, orbital measurement and radio telemetry. Recovered on 15 June 1989

5

Code name Spacecraft description	International number	Country Organization Site of launching	Date	Initial orbital data		Frequencies Transmitter power	Observations
				Perigee (km) Apogee (km)	Period (min) Inclination (degree)		
Superbird-A	1989-41-A	Japan (Kourou)	5 June	35 628 35 831	1433.1 0.1	17-29 GHz	Japanese communications satellite. Carries 29 transponders
DFS-1	1989-41-B	Fed. Rep. of Germany (Kourou)	5 June	35 646 35 878	1434.8 0.2		
Cosmos-2026	1989-42-A	USSR	7 June	969 1022	104.8 82.9		Space research, orbital measurement and radio telemetry
Molnya-3 (35) 3-axis stabilized, 1500 kg	1989-43-A	USSR (Plesetsk)	8 June	631 40 696	747 62.9	5.9-6.2 MHz (reception) 3.6-3.9 MHz (emission)	Television and multichannel radiocommunications
USA-38	1989-44-A	United States	10 June	20 094 20 276	781.1 54.6		Navigation
Cosmos-2027	1989-45-A	USSR	14 June	484 522	94.06 65.9		
USA-39	1989-46-A	United States Department of Defense (Vandenberg)	14 June				
Cosmos-2028	1989-47-A	USSR	16 June	217 314	89.5 70		Space research, orbital measurement and radio telemetry. Recovered on 6 July 1989
Raduga-1 (1)	1989-48-A	USSR (Baikonur)	21 June	36 538	1472 1.5		Telephone and telegraph radiocommunications
				in geostationary-satellite orbit			
Resurs-F2	1989-49-A	USSR	27 June	195 262	88.7 82.6		Multizonal and multispectral photography of varied scales. Recovered on 11 July 1989
Nadezhda	1989-50-A	USSR	4 July	979 1026	104.9 83		Navigational system for determining the location of ships. International search and rescue system for ships and aircraft in distress
Cosmos-2029	1989-51-A	USSR	5 July	193 270	88.8 82.3		Recovered on 19 July 1989

6

Gorizont-18 3-axis stabilized, solar panels	1989-52-A	USSR (Baikonur)	5 July	35 100	1401 1.5	5.7-6.2 GHz (reception) 3.4-3.9 GHz (emission)	Television and multichannel radiocommunications
				in geostationary-satellite orbit			
Olympus 2595 kg at launch	1989-53-A	Europe ESA (Kourou)	12 July	33 304 36 113	1381.4 0.2	14/12, 17/19-20, 28 and 30 GHz bands	Communications
				in geostationary-satellite orbit at 19° W			
Cosmos-2030	1989-54-A	USSR	12 July	177 373	89.7 67.2		Recovered on 29 July 1989
Resurs-F3	1989-55-A	USSR	18 July	195 253	88.6 82.6		Multizonal and multispectral photography of varied scales. Recovered on 8 August 1989
Cosmos-2031	1989-56-A	USSR	18 July	200 283	89.0 50.5		Recovered on 15 September 1989
Cosmos-2032	1989-57-A	USSR	20 July	193 275	88.8 82.3		Recovered on 3 August 1989
Cosmos-2033	1989-58-A	USSR	24 July	410 436	92.3 65.0		
Cosmos-2034	1989-59-A	USSR	25 July	988 1026	105 82.9		
Cosmos-2035	1989-60-A	USSR	2 August	191 268	88.8 82.6		Recovered on 16 August 1989
STS-28 space shuttle <i>Columbia</i>	1989-61-A	United States Department of Defense (Kennedy Space Center)	8 August	314 317	90.5 56.9		Reusable spacecraft. Crew: B. Shaw, D. Leetsma, D. Richards, J. Adamson and M. Brown. Landed at Edwards Air Force Base on 13 August 1989
USA-40	1989-61-B	United States Department of Defense launched from <i>STS-28</i>	8 August				
USA-41	1989-61-C	United States Department of Defense launched from <i>STS-28</i>	8 August				

