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GODDARD SPACE FLIGHT CENTER
GREENBELT, MARYLAND, U.S.A. 20771

SATELLITE SITUATION REPORT

VOLUME 31, NUMBER 1 MARCH 31, 1991

SATELLITE SITUATION REPORT
VOLUME 31 NO. 1
A/O 2400Z ON MARCH 31, 1991

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GREENBELT, MARYLAND, U.S.A. 20771

SPACE OBJECTS BOX SCORE

	OBJECTS IN ORBIT			DECAYED OBJECTS		
	PAYLOAD	DEBRIS	TOTAL	PAYLOAD	DEBRIS	TOTAL
ARGENTINA	1	0	1	0	0	0
AUSTRALIA	4	0	4	1	0	1
BRAZIL	3	0	3	0	0	0
CANADA	14	0	14	0	0	0
CZECH	0	0	0	1	0	1
ESA	21	153	174	3	412	415
ESRO	0	0	0	7	3	10
FRANCE	15	20	35	7	54	61
FRANCE/FRG	2	0	2	0	0	0
FRG	10	1	11	4	5	9
INDIA	8	0	8	4	7	11
INDONESIA	5	0	5	1	1	2
INTERNATIONAL TELECOM-MUNICATIONS SATELLITE ORGANIZATION (ITSO)	39	0	39	1	0	1
ISRAEL	0	0	0	2	2	4
ITALY	2	0	2	5	0	5
JAPAN	44	48	92	7	59	66
LUXEMBOURG	2	0	2	0	0	0
MEXICO	2	0	2	0	0	0
NATO	7	2	9	0	0	0
NETHERLANDS	0	0	0	1	3	4
PAKISTAN	0	0	0	1	0	1
PRC	10	79	89	20	57	77
SAUDI ARABIA	2	0	2	0	0	0
SPAIN	1	0	1	0	0	0
SWEDEN	2	0	2	0	0	0
UK	16	2	18	8	3	11
US	575	2469	3044	602	2641	3243
USSR	1194	2060	3254	1492	9005	10495
COLUMN	1980	4834	6814	2167	12250	14417
SUM TOTAL						21231

OBJECTS IN ORBIT

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1958 LAUNCHES										
BETA 1		15	US	17 MAR	137.8	34.3	4266	653		
BETA 2	VANGUARD 1	5	US	17 MAR	133.3	34.3	3878	653		
BETA 3		1376	US	17 MAR	127.6	34.2	3394	637		
1959 LAUNCHES										
ALPHA 1	VANGUARD 2	11	US	17 FEB	123.1	32.9	3080	558		
ALPHA 2		12	US	17 FEB	127.4	32.9	3463	553		
ETA 1	VANGUARD 3	20	US	18 SEP	126.7	33.4	3447	512		
IOTA 1	EXPLORER 7	22	US	13 OCT	99.0	50.3	891	529		
MU 1	LUNA 1	112	USSR	2 JAN	HELIOCENTRIC ORBIT					
NU 1	PIONEER 4	113	US	3 MAR	HELIOCENTRIC ORBIT					
1960 LAUNCHES										
ALPHA 1	PIONEER 5	27	US	11 MAR	HELIOCENTRIC ORBIT					
BETA 1		28	US	1 APR	93.2	48.4	437	423		
BETA 2	TIROS 1	29	US	1 APR	98.4	48.4	703	662		
BETA 4		115	US	1 APR	98.7	48.2	733	655		
ETA 1	TRANSIT 2A	45	US	22 JUN	100.9	66.7	997	606		
ETA 2	GREB	46	US	22 JUN	100.4	66.7	951	599		
ETA 3		47	US	22 JUN	100.5	66.7	963	601		
ETA 4		840	US	22 JUN	98.6	66.7	818	564		
ETA 5		841	US	22 JUN	98.5	66.7	809	559		
IOTA 2		50	US	12 AUG	118.1	47.2	1685	1502		
IOTA 3		51	US	12 AUG	118.2	47.2	1688	1516		
IOTA 4		52	US	12 AUG	CURRENT ELEMENTS NOT MAINTAINED					
IOTA 5		53	US	12 AUG	118.4	47.3	1686	1530		
NU 1	COURIER 1B	58	US	4 OCT	107.1	28.3	1215	966		
NU 2		59	US	4 OCT	106.6	28.3	1209	926		
KI 1	EXPLORER 8	60	US	3 NOV	103.8	49.9	1476	399		
PI 1	TIROS 2	63	US	23 NOV	96.7	48.5	633	562		
PI 3		5922	US	23 NOV	105.2	47.0	1036	975		
1961 LAUNCHES										
APSI 5		19436	US	18 SEP	94.8	59.3	511	502		
GAMMA 1	VENERA 1	80	USSR	12 FEB	HELIOCENTRIC ORBIT					
DELTA 2		82	US	16 FEB	117.9	39.9	2534	636		
DELTA 3		85	US	16 FEB	109.5	38.8	1822	582		
DELTA 6		3927	US	16 FEB	111.1	38.9	1946	612		
DELTA 7		4026	US	16 FEB	111.4	38.8	1979	601		
NU 1	EXPLORER 11	107	US	27 APR	104.9	28.8	1501	480		
NU 2		3739	US	27 APR	90.6	28.8	334	273		
OMICRON 1	TRANSIT 4A	116	US	29 JUN	103.6	66.8	988	866		
OMICRON 2	INJUN-GR-3	117	US	29 JUN	103.7	66.8	993	869		
OMICRON 3 -	297		US	29 JUN	SEE NOTE 1*					1*

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INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1961 LAUNCHES (CONT.)										
OMICRON 23		138	US	29 JUN	103.4	67.2	943	895		
OMICRON 39		154	US	29 JUN	103.0	66.7	962	833		
RHO 1	TIROS 3	152	US	12 JUL	100.0	47.9	794	725		
RHO 2		155	US	12 JUL	98.5	47.9	711	664		
RHO 3		165	US	12 JUL	94.6	47.9	527	469		
RHO 4		167	US	12 JUL	101.6	47.9	906	759		
SIGMA 1	MIDAS 3	163	US	12 JUL	161.4	91.2	3539	3344		
SIGMA 3		183	US	12 JUL	161.1	91.2	3534	3321		
SIGMA 4		196	US	12 JUL	161.8	91.2	3569	3347		
A DELTA 1	MIDAS 4	192	US	21 OCT	165.9	95.9	3762	3483		
A DELTA 3		194	US	21 OCT	165.5	95.9	3842	3370		
A DELTA 4		195	US	21 OCT	166.3	95.9	3880	3397		
A DELTA 5		2099	US	21 OCT	165.7	95.9	3732	3494		
A DELTA 6		2371	US	21 OCT	165.2	95.9	4737	2454		
A ETA 1	TRANSIT 4B	202	US	15 NOV	105.8	32.4	1105	954		
A ETA 2	TRAAC	205	US	15 NOV	105.8	32.4	1108	956		
A ETA 3		204	US	15 NOV	105.6	32.4	1097	950		
A ETA 4		10795	US	15 NOV	105.8	32.4	1106	955		
1962 LAUNCHES										
ALPHA 1	RANGER 3	221	US	26 JAN	HELIOCENTRIC ORBIT					
ALPHA 2		222	US	26 JAN	HELIOCENTRIC ORBIT					
BETA 1	TIROS 4	226	US	8 FEB	100.0	48.3	816	696		
BETA 2		227	US	8 FEB	100.7	48.2	896	685		
BETA 3		228	US	8 FEB	98.1	48.5	689	646		
BETA 4		229	US	8 FEB	98.0	48.3	698	628		
KAPPA 1		271	US	9 APR	152.9	86.7	3408	2780		
KAPPA 3		273	US	9 APR	152.5	86.7	3371	2785		
KAPPA 4		274	US	9 APR	153.3	86.7	3449	2766		
MU 2		282	US	23 APR	HELIOCENTRIC ORBIT					
A ALPHA 1	TIROS 5	309	US	19 JUN	99.6	58.1	898	577		
A ALPHA 2		311	US	19 JUN	90.7	58.0	313	299		
A ALPHA 3		312	US	19 JUN	100.3	58.2	963	581		
A ALPHA 4		313	US	19 JUN	94.2	58.0	517	446		
A EPSILON 1	TELSTAR 1	340	US	10 JUL	157.8	44.8	5640	949		
A EPSILON 2		341	US	10 JUL	157.6	44.8	5624	948		
A OMICRON 1		369	US	23 AUG	98.3	98.4	768	585		
A OMICRON 3		378	US	23 AUG	95.9	98.5	620	504		
A OMICRON 4		388	US	23 AUG	96.3	98.5	635	527		
A RHO 1	MARINER 2	374	US	27 AUG	HELIOCENTRIC ORBIT					
A RHO 2		376	US	27 AUG	HELIOCENTRIC ORBIT					
A PSI 1	TIROS 6	397	US	18 SEP	97.8	58.3	658	645		
A PSI 3		399	US	18 SEP	97.7	58.4	681	618		
B ALPHA 1	ALOUETTE 1	424	CANADA	29 SEP	105.2	80.5	1021	989		
B ALPHA 2		426	US	29 SEP	105.2	80.5	1018	993		
B ALPHA 3		510	US	29 SEP	105.2	80.5	1013	991		
B ALPHA 4		511	US	29 SEP	105.3	80.4	1030	984		
B ETA 1	RANGER 5	439	US	18 OCT	HELIOCENTRIC ORBIT					
B ETA 2		440	US	18 OCT	HELIOCENTRIC ORBIT					

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1962 LAUNCHES (CONT.)										
5 MU 1	ANNA 1B	446	US	31 OCT	107.9	50.2	1181	1076		
5 MU 2		447	US	31 OCT	107.6	50.1	1164	1065		
5 NU 3		450	USSR	1 NOV	HELIOCENTRIC ORBIT					
8 UPSILON 1	RELAY 1	503	US	13 DEC	185.1	47.5	7429	1330		
8 UPSILON 2		515	US	13 DEC	184.8	47.5	7410	1330		
8 CHI 1	EXPLORER 18	506	US	16 DEC	104.1	52.0	1161	746		
1963 LAUNCHES										
1963 004A	SYNCOM 1	553	US	14 FEB	CURRENT ELEMENTS NOT MAINTAINED					
1963 008B	LUNA 4	556	USSR	2 APR	BARYCENTRIC ORBIT					
1963 013A	TELSTAR 2	573	US	7 MAY	225.3	42.8	10797	977		
1963 013C		575	US	7 MAY	225.0	42.8	10781	973		
1963 014A		574	US	9 MAY	166.4	87.4	3691	3602		
1963 014B	ERS 5	579	US	9 MAY	165.2	87.3	4896	2291		
1963 014C	ERS 6	608	US	9 MAY	166.4	87.4	3731	3552		
1963 014D - 014FE			US	9 MAY	SEE NOTE 2*					2*
1963 014FA		20033	US	9 MAY	163.0	85.3	5988	1028		
1963 022B		603	US	16 JUN	96.9	89.8	618	605		
1963 022C		610	US	16 JUN	95.7	90.1	571	537		
1963 024A	TIROS 7	604	US	19 JUN	94.5	58.2	498	486		
1963 025B		614	US	27 JUN	116.6	82.1	2725	327		
1963 030A	ERS 10	622	US	18 JUL	167.8	88.4	3722	3675		
1963 030B	ERS 9	635	US	18 JUL	167.8	88.5	3720	3677		
1963 030C		630	US	18 JUL	167.4	88.4	3746	3622		
1963 030E		631	US	18 JUL	168.2	88.5	3772	3659		
1963 030F		3121	US	18 JUL	167.8	88.4	3729	3667		
1963 030G		3132	US	18 JUL	167.8	88.4	3751	3648		
1963 030H		20153	US	18 JUL	162.1	88.7	5768	1168		
1963 031A	SYNCOM 2	634	US	26 JUL	CURRENT ELEMENTS NOT MAINTAINED					
1963 038A		669	US	28 SEP	107.0	89.9	1104	1068		
1963 038D		670	US	28 SEP	107.2	89.9	1127	1062		
1963 038C	SN 37	671	US	28 SEP	107.1	89.9	1125	1061		
1963 038D		672	US	28 SEP	106.3	89.9	1080	1029		
1963 038E		745	US	28 SEP	106.6	89.9	1084	1052		
1963 038F		2097	US	28 SEP	106.4	89.9	1085	1030		
1963 038G		3156	US	28 SEP	107.1	89.9	1127	1061		
1963 038K		12943	US	28 SEP	104.7	89.9	1080	877		
1963 038K		20470	US	28 SEP	106.5	89.9	1084	1046		
1963 039A		674	US	17 OCT	CURRENT ELEMENTS NOT MAINTAINED					
1963 039C		692	US	17 OCT	CURRENT ELEMENTS NOT MAINTAINED					
1963 047A	CENTAUR 2	694	US	27 NOV	105.0	30.4	1519	471		
1963 047B - 047U			US	27 NOV	SEE NOTE 3*					3*
1963 049A		703	US	5 DEC	106.7	90.1	1084	1060		
1963 049B		704	US	5 DEC	106.9	90.1	1116	1053		
1963 049C		705	US	5 DEC	106.9	90.1	1112	1055		
1963 049D		706	US	5 DEC	106.5	90.1	1090	1043		
1963 049E		715	US	5 DEC	105.9	90.0	1053	1020		
1963 049F		753	US	5 DEC	106.6	90.0	1098	1043		
1963 049G		2432	US	5 DEC	106.9	90.1	1111	1054		

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INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1963 LAUNCHES (CONT.)										
1963 049H		2629	US	5 DEC	106.3	90.0	1065	1044		
1963 053G		721	US	19 DEC	115.2	78.6	2333	599		
1963 053C		720	US	19 DEC	111.0	78.7	1893	647		
1963 053F		724	US	19 DEC	110.0	78.6	1844	608		
1963 053G		726	US	19 DEC	107.3	78.6	1605	594		
1963 053H		732	US	19 DEC	110.8	78.6	1892	633		
1963 053J		3755	US	19 DEC	109.1	78.6	1753	616		
1963 053K		17665	US	19 DEC	111.3	79.7	1917	655		
1963 054A	TIROS 8	715	US	21 DEC	98.6	58.5	711	673		
1963 054C		730	US	21 DEC	100.2	58.5	858	679		
1963 054F		19395	US	21 DEC	98.3	58.5	707	648		
1964 LAUNCHES										
1964 001A		727	US	11 JAN	103.3	69.9	923	902		
1964 001B	GRAVITY GRADIENT 1	728	US	11 JAN	103.2	69.9	920	898		
1964 001C	SECOR (GSMS) 1	729	US	11 JAN	103.3	69.9	924	902		
1964 001D	SOLRAD 7A	730	US	11 JAN	103.3	69.9	923	901		
1964 001E	SRES	731	US	11 JAN	103.2	69.9	922	901		
1964 002A		733	US	19 JAN	100.8	99.1	821	771		
1964 002B		734	US	19 JAN	100.9	99.1	812	791		
1964 002C		735	US	19 JAN	101.0	99.1	817	792		
1964 003A	RELAY 2	737	US	21 JAN	194.7	45.4	7528	1973		
1964 003B		738	US	21 JAN	194.8	46.4	7535	1971		
1964 004B		741	US	25 JAN	108.8	81.5	1300	1039		
1964 004C		742	US	25 JAN	108.6	81.5	1297	1031		
1964 004D		743	US	25 JAN	108.6	81.5	1297	1028		
1964 006A	ELEKTRON 1	745	USSR	30 JAN	163.4	60.9	6632	413		
1964 006B	ELEKTRON 2	748	USSR	30 JAN	1356.4	62.6	59306	9116		
1964 006C - 006AD			USSR	30 JAN	SEE NOTE	4*				4*
1964 016D	ZOND 1	765	USSR	2 APR	HELIOCENTRIC ORBIT					
1964 026A		801	US	4 JUN	102.3	90.5	905	829		
1964 026B		805	US	4 JUN	102.3	89.9	897	838		
1964 026C		806	US	4 JUN	99.6	90.8	783	694		
1964 026D		809	US	4 JUN	102.6	90.5	920	839		
1964 026E		2986	US	4 JUN	102.7	90.5	925	842		
1964 031A		812	US	18 JUN	101.3	99.8	822	813		
1964 031B		813	US	18 JUN	101.3	99.8	824	815		
1964 031C		815	US	19 JUN	101.1	99.9	819	802		
1964 038A	ELEKTRON 3	829	USSR	10 JUL	161.8	60.8	6508	407		
1964 038C		831	USSR	10 JUL	141.1	60.8	4801	398		
1964 040A		836	US	17 JUL	CURRENT ELEMENTS NOT MAINTAINED					
1964 040B		837	US	17 JUL	CURRENT ELEMENTS NOT MAINTAINED					
1964 041B		843	US	28 JUL	BARYCENTRIC ORBIT					
1964 047A	SYNCOM 3	858	US	19 AUG	CURRENT ELEMENTS NOT MAINTAINED					
1964 047B		862	US	19 AUG	CURRENT ELEMENTS NOT MAINTAINED					
1964 049D	COSMOS 41	869	USSR	22 AUG	714.5	71.0	38229	1962		
1964 049E		878	USSR	22 AUG	717.4	71.0	38394	1940		
1964 049F		13091	USSR	22 AUG	714.4	71.1	37879	2307		
1964 051A	EXPLORER 20	870	US	25 AUG	103.6	79.9	1003	856		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1964 LAUNCHES (CONT.)										
1964 051B		871	US	25 AUG	103.3	79.9	981	845		
1964 053A	COSMOS 44	876	USSR	28 AUG	98.8	65.1	819	581		
1964 053B		877	USSR	28 AUG	99.0	65.1	776	649		
1964 053C		21126	USSR	28 AUG	99.0	65.1	775	648		
1964 054A	OGO 1	879	US	5 SEP	CURRENT ELEMENTS NOT MAINTAINED					
1964 063A	NNSS 30010	893	US	6 OCT	106.2	90.1	1067	1031		
1964 063B		897	US	6 OCT	106.4	90.1	1074	1046		
1964 063C		900	US	6 OCT	105.6	90.0	1038	1006		
1964 063D		901	US	6 OCT	106.4	90.1	1071	1045		
1964 063E		902	US	6 OCT	106.5	90.1	1075	1048		
1964 063F		903	US	6 OCT	105.5	90.0	1032	1003		
1964 064A	EXPLORER 22	899	US	10 OCT	104.4	79.7	1056	873		
1964 064B		907	US	10 OCT	104.4	79.7	1060	876		
1964 064C		976	US	10 OCT	103.2	79.3	1003	812		
1964 064D		977	US	10 OCT	104.9	80.0	1089	890		
1964 073A	MARINER 3	923	US	5 NOV	HELIOCENTRIC ORBIT					
1964 076H	EXPLORER 25	932	US	21 NOV	114.8	81.3	2366	524		
1964 076C		933	US	21 NOV	114.1	81.3	2303	526		
1964 077A	MARINER 4	938	US	28 NOV	HELIOCENTRIC ORBIT					
1964 077B		942	US	28 NOV	HELIOCENTRIC ORBIT					
1964 078C	ZOND 2	945	USSR	30 NOV	HELIOCENTRIC ORBIT					
1964 083A	NNSS 30020	953	US	13 DEC	106.0	89.8	1062	1018		
1964 083B		955	US	13 DEC	105.7	89.8	1056	1001		
1964 083C		959	US	13 DEC	105.9	89.8	1069	1006		
1964 083D		965	US	13 DEC	106.2	89.8	1079	1017		
1964 083F		967	US	13 DEC	105.7	89.8	1056	1002		
1964 083G		1099	US	13 DEC	105.9	89.8	1067	1007		
1964 083J		1508	US	13 DEC	105.2	89.8	1031	975		
1964 086A	EXPLORER 26	963	US	21 DEC	CURRENT ELEMENTS NOT MAINTAINED					
1965 LAUNCHES										
1965 004A	TIROS 9	978	US	22 JAN	119.0	96.4	2565	702		
1965 004B		979	US	22 JAN	118.8	96.4	2551	700		
1965 004C		1312	US	22 JAN	117.5	96.3	2470	670		
1965 004D		1313	US	22 JAN	120.1	96.4	2639	728		
1965 008A		1001	US	11 FEB	145.4	32.1	2798	2765		
1965 008B		1000	US	11 FEB	145.7	32.1	2804	2782		
1965 008C		1002	US	11 FEB	145.8	32.1	2811	2782		
1965 010B		1087	US	17 FEB	BARYCENTRIC ORBIT					
1965 016A	GREB	1271	US	9 MAR	103.2	70.1	925	898		
1965 016B	GRAVITY GRADIENT 2	1244	US	9 MAR	103.3	70.1	927	899		
1965 016C	GRAVITY GRADIENT 3	1292	US	9 MAR	103.1	70.1	917	890		
1965 016D	SOLRAD 7B	1291	US	9 MAR	103.3	70.1	929	901		
1965 016E	SECOR (EGRS) 3	1208	US	9 MAR	103.3	70.1	926	899		
1965 016F	OSCAR 3	1293	US	9 MAR	102.8	70.1	906	880		
1965 016H	SURCAL	1272	US	9 MAR	103.3	70.1	930	901		
1965 016J		1245	US	9 MAR	103.2	70.1	924	895		
1965 016K		12099	US	9 MAR	103.0	70.1	915	888		
1965 020E		1335	USSR	15 MAR	106.8	56.1	1565	590		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1965 LAUNCHES (CONT.)										
1965 020S		1347	USSR	15 MAR	103.1	56.0	1272	542		
1965 020AC		1370	USSR	15 MAR	103.4	56.1	1306	534		
1965 020AH		1392	USSR	15 MAR	105.2	55.9	1486	525		
1965 020BB		1477	USSR	15 MAR	112.0	55.5	1806	834		
1965 020BC		1478	USSR	15 MAR	110.0	56.1	1824	630		
1965 020BD		1479	USSR	15 MAR	114.9	56.0	2093	807		
1965 020BS		1480	USSR	15 MAR	114.7	56.1	2136	745		
1965 020BV		1495	USSR	15 MAR	104.2	55.6	1296	617		
1965 020CV		1549	USSR	15 MAR	114.5	56.2	2096	767		
1965 020LD		1534	USSR	15 MAR	115.8	56.2	2178	806		
1965 020EH		2334	USSR	15 MAR	110.8	55.7	1743	781		
1965 020EM		2334	USSR	15 MAR	115.4	55.6	1753	1194		
1965 020EN		3038	USSR	15 MAR	108.5	56.3	1716	594		
1965 020FR		3708	USSR	15 MAR	103.8	56.3	1261	614		
1965 020ES		3743	USSR	15 MAR	118.1	56.7	1810	1382		
1965 020ET		3745	USSR	15 MAR	115.3	56.0	1595	1342		
1965 020EU		3749	USSR	15 MAR	107.7	56.1	1626	617		
1965 020EV		3931	USSR	15 MAR	116.6	56.1	1699	1357		
1965 020EW		3963	USSR	15 MAR	95.1	55.9	617	426		
1965 020EY		3965	USSR	15 MAR	117.8	56.3	1805	1357		
1965 020FD		6252	USSR	15 MAR	117.1	56.0	1698	1403		
1965 020FF		13517	USSR	15 MAR	109.5	55.6	1685	723		
1965 023B		1298	US	21 MAR	HELIOCENTRIC ORBIT					
1965 025A	EARLY BIRD	1317	ITSO	6 APR	1435.4	14.1	35805	35740		
1965 027A		1314	US	3 APR	111.4	90.3	1315	1269		
1965 027B	SECOR (EGRS) 4	1315	US	3 APR	111.4	90.3	1312	1266		
1965 027B - 027BD			US	3 APR	SEE NOTE 5*					5*
1965 027BD		20031	US	3 APR	111.4	90.3	1310	1268		
1965 028D		1318	US	6 APR	CURRENT ELEMENTS NOT MAINTAINED					
1965 032A	EXPLORER 27	1328	US	29 APR	107.7	41.2	1317	926		
1965 032B		1358	US	29 APR	107.8	41.2	1317	928		
1965 032D		2011	US	29 APR	108.4	41.2	1233	1069		
1965 034A		1359	US	6 MAY	157.1	32.1	3741	2789		
1965 034B		1360	US	6 MAY	309.9	32.1	14800	2780		
1965 034C		1361	US	6 MAY	145.6	32.1	2800	2782		
1965 034D		2529	US	6 MAY	309.9	32.1	14789	2790		
1965 038A		1377	US	20 MAY	97.6	98.2	769	513		
1965 038B		1378	US	20 MAY	95.8	97.9	636	476		
1965 044A	LUNA 6	1393	USSR	8 JUN	HELIOCENTRIC ORBIT					
1965 048A	NNSS 30040	1420	US	24 JUN	106.7	90.1	1127	1015		
1965 048B		1428	US	24 JUN	106.5	90.1	1106	1018		
1965 048C		1425	US	24 JUN	106.8	90.1	1130	1022		
1965 048D		1435	US	24 JUN	105.9	90.1	1090	982		
1965 048E		2701	US	24 JUN	106.0	90.1	1086	999		
1965 048F		3592	US	24 JUN	106.1	90.1	1087	1002		
1965 048L		19062	US	24 JUN	99.0	89.8	741	680		
1965 051A	TIROS 10	1430	US	2 JUL	100.2	98.8	810	724		
1965 051B		1433	US	2 JUL	99.7	98.7	780	706		
1965 051C		1440	US	2 JUL	95.8	98.5	603	506		
1965 051D		1529	US	2 JUL	101.5	99.1	857	801		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1965 LAUNCHES (CONT.)										
1965 056A	ZOND 3	1454	USSR	18 JUL	HELIOCENTRIC ORBIT					
1965 058A		1458	US	20 JUL	CURRENT ELEMENTS NOT MAINTAINED					
1965 058B		1459	US	20 JUL	CURRENT ELEMENTS NOT MAINTAINED					
1965 063A	SECOR (EGRS) 5	1506	US	10 AUG	122.2	69.2	2423	1130		
1965 063B		1502	US	10 AUG	122.2	69.2	2422	1132		
1965 064A	CENTAUR 6	1503	US	11 AUG	BARYCENTRIC ORBIT					
1965 065A	NNSS 30050	1504	US	13 AUG	107.7	90.0	1170	1071		
1965 065B		1508	US	13 AUG	107.5	89.9	1143	1082		
1965 065C		1510	US	13 AUG	105.8	90.0	1073	994		
1965 065D		1511	US	13 AUG	107.9	90.0	1180	1083		
1965 065E		1512	US	13 AUG	108.0	90.0	1183	1083		
1965 065F		1514	US	13 AUG	107.9	90.0	1182	1078		
1965 065G		1515	US	13 AUG	107.3	90.0	1149	1051		
1965 065H		1520	US	13 AUG	107.9	90.0	1181	1075		
1965 065J		1521	US	13 AUG	108.0	90.0	1184	1082		
1965 065K		1577	US	13 AUG	107.9	90.0	1178	1078		
1965 065L		1522	US	13 AUG	108.0	90.0	1184	1081		
1965 065P		3810	US	13 AUG	107.3	90.0	1148	1052		
1965 065Q		5265	US	13 AUG	107.8	89.9	1154	1092		
1965 070A	COSMOS 80	1570	USSR	3 SEP	115.0	56.1	1541	1365		
1965 070B	COSMOS 81	1571	USSR	3 SEP	115.3	56.1	1546	1392		
1965 070C	COSMOS 82	1572	USSR	3 SEP	115.7	56.1	1551	1419		
1965 070D	COSMOS 83	1573	USSR	3 SEP	116.0	56.1	1559	1446		
1965 070E	COSMOS 84	1574	USSR	3 SEP	116.4	56.1	1570	1468		
1965 070F		1575	USSR	3 SEP	114.6	56.1	1513	1358		
1965 070G		3045	USSR	3 SEP	115.9	55.5	1732	1257		
1965 072A		1580	US	10 SEP	101.3	98.6	1000	636		
1965 072D		1583	US	10 SEP	100.4	98.6	928	621		
1965 072E		1931	US	10 SEP	101.9	98.9	1068	628		
1965 072F		1932	US	10 SEP	98.4	98.3	767	591		
1965 073A	COSMOS 86	1584	USSR	18 SEP	115.0	56.1	1627	1286		
1965 073B	COSMOS 87	1585	USSR	18 SEP	115.4	56.1	1636	1314		
1965 073C	COSMOS 88	1586	USSR	18 SEP	115.8	56.1	1645	1339		
1965 073D	COSMOS 89	1587	USSR	18 SEP	116.2	56.1	1657	1364		
1965 073E	COSMOS 90	1588	USSR	18 SEP	116.6	56.1	1672	1387		
1965 073F		1589	USSR	18 SEP	116.8	56.0	1682	1391		
1965 073G		1590	USSR	18 SEP	115.9	56.1	1636	1359		
1965 073H		1591	USSR	18 SEP	116.3	56.1	1660	1365		
1965 073J		1617	USSR	18 SEP	117.1	56.1	1736	1360		
1965 073K		1618	USSR	18 SEP	117.4	56.2	1748	1376		
1965 073L		2647	USSR	18 SEP	116.0	56.1	1642	1356		
1965 078A		1613	US	5 OCT	118.6	144.2	2828	407		
1965 078B		1616	US	5 OCT	117.4	144.2	2715	410		
1965 082B -	082UP		US	15 OCT	SEE NOTE 7*					7*
1965 089A	EXPLORER 29	1726	US	6 NOV	120.3	59.4	2276	1111		
1965 089B		1729	US	6 NOV	120.3	59.4	2272	1112		
1965 089C		2700	US	6 NOV	119.1	59.6	2216	1068		
1965 089D		2888	US	6 NOV	121.3	59.2	2311	1165		
1965 091A	VENERA 2	1730	USSR	12 NOV	HELIOCENTRIC ORBIT					
1965 092D		1736	USSR	16 NOV	HELIOCENTRIC ORBIT					

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1965 LAUNCHES (CONT.)										
1965 093A	EXPLORER 30	1738	US	19 NOV	100.3	59.7	872	673		
1965 093B		1739	US	19 NOV	99.9	59.7	821	688		
1965 093C		2013	US	19 NOV	98.3	59.7	727	622		
1965 093D		2088	US	19 NOV	100.2	59.7	852	681		
1965 096A	A-1	1778	FRANCE	26 NOV	107.7	34.3	1710	528		
1965 096B		1805	FRANCE	26 NOV	106.5	34.3	1602	523		
1965 096D		1996	FRANCE	26 NOV	102.3	34.2	1228	506		
1965 098A	ALOUETTE 2	1804	CANADA	29 NOV	118.5	79.8	2728	501		
1965 098B	EXPLORER 31	1806	US	29 NOV	120.2	79.8	2874	502		
1965 098C		1807	US	29 NOV	119.1	79.8	2774	502		
1965 098D		1808	US	29 NOV	107.8	79.8	1773	480		
1965 098E		1944	US	29 NOV	106.8	79.8	1682	476		
1965 098F		1948	US	29 NOV	114.1	79.9	2329	498		
1965 098G		1951	US	29 NOV	114.3	79.7	2352	490		
1965 098H		2092	US	29 NOV	118.8	79.9	2749	504		
1965 098J		2153	US	29 NOV	118.5	79.7	2724	502		
1965 098K		20833	US	29 NOV	111.7	79.8	2111	494		
1965 101A	FR-1	1814	FRANCE	6 DEC	99.0	75.9	714	704		
1965 101B		1815	US	6 DEC	98.8	75.9	705	693		
1965 105A	PIONEER 6	1841	US	16 DEC	HELIOCENTRIC ORBIT					
1965 106A	COSMOS 100	1843	USSR	17 DEC	95.6	65.0	596	499		
1965 106B		1844	USSR	17 DEC	95.1	65.0	536	512		
1965 109A	NNSS 30060	1964	US	22 DEC	104.7	89.1	1060	895		
1965 109B		1965	US	22 DEC	104.7	89.1	1065	899		
1965 109C		2086	US	22 DEC	100.9	89.1	818	780		
1965 109D		2226	US	22 DEC	106.8	89.0	1271	888		
1965 109E		2353	US	22 DEC	105.0	89.4	1108	876		
1965 112D		1937	USSR	28 DEC	94.8	55.9	528	485		
1966 LAUNCHES										
1965 005A	NNSS 30070	1952	US	28 JAN	105.5	89.8	1187	850		
1966 005B		1953	US	28 JAN	105.6	89.8	1195	852		
1966 005C		2140	US	28 JAN	107.2	90.1	1348	848		
1966 005D		2141	US	28 JAN	103.4	89.8	1026	815		
1966 005E		2889	US	28 JAN	109.4	89.5	1326	1071		
1966 005F		2989	US	28 JAN	103.6	89.9	1022	836		
1966 005J		11991	US	28 JAN	105.1	89.8	1159	843		
1966 006D		2001	USSR	31 JAN	BARYCENTRIC ORBIT					
1965 008A	ESSA 1	1982	US	3 FEB	99.8	97.9	810	685		
1966 008B		1983	US	3 FEB	99.4	97.8	796	666		
1966 008C		2085	US	3 FEB	97.0	97.7	635	599		
1966 008D		2118	US	3 FEB	100.4	98.0	891	668		
1966 008E		2154	US	3 FEB	99.3	97.7	770	677		
1966 013A	D-1A	2016	FRANCE	17 FEB	116.2	34.1	2516	503		
1966 013B		2017	FRANCE	17 FEB	115.0	34.1	2411	502		
1966 013F		2023	FRANCE	17 FEB	96.0	34.0	739	397		
1966 013G		2161	FRANCE	17 FEB	109.2	34.1	1876	501		
1966 016A	ESSA 2	2091	US	28 FEB	113.4	100.9	1412	1352		
1966 016B		2096	US	28 FEB	113.4	101.0	1413	1350		