7

Code name Spacecraft description	International number	Country Organization Site of launching	Date	Initial orbital data		Frequencies Transmitter power	Observations
				Perigee (km) Apogee (km)	Period (min) Inclination (degrees)		
TVSat-2 2080 kg, solar panels	1989-62-A	Fed. Rep. of Germany (Kourou)	8 August	35 554 35 785	1429.9 0.2	12 and 17 GHz bands	Direct-broadcasting satellite
Hipparcos	1989-62-B	Europa ESA (Kourou)	8 August	223 35 632	628.9 7.0		Astronomical research. Apogee motor failed to light and the satellite failed to reach its correct orbit
Resurs-F4	1989-63-A	USSR	15 August	192 258	89.0 82.3		Equipment for taking multizonal and multispectral photographs of varied scales. Recovered on 14 September 1989
USA-42	1989-64-A	United States	18 August	20 113 20 249	717.9 55.0		Navigation
Cosmos-2036	1989-65-A	USSR	22 August	248 273	89.6 62.8		Recovered on 5 September 1989
Progress-M (1)	1989-66-A	USSR (Baikonur)	23 August	191 235	88.5 51.6		First of a new series of automatic cargo spacecraft. Decayed on 1 December 1989
BSB-R1 (Marco Polo-1) Hughes-type HS 376	1989-67-A	United Kingdom British Satellite Broadcasting Co. (Kennedy Space Center)	27 August	35 777 35 787	1435.76 0.15	14/11-12 GHz band	Direct-broadcasting satellite. D-MAC modulation
Cosmos-2037	1989-68-A	USSR	28 August	1503 1537	116.1 73.6		Launched by the <i>Tsiklon</i> rocket
USA-43	1989-69-A	United States Department of Defense (Vandenberg)	4 Sept.				
USA-44	1989-69-B	United States Department of Defense (Vandenberg)	4 Sept.				

8

GMS-4 (Himawari-4)	1989-70-A	Japan (Tanegashima)	5 Sept.		in geostationary-satellite orbit at 140° E	2280.72 MHz, 5 W 1694.0 MHz, 2 W 468.875 MHz, 4 W 468.883 MHz, 4 W 468.924 MHz, 4 W 1681.6 MHz, 20 W 1684.0 MHz, 20/2 W 1687.1 MHz, 20 W 1691.0 MHz, 20 W	Meteorology
Soyuz-TM 8 7 tonnes at launch	1989-71-A	USSR (Baikonur)	5 Sept.	387 407	92.7 51.6		Docked with the <i>Mir-1</i> orbital complex on 7 September 1989
USA-45	1989-72-A	United States Department of Defense (Vandenberg)	6 Sept.				
Resurs-F5	1989-73-A	USSR	6 Sept.	189 261	88.7 82.3		Equipment for taking multizonal and multispectral photographs of varied scales. Equipment from the Federal Republic of Germany for biotechnological experiments in low-gravity conditions. Recovered on 22 September 1989
Cosmos-2038 to Cosmos-2043	1989-74-A to 1989-74-F	USSR (Plesetsk)	14 Sept.	1394 1435	114 82.6		Launched by the <i>Tsiklon</i> rocket
Cosmos-2044	1989-75-A	USSR	15 Sept.	216 294	89.3 82.3		Carries two monkeys, other biological objects and instruments for studying the influence of weightlessness and cosmic radiation on living organisms. Recovered on 29 September 1989
Cosmos-2045	1989-76-A	USSR	22 Sept.	216 322	89.6 70		Recovered on 2 October 1989
USA-46 (FLTSATCOM-8) 3-axis stabilized hexagon	1989-77-A	United States (Kennedy Space Center)	25 Sept.	35 774 35 791	1413.4 5.0	8/7 GHz band	Government communications
Molnya-1 (76) hermetically sealed cylinder with conical ends, 1000 kg, 6 solar panels	1989-78-A	USSR (Plesetsk)	27 Sept.	650 38 960	702 62.8	800 MHz band 40 W (emission) 1099 MHz band (reception) 3400-4100 MHz (retransmission of television)	Television and multichannel radio-communications