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1966 LAUNCHES (CONT.)										
1966 016C		2223	US	28 FEB	111.8	101.1	1382	1237		
1966 016D		2224	US	28 FEB	115.0	101.1	1562	1346		
1966 016E		6214	US	28 FEB	114.2	101.6	1515	1325		
1966 024A	NNSS 30080	2119	US	26 MAR	104.9	89.8	1099	883		
1966 024B		2120	US	26 MAR	105.0	89.8	1106	886		
1966 025A	OV1-4	2121	US	30 MAR	104.0	144.5	1009	885		
1966 025B	OV1-5	2122	US	30 MAR	105.6	144.5	1057	985		
1966 025C		2123	US	30 MAR	105.6	144.6	1057	986		
1966 025D		2124	US	30 MAR	104.0	144.5	1006	886		
1966 025E		3511	US	30 MAR	102.7	144.6	942	830		
1966 025G		5361	US	30 MAR	103.8	144.6	977	901		
1966 025H		5599	US	30 MAR	102.8	144.6	935	842		
1966 026A		2125	US	31 MAR	99.5	98.4	865	607		
1966 026B		2129	US	31 MAR	97.7	98.2	736	564		
1966 026D		2177	US	31 MAR	100.4	98.9	951	598		
1966 026F		2179	US	31 MAR	96.1	98.0	626	517		
1966 027A	LUNA 10	2126	USSR	31 MAR	SELENOCENTRIC ORBIT					
1966 027D		2130	USSR	31 MAR	HELIOCENTRIC ORBIT					
1966 027E		2131	USSR	31 MAR	BARYCENTRIC ORBIT					
1966 027F		2132	USSR	31 MAR	BARYCENTRIC ORBIT					
1966 031A	OAO 1	2142	US	8 APR	100.7	35.0	795	785		
1966 031B		2144	US	8 APR	100.3	35.0	780	767		
1966 034A	OV3-1	2150	US	22 APR	134.8	82.4	4315	342		
1966 034B		2167	US	22 APR	116.0	82.4	2671	326		
1966 040A	NIMBUS 2	2173	US	15 MAY	108.0	100.5	1175	1091		
1966 040B		2174	US	15 MAY	107.8	100.5	1167	1081		
1966 041A	NNSS 30090	2176	US	19 MAY	102.9	90.0	952	838		
1966 041B		2180	US	19 MAY	103.0	90.0	962	840		
1966 041C		2225	US	19 MAY	99.1	90.0	743	689		
1966 041D		2644	US	19 MAY	105.0	90.0	1159	832		
1966 041E		3591	US	19 MAY	102.9	90.0	954	838		
1966 041F		4555	US	19 MAY	101.9	90.0	900	794		
1966 045B		2187	US	30 MAY	BARYCENTRIC ORBIT					
1966 049A	OGO 3	2195	US	7 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1966 052A		2201	US	10 JUN	142.9	40.9	4708	642		
1966 052B		2206	US	10 JUN	142.5	40.8	4677	644		
1966 052C		2498	US	10 JUN	138.7	40.6	4413	578		
1966 052D		2516	US	10 JUN	144.6	41.0	4793	698		
1966 053A		2207	US	16 JUN	1334.0	4.2	33858	33663		
1966 053B		2215	US	16 JUN	1334.5	11.6	33890	33657		
1966 053C		2216	US	16 JUN	1335.3	4.9	33923	33657		
1966 053D		2217	US	16 JUN	1336.5	9.0	33989	33637		
1966 053E		2218	US	16 JUN	1338.6	8.0	34017	33694		
1966 053F		2219	US	16 JUN	1340.9	8.9	34093	33712		
1966 053G		2220	US	16 JUN	1344.0	8.9	34230	33695		
1966 053H		2221	US	16 JUN	1347.6	5.0	34359	33711		
1966 053J		2222	US	16 JUN	1349.4	12.0	34738	33404		
1966 056A	PAGEOS 1	2253	US	24 JUN	178.0	85.8	5148	3062		
1966 056B		2255	US	24 JUN	181.1	86.9	4279	4173		
1966 056C		2256	US	24 JUN	181.3	86.9	4278	4189		

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1966 LAUNCHES (CONT.)										
1966 056D		2511	US	24 JUN	181.5	87.0	4260	4217		
1966 056G		8066	US	24 JUN	160.7	81.9	6372	450		
1966 056H		8074	US	24 JUN	172.1	84.2	6897	846		
1966 056AH		9468	US	24 JUN	179.8	85.0	5318	3033		
1966 058A	EXPLORER 33	2256	US	1 JUL	CURRENT ELEMENTS NOT MAINTAINED					
1966 058C		2260	US	1 JUL	CURRENT ELEMENTS NOT MAINTAINED					
1966 063F		2327	US	14 JUL	104.1	144.2	967	937		
1966 063G		2328	US	14 JUL	105.2	144.2	1012	998		
1966 063D		2329	US	14 JUL	104.6	144.2	978	972		
1966 063E		2337	US	14 JUL	105.2	144.2	1006	999		
1966 070A	OV3-3	2389	US	4 AUG	123.3	81.4	3308	349		
1966 070B		2404	US	4 AUG	98.9	81.4	1108	305		
1966 070D		2800	US	4 AUG	127.8	81.2	3664	388		
1966 073B		2395	US	10 AUG	BARYCENTRIC ORBIT					
1966 075A	PIONEER 7	2398	US	17 AUG	HELIOCENTRIC ORBIT					
1966 075C		2402	US	17 AUG	HELIOCENTRIC ORBIT					
1966 076A	NNSS 30100	2401	US	18 AUG	106.5	88.9	1090	1039		
1966 076B		2413	US	18 AUG	106.6	88.9	1093	1044		
1966 076C		2580	US	18 AUG	104.9	89.2	1059	915		
1966 076D		2702	US	18 AUG	108.0	88.6	1197	1069		
1966 077A		2403	US	19 AUG	167.4	89.7	3707	3660		
1966 077B	SECOR (EGRS) 7	2411	US	19 AUG	167.5	89.7	3697	3673		
1966 077C	ERS 15	2412	US	19 AUG	167.6	89.7	3699	3681		
1966 078A	LUNA 11	2406	USSR	24 AUG	SELENOCENTRIC ORBIT					
1966 082A		2418	US	16 SEP	100.2	98.4	862	676		
1966 082B		2422	US	16 SEP	100.2	98.4	856	674		
1966 084B		2426	US	20 SEP	BARYCENTRIC ORBIT					
1966 087A	ESSA 3	2435	US	2 OCT	114.5	100.9	1483	1384		
1966 087B		2436	US	2 OCT	114.5	101.0	1482	1381		
1966 087C		2518	US	2 OCT	115.9	100.8	1557	1430		
1966 087D		2775	US	2 OCT	113.2	101.0	1470	1278		
1966 087E		6213	US	2 OCT	112.9	101.8	1383	1334		
1966 087F		8791	US	2 OCT	CURRENT ELEMENTS NOT MAINTAINED					
1966 089A		2481	US	5 OCT	167.5	90.1	3720	3656		
1966 089B	SECOR (EGRS) 8	2520	US	5 OCT	167.6	90.1	3706	3675		
1966 094A	LUNA 12	2508	USSR	22 OCT	SELENOCENTRIC ORBIT					
1966 095B		2513	US	25 OCT	BARYCENTRIC ORBIT					
1966 096A	INTELSAT 2 F-1	2514	ITSO	26 OCT	717.6	18.2	37103	3241		
1966 096C		11792	US	26 OCT	472.9	18.1	27038	419		
1966 110A	ATS 1	2608	US	7 DEC	1435.5	13.8	35797	35751		
1966 111A	OV1-9	2610	US	11 DEC	140.2	99.1	4649	473		
1966 111B	OV1-10	2611	US	11 DEC	96.7	93.4	639	564		
1966 111C		2621	US	11 DEC	97.9	93.4	714	606		
1966 111D		2622	US	11 DEC	139.5	99.1	4592	472		
1967 LAUNCHES										
1967 001A	INTELSAT 2 F-2	2639	ITSO	11 JAN	CURRENT ELEMENTS NOT MAINTAINED					
1967 001D		2643	US	11 JAN	431.5	26.7	24776	296		
1967 001S		5987	US	11 JAN	524.0	26.5	29636	668		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1967 LAUNCHES (CONT.)										
1967 001T		5988	US	11 JAN	170.2	26.7	7420	171		
1967 001V		5990	US	11 JAN	CURRENT ELEMENTS NOT MAINTAINED					
1967 001W		5998	US	11 JAN	383.0	29.8	21917	267		
1967 001X		6779	US	11 JAN	656.5	27.4	36714	574		
1967 001AM		14756	US	11 JAN	370.4	26.7	21161	253		
1967 001AN		19518	US	11 JAN	513.0	26.3	29124	573		
1967 001AR		20102	US	11 JAN	527.8	26.5	29960	552		
1967 003A		2645	US	18 JAN	CURRENT ELEMENTS NOT MAINTAINED					
1967 003D		2649	US	18 JAN	CURRENT ELEMENTS NOT MAINTAINED					
1967 003C		2650	US	18 JAN	CURRENT ELEMENTS NOT MAINTAINED					
1967 003D		2651	US	18 JAN	CURRENT ELEMENTS NOT MAINTAINED					
1967 003E		2652	US	18 JAN	CURRENT ELEMENTS NOT MAINTAINED					
1967 003F		2653	US	18 JAN	1336.4	9.0	34029	33594		
1967 003G		2654	US	18 JAN	CURRENT ELEMENTS NOT MAINTAINED					
1967 003H		2655	US	18 JAN	CURRENT ELEMENTS NOT MAINTAINED					
1967 003J		2660	US	18 JAN	CURRENT ELEMENTS NOT MAINTAINED					
1967 006A	ESSA 4	2657	US	26 JAN	113.4	102.1	1437	1323		
1967 006B		2661	US	26 JAN	113.5	102.0	1438	1339		
1967 006C		2706	US	26 JAN	114.2	102.1	1446	1390		
1967 006D		2707	US	26 JAN	112.5	101.9	1458	1228		
1967 006E		5971	US	26 JAN	113.1	102.0	1454	1279		
1967 010A		2659	US	8 FEB	101.1	99.1	848	774		
1967 010B		2741	US	8 FEB	101.1	99.0	850	769		
1967 011A	DIADEME 1	2674	FRANCE	8 FEB	101.7	40.0	1123	551		
1967 011B		2671	FRANCE	8 FEB	102.5	40.0	1194	557		
1967 014A	DIADEME 2	2680	FRANCE	15 FEB	108.8	39.5	1754	586		
1967 014B		2682	FRANCE	15 FEB	109.3	39.5	1799	588		
1967 014C		2684	FRANCE	15 FEB	106.7	40.0	1576	572		
1967 014F		2685	FRANCE	15 FEB	106.0	39.0	1517	567		
1967 014J		14505	FRANCE	15 FEB	106.3	38.8	1533	572		
1967 014K		14633	FRANCE	15 FEB	96.5	39.4	708	472		
1967 014L		15531	FRANCE	15 FEB	96.3	39.4	691	471		
1967 014M		18911	FRANCE	15 FEB	109.9	38.9	1875	569		
1967 014N		18928	FRANCE	15 FEB	96.9	39.4	742	478		
1967 014P		18929	FRANCE	15 FEB	97.5	39.4	781	495		
1967 025A	INTELSAT 2 F-3	2717	ITSO	23 MAR	CURRENT ELEMENTS NOT MAINTAINED					
1967 027A	COSMOS 151	2720	USSR	24 MAR	90.8	56.0	312	310		
1967 034A	NNSS 30120	2754	US	14 APR	106.2	90.1	1065	1038		
1967 034B		2755	US	14 APR	106.4	90.1	1072	1044		
1967 034C		2777	US	14 APR	103.4	90.3	1020	814		
1967 034D		2779	US	14 APR	108.2	90.2	1242	1046		
1967 034E		4843	US	14 APR	106.6	90.4	1092	1048		
1967 035B		2764	US	17 APR	BARYCENTRIC ORBIT					
1967 036A	ESSA 5	2757	US	20 APR	113.5	102.0	1419	1352		
1967 036B		2758	US	20 APR	113.5	102.0	1417	1354		
1967 036C		2976	US	20 APR	112.3	102.2	1408	1256		
1967 036D		2977	US	20 APR	114.6	101.3	1481	1388		
1967 039B		2763	USSR	27 APR	92.5	81.1	414	379		
1967 040A		2765	US	28 APR	CURRENT ELEMENTS NOT MAINTAINED					
1967 040B		2766	US	28 APR	CURRENT ELEMENTS NOT MAINTAINED					

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INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1967 LAUNCHES (CONT.)										
1967 040C	ERS 18	2767	US	28 APR	CURRENT ELEMENTS NOT MAINTAINED					
1967 040D	ERS 20	2768	US	28 APR	CURRENT ELEMENTS NOT MAINTAINED					
1967 040E	ERS 27	2769	US	28 APR	CURRENT ELEMENTS NOT MAINTAINED					
1967 040F		2770	US	28 APR	CURRENT ELEMENTS NOT MAINTAINED					
1967 043B		2780	US	9 MAY	94.6	84.9	540	454		
1967 045A	COSMOS 158	2801	USSR	15 MAY	100.3	74.0	812	729		
1967 045B		2802	USSR	15 MAY	100.1	74.0	815	710		
1967 045C		2823	USSR	15 MAY	95.7	74.0	566	540		
1967 048A	NNSS 30130	2807	US	19 MAY	106.7	89.6	1090	1060		
1967 048B		2811	US	18 MAY	106.8	89.6	1089	1065		
1967 048C		17723	US	18 MAY	102.4	89.6	890	851		
1967 048D		19222	US	18 MAY	103.6	89.6	964	890		
1967 053A		2826	US	31 MAY	101.8	69.9	851	832		
1967 053B		2825	US	31 MAY	103.2	70.0	915	902		
1967 053C	GRAVITY GRADIENT 4	2828	US	31 MAY	103.2	70.0	915	901		
1967 053D	GRAVITY GRADIENT 5	2834	US	31 MAY	103.2	70.0	917	904		
1967 053E		2847	US	31 MAY	103.0	70.0	906	893		
1967 053F		2872	US	31 MAY	103.1	70.0	912	899		
1967 053G		2873	US	31 MAY	103.2	70.0	914	901		
1967 053H		2874	US	31 MAY	103.2	70.0	917	903		
1967 053J		2909	US	31 MAY	101.5	70.0	832	828		
1967 053K		19245	US	31 MAY	102.8	70.0	897	885		
1967 060A	MARINER 5	2845	US	14 JUN	HELIOCENTRIC ORBIT					
1967 060B		2846	US	14 JUN	HELIOCENTRIC ORBIT					
1967 065A	SECOR (EGRS) 9	2861	US	29 JUN	172.1	90.0	3947	3791		
1967 065B	AURORA 1	2876	US	29 JUN	172.1	90.0	3949	3790		
1967 065C		2877	US	29 JUN	172.1	90.0	3953	3786		
1967 066A	TITAN 3 C-14	2862	US	1 JUL	1309.7	1.2	33540	33010		
1967 066B		2863	US	1 JUL	1310.4	1.2	33549	33030		
1967 066C		2864	US	1 JUL	1311.7	10.0	33550	33079		
1967 066D		2865	US	1 JUL	1313.6	10.1	33560	33147		
1967 066E		2866	US	1 JUL	1316.1	10.1	33622	33185		
1967 066F	DODGE	2867	US	1 JUL	1319.1	10.1	33670	33258		
1967 066G		2868	US	1 JUL	1319.1	10.1	33662	33266		
1967 068B		2883	US	14 JUL	BARYCENTRIC ORBIT					
1967 070A	EXPLORER 35	2884	US	19 JUL	SELENOCENTRIC ORBIT					
1967 075B		2908	US	1 AUG	BARYCENTRIC ORBIT					
1967 080A		2920	US	23 AUG	101.9	99.1	875	819		
1967 080B		2940	US	23 AUG	101.8	99.0	872	816		
1967 084B		2938	US	8 SEP	BARYCENTRIC ORBIT					
1967 092A	NNSS 30140	2965	US	25 SEP	106.5	89.2	1100	1030		
1967 092B		2967	US	25 SEP	106.6	89.2	1100	1033		
1967 092C		2994	US	25 SEP	103.8	89.4	1010	862		
1967 092D		3122	US	25 SEP	108.9	89.1	1319	1029		
1967 092G		17176	US	25 SEP	101.2	89.2	820	813		
1967 092H		20009	US	25 SEP	101.1	89.2	813	804		
1967 092J		20652	US	25 SEP	101.2	89.2	819	808		
1967 094A	INTELSAT 2 F-4	2969	ITSO	28 SEP	1436.9	13.7	35857	35745		
1967 094C		2971	US	28 SEP	CURRENT ELEMENTS NOT MAINTAINED					
1967 096A		2980	US	11 OCT	99.3	99.2	804	642		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1967 LAUNCHES (CONT.)										
1967 096B		2985	US	11 OCT	99.1	99.1	794	639		
1967 102B		3011	USSR	24 OCT	92.9	81.2	446	384		
1967 104B		3019	USSR	27 OCT	96.0	64.1	650	485		
1967 111A	ATS 3	3029	US	5 NOV	1436.1	13.6	35860	35714		
1967 112B		3034	US	7 NOV	BARYCENTRIC ORBIT					
1967 114A	ESSA 6	3035	US	10 NOV	114.8	102.2	1482	1407		
1967 114B		3036	US	10 NOV	114.8	102.2	1482	1408		
1967 114C		3051	US	10 NOV	114.1	101.4	1480	1344		
1967 114D		3123	US	10 NOV	115.4	102.5	1494	1448		
1967 114E		5443	US	10 NOV	114.6	101.6	1483	1386		
1967 116A	COSMOS 192	3047	USSR	23 NOV	99.3	74.0	729	719		
1967 116B		3048	USSR	23 NOV	99.2	74.0	724	713		
1967 123A	PIONEER 8	3066	US	13 DEC	HELIOCENTRIC ORBIT					
1967 127A	COSMOS 198	3091	USSR	27 DEC	103.4	65.1	928	907		
1968 LAUNCHES										
1968 001B		3092	US	7 JAN	BARYCENTRIC ORBIT					
1968 002A	EXPLORER 36	3093	US	11 JAN	112.2	105.8	1571	1080		
1968 002B		3094	US	11 JAN	112.1	105.8	1563	1079		
1968 002C		3126	US	11 JAN	112.3	106.0	1579	1084		
1968 002D		3127	US	11 JAN	112.1	105.3	1570	1074		
1968 011A	COSMOS 203	3129	USSR	20 FEB	109.2	74.1	1199	1181		
1968 011B		3131	USSR	20 FEB	109.2	74.1	1202	1180		
1968 012A	NNSS 30180	3133	US	2 MAR	106.7	90.0	1131	1014		
1968 012B		3137	US	2 MAR	106.7	90.0	1134	1017		
1968 012C		3213	US	2 MAR	104.7	90.0	1083	876		
1968 012D		3214	US	2 MAR	108.6	90.1	1306	1017		
1968 012E		18594	US	2 MAR	97.5	90.0	667	614		
1968 013A	ZOND 4	3134	USSR	2 MAR	HELIOCENTRIC ORBIT					
1968 014A	OGO 5	3138	US	4 MAR	CURRENT ELEMENTS NOT MAINTAINED					
1968 014B		3145	US	4 MAR	CURRENT ELEMENTS NOT MAINTAINED					
1968 017D		3328	US	5 MAR	94.4	59.6	527	452		
1968 019B		3151	USSR	14 MAR	93.8	81.2	491	430		
1968 023A	COSMOS 209	3158	USSR	22 MAR	103.0	65.3	920	885		
1968 026A	OVI-13	3173	US	6 APR	198.8	100.0	9234	576		
1968 026B	OVI-14	3174	US	6 APR	207.2	100.1	9842	599		
1968 026C		3177	US	6 APR	207.1	100.1	9840	594		
1968 026D		3212	US	6 APR	198.4	100.0	9199	581		
1968 027A	LUNA 14	3178	USSR	7 APR	SELENOCENTRIC ORBIT					
1968 040A	COSMOS 220	3229	USSR	7 MAY	98.3	74.0	708	644		
1968 040B		3230	USSR	7 MAY	98.0	74.0	694	632		
1968 042A		3266	US	23 MAY	101.9	99.0	885	807		
1968 042B		3271	US	23 MAY	101.8	98.9	882	805		
1968 050A		3284	US	13 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1968 050B		3285	US	13 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1968 050C		3286	US	13 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1968 050D		3287	US	13 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1968 050E		3288	US	13 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1968 050F		3289	US	13 JUN	CURRENT ELEMENTS NOT MAINTAINED					

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1968 LAUNCHES (CONT.)										
1968 050G		3290	US	13 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1968 050H		3291	US	13 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1968 050J		3292	US	13 JUN	1363.7	12.3	35029	33685		
1968 055A	EXPLORER 38	3307	US	4 JUL	224.2	120.8	5873	5823		
1968 055B		3315	US	4 JUL	155.7	120.7	5735	684		
1968 055C		3344	US	4 JUL	224.1	120.8	5870	5816		
1968 055D		4441	US	4 JUL	155.3	120.8	5768	620		
1968 063A		3334	US	6 AUG	CURRENT ELEMENTS NOT MAINTAINED					
1968 066A	EXPLORER 40	3338	US	8 AUG	117.9	80.7	2497	678		
1968 066C		3341	US	8 AUG	117.8	80.7	2483	680		
1968 066D		3342	US	8 AUG	108.8	80.7	1703	641		
1968 066E		3343	US	8 AUG	106.0	80.5	1476	608		
1968 066F		3390	US	8 AUG	109.5	80.6	1760	649		
1968 066G		3391	US	8 AUG	108.8	80.7	1707	633		
1968 066H		3392	US	8 AUG	112.0	80.7	1967	666		
1968 066J		3393	US	8 AUG	110.1	80.6	1814	649		
1968 069A	ESSA 7	3345	US	16 AUG	114.9	101.4	1471	1428		
1968 069B		3346	US	16 AUG	114.8	101.3	1464	1426		
1968 069C		3416	US	16 AUG	113.6	101.9	1485	1300		
1968 069D		3417	US	16 AUG	116.1	102.3	1558	1454		
1968 069E		3974	US	16 AUG	114.9	102.0	1478	1420		
1968 069F		3975	US	16 AUG	114.8	101.6	1483	1413		
1968 069G		4499	US	16 AUG	115.1	101.4	1480	1435		
1968 081A	OV2-5	3429	US	26 SEP	1417.9	11.5	35770	35090		
1968 081C	ERS 21	3430	US	26 SEP	CURRENT ELEMENTS NOT MAINTAINED					
1968 081D	LES 6	3431	US	26 SEP	1437.1	11.8	35834	35779		
1968 081E		3432	US	26 SEP	1419.3	11.5	35818	35094		
1968 091A	COSMOS 249	3504	USSR	20 OCT	111.5	62.4	2068	525		
1968 091B - 091P			USSR	20 OCT	SEE NOTE 9*					8*
1968 092A		3510	US	23 OCT	101.1	98.6	831	785		
1968 092B		3522	US	23 OCT	101.0	98.7	827	781		
1968 097A	COSMOS 252	3530	USSR	1 NOV	112.1	62.3	2083	560		
1968 097B - 097U			USSR	1 NOV	SEE NOTE 10*					10*
1968 100A	PIONEER 9	3533	US	8 NOV	HELIOCENTRIC ORBIT					
1968 106A	COSMOS 256	3576	USSR	30 NOV	109.3	74.1	1221	1170		
1968 106B		3577	USSR	30 NOV	109.2	74.0	1215	1162		
1968 110A	OAO-A2	3597	US	7 DEC	100.0	35.0	761	753		
1968 110B		3598	US	7 DEC	99.7	35.0	782	702		
1968 112B		3605	US	12 DEC	114.3	80.4	1465	1379		
1968 112C		3517	US	12 DEC	114.0	80.2	1445	1372		
1968 112D		3518	US	12 DEC	114.7	80.6	1506	1373		
1968 112E		3840	US	12 DEC	114.4	80.6	1456	1401		
1968 114A	ESSA 8	3615	US	15 DEC	114.6	101.7	1462	1411		
1968 114B		3616	US	15 DEC	115.0	101.7	1467	1446		
1968 114C		3811	US	15 DEC	112.8	102.0	1463	1248		
1968 114D		3812	US	15 DEC	116.3	102.5	1571	1458		
1968 116A	INTELSAT 3 F-2	3623	ITSO	19 DEC	1475.2	13.9	37138	35957		
1968 118B		3627	US	21 DEC	HELIOCENTRIC ORBIT					
1969 LAUNCHES										

OBJECTS IN ORBIT

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1969 009A	ISIS I	3659	CANADA	30 JAN	127.8	88.4	3476	575		
1969 009B		3670	US	30 JAN	126.8	88.4	3396	572		
1969 010B		3673	US	5 FEB	114.0	80.4	1431	1390		
1969 010C		3841	US	5 FEB	113.7	80.2	1421	1368		
1969 011A	INTELSAT 3 F-3	3674	ITSO	6 FEB	CURRENT ELEMENTS NOT MAINTAINED					
1969 011B		5977	US	6 FEB	CURRENT ELEMENTS NOT MAINTAINED					
1969 013A		3691	US	9 FEB	CURRENT ELEMENTS NOT MAINTAINED					
1969 013B		3692	US	9 FEB	CURRENT ELEMENTS NOT MAINTAINED					
1969 014A	MARINER 6	3759	US	25 FEB	HELIOCENTRIC ORBIT					
1969 014B		3760	US	25 FEB	HELIOCENTRIC ORBIT					
1969 016A	ESSA 9	3764	US	26 FEB	115.2	101.5	1502	1423		
1969 016B		3767	US	26 FEB	115.1	101.4	1498	1418		
1969 018B		3770	US	3 MAR	HELIOCENTRIC ORBIT					
1969 024A	COSMOS 272	3818	USSR	17 MAR	109.2	74.0	1205	1177		
1969 024B		3819	USSR	17 MAR	109.1	74.0	1193	1178		
1969 024C		6289	USSR	17 MAR	108.8	74.0	1184	1162		
1969 025C	OVI-19	3825	US	18 MAR	151.7	104.7	5604	480		
1969 025E		3827	US	18 MAR	150.7	104.7	5513	488		
1969 029A	METEOR	3835	USSR	26 MAR	96.3	81.2	598	566		
1969 030A	MARINER 7	3837	US	27 MAR	HELIOCENTRIC ORBIT					
1969 030B		3845	US	27 MAR	HELIOCENTRIC ORBIT					
1969 036A		3889	US	13 APR	CURRENT ELEMENTS NOT MAINTAINED					
1969 037A	NIMBUS 3	3890	US	14 APR	107.2	99.9	1129	1069		
1969 037B	SECOR (EGRS) 13	3891	US	14 APR	107.2	99.9	1127	1067		
1969 037C		3892	US	14 APR	107.3	100.0	1132	1072		
1969 043B		3943	US	18 MAY	HELIOCENTRIC ORBIT					
1969 043C	LM/DESCENT	3948	US	18 MAY	SELENOCENTRIC ORBIT					
1969 043D	LM/ASCENT	3949	US	18 MAY	HELIOCENTRIC ORBIT					
1969 045A	INTELSAT 3 F-4	3947	ITSO	22 MAY	CURRENT ELEMENTS NOT MAINTAINED					
1969 046A	OV5-5/ERS-29	3950	US	23 MAY	CURRENT ELEMENTS NOT MAINTAINED					
1969 046B	OV5-6	3951	US	23 MAY	CURRENT ELEMENTS NOT MAINTAINED					
1969 046C	OV5-9	3952	US	23 MAY	CURRENT ELEMENTS NOT MAINTAINED					
1969 046D		3954	US	23 MAY	CURRENT ELEMENTS NOT MAINTAINED					
1969 046E		3955	US	23 MAY	CURRENT ELEMENTS NOT MAINTAINED					
1969 046F		3956	US	23 MAY	CURRENT ELEMENTS NOT MAINTAINED					
1969 053B		3993	US	21 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1969 059B		4040	US	16 JUL	HELIOCENTRIC ORBIT					
1969 059C	LUNAR MODULE	4041	US	16 JUL	SELENOCENTRIC ORBIT					9*
1969 062A		4047	US	23 JUL	101.0	98.9	837	769		
1969 062B		4048	US	23 JUL	100.9	99.8	832	767		
1969 064C		4053	US	26 JUL	125.4	30.3	3577	263		
1969 069A	ATS 5	4058	US	12 AUG	1447.5	12.9	36023	35994		
1969 069B		4059	US	12 AUG	703.3	17.8	37300	2337		
1969 069C		5991	US	12 AUG	682.2	17.2	36497	2086		
1969 069D		21052	US	12 AUG	1466.7	13.1	36931	35837		
1969 070A	COSMOS 292	4070	USSR	13 AUG	99.4	74.0	736	724		
1969 070B		4071	USSR	13 AUG	99.1	74.1	726	703		
1969 070C		4084	USSR	13 AUG	99.7	74.1	761	729		
1969 070D		18912	USSR	13 AUG	98.7	74.0	729	660		
1969 082B		4256	US	30 SEP	103.2	70.0	924	891		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1969 LAUNCHES (CONT.)										
1969 082C		4257	US	30 SEP	103.3	70.0	929	896		
1969 082D		4259	US	30 SEP	103.3	70.0	930	898		
1969 082E		4237	US	30 SEP	103.3	70.0	929	897		
1969 082F		4247	US	30 SEP	103.3	70.0	929	896		
1969 082G		4295	US	30 SEP	103.3	70.0	929	897		
1969 082H		4168	US	30 SEP	103.3	70.0	928	897		
1969 082J		4165	US	30 SEP	101.4	70.0	838	813		
1969 082K		4132	US	30 SEP	102.3	70.0	882	853		
1969 082L - 082LF			US	30 SEP	SEE NOTE	11*				11*
1969 084A	METEOR	4119	USSR	6 OCT	95.8	81.2	575	543		
1969 084B		4120	USSR	6 OCT	95.1	81.2	574	472		
1969 091A	COSMOS 304	4133	USSR	21 OCT	99.6	74.0	750	732		
1969 091B		4139	USSR	21 OCT	99.0	74.0	715	708		
1969 097A	GRS-A/AZUR	4221	FRG	8 NOV	112.2	102.7	2283	375		
1969 097B		4222	US	8 NOV	104.2	102.8	1556	359		
1969 099B		4226	US	14 NOV	CURRENT ELEMENTS NOT MAINTAINED					
1969 101A	SKYNET A	4250	UK	22 NOV	1436.0	12.1	36058	35512		
1969 101B		4251	US	22 NOV	CURRENT ELEMENTS NOT MAINTAINED					
1969 103A	COSMOS 312	4254	USSR	24 NOV	108.5	74.0	1174	1138		
1969 103B		4255	USSR	24 NOV	108.3	74.0	1156	1139		
1970 LAUNCHES										
1970 003A	INTELSAT 3 F-5	4297	ITSO	15 JAN	CURRENT ELEMENTS NOT MAINTAINED					
1970 003B		4298	US	15 JAN	530.3	28.0	30303	346		
1970 008A	ITOS 1	4320	US	23 JAN	115.0	101.3	1477	1431		
1970 008B	OSCAR 5	4321	AUSTRL	23 JAN	115.0	101.3	1476	1431		
1970 008C		4322	US	23 JAN	115.0	101.3	1478	1431		
1970 009A	SERT 2	4327	US	4 FEB	106.0	99.1	1045	1038		
1970 011A	OHSUMI	4330	JAPAN	11 FEB	118.3	31.1	2879	329		
1970 012A		4331	US	11 FEB	100.8	99.0	845	751		
1970 012B		4332	US	11 FEB	100.9	98.8	847	754		
1970 021A	NATO 1	4353	NATO	20 MAR	1436.0	11.9	35929	35639		
1970 021B		4354	US	20 MAR	576.1	26.1	32631	483		
1970 021C		5975	US	20 MAR	550.9	25.6	31437	327		
1970 025A	NIMBUS 4	4352	US	8 APR	107.1	99.8	1097	1085		
1970 025B	TOPO 1	4363	US	8 APR	106.9	99.7	1085	1081		
1970 025C - 025QF			US	8 APR	SEE NOTE	12*				12*
1970 027A		4366	US	8 APR	CURRENT ELEMENTS NOT MAINTAINED					
1970 027B		4368	US	8 APR	CURRENT ELEMENTS NOT MAINTAINED					
1970 029A	COSMOS 332	4369	USSR	11 APR	99.5	74.0	740	730		
1970 029B		4370	USSR	11 APR	99.2	74.0	733	708		
1970 028C		14814	USSR	11 APR	98.9	74.0	713	698		
1970 032A	INTELSAT 3 F-7	4376	ITSO	23 APR	CURRENT ELEMENTS NOT MAINTAINED					
1970 032B		4377	US	23 APR	CURRENT ELEMENTS NOT MAINTAINED					
1970 034A	MAO 1	4382	PRC	24 APR	111.9	68.4	2198	432		
1970 034B		4392	PRC	24 APR	102.8	68.4	1362	417		
1970 036A	COSMOS 336	4383	USSR	25 APR	115.4	74.0	1484	1461		
1970 036B	COSMOS 337	4384	USSR	25 APR	116.2	74.0	1551	1465		
1970 036C	COSMOS 338	4385	USSR	25 APR	115.8	74.0	1515	1466		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1970 LAUNCHES (CONT.)										
1970 036D	COSMOS 339	4385	USSR	25 APR	115.0	74.0	1467	1443		
1970 036E	COSMOS 340	4387	USSR	25 APR	114.6	74.0	1467	1405		
1970 036F	COSMOS 341	4388	USSR	25 APR	113.9	74.0	1467	1340		
1970 036G	COSMOS 342	4389	USSR	25 APR	113.5	74.0	1466	1309		
1970 036H	COSMOS 343	4390	USSR	25 APR	114.2	74.0	1466	1372		
1970 036J		4391	USSR	25 APR	116.6	74.0	1586	1466		
1970 037A	METEOR	4393	USSR	28 APR	96.3	81.2	607	556		
1970 037B		4394	USSR	28 APR	96.9	81.2	683	533		
1970 046A		4418	US	19 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1970 046B		4511	US	19 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1970 047A	METEOR	4419	USSR	23 JUN	101.8	81.2	874	816		
1970 047B		4420	USSR	23 JUN	102.1	81.2	921	790		
1970 055A	INTELSAT 3 F-3	4478	ITSO	23 JUL	1408.2	13.4	36640	33836		
1970 055B		4496	US	23 JUL	CURRENT ELEMENTS NOT MAINTAINED					
1970 062A	SKYNET B	4493	UK	19 AUG	CURRENT ELEMENTS NOT MAINTAINED					
1970 067A	NNSS 30190	4507	US	27 AUG	106.7	90.1	1204	945		
1970 067B		4515	US	27 AUG	106.8	90.1	1207	948		
1970 067C		5036	US	27 AUG	103.0	90.1	918	882		
1970 067D		5447	US	27 AUG	109.2	90.1	1432	945		
1970 069A		4510	US	1 SEP	CURRENT ELEMENTS NOT MAINTAINED					
1970 070A		4512	US	3 SEP	100.7	98.8	842	742		
1970 070B		4513	US	3 SEP	100.8	98.9	846	744		
1970 079A	COSMOS 367	4564	USSR	3 OCT	104.5	65.3	1020	918		
1970 083A	COSMOS 371	4578	USSR	12 OCT	99.4	74.0	732	726		
1970 083B		4579	USSR	12 OCT	99.1	74.0	726	709		
1970 085A	METEOR	4583	USSR	15 OCT	94.8	81.2	512	509		
1970 085B		4584	USSR	15 OCT	95.3	81.2	588	482		
1970 086A	COSMOS 372	4588	USSR	16 OCT	100.4	74.1	788	770		
1970 086B		4589	USSR	16 OCT	100.2	74.1	784	753		
1970 086C		5357	USSR	16 OCT	98.8	74.0	706	693		
1970 086D		5358	USSR	16 OCT	99.5	74.1	738	729		
1970 089A	COSMOS 374	4594	USSR	23 OCT	107.7	63.0	1676	560		
1970 089B - 089DG			USSR	23 OCT	SEE NOTE 13*					13*
1970 091A	COSMOS 375	4598	USSR	30 OCT	111.4	62.8	2035	542		
1970 091B - 091AX			USSR	30 OCT	SEE NOTE 15*					15*
1970 093A		4630	US	6 NOV	1198.1	16.0	36114	25862		
1970 093B		4632	US	6 NOV	1197.7	16.0	36126	25836		
1970 102A	COSMOS 381	4783	USSR	2 DEC	104.8	74.0	1005	961		
1970 102B		4784	USSR	2 DEC	104.6	74.0	996	959		
1970 102C		4840	USSR	2 DEC	99.6	74.0	751	727		
1970 102D		5225	USSR	2 DEC	104.1	74.0	965	937		
1970 102E		8764	USSR	2 DEC	104.2	74.0	974	941		
1970 102F		9794	USSR	2 DEC	100.7	74.0	800	786		
1970 103A	COSMOS 382	4786	USSR	2 DEC	171.0	55.9	5255	2399		
1970 103B		4789	USSR	2 DEC	158.8	51.6	5084	1588		
1970 103C		4790	USSR	2 DEC	159.1	51.6	5086	1611		
1970 103G		12854	USSR	2 DEC	145.5	50.4	4558	1014		
1970 106A	NOAA 1	4793	US	11 DEC	114.8	101.3	1471	1421		
1970 106B		4794	US	11 DEC	114.9	101.3	1477	1420		
1970 106C		8828	US	11 DEC	116.4	102.3	1542	1493		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1970 LAUNCHES (CONT.)										
1970 108A	COSMOS 385	4799	USSR	12 DEC	104.6	74.0	978	973		
1970 108B		4800	USSR	12 DEC	104.5	74.0	976	963		
1970 109B		4802	FRANCE	12 DEC	96.8	15.0	640	572		
1970 113A	COSMOS 389	4813	USSR	18 DEC	96.3	81.2	595	567		
1970 113B		4814	USSR	18 DEC	96.7	81.2	648	556		
1971 LAUNCHES										
1971 000A		4924	US	UNKN	95.6	18.0	906	192		14*
1971 003A	METEOR	4849	USSR	20 JAN	96.0	81.2	571	559		
1971 003B		4850	USSR	20 JAN	95.9	81.2	615	506		
1971 003C		18277	USSR	20 JAN	95.2	81.2	575	481		
1971 006A	INTELSAT 4 F-2	4881	ITSO	26 JAN	1457.0	11.3	36239	36149		
1971 006B		4882	US	26 JAN	653.5	27.6	36501	633		
1971 009A	NATO 2	4902	NATO	3 FEB	1436.1	12.3	35869	35704		
1971 009B		4903	US	3 FEB	CURRENT ELEMENTS NOT MAINTAINED					
1971 009D		5986	US	3 FEB	CURRENT ELEMENTS NOT MAINTAINED					
1971 010A	COSMOS 394	4922	USSR	9 FEB	95.6	65.8	570	524		
1971 011A	TANSEI 1	4952	JAPAN	16 FEB	106.1	29.7	1106	987		
1971 011B		5126	JAPAN	16 FEB	104.8	29.7	994	975		
1971 012A		4953	US	17 FEB	100.3	98.7	804	745		
1971 012B		4954	US	17 FEB	100.4	98.7	806	750		
1971 015A	COSMOS 397	4964	USSR	25 FEB	113.2	65.7	2178	567		
1971 015B - 015DV			USSR	25 FEB	SEE NOTE 16*					16*
1971 016A	COSMOS 398	4966	USSR	26 FEB	125.0	51.5	3612	197		
1971 020A	COSMOS 400	5050	USSR	18 MAR	104.9	65.8	1002	979		
1971 020B		5051	USSR	18 MAR	104.7	65.8	1026	936		
1971 020C		5052	USSR	18 MAR	104.9	65.8	999	979		
1971 021A		5053	US	21 MAR	CURRENT ELEMENTS NOT MAINTAINED					
1971 021B		5054	US	21 MAR	CURRENT ELEMENTS NOT MAINTAINED					
1971 024A	ISIS 2	5104	CANADA	1 APR	113.5	88.2	1423	1353		
1971 024B		5106	US	1 APR	113.5	88.2	1418	1352		
1971 024C		5360	US	1 APR	113.5	88.3	1421	1356		
1971 025A	COSMOS 402	5105	USSR	1 APR	104.9	65.0	1009	968		
1971 028A	COSMOS 405	5117	USSR	7 APR	97.0	81.2	619	610		
1971 028B		5118	USSR	7 APR	97.2	81.2	676	570		
1971 028D		5724	USSR	7 APR	96.5	81.2	591	586		
1971 031B		5143	USSR	17 APR	95.2	81.2	571	487		
1971 035A	COSMOS 407	5174	USSR	23 APR	100.6	74.0	803	774		
1971 035B		5175	USSR	23 APR	100.4	74.0	802	756		
1971 035C		5300	USSR	23 APR	99.7	74.0	756	735		
1971 035D		5301	USSR	23 APR	100.1	74.0	776	748		
1971 038A	COSMOS 409	5180	USSR	28 APR	109.2	74.0	1209	1174		
1971 038B		5181	USSR	28 APR	109.0	74.0	1223	1139		
1971 039A		5204	US	5 MAY	ELEMENTS NOT AVAILABLE					
1971 039B		5205	US	5 MAY	ELEMENTS NOT AVAILABLE					
1971 041A	COSMOS 411	5210	USSR	7 MAY	113.8	74.0	1488	1314		
1971 041B	COSMOS 412	5211	USSR	7 MAY	116.1	74.0	1533	1478		
1971 041C	COSMOS 413	5212	USSR	7 MAY	115.7	74.0	1506	1471		
1971 041D	COSMOS 414	5213	USSR	7 MAY	115.1	74.0	1491	1425		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1971 LAUNCHES (CONT.)										
1971 041E	COSMOS 415	5214	USSR	7 MAY	115.4	74.0	1498	1448		
1971 041F	COSMOS 416	5215	USSR	7 MAY	114.4	74.0	1490	1368		
1971 041G	COSMOS 417	5216	USSR	7 MAY	114.1	74.0	1490	1340		
1971 041H	COSMOS 418	5217	USSR	7 MAY	114.8	74.0	1491	1396		
1971 041J		5218	USSR	7 MAY	116.8	74.0	1590	1485		
1971 045A	MARS 2	5234	USSR	19 MAY	AREOCENTRIC ORBIT					
1971 046A	COSMOS 422	5238	USSR	22 MAY	105.0	74.0	1003	981		
1971 046B		5239	USSR	22 MAY	104.8	74.0	994	978		
1971 049A	MARS 3	5252	USSR	28 MAY	AREOCENTRIC ORBIT					
1971 051A	MARINER 9	5261	US	30 MAY	AREOCENTRIC ORBIT					
1971 051B		5267	US	30 MAY	HELIOCENTRIC ORBIT					
1971 052A	COSMOS 426	5281	USSR	4 JUN	101.4	74.0	1289	362		
1971 052B		5282	USSR	4 JUN	102.2	74.0	1360	364		
1971 059A	METEOR	5327	USSR	16 JUL	92.6	81.2	407	398		
1971 059B		5328	USSR	16 JUL	95.4	81.2	588	492		
1971 063D	APOLLO 15 SUBSATELLITE	5377	US	26 JUL	SELENOCENTRIC ORBIT					
1971 067B	OV1-21	5397	US	7 AUG	101.7	87.6	901	776		
1971 067E		5398	US	7 AUG	101.2	87.6	866	761		
1971 067J		5405	US	7 AUG	98.3	87.6	706	643		
1971 067K		5395	US	7 AUG	101.1	87.6	860	759		
1971 067L		5399	US	7 AUG	98.5	87.6	718	656		
1971 067M		5400	US	7 AUG	98.4	87.6	711	648		
1971 067N		5384	US	7 AUG	101.4	87.6	886	765		
1971 069C		5426	USSR	12 AUG	99.8	49.5	835	664		
1971 071A	EOLE 1	5435	FRANCE	16 AUG	99.9	50.2	847	656		
1971 071B		5438	US	16 AUG	99.8	50.2	842	653		
1971 071C		5440	US	16 AUG	97.5	50.7	700	577		
1971 073B		5449	USSR	2 SEP	SELENOCENTRIC ORBIT					
1971 080A	SHINSEI	5485	JAPAN	28 SEP	113.1	32.1	1867	872		
1971 080B		5498	JAPAN	28 SEP	111.9	32.0	1756	871		
1971 082A	LUNA 19	5488	USSR	28 SEP	SELENOCENTRIC ORBIT					
1971 082C		5490	USSR	28 SEP	SELENOCENTRIC ORBIT					
1971 086A	COSMOS 444	5547	USSR	13 OCT	114.1	74.0	1506	1319		
1971 086B	COSMOS 445	5548	USSR	13 OCT	114.4	74.0	1509	1348		
1971 086C	COSMOS 446	5549	USSR	13 OCT	114.8	74.0	1509	1379		
1971 086D	COSMOS 447	5550	USSR	13 OCT	115.1	74.0	1512	1408		
1971 086E	COSMOS 448	5551	USSR	13 OCT	115.5	74.0	1515	1438		
1971 086F	COSMOS 449	5552	USSR	13 OCT	116.2	74.0	1540	1480		
1971 086G	COSMOS 450	5553	USSR	13 OCT	115.8	74.0	1527	1460		
1971 086H	COSMOS 451	5554	USSR	13 OCT	116.6	74.0	1571	1487		
1971 086J		5555	USSR	13 OCT	117.3	74.0	1621	1501		
1971 087A		5557	US	14 OCT	101.2	99.2	854	775		
1971 087B		5556	US	14 OCT	101.4	99.1	871	776		
1971 089A		5560	US	17 OCT	99.9	92.7	768	741		
1971 093A	PROSPERO	5580	UK	28 OCT	104.7	82.1	1431	532		
1971 093B		5581	UK	28 OCT	104.8	82.1	1439	533		
1971 095A		5587	US	3 NOV	1436.2	12.1	35812	35765		
1971 095B		5588	US	3 NOV	1435.5	12.0	35782	35768		
1971 095C		5589	US	3 NOV	1481.7	12.7	37391	35958		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1971 LAUNCHES (CONT.)										
1971 096A	EXPLORER 45	5598	US	15 NOV	322.8	3.2	18149	272		
1971 099A	COSMOS 457	5614	USSR	20 NOV	109.4	74.0	1215	1181		
1971 099B		5615	USSR	20 NOV	109.3	74.0	1208	1175		
1971 110A		5678	US	14 DEC	ELEMENTS NOT AVAILABLE					
1971 110B		5679	US	14 DEC	ELEMENTS NOT AVAILABLE					
1971 110C		5680	US	14 DEC	ELEMENTS NOT AVAILABLE					
1971 110D		5681	US	14 DEC	ELEMENTS NOT AVAILABLE					
1971 110E		5682	US	14 DEC	ELEMENTS NOT AVAILABLE					
1971 111A	COSMOS 465	5683	USSR	15 DEC	104.8	74.0	1004	965		
1971 111B		5685	USSR	15 DEC	104.6	74.0	993	960		
1971 114A	COSMOS 468	5705	USSR	17 DEC	100.5	74.0	793	769		
1971 114B		5707	USSR	17 DEC	100.4	74.0	794	756		
1971 114C		5778	USSR	17 DEC	100.0	74.0	766	746		
1971 114D		5858	USSR	17 DEC	99.9	74.0	759	743		
1971 116A	INTELSAT 4 F-3	5709	ITSO	20 DEC	1445.5	8.9	36013	35926		
1971 117A	COSMOS 469	5721	USSR	25 DEC	104.7	64.5	1026	929		
1971 119A	OREOL 1	5729	USSR	27 DEC	109.7	73.9	2039	389		
1971 119B		5730	USSR	27 DEC	109.1	73.9	1983	388		
1971 120A	METEOR	5731	USSR	29 DEC	102.5	81.3	912	838		
1971 120B		5732	USSR	29 DEC	102.1	81.3	873	839		
1971 120C		8826	USSR	29 DEC	101.1	81.2	826	797		
1971 120D		8827	USSR	29 DEC	102.0	81.3	860	841		
1971 120F		15344	USSR	29 DEC	99.6	81.2	754	726		
1972 LAUNCHES										
1972 003A	INTELSAT 4 F-4	5775	ITSO	23 JAN	1442.6	8.3	35924	35902		
1972 003B		5816	US	23 JAN	653.1	27.6	36560	555		
1972 007B		5836	USSR	14 FEB	SELENOCENTRIC ORBIT					
1972 009A	COSMOS 475	5846	USSR	25 FEB	104.7	74.0	994	961		
1972 009D		5847	USSR	25 FEB	104.4	74.0	989	945		
1972 010A		5851	US	1 MAR	ELEMENTS NOT AVAILABLE					
1972 010B		5854	US	1 MAR	ELEMENTS NOT AVAILABLE					
1972 011A	COSMOS 476	5852	USSR	1 MAR	93.0	81.2	424	413		
1972 011B		5853	USSR	1 MAR	94.6	81.2	528	469		
1972 012A	PIONEER 10	5860	US	3 MAR	SOLAR SYSTEM ESCAPE TRAJECTORY					
1972 012B		5861	US	3 MAR	HELIOCENTRIC ORBIT					
1972 018A		5903	US	24 MAR	101.4	98.9	861	784		
1972 018B		5904	US	24 MAR	101.3	98.9	856	785		
1972 019A	COSMOS 480	5905	USSR	25 MAR	109.1	83.0	1196	1170		
1972 019D		5907	USSR	25 MAR	108.9	83.0	1190	1161		
1972 022A	METEOR	5917	USSR	30 MAR	102.3	81.2	879	855		
1972 022B		5918	USSR	30 MAR	102.5	81.2	918	833		
1972 023E		6073	USSR	31 MAR	161.7	52.1	6690	215		
1972 029A	PROGNOZ	5941	USSR	14 APR	CURRENT ELEMENTS NOT MAINTAINED					
1972 031C	LUNAR MODULE	6005	US	16 APR	SELENOCENTRIC ORBIT					9*
1972 035A	COSMOS 499	6019	USSR	6 MAY	104.7	74.0	997	960		
1972 035B		6020	USSR	6 MAY	104.5	74.0	985	954		
1972 041A	INTELSAT 4 F-5	6052	ITSO	13 JUN	1438.7	9.3	35855	35819		
1972 041B		6058	US	13 JUN	650.5	26.4	36462	520		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1972 LAUNCHES (CONT.)										
1972 043A	COSMOS 494	6059	USSR	23 JUN	100.5	74.1	789	773		
1972 043B		6061	USSR	23 JUN	100.2	74.1	785	754		
1972 043C		6063	USSR	23 JUN	99.7	74.0	750	736		
1972 043D		6065	USSR	23 JUN	100.0	74.1	770	742		
1972 049A	METEOR	6079	USSR	30 JUN	102.7	81.2	894	877		
1972 049B		6080	USSR	30 JUN	102.8	81.2	927	857		
1972 049C		20348	USSR	30 JUN	102.8	81.2	927	856		
1972 057A	COSMOS 504	6117	USSR	20 JUL	113.9	74.0	1493	1320		
1972 057B	COSMOS 505	6118	USSR	20 JUL	114.3	74.0	1494	1350		
1972 057C	COSMOS 506	6119	USSR	20 JUL	114.6	74.0	1495	1379		
1972 057D	COSMOS 507	6120	USSR	20 JUL	114.9	74.0	1495	1408		
1972 057E	COSMOS 508	6121	USSR	20 JUL	115.3	74.0	1494	1440		
1972 057F	COSMOS 509	6122	USSR	20 JUL	115.6	74.0	1496	1471		
1972 057G	COSMOS 510	6123	USSR	20 JUL	116.0	74.0	1508	1493		
1972 057H	COSMOS 511	6124	USSR	20 JUL	116.4	74.0	1542	1493		
1972 057J		6125	USSR	20 JUL	117.0	74.0	1599	1490		
1972 058A	LANDSAT 1	6126	US	23 JUL	103.1	99.3	908	897		
1972 058B - 058JL			US	23 JUL	SEE NOTE	17*				17*
1972 062A	COSMOS 514	6148	USSR	16 AUG	104.2	83.0	966	950		
1972 062B		6149	USSR	16 AUG	104.2	83.0	962	947		
1972 062C		6277	USSR	16 AUG	104.1	82.9	956	945		
1972 062D		7560	USSR	16 AUG	102.8	83.0	941	839		
1972 065A	COPERNICUS	6153	US	21 AUG	99.3	35.0	727	718		
1972 065B		6155	US	21 AUG	98.9	35.0	741	669		
1972 066A	COSMOS 516	6154	USSR	21 AUG	104.5	64.8	1033	911		
1972 069A	TRIAD 01-1X	6173	US	2 SEP	100.0	90.0	802	711		
1972 069B		6180	US	2 SEP	99.6	90.0	779	697		
1972 069C		6250	US	2 SEP	98.3	89.7	719	634		
1972 072A	COSMOS 520	6192	USSR	19 SEP	715.3	67.8	36597	3632		
1972 072B		6302	USSR	19 SEP	706.7	67.7	36137	3669		
1972 073A	EXPLORER 47	6197	US	23 SEP	CURRENT ELEMENTS NOT MAINTAINED					
1972 074A	COSMOS 521	6206	USSR	29 SEP	104.9	65.8	1005	975		
1972 074B		6207	USSR	29 SEP	104.7	65.8	994	968		
1972 074C		6210	USSR	29 SEP	104.9	65.8	1005	972		
1972 076A		6212	US	2 OCT	97.8	98.6	662	648		
1972 076B		6217	US	2 OCT	98.9	98.6	712	696		
1972 076C		6218	US	2 OCT	99.2	98.5	728	709		
1972 076D		6221	US	2 OCT	97.4	98.6	643	628		
1972 079C		6822	US	10 OCT	114.7	95.7	1464	1416		
1972 079D		6823	US	10 OCT	114.7	95.8	1485	1402		
1972 079E		6824	US	10 OCT	114.6	95.5	1444	1430		
1972 082A	NOAA 2	6235	US	15 OCT	114.9	101.9	1453	1446		
1972 082B	AMSAT-OSCAR 6	6236	US	15 OCT	114.9	101.9	1453	1446		
1972 082C		6237	US	15 OCT	109.2	102.8	1464	915		
1972 085A	METEOR	6256	USSR	26 OCT	102.3	81.2	882	852		
1972 085B		6257	USSR	26 OCT	102.4	81.3	916	831		
1972 087A	COSMOS 528	6262	USSR	1 NOV	114.1	74.0	1466	1364		
1972 087B	COSMOS 529	6264	USSR	1 NOV	114.5	74.0	1466	1400		
1972 087C	COSMOS 530	6265	USSR	1 NOV	113.7	74.0	1466	1330		
1972 087D	COSMOS 531	6266	USSR	1 NOV	114.7	74.0	1466	1419		

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OBJECTS IN ORBIT

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1972 LAUNCHES (CONT.)										
1972 087E	COSMOS 532	6267	USSR	1 NOV	113.4	74.0	1465	1298		
1972 087F	COSMOS 533	6268	USSR	1 NOV	113.6	74.0	1466	1314		
1972 087G	COSMOS 534	6269	USSR	1 NOV	113.9	74.0	1466	1347		
1972 087H	COSMOS 535	6270	USSR	1 NOV	114.3	74.0	1467	1381		
1972 087J		6271	USSR	1 NOV	116.6	74.0	1592	1464		
1972 089A		6275	US	9 NOV	101.2	98.8	844	788		
1972 089B		6276	US	9 NOV	101.5	98.8	855	800		
1972 090A	ANIK A1	6278	CANADA	10 NOV	1457.2	9.3	36258	36136		
1972 097A	NIMBUS 5	6305	US	11 DEC	107.1	99.7	1099	1086		
1972 097B		6306	US	11 DEC	111.7	99.8	1514	1098		
1972 101A		6317	US	20 DEC	CURRENT ELEMENTS NOT MAINTAINED					
1972 101B		6318	US	20 DEC	CURRENT ELEMENTS NOT MAINTAINED					
1972 102A	COSMOS 539	6319	USSR	21 DEC	112.9	74.0	1377	1340		
1972 102B		6320	USSR	21 DEC	112.7	74.0	1371	1333		
1972 104A	COSMOS 540	6323	USSR	25 DEC	100.4	74.1	792	765		
1972 104B		6324	USSR	25 DEC	100.1	74.1	770	755		
1972 104C		6391	USSR	25 DEC	99.2	74.1	725	710		
1972 104D		6396	USSR	25 DEC	99.1	74.0	724	704		
1973 LAUNCHES										
1973 005A	COSMOS 546	6350	USSR	26 JAN	95.8	50.7	574	544		
1973 009A	PROGNOZ 3	6364	USSR	15 FEB	CURRENT ELEMENTS NOT MAINTAINED					
1973 013A		6380	US	6 MAR	CURRENT ELEMENTS NOT MAINTAINED					
1973 015A	METEOR	6392	USSR	20 MAR	102.4	81.2	881	861		
1973 015B		6393	USSR	20 MAR	102.5	81.3	923	834		
1973 019A	PIONEER 11	6421	US	6 APR	SOLAR SYSTEM ESCAPE TRAJECTORY					
1973 019B		6425	US	6 APR	HELIOCENTRIC ORBIT					
1973 023A	ANIK A2	6437	CANADA	20 APR	1442.8	8.1	35954	35883		
1973 034A	METEOR	6659	USSR	29 MAY	102.2	81.2	881	844		
1973 034B		6660	USSR	29 MAY	102.5	81.2	910	841		
1973 037A	COSMOS 564	6675	USSR	8 JUN	114.6	74.0	1478	1392		
1973 037B	COSMOS 565	6676	USSR	8 JUN	115.3	74.0	1487	1447		
1973 037C	COSMOS 566	6677	USSR	8 JUN	115.0	74.0	1480	1431		
1973 037D	COSMOS 567	6678	USSR	8 JUN	114.8	74.0	1481	1410		
1973 037E	COSMOS 568	6679	USSR	8 JUN	114.4	74.0	1479	1372		
1973 037F	COSMOS 569	6680	USSR	8 JUN	114.2	74.0	1478	1354		
1973 037G	COSMOS 570	6681	USSR	8 JUN	113.9	74.0	1479	1334		
1973 037H	COSMOS 571	6682	USSR	8 JUN	113.7	74.0	1477	1316		
1973 037J		6683	USSR	8 JUN	116.8	74.0	1594	1481		
1973 039A	EXPLORER 49	6686	US	10 JUN	SELENOCENTRIC ORBIT					
1973 039D		6689	US	10 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1973 039F		6725	US	10 JUN	SELENOCENTRIC ORBIT					
1973 039G		6726	US	10 JUN	SELENOCENTRIC ORBIT					
1973 040A		6691	US	12 JUN	ELEMENTS NOT AVAILABLE					
1973 040B		11940	US	12 JUN	ELEMENTS NOT AVAILABLE					
1973 042A	COSMOS 574	6707	USSR	20 JUN	105.0	82.9	1007	977		
1973 042B		6708	USSR	20 JUN	104.8	83.0	995	977		
1973 047A	MARS 4	6742	USSR	21 JUL	HELIOCENTRIC ORBIT					
1973 049A	MARS 5	6754	USSR	25 JUL	AREOCENTRIC ORBIT					

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1973 LAUNCHES (CONT.)										
1973 052A	MARS 6	6768	USSR	5 AUG	AREOCENTRIC ORBIT					
1973 053A	MARS 7	6776	USSR	9 AUG	HELIOCENTRIC ORBIT					
1973 053D	CAPSULE	7224	USSR	9 AUG	HELIOCENTRIC ORBIT					
1973 054A		6787	US	17 AUG	101.0	98.8	824	784		
1973 054B		6788	US	17 AUG	101.1	98.8	832	792		
1973 056A		6791	US	21 AUG	CURRENT ELEMENTS NOT MAINTAINED					
1973 056B		6792	US	21 AUG	CURRENT ELEMENTS NOT MAINTAINED					
1973 058A	INTELSAT 4 F-7	6796	ITSO	23 AUG	1452.4	8.3	36158	36053		
1973 058B		6797	US	23 AUG	652.5	26.9	36599	482		
1973 064A	COSMOS 585	6825	USSR	8 SEP	113.5	74.0	1402	1373		
1973 064B		6826	USSR	8 SEP	113.4	74.0	1403	1358		
1973 065A	COSMOS 586	6828	USSR	14 SEP	104.7	82.9	1002	959		
1973 065B		6829	USSR	14 SEP	104.6	82.9	993	957		
1973 069A	COSMOS 588	6845	USSR	2 OCT	115.3	74.0	1491	1446		
1973 069B	COSMOS 589	6846	USSR	2 OCT	114.9	74.0	1487	1412		
1973 069C	COSMOS 590	6847	USSR	2 OCT	115.1	74.0	1485	1431		
1973 069D	COSMOS 591	6848	USSR	2 OCT	114.1	74.0	1483	1345		
1973 069E	COSMOS 592	6849	USSR	2 OCT	113.9	74.0	1482	1329		
1973 069F	COSMOS 593	6850	USSR	2 OCT	114.3	74.0	1483	1362		
1973 069G	COSMOS 594	6851	USSR	2 OCT	114.5	74.0	1483	1378		
1973 069H	COSMOS 595	6852	USSR	2 OCT	114.7	74.0	1484	1395		
1973 069J		6853	USSR	2 OCT	117.1	74.0	1619	1483		
1973 078A	EXPLORER 50	6893	US	26 OCT	ELEMENTS NOT AVAILABLE					
1973 078C		6895	US	26 OCT	100.0	28.8	1181	340		
1973 078D		6896	US	26 OCT	CURRENT ELEMENTS NOT MAINTAINED					
1973 080A	COSMOS 604	6907	USSR	29 OCT	93.4	81.2	446	433		
1973 080B		6908	USSR	29 OCT	94.0	81.2	492	446		
1973 081A	NNSS 30200	6909	US	30 OCT	105.3	89.9	1126	886		
1973 081B		6910	US	30 OCT	105.3	89.9	1128	887		
1973 081C		15764	US	30 OCT	105.8	90.5	1174	891		
1973 084A	COSMOS 606	6916	USSR	2 NOV	716.9	68.3	37169	3142		
1973 084D		6939	USSR	2 NOV	706.5	67.8	36962	2836		
1973 085A	MARINER 10	6919	US	3 NOV	HELIOCENTRIC ORBIT					
1973 086A	NOAA 3	6920	US	6 NOV	116.1	102.1	1508	1499		
1973 086B -	086HF		US	6 NOV	SEE NOTE	18*				18*
1973 088D		6938	US	10 NOV	114.5	96.9	1455	1412		
1973 088E		7559	US	10 NOV	114.6	96.8	1476	1401		
1973 098A	COSMOS 614	6965	USSR	4 DEC	100.3	74.1	789	753		
1973 098B		6966	USSR	4 DEC	100.1	74.1	781	748		
1973 098C		6967	USSR	4 DEC	98.9	74.1	716	691		
1973 098D		9569	USSR	4 DEC	99.7	74.1	760	731		
1973 100A		6973	US	13 DEC	1474.6	11.9	36683	36391		
1973 100B		6974	US	13 DEC	1436.1	11.6	35791	35780		
1973 100D		6976	US	13 DEC	1515.0	12.5	38520	36114		
1973 104A	COSMOS 617	6985	USSR	19 DEC	113.9	74.0	1481	1332		
1973 104B	COSMOS 618	6986	USSR	19 DEC	115.2	74.0	1484	1442		
1973 104C	COSMOS 619	6987	USSR	19 DEC	115.0	74.0	1486	1421		
1973 104D	COSMOS 620	6988	USSR	19 DEC	115.4	74.0	1491	1457		
1973 104E	COSMOS 621	6989	USSR	19 DEC	114.7	74.0	1483	1403		
1973 104F	COSMOS 622	6990	USSR	19 DEC	114.3	74.0	1483	1366		