9

Code name Spacecraft description	International number	Country Organization Site of launching	Date	Initial orbital data		Frequencies Transmitter power	Observations
				Perigee (km) Apogee (km)	Period (min) Inclination (degree)		
Cosmos-2046	1989-79-A	USSR	27 Sept.	412 431	92.8 65		
Intercosmos-24 (Aktivnyi)	1989-80-A	USSR	28 Sept.	505 2492	115.9 82.6		Study of low-frequency electromagnetic emissions
Magion-2	1989-80-B	Czechoslovakia launched from <i>Intercosmos-24</i>	3 Oct.	504 2494	115.9 82.5		Simultaneous research with <i>Intercosmos-24</i>
Gorizont-19 3-axis stabilized, solar panels	1989-81-A	USSR (Baikonur)	28 Sept.	35 753 in geostationary-satellite orbit	1434 1.3	5.7-6.2 GHz (reception) 3.4-3.9 GHz (emission)	Television and multichannel radiocommunications
Cosmos-2047	1989-82-A	USSR	3 Oct.	178 357	89.5 67.2		Recovered on 21 November 1989
Cosmos-2048	1989-83-A	USSR	17 Oct.	248 270	89.4 62.8		Recovered on 26 October 1989
STS-34 space shuttle <i>Atlantis</i>	1989-84-A	United States NASA (Kennedy Space Center)	18 Oct.	295 323	90.5 34.3		Reusable spacecraft. Crew: M. McCulley, S. W. Lucid, F. Chang-Diaz and E. S. Baker. Landed at Edwards Air Force Base on 23 October 1989
Galileo	1989-84-B	United States launched from <i>STS-34</i>	18 Oct.				Remote sensing of Jupiter and its satellites
USA-47	1989-85-A	United States	21 Oct.				Navigation
Meteor-3 (3)	1989-86-A	USSR	24 Oct.	1191 1228	109.5 82.6		Meteorology. Optical-mechanical scanning television, radiometric equipment and a geophysical instrument
Intelsat-6A F2 3-axis stabilized	1989-87-A	International INTELSAT (Kourou)	27 Oct.	in geostationary-satellite orbit		6/4 and 14/11 GHz bands	Thirty-eight C-band and ten K-band transponders. Commercial telecommunications
Cosmos-2049	1989-88-A	USSR	17 Nov.				
COBE	1989-89-A	United States (Vandenberg)	18 Nov.				Monitoring of cosmic background radiation

10

STS-33 space shuttle <i>Discovery</i>	1989-90-A	United States NASA (Kennedy Space Center)	23 Nov.				Space transportation System 33. Reusable spacecraft. Crew: F. D. Gregory (commander), J. E. Blaha, M. L. Carter, F. S. Musgrave and K. C. Thornton. Landed at Edwards Air Force Base on 27 November 1989
No name 2700 kg	1989-90-B	United States National Security Agency launched from <i>STS-33</i>		geosynchronous orbit			Similar to <i>1985-10-B</i>
Cosmos-2050	1989-91-A	USSR	23 Nov.	603 39 342	709 62.8		Exploration of outer space
Cosmos-2051	1989-92-A	USSR	24 Nov.	305 456	92.8 64.8		
Kvant-2 cylinder, 5.8 x 4.15 m; 11 tonnes	1989-93-A	USSR	26 Nov.	344 413	91.8 51.6		Docked with <i>Mir-1</i> space complex on 6 December 1989
Molnya-3 (36) 3-axis stabilized, 1500 kg	1989-94-A	USSR (Plesetsk)	28 Nov.	662 40 600	156 62.5	5.9-6.2 GHz (reception) 3.6-3.9 GHz (emission)	Television and multichannel radiocommunications
Cosmos-2052	1989-95-A	USSR	30 Nov.	175 373	89.7 67.2		
Granat	1989-96-A	USSR	1 Dec.	2000 200 000	5880 51.6		Research on X and gamma radiation. Experiments from USSR, France, Denmark and Bulgaria
USA-49	1989-97-A	United States	11 Dec.				
Raduga-24 3-axis stabilized, 5 tonnes, solar panels	1989-98-A	USSR (Baikonur)	15 Dec.	36 551 in geostationary-satellite orbit	1475 1.5	5.7-6.2 GHz (reception) 3.4-3.9 GHz (emission)	Television and multichannel radiocommunications
Progress-M2	1989-99-A	USSR (Baikonur)	20 Dec.				Expendable supply craft. Docked with <i>Mir-1</i>
Cosmos-2053	1989-100-A	USSR	27 Dec.	527 548	95.2 73.6		
Cosmos-2054	1989-101-A	USSR	27 Dec.	36 436	1469 1.5	SHF band	Telecommunication relay