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1973 LAUNCHES (CONT.)										
1973 104G	COSMOS 623	6991	USSR	19 DEC	114.5	74.0	1484	1384		
1973 104H	COSMOS 624	6992	USSR	19 DEC	114.1	74.0	1484	1348		
1973 104J		6993	USSR	19 DEC	117.0	74.0	1619	1474		
1973 107A	OREOL 2	7003	USSR	26 DEC	104.3	74.0	1539	387		
1973 107B		7004	USSR	26 DEC	103.7	74.0	1488	382		
1973 108A	COSMOS 626	7005	USSR	27 DEC	104.0	65.4	975	914		
1973 109A	COSMOS 627	7008	USSR	29 DEC	104.9	82.9	1014	964		
1973 109B		7009	USSR	29 DEC	104.6	83.0	990	959		
1974 LAUNCHES										
1974 001A	COSMOS 628	7094	USSR	17 JAN	104.7	83.0	1008	950		
1974 001B		7095	USSR	17 JAN	104.5	83.0	998	943		
1974 011A	METEOR	7209	USSR	5 MAR	101.9	81.2	878	822		
1974 011B		7210	USSR	5 MAR	102.0	81.2	911	793		
1974 013A	UK-X4	7213	UK	9 MAR	100.4	97.8	874	682		
1974 013B		7228	US	9 MAR	100.5	97.8	870	692		
1974 015A		7218	US	16 MAR	101.0	99.1	850	760		
1974 015B		7219	US	16 MAR	101.2	99.0	866	768		
1974 017A	COSMOS 637	7229	USSR	26 MAR	1428.9	11.9	35805	35485		
1974 017F		11567	USSR	26 MAR	1425.7	11.9	35768	35398		
1974 020B		7244	US	10 APR	ELEMENTS NOT AVAILABLE					
1974 022A	WESTAR 1	7250	US	13 APR	1441.4	7.7	35908	35870		
1974 024A	COSMOS 641	7265	USSR	23 APR	114.5	74.0	1479	1386		
1974 024B	COSMOS 642	7266	USSR	23 APR	113.7	74.0	1478	1316		
1974 024C	COSMOS 643	7267	USSR	23 APR	114.1	74.0	1478	1351		
1974 024D	COSMOS 644	7268	USSR	23 APR	113.9	74.0	1480	1332		
1974 024E	COSMOS 645	7269	USSR	23 APR	114.3	74.0	1479	1367		
1974 024F	COSMOS 646	7270	USSR	23 APR	114.7	74.0	1483	1401		
1974 024G	COSMOS 647	7271	USSR	23 APR	114.9	74.0	1482	1420		
1974 024H	COSMOS 648	7272	USSR	23 APR	115.1	74.0	1488	1434		
1974 024J		7273	USSR	23 APR	117.0	74.0	1606	1485		
1974 025A	METEOR	7274	USSR	24 APR	102.3	81.2	882	854		
1974 025B		7275	USSR	24 APR	102.4	81.2	915	831		
1974 026A	MOLNIYA 2-9	7276	USSR	26 APR	640.7	62.3	36036	445		
1974 026E		7373	USSR	26 APR	704.6	62.7	39497	204		
1974 028A	COSMOS 650	7281	USSR	29 APR	113.4	74.0	1398	1366		
1974 028B		7284	USSR	29 APR	113.2	74.1	1387	1361		
1974 029A	COSMOS 651	7291	USSR	15 MAY	103.4	65.0	953	885		
1974 032A	COSMOS 654	7297	USSR	17 MAY	104.4	64.9	1000	931		
1974 033A	SMS 1	7298	US	17 MAY	1460.3	13.6	36301	36215		
1974 037A	LUNA 22	7315	USSR	29 MAY	SELENOCENTRIC ORBIT					
1974 039A	ATS 6	7318	US	30 MAY	1412.1	11.4	35451	35179		
1974 039C		7324	US	30 MAY	1430.6	11.5	35783	35574		
1974 044A	COSMOS 660	7337	USSR	18 JUN	105.1	83.0	1610	385		
1974 044B		7338	USSR	18 JUN	102.8	83.0	1392	386		
1974 048A	COSMOS 663	7349	USSR	27 JUN	104.7	83.0	999	961		
1974 048B		7350	USSR	27 JUN	104.5	82.9	986	960		
1974 050A	COSMOS 665	7352	USSR	29 JUN	709.6	61.8	39653	298		
1974 050C		7354	USSR	29 JUN	682.6	62.5	38557	46		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1974 LAUNCHES (CONT.)										
1974 052A	METEOR	7363	USSR	9 JUL	102.9	81.2	908	883		
1974 052B		7364	USSR	9 JUL	102.5	81.2	908	845		
1974 054A		7369	US	14 JUL	468.7	125.2	13769	13450		
1974 054C		8599	US	14 JUL	CURRENT ELEMENTS NOT MAINTAINED					
1974 056A	MOLNIYA 2-10	7376	USSR	23 JUL	718.2	61.7	39408	966		
1974 056D		7382	USSR	23 JUL	731.9	61.9	40291	758		
1974 060A	MOLNIYA 1-S	7392	USSR	29 JUL	1435.8	12.2	35836	35726		
1974 060F		20836	USSR	29 JUL	1437.1	12.2	35907	35703		
1974 063A		7411	US	9 AUG	101.2	98.8	848	784		
1974 063B		7412	US	9 AUG	101.4	98.8	856	788		
1974 066A	COSMOS 673	7417	USSR	16 AUG	91.4	81.1	347	339		
1974 066B		7418	USSR	16 AUG	94.9	81.2	534	491		
1974 066C		8424	USSR	16 AUG	91.2	81.2	337	325		
1974 069A	COSMOS 675	7424	USSR	29 AUG	113.6	74.1	1421	1361		
1974 069B		7426	USSR	29 AUG	113.5	74.1	1420	1351		
1974 071A	COSMOS 676	7433	USSR	11 SEP	100.7	74.0	802	780		
1974 071B		7434	USSR	11 SEP	100.5	74.0	799	766		
1974 071C		8756	USSR	11 SEP	99.9	74.1	758	744		
1974 071D		8829	USSR	11 SEP	100.4	74.1	792	762		
1974 072A	COSMOS 677	7435	USSR	19 SEP	114.4	74.0	1465	1394		
1974 072B	COSMOS 678	7436	USSR	19 SEP	115.9	74.0	1529	1465		
1974 072C	COSMOS 679	7437	USSR	19 SEP	115.7	74.0	1508	1464		
1974 072D	COSMOS 680	7438	USSR	19 SEP	115.5	74.0	1489	1464		
1974 072E	COSMOS 681	7439	USSR	19 SEP	115.3	74.0	1470	1463		
1974 072F	COSMOS 682	7440	USSR	19 SEP	115.1	74.0	1463	1451		
1974 072G	COSMOS 683	7441	USSR	19 SEP	114.8	74.0	1463	1432		
1974 072H	COSMOS 684	7442	USSR	19 SEP	114.6	74.0	1464	1413		
1974 072J		7443	USSR	19 SEP	117.7	74.0	1682	1472		
1974 075A	WESTAR 2	7466	US	10 OCT	1442.2	7.5	35926	35885		
1974 075C		7468	US	10 OCT	234.4	24.3	12223	204		
1974 079A	COSMOS 689	7476	USSR	18 OCT	104.9	82.9	1014	969		
1974 079B		7477	USSR	18 OCT	104.8	82.9	1011	959		
1974 083A	METEOR	7490	USSR	28 OCT	102.2	81.2	890	836		
1974 083B		7493	USSR	28 OCT	102.3	81.2	903	835		
1974 083C		15521	USSR	28 OCT	102.3	81.2	901	835		
1974 089A	NOAA 4	7529	US	15 NOV	114.9	101.8	1457	1442		
1974 089B	AMSAT-OSCAR 7	7530	US	15 NOV	114.8	101.8	1457	1437		
1974 089C	INTASAT	7531	SPAIN	15 NOV	114.8	101.8	1457	1439		
1974 089D -	089FF		US	15 NOV	SEE NOTE 19*					19*
1974 092E		7546	USSR	21 NOV	733.3	64.5	40785	330		
1974 093A	INTELSAT 4 F-3	7544	ITSO	21 NOV	1443.1	6.6	35958	35888		
1974 093B		7545	US	21 NOV	652.6	26.3	36493	596		
1974 094A	SKYNET 2B	7547	UK	23 NOV	1435.5	10.4	35802	35748		
1974 097A	HELIOS 1	7567	FRG	10 DEC	HELIOCENTRIC ORBIT					
1974 097B		7568	US	10 DEC	CURRENT ELEMENTS NOT MAINTAINED					
1974 097C		7569	US	10 DEC	HELIOCENTRIC ORBIT					
1974 097D		7570	FRG	10 DEC	HELIOCENTRIC ORBIT					
1974 099A	METEOR	7574	USSR	17 DEC	102.1	81.2	871	846		
1974 099B		7575	USSR	17 DEC	102.1	81.2	896	821		
1974 101A	SYMPHONIE-A	7578	FR/FRG	19 DEC	1440.7	10.5	35899	35853		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1974 LAUNCHES (CONT.)										
1974 101G		9330	US	19 DEC	655.8	12.9	36855	396		
1974 102D		7586	USSR	21 DEC	438.5	62.0	25389	92		
1974 105A	COSMOS 700	7593	USSR	26 DEC	104.6	82.9	993	958		
1974 105B		7594	USSR	26 DEC	104.5	82.9	980	958		
1975 LAUNCHES										
1975 004A	LANDSAT 2	7615	US	22 JAN	103.1	98.8	912	900		
1975 004B -	004HR		US	22 JAN	SEE NOTE		20*			20*
1975 007A	COSMOS 706	7625	USSR	30 JAN	718.1	67.7	33885	6485		
1975 007D		7629	USSR	30 JAN	716.9	67.6	34549	5763		
1975 009D		7653	USSR	6 FEB	685.8	64.1	38462	304		
1975 010A	STARLETTE	7646	FRANCE	6 FEB	104.2	49.8	1107	806		
1975 010B		7647	FRANCE	6 FEB	104.4	49.8	1127	802		
1975 010C		7654	FRANCE	6 FEB	103.7	49.8	1069	796		
1975 010D		7655	FRANCE	6 FEB	103.8	49.8	1076	795		
1975 010E		7659	FRANCE	6 FEB	103.9	49.8	1089	795		
1975 011A	SMS 2	7648	US	6 FEB	1447.1	10.0	36075	35927		
1975 011F		20835	US	6 FEB	1460.7	11.8	36670	35863		
1975 012A	COSMOS 708	7663	USSR	12 FEB	113.5	69.2	1407	1367		
1975 012B		7665	USSR	12 FEB	113.3	69.2	1396	1363		
1975 016A	COSMOS 711	7678	USSR	28 FEB	115.4	74.0	1490	1460		
1975 016B	COSMOS 712	7679	USSR	28 FEB	114.9	74.0	1488	1408		
1975 016C	COSMOS 713	7680	USSR	28 FEB	114.7	74.0	1486	1392		
1975 016D	COSMOS 714	7681	USSR	28 FEB	115.2	74.0	1489	1443		
1975 016E	COSMOS 715	7682	USSR	28 FEB	115.7	74.0	1502	1468		
1975 016F	COSMOS 716	7683	USSR	28 FEB	115.9	74.0	1512	1477		
1975 016G	COSMOS 717	7684	USSR	28 FEB	116.1	74.0	1534	1477		
1975 016H	COSMOS 718	7685	USSR	28 FEB	115.0	74.0	1488	1426		
1975 016J		7686	USSR	28 FEB	117.9	74.0	1718	1456		
1975 017A		7687	US	10 MAR	CURRENT ELEMENTS NOT MAINTAINED					
1975 017B		7688	US	10 MAR	CURRENT ELEMENTS NOT MAINTAINED					
1975 023A	METEOR	7714	USSR	1 APR	102.3	81.2	885	853		
1975 023B		7715	USSR	1 APR	102.4	81.2	910	834		
1975 024A	COSMOS 723	7718	USSR	2 APR	103.6	64.7	977	884		
1975 025A	COSMOS 724	7727	USSR	7 APR	103.0	65.6	947	849		
1975 027A	GEOS 3	7734	US	9 APR	101.6	115.0	851	817		
1975 027B		7735	US	9 APR	101.3	115.0	853	786		
1975 027C		10728	US	9 APR	101.5	115.2	856	800		
1975 027E		10730	US	9 APR	103.6	115.0	1002	850		
1975 028A	COSMOS 726	7736	USSR	11 APR	104.5	83.0	989	951		
1975 028B		7737	USSR	11 APR	104.4	83.0	979	950		
1975 029D		7741	USSR	14 APR	726.6	62.3	40651	139		
1975 033A	ARIABAT	7752	INDIA	19 APR	93.0	50.7	427	419		
1975 034A	COSMOS 729	7768	USSR	22 APR	104.9	83.0	1004	971		
1975 034B		7769	USSR	22 APR	104.8	83.0	995	970		
1975 036A	MOLNIYA 1-29	7780	USSR	29 APR	717.8	62.7	39930	423		
1975 036D		7800	USSR	29 APR	732.9	63.3	40532	563		
1975 038A	ANIK A3	7790	CANADA	7 MAY	1439.2	6.8	35849	35844		
1975 038D		7794	US	7 MAY	413.8	24.5	23756	274		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1975 LAUNCHES (CONT.)										
1975 042A	INTELSAT 4 F-1	7815	ITSO	22 MAY	1450.8	6.6	36128	36019		
1975 042B		7902	US	22 MAY	653.4	25.5	36583	544		
1975 043A		7816	US	24 MAY	ELEMENTS NOT AVAILABLE					
1975 043B		7817	US	24 MAY	ELEMENTS NOT AVAILABLE					
1975 045A	COSMOS 732	7820	USSR	28 MAY	114.6	74.0	1468	1401		
1975 045B	COSMOS 733	7822	USSR	28 MAY	116.2	74.0	1552	1468		
1975 045C	COSMOS 734	7823	USSR	28 MAY	115.0	74.0	1469	1442		
1975 045D	COSMOS 735	7824	USSR	28 MAY	115.2	74.0	1471	1459		
1975 045E	COSMOS 736	7825	USSR	28 MAY	115.5	74.0	1484	1467		
1975 045F	COSMOS 737	7826	USSR	28 MAY	115.9	74.0	1526	1468		
1975 045G	COSMOS 738	7827	USSR	28 MAY	115.7	74.0	1507	1467		
1975 045H	COSMOS 739	7828	USSR	28 MAY	114.8	74.0	1469	1422		
1975 045J		7831	USSR	28 MAY	117.9	74.0	1692	1483		
1975 049B	SRET 2	7910	FRANCE	5 JUN	737.8	62.8	40825	513		
1975 050A	VENERA 9	7915	USSR	8 JUN	HELIOCENTRIC ORBIT					
1975 051C	SSU 1	7937	US	8 JUN	113.5	95.1	1392	1384		
1975 051D		7938	US	8 JUN	113.2	95.0	1403	1342		
1975 051E		7939	US	8 JUN	113.9	95.2	1426	1380		
1975 052A	NIMBUS 6	7924	US	12 JUN	107.4	99.7	1111	1099		
1975 052B		7946	US	12 JUN	107.2	99.6	1099	1091		
1975 054A	VENERA 10	7947	USSR	14 JUN	HELIOCENTRIC ORBIT					
1975 055A		7963	US	18 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1975 055B		7964	US	18 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1975 056A	COSMOS 744	7968	USSR	20 JUN	92.8	81.2	421	402		
1975 056B		7969	USSR	20 JUN	95.1	81.3	541	501		
1975 063A	MOLNIYA 2-13	8015	USSR	8 JUL	716.5	62.9	39860	429		
1975 063D		8018	USSR	8 JUL	733.0	63.4	40543	558		
1975 064A	METEOR 2	8026	USSR	11 JUL	102.2	81.3	879	845		
1975 064B		8027	USSR	11 JUL	102.4	81.3	909	831		
1975 064C		8039	USSR	11 JUL	102.2	81.3	877	851		
1975 064D		8110	USSR	11 JUL	102.1	81.3	883	832		
1975 072A	COS-B	8062	ESA	9 AUG	2203.9	90.3	99002	442		
1975 072B		8063	US	9 AUG	122.9	89.2	3305	319		
1975 074A	COSMOS 755	8072	USSR	14 AUG	104.8	82.9	1005	966		
1975 074B		8073	USSR	14 AUG	104.7	82.9	994	963		
1975 075A	VIKING ORBITER 1	8108	US	20 AUG	AREOCENTRIC ORBIT					
1975 075B		8111	US	20 AUG	HELIOCENTRIC ORBIT					
1975 076A	COSMOS 756	8127	USSR	22 AUG	94.2	81.2	484	470		
1975 076B		8128	USSR	22 AUG	95.5	81.2	568	514		
1975 077A	SYMPHONIE-B	8132	FR/FRG	27 AUG	1440.3	10.8	35879	35857		
1975 077B		8133	US	27 AUG	103.9	25.3	1480	400		
1975 077C		8134	US	27 AUG	643.2	12.9	36190	416		
1975 081A	MOLNIYA 2-14	8195	USSR	9 SEP	717.8	62.4	39938	417		
1975 081D		8418	USSR	9 SEP	733.5	63.2	40712	416		
1975 082A	KIKU	8197	JAPAN	9 SEP	106.0	47.0	1103	976		
1975 082B		8352	JAPAN	9 SEP	105.9	47.0	1100	974		
1975 083A	VIKING ORBITER 2	8199	US	9 SEP	AREOCENTRIC ORBIT					
1975 083B		8272	US	9 SEP	HELIOCENTRIC ORBIT					
1975 086A	COSMOS 761	8285	USSR	17 SEP	114.6	74.0	1480	1397		
1975 086B	COSMOS 762	8286	USSR	17 SEP	115.1	74.0	1483	1435		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1975 LAUNCHES (CONT.)										
1975 086C	COSMOS 763	8287	USSR	17 SEP	115.8	74.0	1507	1472		
1975 086D	COSMOS 764	8288	USSR	17 SEP	116.0	74.0	1524	1476		
1975 086E	COSMOS 765	8289	USSR	17 SEP	116.3	74.0	1548	1476		
1975 086F	COSMOS 766	8290	USSR	17 SEP	114.9	74.0	1483	1415		
1975 086G	COSMOS 767	8291	USSR	17 SEP	115.3	74.0	1485	1453		
1975 086H	COSMOS 768	8292	USSR	17 SEP	115.5	74.0	1489	1469		
1975 086J		8295	USSR	17 SEP	117.8	74.0	1682	1480		
1975 087A	METEOR	8293	USSR	18 SEP	102.1	81.3	912	799		
1975 087B		8294	USSR	18 SEP	102.3	81.3	913	818		
1975 089A	COSMOS 770	8325	USSR	24 SEP	109.1	83.0	1204	1163		
1975 089B		8326	USSR	24 SEP	108.9	83.0	1195	1160		
1975 091A	INTELSAT 4A F-1	8330	ITSO	26 SEP	1440.9	6.6	35896	35865		
1975 091B		8331	US	26 SEP	652.9	22.4	36575	527		
1975 094A	COSMOS 773	8343	USSR	30 SEP	100.5	74.1	792	774		
1975 094B		8344	USSR	30 SEP	100.3	74.1	792	756		
1975 094C		8346	USSR	30 SEP	98.8	74.0	710	690		
1975 094D		14865	USSR	30 SEP	100.1	74.0	768	761		
1975 097A	COSMOS 775	8357	USSR	8 OCT	1435.1	11.8	35813	35718		
1975 097E		8415	USSR	8 OCT	CURRENT ELEMENTS NOT MAINTAINED					
1975 097F		11676	USSR	8 OCT	1438.6	11.8	35984	35688		
1975 099A	TIP 2	8361	US	12 OCT	92.2	90.4	403	365		
1975 100A	GOES 1	8366	US	16 OCT	1435.9	10.4	35795	35771		
1975 100C		8368	US	16 OCT	160.1	23.4	6517	256		
1975 100F		20962	US	16 OCT	1412.7	11.2	36537	34117		
1975 103A	COSMOS 778	8419	USSR	4 NOV	104.8	83.0	1000	965		
1975 103B		8421	USSR	4 NOV	104.6	83.0	994	959		
1975 105A	MOLNIYA 3-3	8425	USSR	14 NOV	717.9	62.7	39906	455		
1975 105D		8462	USSR	14 NOV	733.7	63.3	40637	500		
1975 112A	COSMOS 783	8458	USSR	28 NOV	100.7	74.1	799	781		
1975 112B		8459	USSR	28 NOV	100.5	74.1	793	769		
1975 112C		8757	USSR	28 NOV	99.6	74.0	743	740		
1975 112D		14801	USSR	28 NOV	100.4	74.1	786	773		
1975 112E		18500	USSR	28 NOV	100.6	74.1	800	774		
1975 116A	COSMOS 785	8473	USSR	12 DEC	104.2	65.1	1005	907		
1975 117A	RCA SATCOM I	8476	US	13 DEC	1446.0	6.7	36087	35871		
1975 118A		8482	US	14 DEC	ELEMENTS NOT AVAILABLE					
1975 118C		8516	US	14 DEC	ELEMENTS NOT AVAILABLE					
1975 118D		8517	US	14 DEC	CURRENT ELEMENTS NOT MAINTAINED					
1975 121A	MOLNIYA 2-15	8492	USSR	17 DEC	416.9	62.8	24113	103		
1975 122A	PROGNOZ 4	8510	USSR	22 DEC	CURRENT ELEMENTS NOT MAINTAINED					
1975 123A	RADUGA 1	8513	USSR	22 DEC	1436.5	11.5	35826	35760		
1975 123D		8546	USSR	22 DEC	381.5	46.1	21718	376		
1975 123E		8547	USSR	22 DEC	362.2	46.8	20701	204		
1975 123F		11568	USSR	22 DEC	1433.1	11.5	35797	35658		
1975 124A	METEOR	8519	USSR	25 DEC	102.1	81.2	883	837		
1975 124B		8520	USSR	25 DEC	102.3	81.3	900	830		
1976 LAUNCHES										
1976 003A	HELIOS 2	8582	FRG	15 JAN	HELIOCENTRIC ORBIT					

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1976 LAUNCHES (CONT.)										
1976 003B		8593	US	15 JAN	HELIOCENTRIC ORBIT					
1976 003C		8594	US	15 JAN	HELIOCENTRIC ORBIT					
1976 004A	CTS	8595	CANADA	17 JAN	1435.3	10.9	35850	35691		
1976 005A	COSMOS 789	8591	USSR	20 JAN	104.9	83.0	1011	965		
1976 005B		8597	USSR	20 JAN	104.7	83.0	1000	964		
1976 006A	MOLNIYA 1-32	8601	USSR	22 JAN	720.2	63.3	39884	587		
1976 006D		8701	USSR	22 JAN	695.3	63.2	38716	523		
1976 008A	COSMOS 791	8607	USSR	28 JAN	114.7	74.1	1484	1399		
1976 008B	COSMOS 792	8608	USSR	28 JAN	115.1	74.1	1488	1434		
1976 008C	COSMOS 793	8609	USSR	28 JAN	114.9	74.1	1488	1415		
1976 008D	COSMOS 794	8610	USSR	28 JAN	115.3	74.1	1491	1450		
1976 008E	COSMOS 795	8611	USSR	28 JAN	115.6	74.1	1496	1465		
1976 008F	COSMOS 796	8612	USSR	28 JAN	115.8	74.1	1513	1470		
1976 008G	COSMOS 797	8613	USSR	28 JAN	116.0	74.1	1526	1477		
1976 008H	COSMOS 798	8614	USSR	28 JAN	116.3	74.1	1552	1476		
1976 008J		8615	USSR	28 JAN	117.9	74.1	1693	1480		
1976 010A	INTELSAT 4A F-2	8620	ITSO	29 JAN	1444.6	6.8	35982	35924		
1976 010B		8621	US	29 JAN	654.0	21.2	36511	647		
1976 011A	COSMOS 800	8645	USSR	3 FEB	105.0	83.0	1009	975		
1976 011B		8646	USSR	3 FEB	104.8	83.0	989	982		
1976 014A	COSMOS 803	8688	USSR	12 FEB	95.5	65.9	573	508		
1976 017A	MARISAT 1	8697	US	19 FEB	1436.1	9.1	35798	35776		
1976 017C		8702	US	19 FEB	169.7	24.4	7301	252		
1976 019A	UME	8709	JAPAN	29 FEB	105.1	69.7	1004	988		
1976 019B		8710	JAPAN	29 FEB	105.1	69.7	1009	990		
1976 021A	MOLNIYA 1-33	8741	USSR	11 MAR	669.1	62.6	37773	151		
1976 021D		9411	USSR	11 MAR	726.2	62.9	40594	174		
1976 022A	COSMOS 807	8744	USSR	12 MAR	105.4	83.0	1640	385		
1976 022B		8745	USSR	12 MAR	102.6	82.9	1389	372		
1976 023A	LES 8	8746	US	15 MAR	1436.1	19.1	35833	35739		
1976 023B	LES 9	8747	US	15 MAR	1436.1	19.1	35841	35732		
1976 023C	SOLRAD 11A	8748	US	15 MAR	CURRENT ELEMENTS NOT MAINTAINED					
1976 023D	SOLRAD 11B	8749	US	15 MAR	CURRENT ELEMENTS NOT MAINTAINED					
1976 023F		8751	US	15 MAR	1465.5	19.5	36992	35729		
1976 023G		8752	US	15 MAR	CURRENT ELEMENTS NOT MAINTAINED					
1976 023H		8753	US	15 MAR	CURRENT ELEMENTS NOT MAINTAINED					
1976 023J		8832	US	15 MAR	CURRENT ELEMENTS NOT MAINTAINED					
1976 023K		13753	US	15 MAR	1420.9	9.4	35493	35484		
1976 024A	COSMOS 808	8754	USSR	16 MAR	94.5	81.2	508	485		
1976 024B		8755	USSR	16 MAR	94.8	81.2	534	483		
1976 029A	RCA SATCOM II	8774	US	26 MAR	1460.1	6.3	36521	35989		
1976 032A	METEOR	8799	USSR	7 APR	102.1	81.3	881	831		
1976 032B		8800	USSR	7 APR	102.2	81.2	932	792		
1976 035A	NATO III-A	8808	NATO	22 APR	1436.3	8.8	35800	35780		
1976 038A		8818	US	30 APR	ELEMENTS NOT AVAILABLE					
1976 038B		8819	US	30 APR	ELEMENTS NOT AVAILABLE					
1976 038C	SSU-1	8835	US	30 APR	ELEMENTS NOT AVAILABLE					
1976 038D	SSU-2	8836	US	30 APR	ELEMENTS NOT AVAILABLE					
1976 038E		8839	US	30 APR	ELEMENTS NOT AVAILABLE					
1976 038F		8842	US	30 APR	ELEMENTS NOT AVAILABLE					

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1976 LAUNCHES (CONT.)										
1976 038G		8843	US	30 APR	ELEMENTS NOT AVAILABLE					
1976 038H		8859	US	30 APR	ELEMENTS NOT AVAILABLE					
1976 038J	SSU-1	9884	US	30 APR	ELEMENTS NOT AVAILABLE					
1976 038K		9796	US	30 APR	ELEMENTS NOT AVAILABLE					
1976 038L		9996	US	30 APR	ELEMENTS NOT AVAILABLE					
1976 039A	LAGEOS	8820	US	4 MAY	225.4	109.8	5946	5837		
1976 039B		8821	US	4 MAY	99.3	109.6	1191	259		
1976 039C		8822	US	4 MAY	225.4	109.9	5941	5837		
1976 039D		14514	US	4 MAY	110.6	110.0	2224	283		
1976 041A	MOLNIYA 3-5	8833	USSR	12 MAY	654.3	62.0	37590	93		
1976 041D		8844	USSR	12 MAY	710.5	61.9	39885	111		
1976 042A	COMSTAR 1	8838	US	13 MAY	1442.7	6.6	35925	35907		
1976 042B		8840	US	13 MAY	648.5	21.9	36231	646		
1976 043A	METEOR	8845	USSR	15 MAY	102.1	81.3	886	826		
1976 043B		8846	USSR	15 MAY	102.3	81.2	906	825		
1976 047A	P 76-5	8860	US	22 MAY	105.4	99.6	1047	982		
1976 047B		8861	US	22 MAY	105.5	99.5	1048	985		
1976 047C		8867	US	22 MAY	106.3	99.2	1112	999		
1976 047D		8868	US	22 MAY	104.6	100.0	1013	937		
1976 050A		8871	US	2 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1976 050B		8872	US	2 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1976 051A	COSMOS 823	8873	USSR	2 JUN	104.9	83.0	1004	970		
1976 051B		8874	USSR	2 JUN	104.8	83.0	1001	964		
1976 053A	MARISAT 2	8882	US	10 JUN	1436.1	8.2	35850	35723		
1976 053F		8910	US	10 JUN	487.5	25.2	27986	296		
1976 054A	COSMOS 825	8889	USSR	15 JUN	114.6	74.0	1485	1392		
1976 054B	COSMOS 826	8890	USSR	15 JUN	116.2	74.0	1542	1479		
1976 054C	COSMOS 827	8891	USSR	15 JUN	114.9	74.0	1488	1410		
1976 054D	COSMOS 828	8892	USSR	15 JUN	115.1	74.0	1487	1430		
1976 054E	COSMOS 829	8893	USSR	15 JUN	115.3	74.0	1489	1448		
1976 054F	COSMOS 830	8894	USSR	15 JUN	115.5	74.0	1490	1466		
1976 054G	COSMOS 831	8895	USSR	15 JUN	115.7	74.0	1505	1473		
1976 054H	COSMOS 832	8896	USSR	15 JUN	116.0	74.0	1518	1480		
1976 054J		8897	USSR	15 JUN	117.9	74.0	1686	1485		
1976 059A		8916	US	26 JUN	ELEMENTS NOT AVAILABLE					
1976 059C		8918	US	26 JUN	ELEMENTS NOT AVAILABLE					
1976 059D		8919	US	26 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1976 061A	COSMOS 836	8923	USSR	29 JUN	100.7	74.0	803	775		
1976 061B		8924	USSR	29 JUN	100.5	74.1	792	769		
1976 061C		9572	USSR	29 JUN	99.5	74.1	738	730		
1976 061D		14815	USSR	29 JUN	99.7	74.1	754	730		
1976 065C		9008	US	8 JUL	ELEMENTS NOT AVAILABLE					
1976 066A	PALAPA 1	9009	INDNSA	8 JUL	1438.6	6.4	35857	35815		
1976 066C		9017	US	8 JUL	343.0	24.6	19454	251		
1976 067A	COSMOS 839	9011	USSR	8 JUL	115.6	65.9	2056	912		
1976 067B - 067BY			USSR	8 JUL	SEE NOTE		21*			21*
1976 067BU		20030	USSR	8 JUL	118.7	65.7	2268	977		
1976 069A	COSMOS 841	9022	USSR	15 JUL	100.5	74.0	790	772		
1976 069B		9023	USSR	15 JUL	100.3	74.0	786	760		
1976 069C		9704	USSR	15 JUL	99.7	74.1	749	735		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1976 LAUNCHES (CONT.)										
1976 069D		13499	USSR	15 JUL	100.5	74.1	800	768		
1976 070A	COSMOS 842	9025	USSR	21 JUL	104.8	83.0	1006	962		
1976 070D		9044	USSR	21 JUL	104.6	83.0	989	965		
1976 073A	COMSTAR 2	9047	US	22 JUL	1436.2	6.4	35793	35784		
1976 073B		9329	US	22 JUL	645.9	22.5	36167	581		
1976 074E		9269	USSR	23 JUL	683.5	62.6	38341	307		
1976 077A	NOAA 5	9057	US	29 JUL	116.2	102.0	1519	1504		
1976 077B - 077ER			US	29 JUL	SEE NOTE		22*			22*
1976 079A	COSMOS 846	9061	USSR	29 JUL	104.6	82.9	1008	945		
1976 079D		9062	USSR	29 JUL	104.5	82.9	992	947		
1976 080A		9270	US	6 AUG	CURRENT ELEMENTS NOT MAINTAINED					
1976 080B		9271	US	6 AUG	CURRENT ELEMENTS NOT MAINTAINED					
1976 085D		9390	USSR	27 AUG	93.4	81.1	467	413		
1976 091A	DMSP-F1	9415	US	11 SEP	ELEMENTS NOT AVAILABLE					
1976 091B		9419	US	11 SEP	ELEMENTS NOT AVAILABLE					
1976 091C		9420	US	11 SEP	ELEMENTS NOT AVAILABLE					
1976 091F		9484	US	11 SEP	ELEMENTS NOT AVAILABLE					
1976 091G		9518	US	11 SEP	ELEMENTS NOT AVAILABLE					
1976 092A	RADUGA 2	9416	USSR	11 SEP	1435.8	11.2	35903	35659		
1976 092F		17472	USSR	11 SEP	1435.9	11.2	35848	35716		
1976 098A	COSMOS 858	9443	USSR	29 SEP	100.6	74.0	797	775		
1976 098B		9444	USSR	29 SEP	100.4	74.1	789	768		
1976 098C		14816	USSR	29 SEP	100.5	74.0	796	766		
1976 098D		14817	USSR	29 SEP	99.7	74.1	756	727		
1976 098E		18504	USSR	29 SEP	99.9	74.1	772	738		
1976 101A	MARISAT 3	9478	US	14 OCT	1436.2	9.6	35791	35784		
1976 102A	METEOR	9481	USSR	15 OCT	102.2	81.3	889	837		
1976 102B		9482	USSR	15 OCT	102.4	81.3	914	825		
1976 103A	COSMOS 860	9486	USSR	17 OCT	104.3	64.7	996	923		
1976 103F		19297	USSR	17 OCT	102.0	64.7	1038	668		
1976 104A	COSMOS 861	9494	USSR	21 OCT	104.2	64.9	982	934		
1976 105A	COSMOS 862	9495	USSR	22 OCT	718.1	66.7	38866	1502		
1976 105B - 105P			USSR	22 OCT	SEE NOTE		23*			23*
1976 107A	EKRAN	9503	USSR	26 OCT	1435.7	11.2	36061	35494		
1976 107F		11569	USSR	26 OCT	1419.3	11.0	35509	35406		
1976 108A	COSMOS 864	9509	USSR	29 OCT	104.7	82.9	1003	957		
1976 108B		9510	USSR	29 OCT	104.6	82.9	993	955		
1976 112A	PROGNOZ 5	9557	USSR	25 NOV	CURRENT ELEMENTS NOT MAINTAINED					
1976 115A	MOLNIYA 2-16	9574	USSR	2 DEC	634.2	62.0	36069	76		
1976 115D		9579	USSR	2 DEC	731.1	62.2	40564	442		
1976 118A	COSMOS 871	9588	USSR	7 DEC	114.6	74.0	1462	1415		
1976 118B	COSMOS 872	9589	USSR	7 DEC	114.4	74.0	1461	1397		
1976 118C	COSMOS 873	9590	USSR	7 DEC	115.5	74.0	1494	1462		
1976 118D	COSMOS 874	9591	USSR	7 DEC	115.7	74.0	1514	1462		
1976 118E	COSMOS 875	9592	USSR	7 DEC	114.8	74.0	1462	1434		
1976 118F	COSMOS 876	9593	USSR	7 DEC	116.0	74.0	1536	1462		
1976 118G	COSMOS 877	9594	USSR	7 DEC	115.0	74.0	1462	1452		
1976 118H	COSMOS 878	9595	USSR	7 DEC	115.3	74.0	1472	1462		
1976 118J		9598	USSR	7 DEC	117.6	74.0	1681	1464		
1976 120B - 120BC			USSR	9 DEC	SEE NOTE		24*			24*

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1976 LAUNCHES (CONT.)										
1976 122A	COSMOS 883	9610	USSR	15 DEC	104.7	83.0	1005	952		
1976 122B		9613	USSR	15 DEC	104.6	83.0	997	950		
1976 126A	COSMOS 886	9634	USSR	27 DEC	114.7	65.8	2292	595		
1976 126B - 126G			USSR	27 DEC	SEE NOTE		25*			
1976 127A	MOLNIYA 3-6	9635	USSR	28 DEC	257.0	59.5	13594	426		
1976 128A	COSMOS 887	9637	USSR	28 DEC	104.6	82.9	1011	944		
1976 128B		9638	USSR	28 DEC	104.5	82.9	995	947		
1977 LAUNCHES										
1977 002A	METEOR 2-2	9651	USSR	6 JAN	102.7	81.3	893	878		
1977 002B		9652	USSR	6 JAN	102.8	81.3	931	852		
1977 002C		9653	USSR	6 JAN	102.7	81.3	890	881		
1977 002D		9654	USSR	6 JAN	102.7	81.3	894	881		
1977 004A	COSMOS 890	9737	USSR	20 JAN	105.0	83.0	1013	975		
1977 004B		9738	USSR	20 JAN	104.8	83.0	998	975		
1977 005A	NATO III-B	9785	NATO	28 JAN	1436.1	8.5	35846	35727		
1977 005B		9786	US	28 JAN	103.8	28.0	1260	618		
1977 005D		9809	US	28 JAN	CURRENT ELEMENTS NOT MAINTAINED					
1977 005E		9810	US	28 JAN	CURRENT ELEMENTS NOT MAINTAINED					
1977 005F		9811	US	28 JAN	CURRENT ELEMENTS NOT MAINTAINED					
1977 007A		9803	US	6 FEB	ELEMENTS NOT AVAILABLE					
1977 007C		9855	US	6 FEB	ELEMENTS NOT AVAILABLE					
1977 007D		9856	US	6 FEB	ELEMENTS NOT AVAILABLE					
1977 010A	MOLNIYA 2-17	9829	USSR	11 FEB	717.6	63.5	39693	650		
1977 010E		9850	USSR	11 FEB	731.0	64.0	39865	1136		
1977 012A	TANSEI 3	9841	JAPAN	19 FEB	134.1	65.7	3808	793		
1977 012C		9843	JAPAN	19 FEB	134.1	65.7	3805	792		
1977 012E		9981	JAPAN	19 FEB	133.4	65.2	3748	787		
1977 012F		9982	JAPAN	19 FEB	133.6	65.9	3775	777		
1977 012G		9983	JAPAN	19 FEB	134.2	65.6	3787	818		
1977 012H		12857	JAPAN	19 FEB	134.0	66.3	3787	806		
1977 012J		13133	JAPAN	19 FEB	133.1	65.8	3725	788		
1977 012L		19314	JAPAN	19 FEB	133.4	65.4	3910	628		
1977 013A	COSMOS 894	9846	USSR	21 FEB	104.8	82.9	1008	963		
1977 013B		9848	USSR	21 FEB	104.7	83.0	992	968		
1977 014A	KIKU 2	9852	JAPAN	23 FEB	1435.7	10.7	35946	35611		
1977 014B		9859	JAPAN	23 FEB	CURRENT ELEMENTS NOT MAINTAINED					
1977 015A	COSMOS 895	9853	USSR	26 FEB	93.7	81.2	461	451		
1977 015B		9854	USSR	26 FEB	95.0	81.2	554	484		
1977 018A	PALAPA 2	9862	INDNSA	10 MAR	1439.4	5.4	35862	35838		
1977 021A	MOLNIYA 1-36	9880	USSR	24 MAR	717.6	63.4	39818	526		
1977 021D		9927	USSR	24 MAR	732.9	63.9	40095	1000		
1977 024A	METEOR	9903	USSR	5 APR	102.3	81.3	888	844		
1977 024B		9904	USSR	5 APR	102.4	81.3	911	833		
1977 024C		9907	USSR	5 APR	102.9	82.9	914	873		
1977 027A	COSMOS 903	9911	USSR	11 APR	717.6	67.4	37475	2869		
1977 027D		9921	USSR	11 APR	723.9	67.7	37960	2697		
1977 027E		10946	USSR	11 APR	CURRENT ELEMENTS NOT MAINTAINED					
1977 029A	ESA-GEOS	9931	ESA	20 APR	734.1	27.3	38347	2810		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1977 LAUNCHES (CONT.)										
1977 032A	MOLNIYA 3-7	9941	USSR	28 APR	717.6	63.5	39797	545		
1977 034A		10000	US	12 MAY	1489.6	10.2	36900	36754		
1977 034B		10001	US	12 MAY	1509.1	9.7	37367	37038		
1977 034C		10002	US	12 MAY	1506.9	10.4	38416	35907		
1977 036A	COSMOS 909	10010	USSR	19 MAY	117.0	65.9	2105	987		
1977 036B		10011	USSR	19 MAY	116.9	65.9	2095	984		
1977 036C		10013	USSR	19 MAY	117.0	65.9	2105	986		
1977 038A		10016	US	23 MAY	ELEMENTS NOT AVAILABLE					
1977 038B		10017	US	23 MAY	ELEMENTS NOT AVAILABLE					
1977 038C		15422	US	23 MAY	ELEMENTS NOT AVAILABLE					
1977 039A	COSMOS 911	10019	USSR	25 MAY	104.7	83.0	997	963		
1977 039B		10020	USSR	25 MAY	104.5	82.9	996	948		
1977 041A	INTELSAT 4A F-4	10024	ITSO	26 MAY	1448.1	5.5	36077	35964		
1977 041B		10025	US	26 MAY	648.2	21.6	36239	623		
1977 044A	DMSP-F2	10033	US	5 JUN	ELEMENTS NOT AVAILABLE					
1977 044B		10034	US	5 JUN	ELEMENTS NOT AVAILABLE					
1977 044C		10037	US	5 JUN	ELEMENTS NOT AVAILABLE					
1977 044D		10085	US	5 JUN	ELEMENTS NOT AVAILABLE					
1977 047A	COSMOS 917	10059	USSR	16 JUN	717.4	67.6	34602	5732		
1977 047D		10089	USSR	16 JUN	722.5	67.4	35505	5080		
1977 048A	GOES 2	10061	US	16 JUN	1436.4	8.8	35810	35773		
1977 048B		10062	US	16 JUN	108.4	28.4	1731	575		
1977 048F		10409	US	16 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1977 048G		20799	US	16 JUN	1431.6	10.4	36580	34817		
1977 053A		10091	US	23 JUN	718.1	64.5	20324	20046		
1977 053B		10960	US	23 JUN	314.4	64.3	16876	998		
1977 054A	MOLNIYA 1-37	10092	USSR	24 JUN	717.5	62.9	39790	551		
1977 054D		10155	USSR	24 JUN	695.4	63.4	38520	723		
1977 055A	COSMOS 921	10095	USSR	24 JUN	97.2	75.8	659	593		
1977 055B		10096	USSR	24 JUN	97.3	75.8	663	593		
1977 057A	METEOR	10113	USSR	29 JUN	94.4	97.4	508	473		
1977 057B		10114	USSR	29 JUN	96.5	97.8	602	582		
1977 059A	COSMOS 923	10120	USSR	1 JUL	100.7	74.0	803	782		
1977 059B		10121	USSR	1 JUL	100.5	74.1	799	768		
1977 059C		14802	USSR	1 JUL	100.2	74.1	780	757		
1977 059D		14818	USSR	1 JUL	99.9	74.1	761	743		
1977 061A	COSMOS 925	10134	USSR	7 JUL	94.3	81.2	494	478		
1977 061B		10135	USSR	7 JUL	95.1	81.2	548	498		
1977 062A	COSMOS 926	10137	USSR	8 JUL	104.9	82.9	1017	966		
1977 062B		10138	USSR	8 JUL	104.8	82.9	1002	970		
1977 064A	COSMOS 928	10141	USSR	13 JUL	104.6	83.0	1004	947		
1977 064B		10142	USSR	13 JUL	104.5	83.0	1000	939		
1977 065A	HIMAWARI	10143	JAPAN	14 JUL	1450.9	8.9	36154	35999		
1977 065B -	65GC		US	14 JUL	SEE NOTE		26*			26*
1977 068A	COSMOS 931	10150	USSR	20 JUL	718.4	66.8	35438	4948		
1977 068D		10167	USSR	20 JUL	710.2	68.2	35235	4743		
1977 068E		12906	USSR	20 JUL	717.6	67.7	34579	5765		
1977 068F		12996	USSR	20 JUL	704.4	61.8	38095	1596		
1977 068G		14000	USSR	20 JUL	718.6	65.7	36856	3540		
1977 068J		19881	USSR	20 JUL	685.0	60.0	38084	641		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1977 LAUNCHES (CONT.)										
1977 071A	RADUGA 3	10159	USSR	23 JUL	1436.5	10.8	35835	35752		
1977 071F		11570	USSR	23 JUL	1473.3	11.1	36566	36457		
1977 076A	VOYAGER 2	10271	US	20 AUG	SOLAR SYSTEM ESCAPE TRAJECTORY					
1977 076B		10272	US	20 AUG	HELIOCENTRIC ORBIT					
1977 076C		10273	US	20 AUG	HELIOCENTRIC ORBIT					
1977 079A	COSMOS 939	10282	USSR	24 AUG	114.8	74.0	1460	1430		
1977 079B	COSMOS 940	10286	USSR	24 AUG	114.4	74.0	1459	1392		
1977 079C	COSMOS 941	10287	USSR	24 AUG	114.6	74.0	1460	1411		
1977 079D	COSMOS 942	10288	USSR	24 AUG	115.9	74.0	1530	1460		
1977 079E	COSMOS 943	10289	USSR	24 AUG	115.0	74.0	1460	1448		
1977 079F	COSMOS 944	10290	USSR	24 AUG	115.2	74.0	1468	1460		
1977 079G	COSMOS 945	10291	USSR	24 AUG	115.4	74.0	1488	1460		
1977 079H	COSMOS 946	10292	USSR	24 AUG	115.6	74.0	1508	1460		
1977 079J		10293	USSR	24 AUG	117.5	74.0	1575	1460		
1977 080A	SIRIO	10294	ITALY	25 AUG	1437.1	7.5	35849	35763		
1977 080B		10295	US	25 AUG	115.5	27.1	2082	874		
1977 082A	MOLNIYA 1-38	10315	USSR	30 AUG	682.1	62.6	37807	770		
1977 082E		10369	USSR	30 AUG	634.4	63.9	35919	238		
1977 084A	VOYAGER 1	10321	US	5 SEP	HELIOCENTRIC ORBIT					
1977 084B		10322	US	5 SEP	HELIOCENTRIC ORBIT					
1977 084C		10323	US	5 SEP	HELIOCENTRIC ORBIT					
1977 087A	COSMOS 951	10352	USSR	13 SEP	104.8	83.0	1009	960		
1977 087B		10355	USSR	13 SEP	104.7	83.0	1005	954		
1977 088A	COSMOS 952	10358	USSR	16 SEP	104.1	64.9	981	920		
1977 091A	COSMOS 955	10362	USSR	20 SEP	95.5	81.2	544	539		
1977 091B		10363	USSR	20 SEP	95.6	81.2	577	517		
1977 092A	EKRAN	10365	USSR	20 SEP	1435.7	10.7	35943	35615		
1977 092G		11571	USSR	20 SEP	1421.8	10.5	35552	35459		
1977 093A	PROGNOZ 6	10370	USSR	22 SEP	ELEMENTS NOT AVAILABLE					
1977 102D		10425	US	22 OCT	CURRENT ELEMENTS NOT MAINTAINED					
1977 105A	MOLNIYA 3-8	10455	USSR	28 OCT	717.9	63.4	39028	1334		
1977 105E		10485	USSR	28 OCT	731.5	63.6	39205	1824		
1977 106A	NNSS 30110	10457	US	28 OCT	106.8	89.7	1097	1060		
1977 106B		10462	US	28 OCT	106.8	89.7	1098	1062		
1977 106C		12858	US	28 OCT	106.9	89.5	1097	1066		
1977 107A	COSMOS 962	10459	USSR	28 OCT	104.7	82.9	1003	961		
1977 107B		10461	USSR	28 OCT	104.6	82.9	999	952		
1977 108A	METEOSAT 1	10489	ESA	23 NOV	1436.7	9.9	35828	35768		
1977 108B		10490	US	23 NOV	115.4	28.3	2457	491		
1977 109A	COSMOS 963	10491	USSR	24 NOV	109.2	82.9	1204	1175		
1977 109B		10492	USSR	24 NOV	109.1	82.9	1200	1169		
1977 112A		10502	US	8 DEC	ELEMENTS NOT AVAILABLE					
1977 112B		10504	US	8 DEC	ELEMENTS NOT AVAILABLE					
1977 112C		10528	US	8 DEC	ELEMENTS NOT AVAILABLE					
1977 112D		10529	US	8 DEC	ELEMENTS NOT AVAILABLE					
1977 112E		10544	US	8 DEC	ELEMENTS NOT AVAILABLE					
1977 112F		10594	US	8 DEC	ELEMENTS NOT AVAILABLE					
1977 112G		10595	US	8 DEC	ELEMENTS NOT AVAILABLE					
1977 112H		12859	US	8 DEC	ELEMENTS NOT AVAILABLE					
1977 114A		10508	US	11 DEC	CURRENT ELEMENTS NOT MAINTAINED					

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1977 LAUNCHES (CONT.)										
1977 114B		10509	US	11 DEC	CURRENT ELEMENTS NOT MAINTAINED					
1977 116A	COSMOS 967	10512	USSR	13 DEC	104.7	65.8	988	973		
1977 116B		10513	USSR	13 DEC	104.5	65.8	984	958		
1977 116C		10518	USSR	13 DEC	104.6	65.8	984	970		
1977 116D		10526	USSR	13 DEC	104.8	65.8	1007	960		
1977 117A	METEOR 2-3	10514	USSR	14 DEC	102.2	81.2	875	849		
1977 117B		10515	USSR	14 DEC	102.3	81.2	899	833		
1977 117C		14950	USSR	14 DEC	102.3	81.2	900	832		
1977 118A	SAKURA	10516	JAPAN	15 DEC	1455.9	8.3	36187	36158		
1977 118B		10517	US	15 DEC	109.5	28.7	1925	484		
1977 118C		10519	US	15 DEC	109.9	29.1	1901	542		
1977 119A	COSMOS 968	10520	USSR	16 DEC	100.5	74.0	793	767		
1977 119B		10521	USSR	16 DEC	100.2	74.0	786	754		
1977 119C		10524	USSR	16 DEC	100.1	74.0	776	751		
1977 119D		10525	USSR	16 DEC	100.2	74.0	779	752		
1977 119E		10512	USSR	16 DEC	100.0	74.0	764	748		
1977 121A	COSMOS 970	10531	USSR	21 DEC	105.9	65.9	1150	921		
1977 121B - 121Y			USSR	21 DEC	SEE NOTE		27*			27*
1977 121W		20032	USSR	21 DEC	108.6	62.5	1753	572		
1977 122A	COSMOS 971	10536	USSR	23 DEC	104.9	82.9	1004	971		
1977 122B		10537	USSR	23 DEC	104.7	82.9	996	964		
1977 123A	COSMOS 972	10539	USSR	27 DEC	103.7	75.8	1158	710		
1977 123B		10541	USSR	27 DEC	103.7	75.8	1155	712		
1978 LAUNCHES										
1978 002A	INTELSAT 4A F-3	10557	ITSO	7 JAN	1441.3	.5.0	35908	35868		
1978 002B		10722	US	17 JAN	650.3	21.6	36290	678		
1978 004A	COSMOS 975	10561	USSR	10 JAN	95.7	81.2	560	546		
1978 004B		10582	USSR	10 JAN	96.1	81.2	604	542		
1978 005A	COSMOS 976	10581	USSR	10 JAN	115.1	74.0	1461	1454		
1978 005B	COSMOS 977	10584	USSR	10 JAN	114.4	74.0	1462	1397		
1978 005C	COSMOS 978	10585	USSR	10 JAN	114.6	74.0	1462	1416		
1978 005D	COSMOS 979	10586	USSR	10 JAN	114.8	74.0	1461	1435		
1978 005E	COSMOS 980	10587	USSR	10 JAN	115.3	74.0	1474	1460		
1978 005F	COSMOS 981	10588	USSR	10 JAN	115.5	74.0	1494	1461		
1978 005G	COSMOS 982	10589	USSR	10 JAN	115.7	74.0	1513	1461		
1978 005H	COSMOS 983	10590	USSR	10 JAN	116.0	74.0	1535	1461		
1978 005J		10591	USSR	10 JAN	117.7	74.0	1693	1459		
1978 007A	COSMOS 985	10599	USSR	17 JAN	104.6	82.9	1015	936		
1978 007B		10600	USSR	17 JAN	104.5	82.9	1007	934		
1978 009E		10802	USSR	24 JAN	616.5	63.5	35145	87		
1978 012A	IUE	10637	US	26 JAN	1435.8	32.7	41721	29843		
1978 012C		10723	US	26 JAN	567.6	29.3	32367	293		
1978 014A	KYOKKO	10664	JAPAN	4 FEB	134.0	65.4	3959	635		
1978 014C		12329	JAPAN	4 FEB	133.8	65.3	3939	635		
1978 014D		12330	JAPAN	4 FEB	134.0	65.4	3962	630		
1978 014E		12331	JAPAN	4 FEB	132.7	64.8	3846	629		
1978 014F		12406	JAPAN	4 FEB	133.2	65.9	3883	639		
1978 016A	FLTSATCOM 1	10669	US	9 FEB	1436.3	9.1	35803	35775		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1978 LAUNCHES (CONT.)										
1978 016C		12908	US	9 FEB	209.6	26.4	10355	267		
1978 018A	UME 2	10674	JAPAN	16 FEB	107.2	69.4	1216	974		
1978 018B		10675	JAPAN	16 FEB	107.1	69.4	1211	974		
1978 018C		13132	JAPAN	16 FEB	107.9	69.2	1288	969		
1978 019A	COSMOS 990	10676	USSR	17 FEB	100.5	74.0	793	767		
1978 019B		10677	USSR	17 FEB	100.3	74.0	783	759		
1978 019C		14803	USSR	17 FEB	99.5	74.0	742	730		
1978 019D		13500	USSR	17 FEB	100.2	74.1	777	755		
1978 019E		18501	USSR	17 FEB	100.2	74.1	781	756		
1978 020A		10684	US	22 FEB	718.0	63.9	20521	19844		
1978 020B		10801	US	22 FEB	268.4	64.0	14046	762		
1978 021A		10688	US	25 FEB	CURRENT ELEMENTS NOT MAINTAINED					
1978 021B		10689	US	25 FEB	CURRENT ELEMENTS NOT MAINTAINED					
1978 022A	COSMOS 991	10692	USSR	28 FEB	104.6	83.0	1003	951		
1978 022B		10693	USSR	28 FEB	104.6	83.0	988	959		
1978 024A	MOLNIYA 1-39	10696	USSR	2 MAR	717.6	61.9	39849	498		
1978 024D		10803	USSR	2 MAR	729.0	62.0	40198	707		
1978 026A	LANDSAT 3	10702	US	5 MAR	103.1	98.8	917	894		
1978 026B	AMSAT-OSCAR-8	10703	US	5 MAR	103.0	99.1	904	894		
1978 026C - 026HT			US	5 MAR	SEE NOTE 28*					28*
1978 026HS		20029	US	5 MAR	101.2	98.6	874	757		
1978 028A	COSMOS 994	10731	USSR	15 MAR	104.9	82.9	1006	970		
1978 028B		10732	USSR	15 MAR	104.7	82.9	994	967		
1978 029B		10734	US	16 MAR	ELEMENTS NOT AVAILABLE					
1978 031A	COSMOS 996	10744	USSR	28 MAR	104.6	82.9	1004	948		
1978 031B		10745	USSR	28 MAR	104.5	82.9	995	945		
1978 034A	COSMOS 1000	10776	USSR	31 MAR	104.7	82.9	1007	954		
1978 034B		10777	USSR	31 MAR	104.6	82.9	993	954		
1978 035A	INTELSAT 4A F-6	10778	ITSO	31 MAR	1437.8	5.0	35846	35794		
1978 035B		10779	US	31 MAR	648.0	21.2	36236	617		
1978 038A		10787	US	7 APR	CURRENT ELEMENTS NOT MAINTAINED					
1978 038B		10788	US	7 APR	CURRENT ELEMENTS NOT MAINTAINED					
1978 039A	YURI	10792	JAPAN	7 APR	1436.4	9.6	35839	35746		
1978 039B		10793	US	7 APR	111.0	28.2	1971	573		
1978 039C		10794	US	7 APR	208.1	26.9	10290	219		
1978 042A		10820	US	1 MAY	100.8	98.7	804	790		
1978 042B		10853	US	1 MAY	96.5	98.3	594	584		
1978 042C		10854	US	1 MAY	97.3	98.3	631	624		
1978 044A	OTS-2	10855	ESA	11 MAY	1452.5	7.1	36173	36041		
1978 044B		10856	US	11 MAY	139.9	27.9	3527	1571		
1978 044C		10857	US	11 MAY	CURRENT ELEMENTS NOT MAINTAINED					
1978 045A	COSMOS 1005	10860	USSR	12 MAY	95.4	81.2	544	532		
1978 045B		10861	USSR	12 MAY	96.3	81.3	609	550		
1978 047A		10893	US	13 MAY	718.1	64.2	20642	19726		
1978 047B		10894	US	13 MAY	286.7	64.4	15179	869		
1978 051A	PIONEER VENUS ORBITER	10911	US	20 MAY	ELEMENTS NOT AVAILABLE					
1978 051B		10912	US	20 MAY	HELIOCENTRIC ORBIT					
1978 053A	COSMOS 1011	10917	USSR	23 MAY	104.7	82.9	1007	954		
1978 053B		10918	USSR	23 MAY	104.6	82.9	997	952		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1978 LAUNCHES (CONT.)										
1978 055A	MOLNIYA 1-40	10925	USSR	2 JUN	717.5	63.3	38812	1528		
1978 055E		10949	USSR	2 JUN	732.5	63.5	39169	1908		
1978 056A	COSMOS 1013	10930	USSR	7 JUN	116.3	74.0	1552	1476		
1978 056B	COSMOS 1014	10931	USSR	7 JUN	116.1	74.0	1529	1476		
1978 056C	COSMOS 1015	10932	USSR	7 JUN	115.8	74.0	1514	1471		
1978 056D	COSMOS 1016	10933	USSR	7 JUN	115.6	74.0	1496	1469		
1978 056E	COSMOS 1017	10934	USSR	7 JUN	115.4	74.0	1489	1456		
1978 056F	COSMOS 1018	10935	USSR	7 JUN	115.2	74.0	1486	1440		
1978 056G	COSMOS 1019	10936	USSR	7 JUN	115.0	74.0	1486	1421		
1978 056H	COSMOS 1020	10937	USSR	7 JUN	114.8	74.0	1483	1405		
1978 056J		10938	USSR	7 JUN	117.9	74.0	1689	1479		
1978 058A		10941	US	10 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1978 058B		10942	US	10 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1978 062A	GOES 3	10953	US	16 JUN	1436.0	7.6	35803	35765		
1978 062B		10954	US	16 JUN	107.5	28.4	1665	556		
1978 062D		20801	US	16 JUN	1451.1	9.8	40073	32087		
1978 063A	COSMOS 1023	10961	USSR	21 JUN	100.4	74.1	789	768		
1978 063B		10962	USSR	21 JUN	100.2	74.1	788	750		
1978 063C		14804	USSR	21 JUN	98.9	74.0	717	697		
1978 063D		13497	USSR	21 JUN	100.5	74.1	793	766		
1978 064A	SEASAT 1	10967	US	27 JUN	100.2	108.0	769	766		
1978 066A	COSMOS 1024	10970	USSR	28 JUN	718.1	67.6	34548	5823		
1978 066D		10998	USSR	28 JUN	720.1	67.6	34831	5637		
1978 067A	COSMOS 1025	10973	USSR	28 JUN	96.3	82.5	592	569		
1978 067B		10974	USSR	28 JUN	97.2	82.5	640	613		
1978 069A	COMSTAR 3	10975	US	29 JUN	1451.7	4.8	36183	35998		
1978 068B		10976	US	29 JUN	648.9	21.8	36265	635		
1978 071A	ESA GEOS 2	10981	ESA	14 JUL	1449.0	9.8	36047	36031		
1978 071C		10983	US	14 JUL	435.6	25.7	25037	274		
1978 072A	MOLNIYA 1-41	10984	USSR	14 JUL	683.5	61.8	38337	313		
1978 072D		11073	USSR	14 JUL	691.3	61.9	38740	301		
1978 073A	RADUGA 4	10987	USSR	18 JUL	1437.1	10.2	35843	35767		
1978 073D		11074	USSR	18 JUL	565.6	46.6	31795	757		
1978 073E		11941	USSR	18 JUL	1475.9	10.6	36629	36495		
1978 074A	COSMOS 1027	10991	USSR	27 JUL	104.6	82.9	996	957		
1978 074B		10992	USSR	27 JUL	104.5	82.9	986	959		
1978 075A		10993	US	5 AUG	ELEMENTS NOT AVAILABLE					
1978 075B		10994	US	5 AUG	CURRENT ELEMENTS NOT MAINTAINED					
1978 078C		11003	US	8 AUG	HELIOCENTRIC ORBIT					
1978 079A	ICE	11004	US	12 AUG	HELIOCENTRIC ORBIT					
1978 079C		11006	US	12 AUG	CURRENT ELEMENTS NOT MAINTAINED					
1978 079D		13413	US	12 AUG	ELEMENTS NOT AVAILABLE					
1978 080A	MOLNIYA 1-42	11007	USSR	22 AUG	717.6	63.6	39823	522		
1978 080D		11075	USSR	22 AUG	732.4	64.1	40145	927		
1978 083A	COSMOS 1030	11015	USSR	6 SEP	718.6	67.2	36019	4376		
1978 083D		11076	USSR	6 SEP	723.6	66.0	36934	3708		
1978 083E		12907	USSR	6 SEP	711.4	64.0	36813	3227		
1978 083F		12919	USSR	6 SEP	719.5	64.0	37421	3020		
1978 083G		13959	USSR	6 SEP	721.7	63.7	37601	2948		
1978 084A	VENERA 11	11020	USSR	9 SEP	HELIOCENTRIC ORBIT					