11

ESA = European Space Agency
 EUMETSAT = European Organization for the Exploitation of Meteorological Satellites

INTELSAT = International Telecommunications Satellite Organization
 NASA = National Aeronautics and Space Administration (United States)

The following satellites have decayed since the preparation of the "Table of artificial satellites launched in 1988" published in May 1989

satellite	international number	decay
OSO-2	1965-7-A	9 August 1989
OPS-7353	1965-21-A	31 December 1989
Cosmos-103	1965-112-A	2 January 1990
Cosmos-122	1966-57-A	14 November 1989
Cosmos-156	1967-39-A	23 October 1989
Cosmos-184	1967-102-A	2 April 1989
Cosmos-206	1969-19-A	22 April 1989
Cosmos-851	1976-85-A	5 August 1989
Cosmos-1064	1978-119-A	12 November 1989
Sage	1979-13-A	11 April 1989
Molnya-1 (43)	1979-31-A	9 December 1989
Bhaskara	1979-51-A	17 February 1989
Ariane-6	1979-104-A	27 November 1989
SMM	1980-14-A	2 December 1989
Cosmos-1179	1980-37-A	18 July 1989
Cosmos-1310	1981-95-A	3 April 1989
Cosmos-1345	1982-26-A	27 September 1989
Cosmos-1427	1982-121-A	5 October 1989
Cosmos-1453	1983-34-A	8 May 1989

satellite	international number	decay
Cosmos-1501	1983-101-A	26 May 1989
Exos-3 (Ohzora)	1984-15-A	19 July 1989
LDEF-1	1984-34-B	20 January 1990
Cosmos-1601	1984-104-A	29 November 1989
Cosmos-1662	1985-50-A	16 November 1989
USA-13	1985-114-A	11 May 1989
Cosmos-1813	1987-4-A	13 March 1989
Cosmos-1868	1987-61-A	2 March 1989
Cosmos-1870	1987-64-A	29 July 1989
Cosmos-1902	1987-103-A	30 December 1988
Cosmos-1958	1988-60-A	21 March 1989
Soyuz-TM 6	1988-75-A	21 December 1988
Horizon-1	1988-87-A	14 January 1989
Cosmos-1979	1988-101-A	25 December 1988
Soyuz-TM 7	1988-104-A	27 April 1989
Cosmos-1984	1988-110-A	13 February 1989
Progress-39	1988-114-A	7 February 1989
Cosmos-1986	1988-116-A	11 February 1989

LIST OF GEOSTATIONARY SPACE STATIONS BY ORBITAL POSITIONS
 (RR 1042, RR 1060, RR 1488-1491)
 (31.12.1989)