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1978 LAUNCHES (CONT.)										
1978 086A	VENERA 12	11025	USSR	14 SEP	HELIOCENTRIC ORBIT					
1978 087A	JIKI*KEN	11027	JAPAN	16 SEP	389.5	31.4	22348	231		
1978 087B		11028	JAPAN	16 SEP	350.0	31.3	19892	251		
1978 091A	COSMOS 1034	11042	USSR	4 OCT	114.9	74.0	1478	1421		
1978 091B	COSMOS 1035	11044	USSR	4 OCT	114.6	74.0	1476	1402		
1978 091C	COSMOS 1036	11045	USSR	4 OCT	115.1	74.0	1478	1440		
1978 091D	COSMOS 1037	11046	USSR	4 OCT	115.3	74.0	1479	1460		
1978 091E	COSMOS 1038	11047	USSR	4 OCT	115.5	74.0	1485	1475		
1978 091F	COSMOS 1039	11048	USSR	4 OCT	116.3	74.0	1549	1477		
1978 091G	COSMOS 1040	11049	USSR	4 OCT	116.0	74.0	1525	1477		
1978 091H	COSMOS 1041	11050	USSR	4 OCT	115.8	74.0	1506	1475		
1978 091J		11051	USSR	4 OCT	117.9	74.0	1697	1479		
1978 093A		11054	US	7 OCT	717.9	63.7	20352	20009		
1978 093B		11078	US	7 OCT	142.7	62.9	5174	156		
1978 094A	COSMOS 1043	11055	USSR	10 OCT	94.9	81.2	520	508		
1978 094B		11056	USSR	10 OCT	95.6	81.2	577	515		
1978 095A	MOLNIYA 3-10	11057	USSR	13 OCT	717.7	63.1	38902	1449		
1978 095E		11079	USSR	13 OCT	734.3	63.1	39628	1535		
1978 096A	TIROS-N	11060	US	13 OCT	101.7	98.8	848	831		
1978 096B		11061	US	13 OCT	100.5	98.8	781	779		
1978 096C		11062	US	13 OCT	100.4	98.8	780	777		
1978 098A	NIMBUS 7	11080	US	24 OCT	104.0	99.1	955	941		
1978 098B	CAMEO	11081	US	24 OCT	104.0	99.5	968	924		
1978 100A	COSMOS 1045	11084	USSR	26 OCT	120.3	82.5	1703	1682		
1978 100B	RADIO 1	11085	USSR	26 OCT	120.3	82.6	1705	1682		
1978 100C	RADIO 2	11086	USSR	26 OCT	120.3	82.6	1704	1682		
1978 100D		11087	USSR	26 OCT	120.2	82.5	1700	1683		
1978 100D - 100AX			USSR	26 OCT	SEE NOTE		29*			29*
1978 105A	COSMOS 1048	11111	USSR	16 NOV	100.6	74.0	799	771		
1978 105B		11112	USSR	16 NOV	100.5	74.0	806	753		
1978 105C		11113	USSR	16 NOV	100.1	74.0	772	752		
1978 105D		11114	USSR	16 NOV	99.9	74.0	761	743		
1978 106A	NATO III-C	11115	NATO	19 NOV	1436.2	5.7	35792	35782		
1978 109A	COSMOS 1051	11128	USSR	5 DEC	114.6	74.0	1483	1392		
1978 109B	COSMOS 1052	11129	USSR	5 DEC	114.8	74.0	1486	1408		
1978 109C	COSMOS 1053	11130	USSR	5 DEC	115.0	74.0	1486	1427		
1978 109D	COSMOS 1054	11131	USSR	5 DEC	115.2	74.0	1487	1444		
1978 109E	COSMOS 1055	11132	USSR	5 DEC	115.5	74.0	1489	1462		
1978 109F	COSMOS 1056	11133	USSR	5 DEC	115.7	74.0	1501	1470		
1978 109G	COSMOS 1057	11134	USSR	5 DEC	115.9	74.0	1513	1478		
1978 109H	COSMOS 1058	11135	USSR	5 DEC	116.1	74.0	1536	1478		
1978 109J		11136	USSR	5 DEC	118.1	74.0	1697	1490		
1978 112A		11141	US	11 DEC	718.0	63.8	20347	20019		
1978 112B		11142	US	11 DEC	269.6	63.7	14331	564		
1978 113A		11144	US	14 DEC	1436.7	7.6	35816	35781		
1978 113B		11145	US	14 DEC	1436.1	7.5	35800	35775		
1978 113D		11147	US	14 DEC	1339.2	3.9	35596	32137		
1978 116A	ANIK B1	11153	CANADA	16 DEC	1442.6	4.3	35935	35890		
1978 117A	COSMOS 1063	11155	USSR	19 DEC	95.7	81.2	553	551		
1978 117B		11156	USSR	19 DEC	95.8	81.2	590	520		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1978 LAUNCHES (CONT.)										
1978 118A	GORIZONT 1	11158	USSR	19 DEC	1435.8	20.1	49612	21948		
1978 118C		11926	USSR	19 DEC	1417.4	19.9	48956	21883		
1978 121A	COSMOS 1066	11165	USSR	23 DEC	102.1	81.2	892	820		
1978 121B		11166	USSR	23 DEC	101.9	81.2	899	800		
1978 121C		19643	USSR	23 DEC	101.9	81.2	898	798		
1978 122A	COSMOS 1067	11168	USSR	26 DEC	109.0	83.0	1210	1154		
1978 122B		11170	USSR	26 DEC	108.9	83.0	1194	1157		
1979 LAUNCHES										
1979 003A	COSMOS 1072	11238	USSR	16 JAN	104.8	82.9	1013	956		
1979 003B		11239	USSR	16 JAN	104.7	82.9	1011	948		
1979 004A	MOLNIYA 3-11	11240	USSR	18 JAN	717.8	63.9	38884	1468		
1979 004D		11553	USSR	18 JAN	732.9	64.2	39117	1982		
1979 005A	METEOR 1-29	11251	USSR	25 JAN	96.5	97.6	617	560		
1979 005B		11252	USSR	25 JAN	95.4	97.4	545	530		
1979 007A	SCATHA	11256	US	30 JAN	1417.6	7.9	42479	28366		
1979 009A	AYAME 1	11261	JAPAN	6 FEB	1312.8	2.0	37404	29269		
1979 011A	COSMOS 1076	11266	USSR	12 FEB	95.9	82.5	569	550		
1979 011B		11267	USSR	12 FEB	97.2	82.5	637	610		
1979 012A	COSMOS 1077	11268	USSR	13 FEB	95.3	81.2	538	530		
1979 012B		11269	USSR	13 FEB	95.6	81.2	581	514		
1979 015A	EKRAN 3	11273	USSR	21 FEB	1435.5	9.9	35929	35621		
1979 015D		13900	USSR	21 FEB	1421.0	9.8	35533	35446		
1979 017A	SOL*IND	11278	US	24 FEB	93.4	97.9	448	432		
1979 017A - 017LZ			US	24 FEB	SEE NOTE		30¢			30¢
1979 020A	INTERCOSMOS 19	11285	USSR	27 FEB	97.2	74.0	780	466		
1979 020B		11286	USSR	27 FEB	97.3	74.0	796	464		
1979 021A	METEOR 2-4	11288	USSR	1 MAR	102.0	81.2	873	837		
1979 021B		11289	USSR	1 MAR	102.1	81.2	912	800		
1979 021C		11290	USSR	1 MAR	102.1	81.2	881	836		
1979 021D		14632	USSR	1 MAR	102.8	81.3	932	853		
1979 024A	COSMOS 1081	11296	USSR	15 MAR	114.5	74.0	1464	1401		
1979 024B	COSMOS 1082	11297	USSR	15 MAR	114.7	74.0	1463	1421		
1979 024C	COSMOS 1083	11298	USSR	15 MAR	114.9	74.0	1463	1440		
1979 024D	COSMOS 1084	11299	USSR	15 MAR	115.1	74.0	1462	1459		
1979 024E	COSMOS 1085	11300	USSR	15 MAR	115.6	74.0	1502	1463		
1979 024F	COSMOS 1086	11301	USSR	15 MAR	115.4	74.0	1480	1463		
1979 024G	COSMOS 1087	11302	USSR	15 MAR	115.8	74.0	1522	1463		
1979 024H	COSMOS 1088	11303	USSR	15 MAR	116.1	74.0	1545	1463		
1979 024J		11304	USSR	15 MAR	117.6	74.0	1687	1458		
1979 025B		11306	US	16 MAR	ELEMENTS NOT AVAILABLE					
1979 026A	COSMOS 1089	11308	USSR	21 MAR	104.7	83.0	997	965		
1979 026B		11309	USSR	21 MAR	104.6	83.0	988	962		
1979 028A	COSMOS 1091	11320	USSR	7 APR	104.8	82.9	1005	960		
1979 028B		11321	USSR	7 APR	104.6	82.9	991	964		
1979 030A	COSMOS 1092	11326	USSR	11 APR	104.7	82.9	1002	959		
1979 030B		11327	USSR	11 APR	104.6	82.9	997	955		
1979 031A	MOLNIYA 1-43	11328	USSR	12 APR	100.4	63.7	1460	99		
1979 031D		11551	USSR	12 APR	620.8	64.1	35321	132		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1979 LAUNCHES (CONT.)										
1979 032A	COSMOS 1093	11331	USSR	14 APR	95.3	81.2	538	524		
1979 032B		11332	USSR	14 APR	96.1	81.2	609	531		
1979 035A	RADUGA 5	11343	USSR	25 APR	1435.9	9.8	35797	35778		
1979 035E		17873	USSR	25 APR	1438.0	9.8	35949	35699		
1979 038A	FLTSATCOM 2	11363	US	4 MAY	1436.2	7.7	35814	35761		
1979 046A	COSMOS 1104	11378	USSR	31 MAY	104.7	82.9	1005	953		
1979 046B		11379	USSR	31 MAY	104.6	82.9	990	958		
1979 048A	MOLNIYA 3-12	11384	USSR	5 JUN	394.4	63.1	22696	177		
1979 050A		11389	US	6 JUN	ELEMENTS NOT AVAILABLE					
1979 050B		11403	US	6 JUN	ELEMENTS NOT AVAILABLE					
1979 050C		11408	US	6 JUN	ELEMENTS NOT AVAILABLE					
1979 050D		11410	US	6 JUN	ELEMENTS NOT AVAILABLE					
1979 050G		11534	US	6 JUN	ELEMENTS NOT AVAILABLE					
1979 053A		11397	US	10 JUN	ELEMENTS NOT AVAILABLE					
1979 053C		11436	US	10 JUN	ELEMENTS NOT AVAILABLE					
1979 053D		20364	US	10 JUN	ELEMENTS NOT AVAILABLE					
1979 057A	NOAA 6	11416	US	27 JUN	100.8	98.5	805	780		
1979 057B		11419	US	27 JUN	99.5	98.4	738	733		
1979 057C		11534	US	27 JUN	99.5	98.3	737	731		
1979 059A	COSMOS 1109	11417	USSR	27 JUN	CURRENT ELEMENTS NOT MAINTAINED					
1979 059D		11555	USSR	27 JUN	721.7	67.5	38335	2212		
1979 059E		12833	USSR	27 JUN	715.2	67.3	38037	2188		
1979 059F		12834	USSR	27 JUN	719.1	67.9	35142	5276		
1979 059G		12909	USSR	27 JUN	719.6	68.2	39114	1329		
1979 059H		12995	USSR	27 JUN	698.9	66.3	38251	1169		
1979 059J		13960	USSR	27 JUN	720.5	67.3	37953	2534		
1979 060A	COSMOS 1110	11425	USSR	28 JUN	100.6	74.0	800	777		
1979 060B		11427	USSR	28 JUN	100.5	74.0	796	764		
1979 060C		14366	USSR	28 JUN	99.7	74.1	746	743		
1979 060D		15784	USSR	28 JUN	100.1	74.0	766	760		
1979 062A	GORIZONT 2	11440	USSR	5 JUL	1436.0	9.4	35805	35762		
1979 062D		14005	USSR	5 JUL	1474.4	9.6	36556	36509		
1979 067A	COSMOS 1116	11457	USSR	20 JUL	94.3	81.2	498	471		
1979 067B		11458	USSR	20 JUL	95.4	81.2	568	506		
1979 070A	MOLNIYA 1-44	11474	USSR	31 JUL	717.7	63.9	38377	1971		
1979 070D		11556	USSR	31 JUL	733.1	64.1	38720	2386		
1979 072A	WESTAR 3	11484	US	10 AUG	1440.8	3.1	35886	35871		
1979 077A	COSMOS 1124	11509	USSR	28 AUG	716.9	67.9	35350	4962		
1979 077D		11550	USSR	28 AUG	723.8	67.9	35773	4878		
1979 077E		12814	USSR	28 AUG	604.2	65.8	34053	539		
1979 077F		12815	USSR	28 AUG	708.7	64.3	36960	2947		
1979 077G		12816	USSR	28 AUG	686.5	63.6	36895	1904		
1979 077H		12817	USSR	28 AUG	720.6	63.3	37929	2564		
1979 078A	COSMOS 1125	11510	USSR	28 AUG	100.7	74.0	799	780		
1979 078B		11511	USSR	28 AUG	100.5	74.0	793	769		
1979 078C		14805	USSR	28 AUG	99.7	74.1	748	741		
1979 078D		14806	USSR	28 AUG	100.6	74.1	794	779		
1979 078E		18650	USSR	28 AUG	99.6	74.1	747	734		
1979 084A	COSMOS 1130	11538	USSR	25 SEP	114.6	74.0	1478	1395		
1979 084B	COSMOS 1131	11539	USSR	25 SEP	114.8	74.0	1481	1408		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1979 LAUNCHES (CONT.)										
1979 084C	COSMOS 1132	11540	USSR	25 SEP	114.9	74.0	1480	1423		
1979 084D	COSMOS 1133	11541	USSR	25 SEP	115.1	74.0	1481	1436		
1979 084E	COSMOS 1134	11542	USSR	25 SEP	115.3	74.0	1482	1451		
1979 084F	COSMOS 1135	11543	USSR	25 SEP	115.4	74.0	1490	1460		
1979 084G	COSMOS 1136	11544	USSR	25 SEP	115.6	74.0	1494	1470		
1979 084H	COSMOS 1137	11545	USSR	25 SEP	115.8	74.0	1512	1470		
1979 084J		11546	USSR	25 SEP	117.8	74.0	1691	1480		
1979 086A		11558	US	1 OCT	ELEMENTS NOT AVAILABLE					
1979 086C		11560	US	1 OCT	ELEMENTS NOT AVAILABLE					
1979 087A	EKRAN 4	11561	USSR	3 OCT	1435.6	9.5	35861	35690		
1979 087C		17939	USSR	3 OCT	1433.0	9.5	35905	35547		
1979 089A	COSMOS 1140	11573	USSR	11 OCT	100.4	74.1	790	766		
1979 089B		11574	USSR	11 OCT	100.2	74.1	782	758		
1979 089C		14807	USSR	11 OCT	99.7	74.1	747	736		
1979 089D		14345	USSR	11 OCT	100.1	74.0	776	754		
1979 089E		19048	USSR	11 OCT	100.2	74.0	785	755		
1979 090A	COSMOS 1141	11585	USSR	16 OCT	104.6	83.0	997	952		
1979 090B		11586	USSR	16 OCT	104.4	82.9	989	947		
1979 090C		11587	USSR	16 OCT	102.8	82.9	910	872		
1979 091A	MOLNIYA 1-45	11589	USSR	20 OCT	717.9	62.4	39814	548		
1979 091D		11602	USSR	20 OCT	731.9	62.8	40565	485		
1979 093A	COSMOS 1143	11600	USSR	26 OCT	95.9	81.2	568	555		
1979 093B		11601	USSR	26 OCT	96.2	81.2	606	543		
1979 095A	METEOR 2-5	11605	USSR	31 OCT	102.4	81.2	880	862		
1979 095B		11608	USSR	31 OCT	102.5	81.2	915	833		
1979 098A		11621	US	21 NOV	1436.1	7.1	35794	35778		
1979 098B		11622	US	21 NOV	1436.2	7.2	35793	35782		
1979 098C		11623	US	21 NOV	1510.8	8.4	38520	35952		
1979 099A	COSMOS 1145	11629	USSR	27 NOV	95.4	81.2	542	537		
1979 099B		11630	USSR	27 NOV	96.0	81.2	600	528		
1979 101A	RCA SATCOM III	11635	US	7 DEC	788.9	8.5	35643	8165		
1979 105A	GORIZONT 3	11648	USSR	28 DEC	1436.6	9.0	35813	35777		
1979 105E		11684	USSR	28 DEC	1459.2	9.2	36304	36172		
1980 LAUNCHES										
1980 002A	MOLNIYA 1-46	11662	USSR	11 JAN	717.3	63.8	39976	356		
1980 002F		11670	USSR	11 JAN	732.7	64.1	40422	665		
1980 003A	COSMOS 1150	11667	USSR	14 JAN	104.8	82.9	1011	962		
1980 003B		11668	USSR	14 JAN	104.7	82.9	997	962		
1980 004A	FLTSATCOM 3	11669	US	18 JAN	1436.1	7.1	35873	35700		
1980 005A	COSMOS 1151	11671	USSR	23 JAN	96.7	82.5	610	586		
1980 005B		11672	USSR	23 JAN	97.2	82.5	638	614		
1980 007A	COSMOS 1153	11680	USSR	25 JAN	104.8	82.9	1015	957		
1980 007B		11681	USSR	25 JAN	104.7	82.9	1009	952		
1980 008A	COSMOS 1154	11682	USSR	30 JAN	96.1	81.2	573	568		
1980 008B		11683	USSR	30 JAN	96.3	81.2	620	544		
1980 011A		11690	US	9 FEB	718.0	64.3	20510	19855		
1980 011B		11705	US	9 FEB	289.6	63.6	15665	574		
1980 012A	COSMOS 1156	11691	USSR	11 FEB	114.5	74.0	1472	1396		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1980 LAUNCHES (CONT.)										
1980 012B	COSMOS 1157	11692	USSR	11 FEB	114.8	74.0	1474	1413		
1980 012C	COSMOS 1158	11693	USSR	11 FEB	115.0	74.0	1474	1432		
1980 012D	COSMOS 1159	11694	USSR	11 FEB	115.2	74.0	1477	1448		
1980 012E	COSMOS 1160	11695	USSR	11 FEB	115.4	74.0	1481	1463		
1980 012F	COSMOS 1161	11696	USSR	11 FEB	115.6	74.0	1500	1465		
1980 012G	COSMOS 1162	11697	USSR	11 FEB	115.8	74.0	1517	1470		
1980 012H	COSMOS 1163	11698	USSR	11 FEB	116.1	74.0	1540	1469		
1980 012J		11699	USSR	11 FEB	117.8	74.0	1692	1466		
1980 016A	RADUGA 6	11708	USSR	20 FEB	1435.3	9.2	35788	35755		
1980 016D		11728	USSR	20 FEB	1475.1	9.5	36616	36476		
1980 018A	AYAME 2	11715	JAPAN	22 FEB	1386.6	1.4	36839	32785		
1980 018C		11718	JAPAN	22 FEB	337.6	24.5	19134	231		
1980 019A		11720	US	3 MAR	ELEMENTS NOT AVAILABLE					
1980 019B		11721	US	3 MAR	ELEMENTS NOT AVAILABLE					
1980 019C		11731	US	3 MAR	ELEMENTS NOT AVAILABLE					
1980 019D		11732	US	3 MAR	ELEMENTS NOT AVAILABLE					
1980 019E		11733	US	3 MAR	ELEMENTS NOT AVAILABLE					
1980 019F		11734	US	3 MAR	ELEMENTS NOT AVAILABLE					
1980 019G		11745	US	3 MAR	ELEMENTS NOT AVAILABLE					
1980 019H		11746	US	3 MAR	ELEMENTS NOT AVAILABLE					
1980 022A	COSMOS 1169	11735	USSR	17 MAR	104.7	82.9	1007	956		
1980 022B		11736	USSR	17 MAR	104.6	82.9	1000	953		
1980 022C		12404	USSR	17 MAR	103.4	82.9	942	895		
1980 026A	COSMOS 1171	11750	USSR	3 APR	104.8	65.8	1000	970		
1980 026B		11751	USSR	3 APR	104.6	65.8	990	963		
1980 026C		11752	USSR	3 APR	104.8	65.8	997	969		
1980 028A	COSMOS 1172	11758	USSR	12 APR	717.9	66.0	37856	2505		
1980 028E		11762	USSR	12 APR	722.2	66.5	38465	2108		
1980 030A	COSMOS 1174	11765	USSR	18 APR	103.5	66.1	1469	378		
1980 030B - 030AY			USSR	18 APR	SEE NOTE		31*			31*
1980 032A		11783	US	26 APR	717.9	63.6	20613	19748		
1980 032B		11791	US	26 APR	232.3	63.2	12026	250		
1980 034A	COSMOS 1176	11788	USSR	29 APR	103.4	64.8	953	883		
1980 034D		11971	USSR	29 APR	103.1	64.8	925	883		
1980 039A	COSMOS 1181	11803	USSR	20 MAY	104.8	82.9	1003	967		
1980 039D		11804	USSR	20 MAY	104.7	82.9	993	964		
1980 044A	COSMOS 1184	11821	USSR	4 JUN	95.9	81.2	570	555		
1980 044B		11822	USSR	4 JUN	96.5	81.3	625	560		
1980 049A	GORIZONT 4	11841	USSR	14 JUN	1460.1	8.7	36264	36243		
1980 049F		11862	USSR	14 JUN	1470.3	9.0	36589	36319		
1980 050A	COSMOS 1188	11844	USSR	14 JUN	717.6	67.4	37061	3284		
1980 050B		11847	USSR	14 JUN	722.9	67.5	37216	3389		
1980 051A	METEOR 1-30	11848	USSR	18 JUN	93.8	97.7	475	448		
1980 051B		11849	USSR	18 JUN	96.4	97.5	607	565		
1980 052C		11852	US	18 JUN	ELEMENTS NOT AVAILABLE					
1980 053A	MOLNIYA 1-47	11856	USSR	21 JUN	277.0	63.5	15293	103		
1980 053D		11861	USSR	21 JUN	680.7	63.9	38432	76		
1980 056A	COSMOS 1190	11869	USSR	1 JUL	100.6	74.0	794	779		
1980 056B		11870	USSR	1 JUL	100.5	74.1	793	768		
1980 056C		14808	USSR	1 JUL	100.9	74.0	815	786		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1980 LAUNCHES (CONT.)										
1980 056D		14809	USSR	1 JUL	100.7	74.0	802	781		
1980 057A	COSMOS 1191	11871	USSR	2 JUL	716.4	67.8	35060	5224		
1980 057D		11888	USSR	2 JUL	722.0	67.7	35588	4975		
1980 057E		13999	USSR	2 JUL	708.6	65.6	37648	2254		
1980 058A	COSMOS 1192	11875	USSR	9 JUL	114.5	74.0	1472	1393		
1980 058B	COSMOS 1193	11876	USSR	9 JUL	114.7	74.0	1473	1411		
1980 058C	COSMOS 1194	11877	USSR	9 JUL	114.9	74.0	1472	1430		
1980 058D	COSMOS 1195	11878	USSR	9 JUL	115.1	74.0	1472	1448		
1980 058E	COSMOS 1196	11879	USSR	9 JUL	115.3	74.0	1472	1466		
1980 058F	COSMOS 1197	11880	USSR	9 JUL	115.5	74.0	1490	1469		
1980 058G	COSMOS 1198	11881	USSR	9 JUL	115.7	74.0	1506	1471		
1980 058H	COSMOS 1199	11882	USSR	9 JUL	116.0	74.0	1529	1471		
1980 058J		11883	USSR	9 JUL	117.6	74.0	1679	1468		
1980 060A	EKRAN 5	11890	USSR	14 JUL	1436.1	0.0	35834	35737		
1980 060F		14193	USSR	14 JUL	1417.3	8.9	35496	35339		
1980 063A	MOLNIYA 3-13	11896	USSR	18 JUL	717.8	63.4	39047	1306		
1980 063D		11909	USSR	18 JUL	732.5	63.6	39899	1178		
1980 069A	COSMOS 1206	11932	USSR	15 AUG	95.9	81.2	565	558		
1980 069B		11933	USSR	15 AUG	96.4	81.2	624	548		
1980 073A	METEOR 2-6	11962	USSR	9 SEP	102.2	81.2	887	835		
1980 073B		11963	USSR	9 SEP	102.2	81.2	910	817		
1980 074A	GOES 4	11964	US	9 SEP	1451.3	7.2	36209	35956		
1980 074C		11970	US	9 SEP	1767.3	0.1	49745	34341		
1980 081A	RADUGA 7	12003	USSR	5 OCT	1436.9	8.8	35824	35778		
1980 081F		12447	USSR	5 OCT	1440.4	8.9	35881	35860		
1980 085A	COSMOS 1217	12032	USSR	24 OCT	716.3	67.3	36919	3364		
1980 085D		12035	USSR	24 OCT	721.9	67.6	37750	2807		
1980 087A	FLTSATCOM 4	12046	US	31 OCT	1436.1	7.0	35804	35768		
1980 087B		12069	US	31 OCT	192.9	26.2	9097	262		
1980 089A	COSMOS 1220	12054	USSR	4 NOV	98.2	65.0	807	537		
1980 089B - 089CG			USSR	4 NOV	SEE NOTE		32*			32*
1980 091A	SBS 1	12055	US	15 NOV	1442.5	3.8	35943	35878		
1980 092A	MOLNIYA 1-48	12066	USSR	16 NOV	713.8	63.6	39566	590		
1980 092D		12070	USSR	16 NOV	733.6	63.9	40402	728		
1980 093A	COSMOS 1222	12071	USSR	21 NOV	96.3	81.2	582	575		
1980 093B		12072	USSR	21 NOV	96.4	81.2	623	545		
1980 095A	COSMOS 1223	12078	USSR	27 NOV	718.5	68.2	35831	4557		
1980 095E		12086	USSR	27 NOV	723.3	69.0	36448	4179		
1980 097A	COSMOS 1225	12087	USSR	5 DEC	104.8	82.9	1023	944		
1980 097B		12088	USSR	5 DEC	104.6	82.9	1011	939		
1980 098A	INTELSAT 5 F-2	12089	ITSO	6 DEC	1436.2	2.3	35802	35773		
1980 098B		12445	US	6 DEC	229.8	23.6	11763	333		
1980 099A	COSMOS 1226	12091	USSR	10 DEC	104.8	82.9	1007	959		
1980 099B		12092	USSR	10 DEC	104.6	82.9	997	954		
1980 100A		12093	US	13 DEC	ELEMENTS NOT AVAILABLE					
1980 100B		12094	US	13 DEC	ELEMENTS NOT AVAILABLE					
1980 102A	COSMOS 1228	12107	USSR	23 DEC	114.4	74.0	1462	1391		
1980 102B	COSMOS 1229	12108	USSR	23 DEC	114.6	74.0	1462	1412		
1980 102C	COSMOS 1230	12109	USSR	23 DEC	114.4	74.0	1462	1397		
1980 102D	COSMOS 1231	12110	USSR	23 DEC	114.5	74.0	1462	1404		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1980 LAUNCHES (CONT.)										
1980 102E	COSMOS 1232	12111	USSR	23 DEC	114.6	74.0	1462	1410		
1980 102F	COSMOS 1233	12112	USSR	23 DEC	114.7	74.0	1463	1416		
1980 102G	COSMOS 1234	12113	USSR	23 DEC	114.6	74.0	1462	1407		
1980 102H	COSMOS 1235	12114	USSR	23 DEC	114.5	74.0	1463	1411		
1980 102J		12115	USSR	23 DEC	114.9	74.0	1467	1435		
1980 103A	PROGNOZ 8	12116	USSR	25 DEC	5687.8	65.8	197364	978		
1980 104A	EKRAN 6	12120	USSR	26 DEC	1436.9	8.7	35814	35791		
1980 104C		12471	USSR	26 DEC	1421.0	8.6	35632	35349		
1981 LAUNCHES										
1981 002A	MOLNIYA 3-14	12133	USSR	9 JAN	717.7	64.0	38466	1885		
1981 002B		12134	USSR	9 JAN	732.2	64.2	38851	2211		
1981 003A	COSMOS 1238	12138	USSR	16 JAN	106.9	83.0	1763	398		
1981 003B		12139	USSR	16 JAN	105.7	83.0	1659	394		
1981 006A	COSMOS 1241	12149	USSR	21 JAN	104.9	65.8	1008	973		
1981 006B		12150	USSR	21 JAN	104.6	65.8	1022	932		
1981 006C		12151	USSR	21 JAN	104.9	65.8	1005	970		
1981 008A	COSMOS 1242	12154	USSR	27 JAN	96.6	81.2	603	587		
1981 008B		12155	USSR	27 JAN	96.7	81.2	645	553		
1981 009A	MOLNIYA 1-49	12156	USSR	30 JAN	717.3	63.9	38224	2109		
1981 009D		12159	USSR	30 JAN	731.7	64.2	38890	2146		
1981 012A	KIKU 3	12295	JAPAN	11 FEB	425.2	28.4	24450	254		
1981 012C		12787	JAPAN	11 FEB	532.3	28.1	30491	266		
1981 013A	COSMOS 1244	12297	USSR	12 FEB	104.7	82.9	1005	958		
1981 013B		12298	USSR	12 FEB	104.6	82.9	999	953		
1981 016A	COSMOS 1247	12303	USSR	19 FEB	711.0	67.6	35529	4491		
1981 016E		12311	USSR	19 FEB	703.5	67.5	35158	4491		
1981 016F		12984	USSR	19 FEB	710.4	67.6	35470	4521		
1981 016G		12985	USSR	19 FEB	710.1	65.4	37292	2682		
1981 016H		12992	USSR	19 FEB	706.6	65.8	38696	1106		
1981 017A	ASTRO A	12307	JAPAN	21 FEB	92.5	31.3	408	388		
1981 017B		12308	JAPAN	21 FEB	91.9	31.3	378	359		
1981 018A	COMSTAR 4	12309	US	21 FEB	92.1	31.3	387	366		
1981 018B		12363	US	21 FEB	649.9	20.2	36361	587		
1981 021A	COSMOS 1249	12319	USSR	5 MAR	103.9	65.0	970	911		
1981 021C		12551	USSR	5 MAR	103.5	65.0	945	906		
1981 022A	COSMOS 1250	12320	USSR	6 MAR	114.4	74.0	1470	1387		
1981 022B	COSMOS 1251	12321	USSR	6 MAR	114.6	74.0	1471	1401		
1981 022C	COSMOS 1252	12322	USSR	6 MAR	114.7	74.0	1470	1415		
1981 022D	COSMOS 1253	12323	USSR	6 MAR	115.6	74.0	1494	1466		
1981 022E	COSMOS 1254	12324	USSR	6 MAR	114.9	74.0	1470	1429		
1981 022F	COSMOS 1255	12325	USSR	6 MAR	115.0	74.0	1470	1443		
1981 022G	COSMOS 1256	12326	USSR	6 MAR	115.2	74.0	1474	1455		
1981 022H	COSMOS 1257	12327	USSR	6 MAR	115.4	74.0	1477	1466		
1981 022J		12328	USSR	6 MAR	117.6	74.0	1693	1455		
1981 025A		12339	US	16 MAR	ELEMENTS NOT AVAILABLE					
1981 025C		12371	US	16 MAR	ELEMENTS NOT AVAILABLE					
1981 027A	RADUGA 8	12351	USSR	18 MAR	1435.0	8.6	36112	35417		
1981 027F		14194	USSR	18 MAR	1474.5	8.9	36614	36454		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1981 LAUNCHES (CONT.)										
1981 028B - 028W			USSR	20 MAR	SEE NOTE		33*			33*
1981 030A	MOLNIYA 3-15	12368	USSR	24 MAR	717.6	64.6	39728	619		
1981 030D		12383	USSR	24 MAR	732.8	64.9	40202	888		
1981 031A	COSMOS 1261	12376	USSR	31 MAR	717.3	67.9	36189	4141		
1981 031D		12384	USSR	31 MAR	707.5	67.9	35558	4286		
1981 031E		12392	USSR	31 MAR	719.1	67.9	36133	4287		
1981 031F		12393	USSR	31 MAR	716.1	64.2	37401	2868		
1981 031G		12394	USSR	31 MAR	718.4	65.3	37210	3174		
1981 033A	COSMOS 1263	12388	USSR	9 APR	106.6	83.0	1754	388		
1981 033B		12389	USSR	9 APR	104.9	83.0	1606	374		
1981 036E		12427	USSR	16 APR	102.6	99.0	1010	757		
1981 037A	COSMOS 1266	12409	USSR	21 APR	103.6	64.8	958	896		
1981 037D		12435	USSR	21 APR	103.4	64.8	940	893		
1981 038A		12418	US	24 APR	ELEMENTS NOT AVAILABLE					
1981 038B		12446	US	24 APR	ELEMENTS NOT AVAILABLE					
1981 041A	COSMOS 1269	12442	USSR	7 MAY	100.7	74.1	799	784		
1981 041B		12443	USSR	7 MAY	100.6	74.1	791	782		
1981 041C		13498	USSR	7 MAY	100.3	74.0	783	766		
1981 041D		14346	USSR	7 MAY	99.9	74.1	765	745		
1981 043A	METEOR 2-7	12456	USSR	14 MAY	102.2	81.3	891	835		
1981 043B		12457	USSR	14 MAY	102.4	81.3	917	824		
1981 043C		15769	USSR	14 MAY	102.4	81.3	916	826		
1981 044A	NNSS 30480	12458	US	15 MAY	ELEMENTS NOT AVAILABLE					
1981 046A	COSMOS 1271	12464	USSR	19 MAY	96.6	81.2	605	586		
1981 046B		12465	USSR	19 MAY	96.9	81.2	646	573		
1981 049A	GOES 5	12472	US	22 MAY	1436.4	4.1	35806	35781		
1981 050A	INTELSAT 5 F-1	12474	ITSO	23 MAY	1436.1	2.8	35806	35769		
1981 050B		12497	US	23 MAY	225.9	24.0	11520	294		
1981 053A	COSMOS 1275	12504	USSR	4 JUN	104.7	83.0	1006	954		
1981 053B - 053MR			USSR	4 JUN	SEE NOTE		34*			34*
1981 054A	MOLNIYA 3-16	12512	USSR	9 JUN	717.8	64.0	38841	1516		
1981 054E		12519	USSR	9 JUN	733.6	64.3	39248	1883		
1981 057A	METEOSAT 2	12544	ESA	19 JUN	1436.1	4.1	35803	35771		
1981 057B	APPLE	12545	INDIA	19 JUN	1439.5	7.8	35950	35755		
1981 057C		12546	ESA	19 JUN	535.9	10.5	30696	258		
1981 057D		12562	ESA	19 JUN	315.5	10.6	17753	192		
1981 057F		20837	ESA	19 JUN	1449.2	7.5	36499	35585		
1981 058A	COSMOS 1278	12547	USSR	19 JUN	718.3	67.1	36340	4039		
1981 058D		12561	USSR	19 JUN	724.0	67.5	37186	3476		
1981 058E		17256	USSR	19 JUN	718.7	67.1	36355	4045		
1981 059A	NOAA 7	12553	US	23 JUN	101.7	99.0	849	831		
1981 059B		12559	US	23 JUN	101.1	99.0	815	808		
1981 059C		12560	US	23 JUN	101.1	99.0	815	809		
1981 060A	MOLNIYA 1-50	12556	USSR	24 JUN	716.4	64.1	40030	254		
1981 060D		12563	USSR	24 JUN	731.7	64.5	40653	388		
1981 061A	EKRAN 7	12564	USSR	25 JUN	1436.1	8.4	35797	35777		
1981 061F		12851	USSR	25 JUN	1425.6	8.3	35591	35572		
1981 065A	METEOR 1-31	12585	USSR	10 JUL	96.9	97.8	631	587		
1981 065B		12586	USSR	10 JUL	97.0	97.8	630	601		
1981 069A	RADUGA 9	12618	USSR	30 JUL	1435.7	8.2	35791	35765		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1981 LAUNCHES (CONT.)										
1981 069F		12850	USSR	30 JUL	1473.9	8.5	36630	36416		
1981 070A	DE 1	12624	US	3 AUG	410.0	89.1	23342	463		
1981 070E		12679	US	3 AUG	411.2	89.0	23419	459		
1981 070J		14620	US	3 AUG	397.3	89.1	22560	488		
1981 070K		14621	US	3 AUG	399.2	89.1	22668	494		
1981 070L		19478	US	3 AUG	407.1	89.1	23115	516		
1981 071A	COSMOS 1285	12627	USSR	4 AUG	727.0	68.0	36691	4116		
1981 071D		12690	USSR	4 AUG	722.8	68.0	36367	4235		
1981 071E		12993	USSR	4 AUG	727.7	68.1	36658	4195		
1981 071F		13961	USSR	4 AUG	726.8	64.2	38048	2748		
1981 073A	FLTSATCOM 5	12635	US	6 AUG	1450.4	6.7	36309	36211		
1981 074A	COSMOS 1287	12636	USSR	6 AUG	115.7	74.0	1510	1462		
1981 074B	COSMOS 1288	12637	USSR	6 AUG	115.5	74.0	1490	1463		
1981 074C	COSMOS 1289	12638	USSR	6 AUG	114.7	74.0	1463	1423		
1981 074D	COSMOS 1290	12639	USSR	6 AUG	114.9	74.0	1463	1439		
1981 074E	COSMOS 1291	12640	USSR	6 AUG	115.1	74.0	1463	1455		
1981 074F	COSMOS 1292	12641	USSR	6 AUG	115.3	74.0	1474	1461		
1981 074G	COSMOS 1293	12642	USSR	6 AUG	114.6	74.0	1463	1406		
1981 074H	COSMOS 1294	12643	USSR	6 AUG	114.4	74.0	1462	1390		
1981 074J		12644	USSR	6 AUG	117.4	74.0	1669	1461		
1981 075A	INTERCOSMOS	12645	USSR	7 AUG	101.7	81.2	983	790		
1981 075B		12646	USSR	7 AUG	101.8	81.2	891	793		
1981 076A	GMS 2	12677	JAPAN	10 AUG	1446.4	6.8	36033	35944		
1981 077A	COSMOS 1295	12681	USSR	12 AUG	104.6	82.9	1009	944		
1981 077B		12682	USSR	12 AUG	104.5	82.9	997	943		
1981 081A	COSMOS 1299	12783	USSR	24 AUG	103.9	65.1	963	926		
1981 082A	COSMOS 1300	12785	USSR	24 AUG	97.0	82.5	628	603		
1981 082B		12786	USSR	24 AUG	97.4	82.5	647	618		
1981 084A	COSMOS 1302	12791	USSR	28 AUG	100.6	74.0	799	773		
1981 084B		12792	USSR	28 AUG	100.4	74.0	788	769		
1981 084C		12793	USSR	28 AUG	100.2	74.0	773	766		
1981 084D		14810	USSR	28 AUG	100.8	74.0	810	779		
1981 087A	COSMOS 1304	12803	USSR	4 SEP	103.8	82.9	973	904		
1981 087B		12804	USSR	4 SEP	103.7	82.9	966	900		
1981 088A	COSMOS 1305	12818	USSR	11 SEP	263.7	63.5	13335	1150		
1981 088F		12827	USSR	11 SEP	262.4	63.4	13281	1113		
1981 088G		14131	USSR	11 SEP	248.4	63.2	12576	843		
1981 088H		18598	USSR	11 SEP	251.1	63.5	12852	759		
1981 091A	COSMOS 1308	12835	USSR	18 SEP	104.7	82.9	1000	960		
1981 091B		12836	USSR	18 SEP	104.6	82.9	993	960		
1981 094A	OREOL 3	12848	USSR	21 SEP	106.8	82.5	1757	395		
1981 094B		12849	USSR	21 SEP	108.4	82.5	1903	400		
1981 096A	SBS 2	12855	US	24 SEP	1436.2	2.9	35798	35777		
1981 098A	COSMOS 1312	12879	USSR	30 SEP	115.9	82.6	1501	1488		
1981 098B		12880	USSR	30 SEP	115.8	82.6	1498	1485		
1981 100C		12889	US	6 OCT	118.8	99.9	2708	549		
1981 102A	RADUGA 10	12897	USSR	9 OCT	1435.9	7.9	35805	35760		
1981 102F		14195	USSR	9 OCT	1437.9	8.1	35881	35762		
1981 103A	COSMOS 1315	12903	USSR	13 OCT	96.8	81.2	619	588		
1981 103B		12904	USSR	13 OCT	97.1	81.2	650	586		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1981 LAUNCHES (CONT.)										
1981 105A	MOLNIYA 3-17	12915	USSR	17 OCT	713.6	64.2	39365	783		
1981 105E		12920	USSR	17 OCT	733.2	64.4	40011	1102		
1981 106A	VENERA 13	12927	USSR	30 OCT	HELIOCENTRIC ORBIT					
1981 107A		12930	US	31 OCT	ELEMENTS NOT AVAILABLE					
1981 107C		12932	US	31 OCT	ELEMENTS NOT AVAILABLE					
1981 108A	COSMOS 1317	12933	USSR	31 OCT	718.9	67.7	35892	4513		
1981 108D		12940	USSR	31 OCT	723.2	67.7	36537	4082		
1981 108E		14734	USSR	31 OCT	713.6	65.3	36709	3438		
1981 108F		14735	USSR	31 OCT	714.7	65.1	36478	3725		
1981 108G		14736	USSR	31 OCT	719.4	62.9	38860	1576		
1981 110A	VENERA 14	12938	USSR	4 NOV	HELIOCENTRIC ORBIT					
1981 113A	MOLNIYA 1-51	12959	USSR	17 NOV	717.9	64.0	39262	1098		
1981 113D		12986	USSR	17 NOV	698.9	64.3	38202	1214		
1981 114A	RCA SATCOM IIIR	12967	US	20 NOV	1436.1	0.3	35802	35771		
1981 115A	BHASKARA 2	12968	INDIA	20 NOV	92.5	50.6	398	393		
1981 116A	COSMOS 1320	12975	USSR	28 NOV	117.2	74.0	1632	1479		
1981 116B	COSMOS 1321	12976	USSR	28 NOV	117.2	74.0	1629	1480		
1981 116C	COSMOS 1322	12977	USSR	28 NOV	117.2	74.0	1627	1479		
1981 116D	COSMOS 1323	12978	USSR	28 NOV	117.1	74.0	1622	1480		
1981 116E	COSMOS 1324	12979	USSR	28 NOV	117.1	74.0	1618	1479		
1981 116F	COSMOS 1325	12980	USSR	28 NOV	117.0	74.0	1614	1479		
1981 116G	COSMOS 1326	12981	USSR	28 NOV	117.0	74.0	1609	1478		
1981 116H	COSMOS 1327	12982	USSR	28 NOV	116.9	74.0	1601	1480		
1981 116J		12983	USSR	28 NOV	117.5	74.0	1661	1479		
1981 117A	COSMOS 1328	12987	USSR	3 DEC	97.1	82.5	631	608		
1981 117B		12988	USSR	3 DEC	97.4	82.5	648	618		
1981 119A	INTELSAT 5 F-3	12994	ITSO	15 DEC	1436.1	1.8	35807	35768		
1981 119B		13007	US	15 DEC	229.0	23.5	11706	336		
1981 120A	RADIO 3	12997	USSR	17 DEC	118.4	83.0	1655	1562		
1981 120B	RADIO 8	12998	USSR	17 DEC	119.6	82.9	1680	1648		
1981 120C	RADIO 5	12999	USSR	17 DEC	119.4	82.9	1666	1644		
1981 120D	RADIO 4	13000	USSR	17 DEC	119.3	83.0	1662	1633		
1981 120E	RADIO 7	13001	USSR	17 DEC	119.1	83.0	1656	1621		
1981 120F	RADIO 6	13002	USSR	17 DEC	118.6	83.0	1657	1578		
1981 120G		13003	USSR	17 DEC	120.8	82.9	1782	1650		
1981 122A	MARECS A	13010	ESA	20 DEC	1436.0	4.0	35821	35753		
1981 122B	CAT 4	13011	ESA	20 DEC	563.8	10.5	32228	227		
1981 123A	MOLNIYA 1-52	13012	USSR	23 DEC	717.9	63.9	38616	1746		
1981 123D		13016	USSR	23 DEC	695.2	64.2	37315	1919		
1982 LAUNCHES										
1982 001A	COSMOS 1331	13027	USSR	7 JAN	100.4	74.1	797	760		
1982 001B		13028	USSR	7 JAN	100.4	74.1	793	761		
1982 001C		13029	USSR	7 JAN	100.2	74.0	779	759		
1982 001D		13030	USSR	7 JAN	99.8	74.0	766	730		
1982 003A	COSMOS 1333	13033	USSR	14 JAN	104.9	82.9	1011	964		
1982 003B		13034	USSR	14 JAN	104.7	82.9	1004	958		
1982 004A	RCA SATCOM IV	13035	US	16 JAN	1436.2	0.0	35798	35779		
1982 006C		13103	US	21 JAN	ELEMENTS NOT AVAILABLE					

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1982 LAUNCHES (CONT.)										
1982 006D		13104	US	21 JAN	ELEMENTS NOT AVAILABLE					
1982 006E		13105	US	21 JAN	ELEMENTS NOT AVAILABLE					
1982 006F		13152	US	21 JAN	ELEMENTS NOT AVAILABLE					
1982 009A	EKRAN 8	13056	USSR	5 FEB	1440.7	7.9	35995	35759		
1982 009D		13059	USSR	5 FEB	538.2	48.3	29461	1614		
1982 009F		14117	USSR	5 FEB	1426.0	7.8	35764	35413		
1982 012A	COSMOS 1339	13065	USSR	17 FEB	104.7	82.9	1013	947		
1982 012B		13066	USSR	17 FEB	104.6	82.9	1006	941		
1982 013A	COSMOS 1340	13067	USSR	19 FEB	96.9	81.2	616	601		
1982 013B		13068	USSR	19 FEB	96.9	81.2	638	587		
1982 014A	WESTAR 4	13069	US	26 FEB	1436.2	0.0	35796	35779		
1982 015A	MOLNIYA 1-53	13070	USSR	26 FEB	717.6	63.8	39520	826		
1982 015D		13075	USSR	26 FEB	730.9	64.0	40054	943		
1982 016A	COSMOS 1341	13080	USSR	3 MAR	717.6	67.7	35886	4457		
1982 016D		13090	USSR	3 MAR	709.0	67.5	35671	4247		
1982 017A	INTELSAT 5 F-4	13083	ITSO	5 MAR	1436.1	1.8	35803	35772		
1982 019A		13086	US	6 MAR	ELEMENTS NOT AVAILABLE					
1982 019B		13089	US	6 MAR	ELEMENTS NOT AVAILABLE					
1982 020A	GORIZONT 5	13092	USSR	15 MAR	1461.5	7.6	36434	36130		
1982 020F		13899	USSR	15 MAR	1460.0	7.8	36380	36124		
1982 023A	MOLNIYA 3-18	13107	USSR	24 MAR	717.9	64.5	39844	517		
1982 023D		13112	USSR	24 MAR	732.3	64.8	40386	680		
1982 024A	COSMOS 1344	13110	USSR	24 MAR	104.8	82.9	1007	963		
1982 024B		13111	USSR	24 MAR	104.7	82.9	1010	949		
1982 025A	METEOR 2	13113	USSR	25 MAR	104.0	82.5	957	933		
1982 025B		13114	USSR	25 MAR	104.0	82.5	957	934		
1982 027A	COSMOS 1346	13120	USSR	31 MAR	96.8	81.2	623	588		
1982 027B		13121	USSR	31 MAR	97.0	81.2	645	586		
1982 029A	COSMOS 1348	13124	USSR	7 APR	719.0	67.2	36064	4351		
1982 029D		13169	USSR	7 APR	705.4	67.4	35831	3908		
1982 030A	COSMOS 1349	13127	USSR	8 APR	104.8	82.9	1008	963		
1982 030B		13128	USSR	8 APR	104.7	82.9	1001	957		
1982 031A	INSAT-1A	13129	INDIA	10 APR	1434.2	0.1	35936	35562		
1982 037A	COSMOS 1354	13148	USSR	28 APR	100.7	74.0	800	785		
1982 037B		13149	USSR	28 APR	100.6	74.0	795	775		
1982 037C		14811	USSR	28 APR	100.9	74.0	820	783		
1982 039A	COSMOS 1356	13153	USSR	5 MAY	97.0	81.2	629	603		
1982 039B		13154	USSR	5 MAY	97.3	81.2	673	590		
1982 040A	COSMOS 1357	13160	USSR	6 MAY	114.6	74.0	1477	1398		
1982 040B	COSMOS 1358	13161	USSR	6 MAY	114.8	74.0	1479	1413		
1982 040C	COSMOS 1359	13162	USSR	6 MAY	115.0	74.0	1479	1429		
1982 040D	COSMOS 1360	13163	USSR	6 MAY	115.2	74.0	1480	1444		
1982 040E	COSMOS 1361	13164	USSR	6 MAY	115.3	74.0	1481	1459		
1982 040F	COSMOS 1362	13165	USSR	6 MAY	115.5	74.0	1493	1465		
1982 040G	COSMOS 1363	13166	USSR	6 MAY	115.7	74.0	1502	1472		
1982 040H	COSMOS 1364	13167	USSR	6 MAY	115.9	74.0	1522	1471		
1982 040J		13168	USSR	6 MAY	117.7	74.1	1686	1470		
1982 041C		13172	US	11 MAY	ELEMENTS NOT AVAILABLE					
1982 043A	COSMOS 1365	13175	USSR	14 MAY	103.6	65.1	978	882		
1982 043D		13594	USSR	14 MAY	103.4	65.1	956	877		

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1982 LAUNCHES (CONT.)										
1982 044A	COSMOS 1366	13177	USSR	17 MAY	1435.9	7.3	35809	35756		
1982 044F		14114	USSR	17 MAY	1434.6	7.3	35832	35682		
1982 045A	COSMOS 1367	13205	USSR	20 MAY	718.0	66.3	36344	4022		
1982 045D		13215	USSR	20 MAY	704.0	66.4	36271	3402		
1982 050A	MOLNIYA 1-54	13237	USSR	28 MAY	717.7	64.7	39515	832		
1982 050E		13253	USSR	28 MAY	732.1	65.0	40007	1051		
1992 051A	COSMOS 1371	13241	USSR	1 JUN	100.7	74.0	803	783		
1982 051B		13242	USSR	1 JUN	100.5	74.0	803	764		
1982 051C		14398	USSR	1 JUN	100.6	74.1	788	782		
1982 051D		18502	USSR	1 JUN	100.6	74.1	788	785		
1982 051E		18509	USSR	1 JUN	100.6	74.0	795	775		
1982 051F		18510	USSR	1 JUN	100.6	74.0	801	773		
1982 051G		19102	USSR	1 JUN	100.5	74.1	796	771		
1982 052A	COSMOS 1372	13243	USSR	1 JUN	103.9	64.9	975	910		
1982 052D		13416	USSR	1 JUN	103.6	64.9	954	901		
1982 055A	COSMOS 1375	13259	USSR	6 JUN	105.0	65.8	1011	978		
1982 055B -	055BL		USSR	6 JUN	SEE NOTE		37*			37*
1982 058A	WESTAR 5	13269	US	9 JUN	1436.1	0.0	35799	35777		
1982 059A	COSMOS 1378	13271	USSR	10 JUN	97.1	82.5	633	609		
1982 059B		13272	USSR	10 JUN	97.4	82.5	647	620		
1982 064A	COSMOS 1382	13295	USSR	25 JUN	716.8	68.0	36059	4247		
1982 064D		13298	USSR	25 JUN	708.4	67.8	35923	3968		
1982 066A	COSMOS 1383	13301	USSR	29 JUN	105.2	82.9	1025	982		
1982 066B		13302	USSR	29 JUN	105.1	82.9	1029	968		
1982 069A	COSMOS 1386	13353	USSR	7 JUL	104.6	83.0	1006	947		
1982 069B		13354	USSR	7 JUL	104.5	83.0	1008	930		
1982 072A	LANDSAT 4	13367	US	16 JUL	98.7	98.1	701	697		
1982 073A	COSMOS 1388	13375	USSR	21 JUL	114.5	74.0	1472	1391		
1982 073B	COSMOS 1389	13376	USSR	21 JUL	114.7	74.0	1473	1407		
1982 073C	COSMOS 1390	13377	USSR	21 JUL	114.9	74.0	1473	1425		
1982 073D	COSMOS 1391	13378	USSR	21 JUL	115.0	74.0	1470	1443		
1982 073E	COSMOS 1392	13379	USSR	21 JUL	115.2	74.0	1472	1458		
1982 073F	COSMOS 1393	13380	USSR	21 JUL	115.4	74.0	1480	1468		
1982 073G	COSMOS 1394	13381	USSR	21 JUL	115.6	74.0	1494	1472		
1982 073H	COSMOS 1395	13382	USSR	21 JUL	115.8	74.0	1514	1471		
1982 073J		13386	USSR	21 JUL	117.9	74.0	1709	1463		
1982 074A	MOLNIYA 1-55	13383	USSR	21 JUL	717.6	64.5	39776	568		
1982 074D		13390	USSR	21 JUL	698.6	64.5	38797	605		
1982 079A	COSMOS 1400	13402	USSR	5 AUG	96.7	81.2	612	593		
1982 079B		13403	USSR	5 AUG	97.1	81.2	656	583		
1982 082A	ANIK D-1	13431	CANADA	26 AUG	1436.1	0.0	35799	35775		
1982 083A	MOLNIYA 3-19	13432	USSR	27 AUG	717.4	64.0	38545	1791		
1982 083E		13446	USSR	27 AUG	733.1	64.3	39350	1757		
1982 087A	ETS 3	13492	JAPAN	3 SEP	107.2	44.6	1227	966		
1982 087B		13493	JAPAN	3 SEP	105.1	44.6	1008	992		
1982 087C		13510	JAPAN	3 SEP	107.1	44.6	1227	956		
1982 087D		14569	JAPAN	3 SEP	106.3	44.9	1146	963		
1982 092A	COSMOS 1408	13552	USSR	16 SEP	97.1	82.6	633	602		
1982 092B		13553	USSR	16 SEP	97.4	82.6	651	618		
1982 093A	EKRAN 9	13554	USSR	16 SEP	1436.5	7.4	35894	35696		