Orbital position	Space station	Frequency bands GHz																			
		0	1	2	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40
178.00 W C	USA USASAT-13K				4		6														
177.00 W A	USA FLTSATCOM-A W PAC	0							7	8											
175.00 W A	PNG PACSTAR A-2		C1		5	6															
175.00 W C	PNG PACSTAR-2			4	6					12		14									
174.00 W A	USA TDRS 174W			2							13	14									
172.50 W A	TON TONGASAT C-4				4	6															
171.00 W N	USA TDRS WEST			2								14	15								
171.00 W A	USA USASAT-14E				4	6															
170.00 W N	URS GALS-4							7	8												
170.00 W N	URS STATIONAR-10				4	5	6														
170.00 W A	URS STATIONAR-10A				4	6															
170.00 W C	URS STATIONAR-D2				4	6															
170.00 W C	URS TOR-3															18	19	20			
170.00 W N	URS VOLNA-7	0	1																		
169.50 W A	URS FOTON-3				4	6															
168.00 W N	URS POTOK-3				4																
165.00 W A	USA USASAT-13L									11	12		14								
160.00 W N	URS ESDRN									11			14								
159.00 W C	URS PROGNOZ-7			2	4																
155.00 W C	URS STATIONAR-26				4	5	6														
149.00 W N	USA ATS-1	0			4	6															
148.00 W A	USA MILSTAR 12	0		2																C20	C*
146.00 W A	MEX AMIGO-2										12					17					
146.00 W C	USA USASAT-20C				4	6															
145.00 W A	MEX MORELOS 4				4	6					12		14								
145.00 W C	URS VOLNA-21M																				
145.00 W A	USA FLTSATCOM-A PAC	0																			
144.00 W A	USA USASAT-20B				4	6															
143.00 W N	USA US SATCOM-4				4	6															
141.00 W A	MEX MORELOS 3				4	6					12		14								
140.00 W C	USA USASAT-17C				4	6															
139.00 W N	USA US SATCOM 1-R				4	6															
137.00 W A	USA USASAT-17B				4	6															
136.00 W A	MEX AMIGO-1										12					17					
136.00 W N	USA USASAT-16D										12		14								
135.00 W N	USA GOES WEST	0	1	2																	
135.00 W N	USA US SATCOM-1				4	6															
135.00 W A	USA USASAT-21A				4	6															
135.00 W N	USA USGCS PH2 E PAC																				
135.00 W N	USA USGCS PH3 E PAC																				
134.00 W N	USA USASAT-11D				4	6															
134.00 W C	USA USASAT-16C										12		14								
131.00 W A	USA USASAT-22A				4	6															
132.00 W C	USA USASAT-11C										12		14								
131.00 W N	USA US SATCOM 3-R				4	6															

A Only advance publication under RR 1042
 C Presently being coordinated under RR 1060
 N Notified

Orbital position	Space station	Frequency bands GHz																				
		0	1	2	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40	
130.00 W C	USA ACS-3		1																			
130.00 W C	USA USASAT-10D																					
130.00 W A	USA USGCS PH2 E PAC-2																			7	8	
130.00 W A	USA USGCS PH3 E PAC-2																			7	8	
130.00 W A	USA USRDSS WEST			1	2																	
128.00 W N	USA ACS-1																					
128.00 W N	USA COMSTAR D-1																					
127.00 W A	USA USASAT-21B																					
126.00 W C	USA USASAT-10C																					
126.00 W N	USA USASAT-20A																					
125.00 W A	USA USASAT-22B																					
124.00 W C	USA USASAT-10B																					
123.50 W N	USA WESTAR-2																					
123.00 W N	USA WESTAR-5																					
122.00 W N	USA USASAT-10A																					
120.00 W A	USA MILSTAR 6	0		2																		
120.00 W C	USA SPACENET-1																					
119.00 W A	USA OMRDSS WEST			1	2																	
119.00 W N	USA US SATCOM-2																					
118.70 W C	CAN ANIK C-3																					
116.50 W N	MEX MORELOS 2																					
114.90 W C	CAN ANIK C-1																					
113.50 W N	MEX MORELOS 1																					
110.50 W N	CAN ANIK D-2																					
110.50 W C	CAN ANIK E-B																					
110.00 W N	CAN ANIK C-2																					
107.30 W C	CAN ANIK E-A																					
106.50 W A	CAN MSAT	0	C1	2																		
106.00 W A	ASA SIMON BOLIVAR 1																					
105.00 W N	USA ATS-5	0	1																			
105.00 W N	USA FLTSATCOM-A EAST PAC	0																				
105.00 W C	USA GSTAR-2																					
104.50 W N	CAN ANIK D-1																					
103.00 W C	USA GSTAR-1																					
101.00 W C	USA USASAT-16B																					
101.00 W C	USA USASAT-17A																					
100.00 W A	USA ACS-1																					
100.00 W A	USA ACTS																					
100.00 W N	USA FLTSATCOM E PAC	0																				
100.00 W N	USA FLTSATCOM-B EAST PAC																					
100.00 W A	USA USRDSS CENTRAL			1	2																	
99.00 W A	USA USASAT-22C																					
99.00 W N	USA USASAT-6B																					

Orbital position	Space station	Frequency bands GHz																				
		0	1	2	3	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40
95.00 W N	USA USASAT-6C												12	14								
93.50 W N	USA USASAT-12B					4	6															
93.00 W C	USA USASAT-16A											12	14									
91.00 W C	USA USASAT-9A											12	14									
91.00 W C	USA WESTAR-6-S					4	6															
91.00 W N	USA WESTAR-3					4	6															
90.00 W A	USA MILSTAR 1																					
89.00 W A	USA SIMON BOLIVAR-B					4	6															
89.00 W A	USA OMRDSS EAST			1	2	5	6															
89.00 W A	USA USASAT-24E					4	6					12	14									
88.50 W C	USA SPACENET-3					4	6					12	14									
88.50 W A	USA USASAT-12D					4	6															
87.00 W N	USA COMSTAR D-3					4	6															
87.00 W A	USA USASAT-9B											12	14									
86.00 W N	USA ATS-3																					
86.00 W N	USA USASAT-3C					4	6															
85.00 W A	ARG NAHUEL-2					4	6					12	14									
85.00 W C	USA USASAT-9C											12	14									
83.00 W A	CUB STSC-1					4	6															
83.00 W C	USA USASAT-9D											12	14									
81.00 W N	USA USASAT-7B					4	6															
81.00 W N	USA USASAT-7D					4	6					12	14									
80.00 W A	ARG NAHUEL-1					4	6					12	14									
79.00 W N	USA TDRS CENTRAL					2						14	15									
79.00 W A	USA TDRS-C2					2						14										
79.00 W C	USA USASAT-11A											12	14									
79.00 W N	USA USASAT-12A					4	6															
79.00 W A	USA USASAT-24F					4	6					12	14									
77.50 W A	USA SIMON BOLIVAR-A					4	6															
77.00 W C	USA USASAT-11B					4	6					12	14									
76.00 W C	USA USASAT-12C					4	6															
75.40 W A	CLM COLOMBIA 1A					4	6															
75.40 W N	CLM SATCOL-1A					4	6															
75.40 W N	CLM SATCOL-1B					4	6															
75.00 W A	CLM COLOMBIA 2					4	6															
75.00 W N	CLM SATCOL-2					4	6															
75.00 W N	USA GOES EAST			0	1	2																
75.00 W C	USA USASAT-18A											12	14									
74.00 W A	USA USASAT-22E					4	6															
74.00 W C	USA USASAT-7A					4	6															
73.00 W C	USA USASAT-18B											12	14									
72.00 W A	USA SIMON BOLIVAR-C					4	6															
72.00 W C	USA ACS-2					1																
72.00 W N	USA USASAT-8B					4	6															
71.00 W C	USA USASAT-18C											12	14									
70.00 W C	B SATS-1					4	6															
70.00 W N	B SBITS A1					4	6															
70.00 W A	B SISCOMIS 3											7	8									
70.00 W A	USA FLTSATCOM-B W ATL																				20	*
70.00 W A	USA USRDSS EAST			1	2	5	6															
69.00 W C	USA USASAT-7C					4	6					12	14									

A Only advance publication under RR 1042
C Presently being coordinated under RR 1060
N Notified

Orbital position	Space station	Frequency bands GHz																				
		0	1	2	3	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40
68.00 W A	USA MILSTAR 8																					
67.00 W C	USA USASAT-13D																					
67.00 W C	USA USASAT-8A											12	14									C20
65.00 W C	B SATS-2					4	6															
65.00 W N	B SBITS A2					4	6															
65.00 W A	B SBITS B2					4	5	6														
65.00 W A	B SBITS C2																					
65.00 W A	B SISCOMIS 2											7	8									
64.00 W C	USA USASAT-14D					4	6															
64.00 W C	USA USASAT-15C											12	14									
64.00 W A	USA USASAT-22F					4	6															
62.00 W A	USA TDRS 62W					2							13	14								
62.00 W C	USA USASAT-14C					4	6															
62.00 W C	USA USASAT-13B											12	14									
61.00 W A	B SBITS B3					4	5	6														
61.00 W A	B SBITS C3											12	14									
61.00 W A	B SISCOMIS 1											7	8									
60.00 W A	BEL SATCOM PHASE-3B											7	8									
60.00 W A	USA USASAT-15A											12	14									
60.00 W A	USA USASAT-17D					4	6															
58.00 W C	USA USASAT-13E											11	12	14								
58.00 W A	USA USASAT-8C					4	6															
57.00 W A	USA USASAT-13H					4	6															
56.00 W C	USA USASAT-13D											11	12	14								
56.00 W C	USA IT INTEL SAT IBS 304E					4	6					11	12	14								
56.00 W C	USA IT INTEL SAT IBS 304E					4	6					11	12	14								
55.00 W A	G INM INMARSAT AOR-WEST					1	4	6														
55.00 W A	USA USASAT-14B					4	5	6														
54.50 W A	F ESA MARECS ATL4					1	4	6														
53.00 W N	USA IT INTEL SAT IBS 307E					4	6					11	12	14								
53.00 W N	USA IT INTEL SAT IBS 307E					4	6					11	14									
53.00 W N	USA IT INTEL SAT IBS 307E					4	6					11	14									
53.00 W N	USA IT INTEL SAT IBS 307E					4	6					11	14									
53.00 W C	USA IT INTEL SAT IBS 307E					4	5	6				11	14									
53.00 W A	USA IT INTEL SAT IBS 307E					4	6					11	12	14								
52.50 W N	USA USGCS PH3 W ATL					C2						7	8									
50.00 W C	USA USASAT-11C											11	14									
50.00 W C	USA IT INTEL SAT IBS 310E					4	6					11	12	14								
50.00 W N	USA IT INTEL SAT IBS 307E					4	6					11	14									
50.00 W C	USA IT INTEL SAT IBS 307E					4	6					11	14									
50.00 W C	USA IT INTEL SAT IBS 310E					4	5	6				11	14									
47.00 W C	USA USASAT-13B											11	14									
47.00 W C	USA USASAT-13J					4	6															
46.00 W A	USA TDRS 46W					2							13	14								
45.00 W C	USA USASAT-13F											11	12	14								
45.00 W A	USA USASAT-13I					C4	C6					11	12	14								
43.50 W C	F VIDEO SAT-3					2							12	14								
43.00 W C	USA USASAT-13G											11	12	14								

Orbital position	Space station	Frequency bands GHz																				
		0	1	2	3	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40
133.00 E A	USA MILSTAR 7	0	1	2															C20			C*
134.00 E A	TON TONGASAT AP-2				4	6																
134.00 E A	USA ACS-6		1																			
135.00 E N	J CSE			2	4	6									17	18	19	20	*	*		
136.00 E N	J CS-2B			2	4	6									17	18	19		*	*		
136.00 E N	J CS-3B			2	4	6									17	18	19		*	*		
138.00 E A	TON TONGASAT AP-3				4	6																
140.00 E N	J GMS-2	0	1	2																		
140.00 E N	J GMS-3	0	1	2																		
140.00 E C	J GMS-4	0	1	2																		
140.00 E N	URS LOUICH-4									11				14								
140.00 E C	URS MORE-140		1		4	6																
140.00 E N	URS STATIONAR-7				4	6																
140.00 E N	URS VOLNA-6		1		4	6																
142.50 E A	TON TONGASAT AP-4				4	6																
143.00 E N	URS STATIONAR-16				4	6																
148.00 E A	TON TONGASAT AP-5				4	6																
150.00 E N	J ETS-5		1	2																		
150.00 E C	J JCSAT-1				3	6																
150.00 E A	USA MILSTAR 15									12			14									
151.00 E A	TON TONGASAT AP-8	0	1	2														C20				C*
152.00 E A	USA MILSTAR II	0	1	2																		
154.00 E A	J ETS-6-FS		2	4	6										17				*	*		
154.00 E A	J ETS-6-IS		2	4	6														*	*		
154.00 E A	J ETS-6-MSS		2	4	6														*	*		
154.00 E A	J ETS-6-T		2	4	6														*	*		
154.00 E C	J JCSAT-2									12			14									
154.00 E A	TON TONGASAT AP-7				4	6																
156.00 E A	AUS AUSSAT B2									12			14									
156.00 E A	AUS AUSSAT B2 MC									12			14									
156.00 E A	AUS AUSSAT B2-MOB		1							12			14									
156.00 E A	AUS AUSSAT B2-NZ									12			14									
156.00 E A	AUS AUSSAT B2-R		1							12			14									
156.00 E A	AUS AUSSAT B2-S									12			14									
156.00 E N	AUS AUSSAT-2									12		13	14									
157.00 E A	TON TONGASAT AP-6				4	6																
158.00 E C	J SUPERBIRD-A									7	8		12		14		17	18	19	*		
160.00 E A	AUS ACSAT-1									7	8											
160.00 E A	AUS AUSSAT B1									12			14									
160.00 E A	AUS AUSSAT B1 MC									12			14									
160.00 E A	AUS AUSSAT B1-MOB		1							12			14									
160.00 E A	AUS AUSSAT B1-NZ									12			14									
160.00 E A	AUS AUSSAT B1-R		1							12			14									
160.00 E A	AUS AUSSAT B1-S									12			14									
160.00 E N	AUS AUSSAT-1									12		13	14									
160.00 E N	J GMS-160E	0	1	2																		
160.00 E A	TON TONGASAT C-3				4	6																
162.00 E C	J SUPERBIRD-B									7	8		12		14		17	18	19	*		
164.00 E N	AUS AUSSAT PAC3									12			14									
164.00 E N	AUS AUSSAT-3									12			14									
164.00 E A	TON TONGASAT C-2				4	6							12	13	14							

A Only advance publication under RR 1042
C Presently being coordinated under RR 1060
N Notified

Orbital position	Space station	Frequency bands GHz																				
		0	1	2	3	4	5	6	7	8	11	12	13	14	15	17	18	19	20	>20	>30	>40
166.00 E C	URS GOMS-2	0	1	2																		
166.00 E A	URS GOMS-3M	0	1	2																	20	*
166.00 E C	URS PROGNOZ-6									7	8										20	*
167.00 E N	URS VSSRD-2				2																	
167.45 E A	PNG PACSTAR A-1									11			12		13		14					
167.45 E C	PNG PACSTAR-I														12		14					
170.00 E C	USA USASAT-3M														12		14					
170.75 E A	TON TONGASAT C-1				4	6																
171.00 E A	USA ACS-3		1																			
172.00 E N	USA FLTSATCOM W PAC	0	1							7	8											
172.00 E N	USA FLTSATCOM-B WEST PAC																				20	*
174.00 E N	USA IT INTELSAT-5 PAC1				4	6				11					14							
174.00 E C	USA IT INTELSAT-5A PAC1				4	6				13					14							
174.00 E A	USA IT INTELSAT-7 174E				4	6				11	12				14							
175.00 E N	USA USGCCS PH2 W PAC									7	8											
175.00 E C	USA USGCCS PH3 W PAC				2					7	8											
176.50 E N	USA MARISAT-PAC		0	1		4	6															
177.00 E N	USA IT INTELSAT-5 PAC2				4	6				11					14							
177.00 E C	USA IT INTELSAT-5A PAC2				4	6				11					14							
177.00 E A	USA IT INTELSAT-7 177E				4	6				11	12				14							
177.50 E A	G INM INMARSAT POR-II		1		4	6																
177.50 E A	USA MILSTAR 14	0	1	2																C20		C*
178.00 E N	F ESA MARECS PAC1	0	1	4	6																	
179.50 E A	G INM INMARSAT POR-I		1		4	6																
180.00 E A	USA USGCCS PH2 W PAC 2									7	8											
180.00 E A	USA USGCCS PH3 W PAC 2				2					7	8											
180.00 E N	USA IT INTELSAT MCS PAC A		C1		C4	C6																
180.00 E N	USA IT INTELSAT-5 PAC3				4	6				11					14							
180.00 E C	USA IT INTELSAT-5A PAC3				4	6				11					14							
180.00 E A	USA IT INTELSAT-7 180E				4	6				11	12				14							

A Only advance publication under RR 1042
C Presently being coordinated under RR 1060
N Notified