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1982 LAUNCHES (CONT.)										
1982 093F		14115	USSR	16 SEP	1422.3	7.3	35541	35489		
1982 095A	COSMOS 1409	13585	USSR	22 SEP	718.8	65.2	36649	3753		
1982 095D		13591	USSR	22 SEP	707.2	65.5	36854	2975		
1982 096A	COSMOS 1410	13589	USSR	24 SEP	115.9	82.6	1499	1490		
1982 096B		13590	USSR	24 SEP	115.8	82.6	1497	1488		
1982 097A	INTELSAT 5F 5	13595	ITSO	28 SEP	1436.1	1.3	35808	35766		
1982 097B		13599	US	28 SEP	125.3	24.3	3624	206		
1982 099A	COSMOS 1412	13600	USSR	2 OCT	103.9	64.8	994	891		
1982 099E		13653	USSR	2 OCT	103.6	64.8	961	893		
1982 100A	COSMOS 1413	13603	USSR	12 OCT	673.3	64.7	19072	19064		
1982 100D	COSMOS 1414	13606	USSR	12 OCT	675.7	64.6	19190	19067		
1982 100E	COSMOS 1415	13607	USSR	12 OCT	673.5	64.7	19074	19071		
1982 100F		13608	USSR	12 OCT	301.7	52.1	16807	236		
1982 100G		13609	USSR	12 OCT	315.7	52.2	17675	283		
1982 100H		13610	USSR	12 OCT	672.9	64.7	19075	19039		
1982 102A	COSMOS 1417	13617	USSR	19 OCT	104.7	83.0	1006	955		
1982 102B		13618	USSR	19 OCT	104.6	83.0	997	953		
1982 103A	GORIZONT 6	13624	USSR	20 OCT	1436.4	6.9	35799	35785		
1982 103E		13630	USSR	20 OCT	1435.2	6.9	35833	35705		
1982 105A	RCA SATCOM-V	13631	US	28 OCT	1436.1	0.1	35800	35771		
1982 106A		13636	US	30 OCT	1436.3	4.2	35807	35772		
1982 106B		13637	US	30 OCT	1436.1	1.0	35813	35761		
1982 106D		13643	US	30 OCT	1449.0	5.5	36201	35874		
1982 109A	COSMOS 1420	13648	USSR	11 NOV	100.6	74.0	802	771		
1982 109B		13649	USSR	11 NOV	100.5	74.0	795	766		
1982 109D		15528	USSR	11 NOV	100.5	74.0	791	770		
1982 110B	SBS 3	13651	US	11 NOV	1436.2	0.1	35798	35778		35*
1982 110C	ANIK C-3	13652	CANADA	12 NOV	1436.1	0.0	35799	35766		35*
1982 110D		13658	US	11 NOV	637.0	23.6	35942	346		
1982 110E		13666	US	11 NOV	635.8	23.4	35880	348		
1982 113A	RADUGA 11	13669	USSR	26 NOV	1473.8	6.4	36695	36349		
1982 113F		13954	USSR	26 NOV	1475.9	6.5	36650	36473		
1982 115B - 115AJ			USSR	8 DEC	SEE NOTE		36*			36*
1982 116A	METEOR 2-9	13718	USSR	14 DEC	101.8	81.2	883	803		
1982 116B		13719	USSR	14 DEC	101.9	81.3	896	797		
1982 116C		13720	USSR	14 DEC	101.8	81.2	883	804		
1982 116D		17755	USSR	14 DEC	101.9	81.3	896	797		
1982 118A		13736	US	21 DEC	101.0	98.7	814	801		
1982 118B		13737	US	21 DEC	97.2	98.6	624	621		
1982 118C		13738	US	21 DEC	99.3	98.6	729	724		
1982 118D		13773	US	21 DEC	95.9	98.6	565	560		
1982 118E		13774	US	21 DEC	97.5	98.5	639	636		
1983 LAUNCHES										
1983 001A	COSMOS 1428	13757	USSR	12 JAN	104.6	82.9	1000	950		
1983 001B		13758	USSR	12 JAN	104.5	82.9	990	951		
1983 001C		14568	USSR	12 JAN	103.7	82.9	952	910		
1983 002A	COSMOS 1429	13761	USSR	19 JAN	115.8	74.0	1516	1464		
1983 002B	COSMOS 1430	13762	USSR	19 JAN	115.6	74.0	1497	1465		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1983 LAUNCHES (CONT.)										
1983 002C	COSMOS 1431	13763	USSR	19 JAN	115.4	74.0	1481	1463		
1983 002D	COSMOS 1432	13764	USSR	19 JAN	115.2	74.0	1466	1461		
1983 002E	COSMOS 1433	13765	USSR	19 JAN	115.0	74.0	1466	1443		
1983 002F	COSMOS 1434	13766	USSR	19 JAN	114.8	74.0	1466	1428		
1983 002G	COSMOS 1435	13767	USSR	19 JAN	114.6	74.0	1466	1412		
1983 002H	COSMOS 1436	13768	USSR	19 JAN	114.5	74.0	1465	1396		
1983 002J		13769	USSR	19 JAN	117.9	74.0	1693	1476		
1983 003A	COSMOS 1437	13770	USSR	20 JAN	96.9	81.2	621	597		
1983 003B		13771	USSR	20 JAN	97.1	81.2	653	581		
1983 004A	IRAS	13777	US	26 JAN	102.9	99.0	903	885		
1983 004B		13778	US	26 JAN	102.3	100.1	883	851		
1983 004C		13783	US	26 JAN	102.8	99.0	900	885		
1983 006A	CS-2A	13782	JAPAN	4 FEB	1448.7	3.5	36071	35993		
1983 006B		13786	JAPAN	4 FEB	177.5	28.5	7939	228		
1983 009A		13791	US	9 FEB	ELEMENTS NOT AVAILABLE					
1983 009B		13792	US	9 FEB	ELEMENTS NOT AVAILABLE					
1983 009C		13834	US	9 FEB	ELEMENTS NOT AVAILABLE					
1983 009D		13835	US	9 FEB	ELEMENTS NOT AVAILABLE					
1983 009E		13844	US	9 FEB	ELEMENTS NOT AVAILABLE					
1983 009F		13845	US	9 FEB	ELEMENTS NOT AVAILABLE					
1983 009G		13849	US	9 FEB	ELEMENTS NOT AVAILABLE					
1983 009H		13874	US	9 FEB	ELEMENTS NOT AVAILABLE					
1983 010A	COSMOS 1441	13818	USSR	16 FEB	96.7	81.1	604	595		
1983 010B		13819	USSR	16 FEB	96.9	81.1	650	570		
1983 015A	MOLNIYA 3-20	13875	USSR	11 MAR	718.4	64.2	39102	1285		
1983 015E		13882	USSR	11 MAR	731.9	64.3	39697	1352		
1983 016A	EKRAN 10	13878	USSR	12 MAR	1515.4	7.8	37476	37172		
1983 016F		14086	USSR	12 MAR	1424.4	7.3	35624	35488		
1983 019A	MOLNIYA 1-56	13890	USSR	16 MAR	720.7	64.0	39235	1260		
1983 019D		13897	USSR	16 MAR	732.7	64.0	39693	1393		
1983 020A	ASTRON	13901	USSR	23 MAR	5915.8	79.8	178817	25128		
1983 020D		20413	USSR	23 MAR	5823.1	10.1	194765	6911		
1983 021A	COSMOS 1447	13916	USSR	24 MAR	104.7	82.9	1011	952		
1983 021B		13917	USSR	24 MAR	104.6	82.9	998	955		
1983 022A	NOAA 8	13923	US	28 MAR	101.0	98.5	820	795		
1983 022B		13924	US	28 MAR	97.4	98.6	641	629		
1983 022C		14477	US	28 MAR	95.5	98.6	551	533		
1983 023A	COSMOS 1448	13949	USSR	30 MAR	104.7	83.0	1002	955		
1983 023B		13950	USSR	30 MAR	104.6	83.0	1004	947		
1983 025A	MOLNIYA 1-57	13964	USSR	2 APR	717.9	64.0	38775	1584		
1983 025D		13967	USSR	2 APR	699.3	64.3	37652	1785		
1983 026B	TDRS 1	13969	US	4 APR	1436.2	5.1	35808	35769		
1983 026C		13970	US	4 APR	1089.7	3.4	35201	22197		
1983 026D		13971	US	4 APR	552.3	25.7	31556	286		
1983 028A	RADUGA 12	13974	USSR	8 APR	1436.4	6.1	35797	35786		
1983 028F		13983	USSR	8 APR	1439.5	6.1	35970	35736		
1983 030A	RCA SATCOM VI	13984	US	11 APR	1436.1	0.0	35791	35781		
1983 030B		13985	US	11 APR	117.7	25.4	2852	300		
1983 031A	COSMOS 1452	13991	USSR	12 APR	100.6	74.0	801	777		
1983 031B		13992	USSR	12 APR	100.5	74.0	797	779		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1983 LAUNCHES (CONT.)										
1983 031D		14812	USSR	12 APR	100.9	74.1	816	786		
1983 037A	COSMOS 1455	14032	USSR	23 APR	97.1	82.5	633	608		
1983 037B		14033	USSR	23 APR	97.4	82.5	649	622		
1983 038A	COSMOS 1456	14034	USSR	25 APR	717.6	66.9	36932	3411		
1983 038E		14041	USSR	25 APR	707.2	66.7	36633	3199		
1983 038H		14297	USSR	25 APR	718.0	66.8	39127	3676		
1983 038J		14301	USSR	25 APR	789.5	67.0	43591	246		
1983 038K		14306	USSR	25 APR	720.6	64.3	39697	795		
1983 041A	GOES 6	14050	US	28 APR	1436.0	2.9	35789	35781		
1983 041B		14051	US	28 APR	116.3	25.4	2623	406		
1983 041C		14069	US	28 APR	1707.5	8.7	49299	32587		
1983 042A	COSMOS 1459	14057	USSR	6 MAY	104.6	83.0	1013	940		
1983 042B		14059	USSR	6 MAY	104.5	83.0	1004	938		
1983 044A	COSMOS 1461	14064	USSR	7 MAY	98.8	65.0	830	576		
1983 044B - 044FQ			USSR	7 MAY	SEE NOTE		39*			39*
1983 046A	COSMOS 1463	14075	USSR	19 MAY	96.6	82.9	910	279		
1983 047A	INTELSAT 5 F-6	14077	ITSO	19 MAY	1436.1	0.3	35807	35769		
1983 048A	COSMOS 1464	14084	USSR	24 MAY	104.8	82.9	1004	962		
1983 048B		14085	USSR	24 MAY	104.7	82.9	998	958		
1983 051B		14096	US	25 MAY	119.1	72.3	2521	756		
1983 053A	VENERA 15	14104	USSR	2 JUN	HELIOCENTRIC ORBIT					
1983 054A	VENERA 16	14107	USSR	7 JUN	HELIOCENTRIC ORBIT					
1983 056A		14112	US	9 JUN	ELEMENTS NOT AVAILABLE					
1983 056B		14113	US	9 JUN	ELEMENTS NOT AVAILABLE					
1983 056C		14143	US	9 JUN	ELEMENTS NOT AVAILABLE					
1983 056D		14144	US	9 JUN	ELEMENTS NOT AVAILABLE					
1983 056E		14145	US	9 JUN	ELEMENTS NOT AVAILABLE					
1983 056F		14146	US	9 JUN	ELEMENTS NOT AVAILABLE					
1983 056G		14180	US	9 JUN	ELEMENTS NOT AVAILABLE					
1983 056H		14181	US	9 JUN	ELEMENTS NOT AVAILABLE					
1983 058A	ECS 1	14128	ESA	16 JUN	1436.1	1.5	35829	35742		
1983 058B	OSCAR 10	14129	FRG	16 JUN	699.5	25.8	35409	4040		
1983 058C		14130	ESA	16 JUN	351.1	8.5	19995	220		
1983 058F		17331	ESA	16 JUN	271.9	7.3	14698	349		
1983 059B	ANIK C2	14133	CANADA	18 JUN	1436.1	0.0	35800	35774		35*
1983 059C	PALAPA B1	14134	INDNSA	18 JUN	1436.2	0.9	35791	35785		35*
1983 059D		14135	US	18 JUN	611.1	23.1	34615	337		
1983 059E		14136	US	18 JUN	630.8	26.0	35646	327		
1983 060C		14139	US	20 JUN	ELEMENTS NOT AVAILABLE					
1983 061A	COSMOS 1470	14147	USSR	22 JUN	97.2	82.5	642	608		
1983 061B		14148	USSR	22 JUN	97.5	82.5	656	618		
1983 063A		14154	US	27 JUN	100.7	82.0	824	757		
1983 063B		14155	US	27 JUN	100.6	82.0	822	753		
1983 063C		14222	US	27 JUN	99.9	82.4	770	733		
1983 063D		14223	US	27 JUN	101.0	81.7	850	757		
1983 065A	GALAXY 1	14158	US	28 JUN	1436.0	0.3	35793	35781		
1983 065C		14168	US	28 JUN	321.6	23.3	18124	220		
1983 066A	GORIZONT 7	14160	USSR	30 JUN	1454.3	5.7	36380	36293		
1983 066E		14167	USSR	30 JUN	213.1	46.6	10665	213		
1983 066F		15141	USSR	30 JUN	1475.2	5.9	36604	36492		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1983 LAUNCHES (CONT.)										
1983 067A	PROGNOZ 9	14163	USSR	1 JUL	CURRENT ELEMENTS NOT MAINTAINED					
1983 069A	COSMOS 1473	14171	USSR	6 JUL	114.4	74.0	1460	1393		
1983 069B	COSMOS 1474	14172	USSR	6 JUL	114.6	74.0	1461	1409		
1983 069C	COSMOS 1475	14173	USSR	6 JUL	114.8	74.0	1461	1426		
1983 069D	COSMOS 1476	14174	USSR	6 JUL	114.9	74.0	1461	1443		
1983 069E	COSMOS 1477	14175	USSR	6 JUL	115.1	74.0	1462	1459		
1983 069F	COSMOS 1478	14176	USSR	6 JUL	115.3	74.0	1479	1460		
1983 069G	COSMOS 1479	14177	USSR	6 JUL	115.5	74.0	1497	1461		
1983 069H	COSMOS 1480	14178	USSR	6 JUL	115.8	74.0	1517	1461		
1983 069J		14179	USSR	6 JUL	117.4	74.0	1671	1459		
1983 070A	COSMOS 1481	14182	USSR	8 JUL	707.3	67.4	36249	3586		
1983 070D		14191	USSR	8 JUL	707.9	67.5	36191	3676		
1983 070E		14192	USSR	8 JUL	708.9	67.4	36335	3580		
1983 070F		20412	USSR	8 JUL	705.8	67.5	36835	2925		
1983 072A		14189	US	14 JUL	717.9	63.5	20562	19800		
1983 072B		14190	US	14 JUL	371.8	64.1	20307	1190		
1983 073A	MOLNIYA 1-58	14199	USSR	19 JUL	624.6	64.0	35092	558		
1983 075A	COSMOS 1484	14207	USSR	24 JUL	96.5	97.6	618	561		
1983 075B		14208	USSR	24 JUL	97.0	97.7	642	587		
1983 075C		14209	USSR	24 JUL	96.7	97.6	635	568		
1983 075D		14229	USSR	24 JUL	97.3	97.7	658	601		
1983 075E		14631	USSR	24 JUL	96.7	97.6	618	577		
1983 075F		14928	USSR	24 JUL	97.0	97.7	641	589		
1983 077A	TELSTAR 3A	14234	US	28 JUL	1436.1	0.0	35804	35770		
1983 077C		14236	US	28 JUL	241.2	22.7	12692	224		
1983 078A		14237	US	31 JUL	CURRENT ELEMENTS NOT MAINTAINED					
1983 078B		14238	US	31 JUL	CURRENT ELEMENTS NOT MAINTAINED					
1983 079A	COSMOS 1486	14240	USSR	3 AUG	100.6	74.1	797	776		
1983 079B		14241	USSR	3 AUG	100.5	74.1	794	771		
1983 079C		14344	USSR	3 AUG	100.8	74.1	812	780		
1983 079D		14413	USSR	3 AUG	100.9	74.0	818	786		
1983 079E		15756	USSR	3 AUG	100.1	74.1	774	754		
1983 081A	CS-2	14248	JAPAN	5 AUG	1457.3	2.8	36208	36194		
1983 081C		14287	JAPAN	5 AUG	128.7	28.4	3974	153		
1983 084A	COSMOS 1490	14258	USSR	10 AUG	675.7	64.8	19168	19090		
1983 084B	COSMOS 1491	14259	USSR	10 AUG	668.4	64.7	19078	18811		
1983 084C	COSMOS 1492	14260	USSR	10 AUG	676.8	64.8	19161	19152		
1983 084F		14264	USSR	10 AUG	676.3	64.8	19157	19129		
1983 084G		14277	USSR	10 AUG	330.2	52.0	18517	376		
1983 084H		14278	USSR	10 AUG	329.2	52.1	18472	356		
1983 088A	RADUGA 13	14307	USSR	25 AUG	1466.9	5.7	36444	36328		
1983 088F		14333	USSR	25 AUG	1475.2	5.9	36624	36472		
1983 089B	INSAT 1B	14318	INDIA	31 AUG	1436.1	1.4	35819	35753		
1983 089C		14524	US	31 AUG	577.1	24.4	32907	256		
1983 090A	MOLNIYA 3-21	14313	USSR	30 AUG	716.8	64.5	38834	1471		
1983 090D		14317	USSR	30 AUG	731.3	64.5	39634	1385		
1983 091C - 091AC			USSR	31 AUG	SEE NOTE 38*					38*
1983 094A	RCA SATCOM VII	14329	US	8 SEP	1436.2	0.1	35799	35777		
1983 094B		14327	US	8 SEP	115.5	25.5	2667	285		
1983 099A	GALAXY 2	14365	US	22 SEP	1436.1	0.0	35796	35788		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1983 LAUNCHES (CONT.)										
1983 099A	COSMOS 1500	14372	USSR	28 SEP	97.1	82.5	636	607		
1983 099B		14373	USSR	28 SEP	97.4	82.5	652	620		
1983 100A	EKRAN 11	14377	USSR	30 SEP	1436.0	6.4	35793	35774		
1983 100F		14394	USSR	30 SEP	1425.0	6.4	35654	35483		
1983 103A	COSMOS 1503	14401	USSR	12 OCT	100.7	74.0	801	782		
1983 103B		14402	USSR	12 OCT	100.6	74.0	805	764		
1983 105A	INTELSAT 5 F-7	14421	ITSO	19 OCT	1436.1	0.6	35800	35775		
1983 108A	COSMOS 1506	14450	USSR	26 OCT	104.7	82.9	1008	947		
1983 108B		14451	USSR	26 OCT	104.5	82.9	998	947		
1983 109A	METEOR 2-10	14452	USSR	28 OCT	101.1	81.2	879	743		
1983 109B		14453	USSR	28 OCT	101.2	81.2	892	737		
1983 109C		14454	USSR	28 OCT	101.1	81.2	881	740		
1983 111A	COSMOS 1508	14483	USSR	11 NOV	107.6	82.9	1835	394		
1983 111B		14484	USSR	11 NOV	106.0	82.9	1712	371		
1983 113A		14506	US	18 NOV	101.2	98.4	821	804		
1983 113B		14553	US	18 NOV	97.2	98.6	629	620		
1983 113C		14554	US	18 NOV	97.5	98.6	642	634		
1983 113D		14609	US	18 NOV	98.7	98.6	701	693		
1983 113E		14610	US	18 NOV	99.6	98.6	743	732		
1983 114A	MOLNIYA 1-59	14515	USSR	23 NOV	719.0	64.2	39039	1375		
1983 114D		14520	USSR	23 NOV	699.2	64.4	37898	1534		
1983 115A	COSMOS 1510	14521	USSR	24 NOV	116.0	73.6	1522	1479		
1983 115B		14522	USSR	24 NOV	115.9	73.6	1518	1477		
1983 118A	GORIZONT 8	14532	USSR	30 NOV	1465.4	5.3	36482	36233		
1983 118F		14548	USSR	30 NOV	1435.8	5.3	35973	35589		
1983 120A	COSMOS 1513	14546	USSR	8 DEC	104.8	82.9	1014	955		
1983 120B		14547	USSR	8 DEC	104.6	82.9	1009	940		
1983 122A	COSMOS 1515	14551	USSR	15 DEC	97.2	82.5	634	611		
1983 122B		14552	USSR	15 DEC	97.5	82.5	649	624		
1983 123A	MOLNIYA 3-22	14570	USSR	21 DEC	717.8	65.2	38676	1679		
1983 123D		14582	USSR	21 DEC	732.4	65.0	39427	1647		
1983 125A	COSMOS 1518	14587	USSR	28 DEC	714.1	67.0	36802	3369		
1983 125D		14596	USSR	28 DEC	705.5	66.9	36490	3255		
1983 127A	COSMOS 1519	14590	USSR	29 DEC	675.7	66.2	19184	19074		
1983 127B	COSMOS 1520	14591	USSR	29 DEC	675.7	66.2	19147	19111		
1983 127C	COSMOS 1521	14592	USSR	29 DEC	673.4	66.2	19150	18991		
1983 127F		14595	USSR	29 DEC	673.1	66.2	19149	18976		
1983 127G		14607	USSR	29 DEC	328.4	52.0	18396	382		
1983 127H		14603	USSR	29 DEC	333.5	51.6	18770	334		
1984 LAUNCHES										
1984 001A	COSMOS 1522	14611	USSR	5 JAN	115.4	74.0	1490	1459		
1984 001B	COSMOS 1522	14612	USSR	5 JAN	114.4	74.0	1459	1395		
1984 001C	COSMOS 1524	14613	USSR	5 JAN	114.6	74.0	1459	1410		
1984 001D	COSMOS 1525	14614	USSR	5 JAN	114.7	74.0	1459	1426		
1984 001E	COSMOS 1526	14615	USSR	5 JAN	114.9	74.0	1459	1441		
1984 001F	COSMOS 1527	14616	USSR	5 JAN	115.1	74.0	1459	1457		
1984 001G	COSMOS 1528	14617	USSR	5 JAN	115.3	74.0	1475	1458		
1984 001H	COSMOS 1529	14618	USSR	5 JAN	115.6	74.0	1509	1459		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1984 LAUNCHES (CONT.)										
1984 001J		14619	USSR	5 JAN	117.5	74.0	1670	1468		
1984 003A	COSMOS 1531	14624	USSR	11 JAN	105.0	82.9	1006	977		
1984 003B		14625	USSR	11 JAN	104.8	82.9	1002	967		
1984 005A	BS-2A	14659	JAPAN	23 JAN	1453.7	2.6	36182	36079		
1984 008A	PRC 14	14670	PRC	29 JAN	162.6	36.1	6518	465		
1984 009A		14675	US	31 JAN	CURRENT ELEMENTS NOT MAINTAINED					
1984 009C		14677	US	31 JAN	ELEMENTS NOT AVAILABLE					
1984 010A	COSMOS 1535	14679	USSR	2 FEB	104.7	83.0	1012	952		
1984 010B		14680	USSR	2 FEB	104.6	83.0	1004	949		
1984 011E		14693	US	6 FEB	96.8	28.2	940	271		
1984 011F		14694	US	3 FEB	98.6	27.7	1076	302		
1984 012A		14690	US	5 FEB	ELEMENTS NOT AVAILABLE					
1984 012B		14691	US	5 FEB	ELEMENTS NOT AVAILABLE					
1984 012C		14728	US	5 FEB	ELEMENTS NOT AVAILABLE					
1984 012D		14729	US	5 FEB	ELEMENTS NOT AVAILABLE					
1984 012F		14795	US	5 FEB	ELEMENTS NOT AVAILABLE					
1984 012J		15347	US	5 FEB	ELEMENTS NOT AVAILABLE					
1984 012K		15348	US	5 FEB	ELEMENTS NOT AVAILABLE					
1984 012L		15349	US	5 FEB	ELEMENTS NOT AVAILABLE					
1984 013A	COSMOS 1536	14699	USSR	8 FEB	97.2	82.5	641	609		
1984 013B		14700	USSR	8 FEB	97.5	82.5	654	619		
1984 016A	RADUGA 14	14725	USSR	15 FEB	1435.8	5.3	35797	35763		
1984 016F		17474	USSR	15 FEB	1436.3	5.3	35945	35634		
1984 019A	COSMOS 1538	14759	USSR	21 FEB	100.6	74.0	801	772		
1984 019B		14760	USSR	21 FEB	100.5	74.0	803	764		
1984 019C		15785	USSR	21 FEB	100.3	74.0	781	764		
1984 019D		18519	USSR	21 FEB	100.3	74.1	783	762		
1984 021A	LANDSAT 5	14780	US	1 MAR	98.7	98.2	700	699		
1984 021B	UOSAT 2	14781	UK	1 MAR	98.1	97.9	678	659		
1984 021C		14782	US	1 MAR	93.7	100.0	498	411		
1984 022A	COSMOS 1540	14783	USSR	2 MAR	1436.1	5.8	35827	35746		
1984 022F		14948	USSR	2 MAR	1442.0	6.0	36005	35798		
1984 023A	INTELSAT 5 F-8	14796	ITSO	5 MAR	1436.1	0.0	35807	35768		
1984 023B		14787	ESA	5 MAR	554.3	11.0	31648	298		
1984 024A	COSMOS 1541	14790	USSR	6 MAR	717.5	64.8	36804	3535		
1984 024D		14796	USSR	6 MAR	709.7	64.9	36467	3488		
1984 027A	COSMOS 1544	14819	USSR	15 MAR	97.1	82.5	634	606		
1984 027B		14820	USSR	15 MAR	97.4	82.5	650	621		
1984 028A	EKRAN 12	14821	USSR	16 MAR	1499.1	6.7	37066	36956		
1984 029D		14828	USSR	16 MAR	624.7	46.6	35418	238		
1984 029F		15139	USSR	16 MAR	1419.8	6.5	35542	35390		
1984 029A	MOLNIYA 1-60	14825	USSR	16 MAR	717.3	64.8	38716	1616		
1984 029D		14830	USSR	16 MAR	730.9	65.0	39250	1751		
1984 031A	COSMOS 1545	14867	USSR	20 MAR	1436.3	5.2	35874	35708		
1984 031D		14887	USSR	20 MAR	566.9	45.3	32280	345		
1984 031F		14951	USSR	20 MAR	1448.3	5.2	36092	35958		
1984 033A	COSMOS 1547	14884	USSR	4 APR	716.7	67.7	36976	3327		
1984 033D		14894	USSR	4 APR	706.6	67.4	36565	3236		
1984 035A	PRC 15	14899	PRC	8 APR	1436.1	3.8	35821	35751		
1984 035B		14900	PRC	8 APR	625.5	30.2	35277	421		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1984 LAUNCHES (CONT.)										
1984 037A		14930	US	14 APR	ELEMENTS NOT AVAILABLE					
1984 037B		14931	US	14 APR	ELEMENTS NOT AVAILABLE					
1984 041A	GORIZONT 9	14940	USSR	22 APR	1436.2	5.0	35809	35768		
1984 041D		14943	USSR	22 APR	1460.1	5.1	36333	36175		
1984 041E		14944	USSR	22 APR	471.0	49.1	26940	408		
1984 043A	COSMOS 1550	14965	USSR	11 MAY	104.9	83.0	1003	970		
1984 043B		14966	USSR	11 MAY	104.8	83.0	997	972		
1984 046A	COSMOS 1553	14973	USSR	17 MAY	104.7	82.9	1005	956		
1984 046B		14974	USSR	17 MAY	104.6	82.9	1009	941		
1984 047A	COSMOS 1554	14977	USSR	19 MAY	675.7	66.2	19168	19090		
1984 047B	COSMOS 1555	14978	USSR	19 MAY	675.7	66.2	19154	19104		
1984 047C	COSMOS 1556	14979	USSR	19 MAY	676.3	66.2	19158	19130		
1984 047F		14984	USSR	19 MAY	675.5	66.2	19170	19079		
1984 047G		15053	USSR	19 MAY	334.9	52.0	18891	293		
1984 047H		15054	USSR	19 MAY	319.1	51.9	17906	273		
1984 049A	SPACENET 1	14985	US	23 MAY	1436.1	0.0	35795	35779		
1984 052A	COSMOS 1559	14998	USSR	28 MAY	115.7	74.0	1509	1469		
1984 052B	COSMOS 1560	14999	USSR	28 MAY	115.5	74.0	1489	1468		
1984 052C	COSMOS 1561	15000	USSR	28 MAY	115.4	74.0	1483	1460		
1984 052D	COSMOS 1562	15001	USSR	28 MAY	115.2	74.0	1475	1451		
1984 052E	COSMOS 1563	15002	USSR	28 MAY	115.0	74.0	1474	1436		
1984 052F	COSMOS 1564	15003	USSR	28 MAY	114.8	74.0	1474	1422		
1984 052G	COSMOS 1565	15004	USSR	28 MAY	114.7	74.0	1474	1406		
1984 052H	COSMOS 1566	15005	USSR	28 MAY	114.5	74.0	1473	1391		
1984 052J		15006	USSR	28 MAY	117.7	74.0	1677	1473		
1984 055A	COSMOS 1569	15027	USSR	6 JUN	717.6	65.9	36939	3405		
1984 055D		15030	USSR	6 JUN	706.9	65.2	36571	3244		
1984 056A	COSMOS 1570	15031	USSR	8 JUN	100.7	74.1	802	783		
1984 056B		15032	USSR	8 JUN	100.6	74.1	800	773		
1984 056C		15033	USSR	8 JUN	100.9	74.1	813	788		
1984 056D		15757	USSR	8 JUN	95.7	74.0	553	552		
1984 059A		15039	US	13 JUN	718.0	63.3	20257	20106		
1984 059B		15040	US	13 JUN	366.7	62.5	20741	442		
1984 062A	COSMOS 1574	15055	USSR	21 JUN	104.8	83.0	1003	965		
1984 062B		15056	USSR	21 JUN	104.7	83.0	996	960		
1984 063A	RADUGA 15	15057	USSR	22 JUN	1435.6	5.0	35803	35752		
1984 063E		15076	USSR	22 JUN	395.0	46.9	22669	239		
1984 063F		15693	USSR	22 JUN	1394.1	4.8	35035	34887		
1984 065C		15071	US	25 JUN	ELEMENTS NOT AVAILABLE					
1984 067A	COSMOS 1577	15077	USSR	27 JUN	104.7	83.0	1005	955		
1984 067B		15078	USSR	27 JUN	104.6	83.0	992	957		
1984 068A	COSMOS 1578	15080	USSR	28 JUN	97.3	50.7	985	277		
1984 069A	COSMOS 1579	15085	USSR	29 JUN	103.9	65.0	969	917		
1984 069D		15330	USSR	29 JUN	103.6	65.0	942	914		
1984 069E		19453	USSR	29 JUN	102.9	65.8	957	834		
1984 071A	COSMOS 1581	15095	USSR	3 JUL	721.1	67.8	37144	3374		
1984 071D		15098	USSR	3 JUL	705.7	67.6	36631	3124		
1984 072A	METEOR 2-11	15099	USSR	5 JUL	104.0	82.5	955	938		
1984 072B		15100	USSR	5 JUL	104.0	82.5	955	938		
1984 079A	GORIZONT 10	15144	USSR	1 AUG	1434.7	4.7	35764	35754		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1984 LAUNCHES (CONT.)										
1984 078F		15181	USSR	1 AUG	1383.2	4.6	57052	12438		
1984 079A	COSMOS 1586	15147	USSR	2 AUG	717.4	64.6	37008	3328		
1984 079D		15156	USSR	2 AUG	705.8	64.7	36550	3209		
1984 080A	GMS 3	15152	JAPAN	2 AUG	1436.2	2.5	35804	35774		
1984 080C		15157	JAPAN	2 AUG	261.9	28.8	14142	220		
1984 081A	ECS 2	15158	ESA	4 AUG	1436.2	0.4	37167	34411		
1984 081B	TELECOM 1A	15159	FRANCE	4 AUG	1436.1	0.5	35791	35783		
1984 081D		15165	ESA	4 AUG	598.5	5.9	33692	601		
1984 081E		20674	ESA	4 AUG	600.6	5.8	33714	691		
1984 083B - 083AX			USSR	7 AUG	SEE NOTE		41*			41*
1984 084A	COSMOS 1589	15171	USSR	8 AUG	115.9	82.6	1500	1489		
1984 084B		15172	USSR	8 AUG	115.8	82.6	1499	1487		
1984 085A	MOLNIYA 1-61	15182	USSR	10 AUG	715.8	64.2	39313	940		
1984 085D		15188	USSR	10 AUG	731.0	64.4	40045	956		
1984 088A	CCE	15199	US	16 AUG	939.5	2.9	49661	1131		
1984 088B	IRM	15200	FRG	16 AUG	2653.4	27.0	113818	402		
1984 088C	UKS	15201	UK	16 AUG	2659.6	25.9	113417	1002		
1984 088D		15202	US	16 AUG	134.0	28.9	4043	548		
1984 088E		15205	US	16 AUG	133.2	28.7	3966	553		
1984 088F		15206	US	16 AUG	921.7	27.0	49267	723		
1984 088G		19078	US	16 AUG	132.2	28.7	3890	548		
1984 088H		19599	US	16 AUG	133.2	28.7	3971	552		
1984 089A	MOLNIYA 1-62	15214	USSR	24 AUG	735.2	63.8	39493	1718		
1984 089D		15223	USSR	24 AUG	739.0	63.9	39214	2180		
1984 090A	EKRAN 13	15219	USSR	24 AUG	1499.7	5.9	37095	36949		
1984 090F		17875	USSR	24 AUG	1422.0	5.6	35601	35419		
1984 091A		15226	US	28 AUG	ELEMENTS NOT AVAILABLE					
1984 091B		15227	US	28 AUG	ELEMENTS NOT AVAILABLE					
1984 093B	SBS 4	15235	US	31 AUG	1436.1	0.0	35800	35775		35*
1984 093C	SYNCOM IV-2	15236	US	31 AUG	1436.2	2.5	35794	35782		35*
1984 093D	TELSTAR 3C	15237	US	1 SEP	1436.2	0.1	35793	35783		35*
1984 093E		15244	US	31 AUG	263.7	27.2	14156	329		
1984 093F		15245	US	31 AUG	504.9	22.5	34255	371		
1984 093G		15246	US	1 SEP	650.0	24.7	36598	359		
1984 095A	COSMOS 1593	15259	USSR	4 SEP	675.7	64.8	19176	19082		
1984 095B		15260	USSR	4 SEP	677.2	64.7	19190	19142		
1984 095C		15261	USSR	4 SEP	675.7	64.7	19175	19083		
1984 095F		15264	USSR	4 SEP	675.9	64.7	19172	19096		
1984 095G		15265	USSR	4 SEP	329.7	52.1	18514	344		
1984 095H		15266	USSR	4 SEP	332.5	52.0	18692	350		
1984 096A	COSMOS 1596	15267	USSR	7 SEP	718.0	67.3	37033	3331		
1984 096D		15270	USSR	7 SEP	703.2	67.3	36553	3079		
1984 097A		15271	US	8 SEP	718.0	63.5	20411	19952		
1984 097B		15272	US	8 SEP	369.2	63.9	20404	934		
1984 100A	COSMOS 1598	15292	USSR	13 SEP	1436.0	0.0	35793	35788		
1984 100B		15293	USSR	13 SEP	104.8	82.9	1001	965		
1984 101A	GALAXY 3	15303	US	21 SEP	1436.2	0.1	35794	35782		
1984 104B - 104AF			USSR	27 SEP	SEE NOTE		40*			40*
1984 105A	COSMOS 1602	15331	USSR	28 SEP	97.2	82.5	643	608		
1984 105B		15332	USSR	28 SEP	97.5	82.5	655	619		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1984 LAUNCHES (CONT.)										
1984 106A	COSMOS 1603	15333	USSR	28 SEP	101.9	71.0	868	828		
1984 106C		15335	USSR	28 SEP	101.5	66.6	839	815		
1984 106F		15338	USSR	28 SEP	101.7	66.6	843	837		
1984 106G		17358	USSR	28 SEP	101.9	71.0	850	844		
1984 107A	COSMOS 1604	15350	USSR	4 OCT	718.9	66.6	36875	3535		
1984 107D		15355	USSR	4 OCT	708.1	66.8	36520	3356		
1984 108B	ERBS	15354	US	5 OCT	96.5	56.9	595	586		
1984 109A	COSMOS 1605	15359	USSR	11 OCT	104.7	82.9	1014	947		
1984 109B		15360	USSR	11 OCT	104.6	82.9	1008	945		
1984 110A		15362	US	12 OCT	108.9	89.9	1197	1151		
1984 111A	COSMOS 1606	15369	USSR	18 OCT	97.2	82.5	637	606		
1984 111B		15370	USSR	18 OCT	97.4	82.5	652	618		
1984 112A	COSMOS 1607	15378	USSR	31 OCT	104.1	65.0	994	907		
1984 112C		15503	USSR	31 OCT	103.8	65.0	968	904		
1984 113B	ANIK D2	15383	CANADA	9 NOV	1436.1	0.0	35798	35776		35*
1984 113C	SYNCOM IV-1	15384	US	10 NOV	1436.1	1.8	36102	35470		35*
1984 113D		15387	US	9 NOV	622.5	25.6	35204	339		
1984 113E		15390	US	10 NOV	263.7	27.1	14154	329		
1984 114A	SPACENET 2	15385	US	10 NOV	1436.0	0.0	35788	35782		
1984 114B	MARECS B2	15386	ESA	10 NOV	1436.0	2.0	35799	35774		
1984 114C		15388	ESA	10 NOV	611.4	7.7	34618	346		
1984 115A	NATO III-D	15391	NATO	14 NOV	1437.0	0.5	35815	35793		
1984 115B		15392	US	14 NOV	115.9	21.5	2315	675		
1984 115C		15402	US	14 NOV	638.7	22.9	35934	443		
1984 118A	COSMOS 1610	15398	USSR	15 NOV	104.8	82.9	1009	963		
1984 118B		15399	USSR	15 NOV	104.7	82.9	1002	955		
1984 122A		15423	US	4 DEC	ELEMENTS NOT AVAILABLE					
1984 123A	NOAA 9	15427	US	12 DEC	101.9	99.1	859	839		
1984 123B		15440	US	12 DEC	99.8	99.0	755	744		
1984 123C		15441	US	12 DEC	99.1	99.0	722	710		
1984 124A	MOLNIYA 1-63	15429	USSR	14 DEC	717.2	63.3	38663	1663		
1984 124H		15439	USSR	14 DEC	733.4	63.6	39201	1921		
1984 125A	VEGA 1	15432	USSR	15 DEC	HELIOCENTRIC ORBIT					
1984 125D		15447	USSR	15 DEC	HELIOCENTRIC ORBIT					
1984 128A	VEGA 2	15449	USSR	21 DEC	HELIOCENTRIC ORBIT					
1984 128B		15450	USSR	21 DEC	HELIOCENTRIC ORBIT					
1984 129A		15453	US	22 DEC	ELEMENTS NOT AVAILABLE					
1984 129B		15454	US	22 DEC	ELEMENTS NOT AVAILABLE					
1985 LAUNCHES										
1985 001A	MS-T5	15464	JAPAN	7 JAN	HELIOCENTRIC ORBIT					
1985 001B		15465	JAPAN	7 JAN	HELIOCENTRIC ORBIT					
1985 003A	COSMOS 1617	15469	USSR	15 JAN	114.0	82.6	1412	1409		
1985 003B	COSMOS 1618	15470	USSR	15 JAN	114.0	82.6	1410	1405		
1985 003C	COSMOS 1619	15471	USSR	15 JAN	113.7	82.6	1410	1381		
1985 003D	COSMOS 1620	15472	USSR	15 JAN	113.8	82.6	1410	1388		
1985 003E	COSMOS 1621	15473	USSR	15 JAN	113.8	82.6	1410	1393		
1985 003F	COSMOS 1622	15474	USSR	15 JAN	113.9	82.6	1410	1398		
1985 003G		15475	USSR	15 JAN	114.7	82.6	1469	1411		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1985 LAUNCHES (CONT.)										
1985 004A	MOLNIYA 3-23	15476	USSR	16 JAN	717.8	64.8	38721	1633		
1985 004D		15481	USSR	16 JAN	731.7	65.1	39331	1709		
1985 006A	COSMOS 1624	15482	USSR	17 JAN	100.7	74.0	800	778		
1985 006B		15483	USSR	17 JAN	100.5	74.0	797	767		
1985 006C		15490	USSR	17 JAN	100.5	74.0	783	779		
1985 006D		15491	USSR	17 JAN	100.9	74.0	815	785		
1985 007A	GORIZONT 11	15484	USSR	18 JAN	1436.1	4.3	35807	35767		
1985 007D		15487	USSR	18 JAN	1397.7	4.1	35098	34966		
1985 007F		15489	USSR	19 JAN	455.5	46.7	26292	174		
1985 009A	COSMOS 1626	15494	USSR	24 JAN	97.1	82.5	636	603		
1985 009B		15495	USSR	24 JAN	97.4	82.5	652	617		
1985 010B		15543	US	24 JAN	ELEMENTS NOT AVAILABLE					35*
1985 010C		15544	US	24 JAN	ELEMENTS NOT AVAILABLE					
1985 010D		15545	US	24 JAN	ELEMENTS NOT AVAILABLE					
1985 011A	COSMOS 1627	15505	USSR	1 FEB	104.8	82.9	1015	952		
1985 011B		15506	USSR	1 FEB	104.7	82.9	1005	952		
1985 013A	METEOR 2-12	15516	USSR	6 FEB	103.9	82.5	958	931		
1985 013B		15517	USSR	6 FEB	103.9	82.5	957	933		
1985 014A		15546	US	8 FEB	ELEMENTS NOT AVAILABLE					
1985 014B		15547	US	8 FEB	ELEMENTS NOT AVAILABLE					
1985 015A	ARABSAT 1	15560	SA	8 FEB	1436.1	0.3	35808	35765		
1985 015B	SBTS 1	15561	BRAZIL	8 FEB	1436.2	0.0	35796	35781		
1985 015C		15562	ESA	8 FEB	591.6	7.0	33594	337		
1985 016A	COSMOS 1629	15574	USSR	21 FEB	1436.5	4.4	35811	35775		
1985 016F		15581	USSR	21 FEB	1448.6	4.4	36137	35924		
1985 020A	COSMOS 1633	15592	USSR	5 MAR	97.1	82.5	629	609		
1985 021A	GEOSAT	15595	US	13 MAR	100.5	108.1	782	779		
1985 021B		15596	US	13 MAR	100.3	108.0	799	750		
1985 021C		15613	US	13 MAR	97.4	108.5	660	603		
1985 021D		15614	US	13 MAR	99.6	108.2	755	722		
1985 021E		15615	US	13 MAR	100.5	107.8	824	744		
1985 021F		15616	US	13 MAR	100.8	107.5	873	715		
1985 022A	COSMOS 1634	15597	USSR	14 MAR	104.7	82.9	1007	956		
1985 022B		15598	USSR	14 MAR	104.6	82.9	992	960		
1985 023A	COSMOS 1635	15617	USSR	21 MAR	115.8	74.1	1510	1472		
1985 023B	COSMOS 1636	15618	USSR	21 MAR	115.6	74.1	1492	1472		
1985 023C	COSMOS 1637	15619	USSR	21 MAR	115.4	74.1	1486	1463		
1985 023D	COSMOS 1638	15620	USSR	21 MAR	115.2	74.1	1478	1454		
1985 023E	COSMOS 1639	15621	USSR	21 MAR	115.1	74.1	1478	1439		
1985 023F	COSMOS 1640	15622	USSR	21 MAR	114.9	74.1	1477	1425		
1985 023G	COSMOS 1641	15623	USSR	21 MAR	114.8	74.1	1477	1410		
1985 023H	COSMOS 1642	15624	USSR	21 MAR	114.6	74.1	1476	1396		
1985 023J		15625	USSR	21 MAR	118.0	74.1	1709	1474		
1985 024A	EKRAN 14	15626	USSR	22 MAR	1519.1	5.4	37455	37335		
1985 024D		15630	USSR	22 MAR	1422.6	5.1	35589	35455		
1985 025A	INTELSAT VF10	15629	ITSO	22 MAR	1436.1	0.0	35808	35768		
1985 025B		15631	US	22 MAR	424.5	23.2	24429	236		
1985 028B	ANIK C1	15642	CANADA	13 APR	1436.1	0.0	35798	35776		35*
1985 028C	SYNCOM IV-3	15643	US	12 APR	1436.0	1.8	35808	35763		35*
1985 028D		15644	US	13 APR	600.9	23.0	34044	374		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1985 LAUNCHES (CONT.)										
1985 028E		16229	US	12 APR	277.7	27.0	15124	321		
1985 030D - 030AA			USSR	18 APR	SEE NOTE		43*			43*
1985 033A	PROGNOZ 10	15651	USSR	26 APR	5783.7	76.8	194734	5975		
1985 033D		15654	USSR	26 APR	5794.8	65.0	200315	420		
1985 035A	GSTAR 1	15677	US	8 MAY	1436.0	0.0	35791	35781		
1985 035B	TELECOM 1B	15678	FRANCE	8 MAY	1437.4	3.0	35820	35801		
1985 035C		15679	ESA	8 MAY	519.8	6.6	29816	257		
1985 035D		15680	ESA	8 MAY	304.5	6.7	16481	748		
1985 037A	COSMOS 1650	15697	USSR	17 MAY	675.7	64.8	19177	19081		
1985 037B	COSMOS 1651	15698	USSR	17 MAY	675.6	64.8	19145	19110		
1985 037C	COSMOS 1652	15699	USSR	17 MAY	675.8	64.8	19151	19113		
1985 037F		15702	USSR	17 MAY	675.0	64.8	19167	19056		
1985 037G		15714	USSR	17 MAY	335.1	51.8	18870	333		
1985 037H		15715	USSR	17 MAY	332.6	51.9	18740	308		
1985 040A	MOLNIYA 3-24	15738	USSR	29 MAY	717.9	63.7	39217	1144		
1985 040D		15741	USSR	29 MAY	732.2	63.6	39519	1546		
1985 041A	COSMOS 1655	15751	USSR	30 MAY	105.0	82.9	1012	974		
1985 041J		15752	USSR	30 MAY	104.9	82.9	1006	971		
1985 042A	COSMOS 1656	15755	USSR	30 MAY	101.5	71.1	855	801		
1985 042D		15772	USSR	30 MAY	101.5	71.1	855	800		
1985 042E		15773	USSR	30 MAY	101.2	66.6	841	784		
1985 042F		15774	USSR	30 MAY	101.3	66.6	840	797		
1985 042G		18764	USSR	30 MAY	100.2	66.6	843	692		
1985 042H		18765	USSR	30 MAY	101.4	66.6	833	818		
1985 042J		18766	USSR	30 MAY	102.8	66.6	948	836		
1985 042K		18767	USSR	30 MAY	104.5	66.6	1100	840		
1985 042L		18819	USSR	30 MAY	102.3	66.6	910	827		
1985 045A	COSMOS 1658	15808	USSR	11 JUN	717.1	65.4	37438	2884		
1985 045D		15811	USSR	11 JUN	709.3	65.8	36979	2954		
1985 047A	COSMOS 1660	15821	USSR	14 JUN	116.0	73.6	1523	1480		
1985 047B		15822	USSR	14 JUN	116.0	73.6	1518	1479		
1985 048B	MORELOS A	15824	MEXICO	17 JUN	1436.1	0.0	35813	35755		35*
1985 048C	ARABSAT 1B	15825	SA	18 JUN	1436.1	0.0	35824	35747		35*
1985 048D	TELSTAR 3D	15826	US	19 JUN	1436.1	0.0	35792	35782		35*
1985 048F		15832	US	17 JUN	629.0	25.1	35542	335		
1985 048G		15836	US	18 JUN	622.1	26.5	35145	375		
1985 048H		15837	US	18 JUN	654.5	25.6	36754	430		
1985 049A	COSMOS 1661	15827	USSR	18 JUN	717.1	66.5	37243	3078		
1985 049D		15830	USSR	18 JUN	724.9	67.0	37712	2987		
1985 055A	INTELSAT VA F11	15873	ITSO	30 JUN	1436.1	0.0	35813	35763		
1985 055B		15874	US	30 JUN	561.6	23.4	32041	299		
1985 056A	GIOTTO	15875	ESA	2 JUL	HELIOCENTRIC ORBIT					
1985 056B		15876	ESA	2 JUL	498.2	8.1	28592	288		
1985 056C		17255	ESA	2 JUL	598.8	8.5	33993	314		
1985 056D		17325	ESA	2 JUL	573.1	7.3	32666	289		
1985 056E		17332	ESA	2 JUL	461.9	8.1	26443	387		
1985 058A	COSMOS 1666	15889	USSR	8 JUL	97.2	82.5	637	608		
1985 058B		15890	USSR	8 JUL	97.5	82.5	652	621		
1985 058C		19241	USSR	8 JUL	97.0	82.5	628	598		
1985 061A	MOLNIYA 3-25	15909	USSR	17 JUL	717.8	64.4	39547	806		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1985 LAUNCHES (CONT.)										
1985 061D		15916	USSR	17 JUL	737.8	64.3	40614	725		
1985 064A	COSMOS 1670	15930	USSR	1 AUG	104.1	64.9	1001	899		
1985 066A	NNSS 30309	15935	US	3 AUG	107.9	89.9	1256	1000		
1985 066B	NNSS 30240	15936	US	3 AUG	107.9	89.9	1258	999		
1985 066C		15938	US	3 AUG	107.9	89.9	1260	997		
1985 066D		15950	US	3 AUG	107.0	89.9	1208	969		
1985 066E		15951	US	3 AUG	107.1	89.9	1213	975		
1985 066F		16020	US	3 AUG	107.6	90.2	1222	1004		
1985 066G		17164	US	3 AUG	108.2	89.3	1297	988		
1985 069A	COSMOS 1674	15944	USSR	8 AUG	97.1	82.5	637	605		
1985 069B		15945	USSR	8 AUG	97.4	82.5	652	618		
1985 070A	RADUGA 16	15946	USSR	8 AUG	1436.8	4.0	35809	35790		
1985 070F		15953	USSR	8 AUG	1472.4	4.1	36549	36438		
1985 071A	COSMOS 1675	15952	USSR	12 AUG	717.7	67.5	37727	2622		
1985 071D		15955	USSR	12 AUG	708.2	67.4	37255	2626		
1985 073A	PLANET A	15957	JAPAN	18 AUG	HELIOCENTRIC ORBIT					
1985 073C		15959	JAPAN	18 AUG	HELIOCENTRIC ORBIT					
1985 074A	MOLNIYA 1-64	15977	USSR	22 AUG	717.8	64.9	39220	1133		
1985 074D		15983	USSR	22 AUG	732.4	65.2	39941	1131		
1985 075A	COSMOS 1677	15986	USSR	23 AUG	103.9	64.7	996	886		
1985 076B	AUSSAT 1	15993	AUSTRL	27 AUG	1436.2	0.0	35796	35778		35*
1985 076C	ASC 1	15994	US	27 AUG	1436.1	0.1	35798	35774		35*
1985 076D	SYNCOM IV-4	15995	US	29 AUG	1438.1	1.1	35847	35806		35*
1985 076E		15996	US	27 AUG	633.6	26.5	35722	394		
1985 076F		16091	US	29 AUG	279.7	27.4	15191	385		
1985 076G		16097	US	29 AUG	631.8	27.1	35621	402		
1985 077K		16389	USSR	29 AUG	104.8	71.0	1126	842		
1985 077K		19608	USSR	29 AUG	100.4	74.1	799	769		
1985 077L		16390	USSR	29 AUG	105.1	71.0	1156	840		
1985 077M		16391	USSR	29 AUG	104.8	71.0	1127	838		
1985 077N		16392	USSR	29 AUG	104.9	71.0	1142	839		
1985 079A	COSMOS 1680	16011	USSR	4 SEP	100.6	74.0	799	777		
1985 079B		16012	USSR	4 SEP	100.5	74.1	793	771		
1985 079C		17754	USSR	4 SEP	100.8	74.1	813	782		
1985 082B - 082Z			USSR	19 SEP	SEE NOTE		42*			42*
1985 084A	COSMOS 1684	16054	USSR	24 SEP	718.5	63.5	37269	3119		
1985 084D		16070	USSR	24 SEP	705.9	64.2	36733	3034		
1985 087A	INTELSAT VA F-12	16101	ITSO	29 SEP	1436.1	0.0	35805	35770		
1985 087B		16102	US	29 SEP	528.5	23.5	30273	275		
1985 088A	COSMOS 1687	16103	USSR	30 SEP	717.9	65.8	36970	3390		
1985 088D		16106	USSR	30 SEP	703.6	66.0	36616	3037		
1985 090A	COSMOS 1689	16110	USSR	3 OCT	95.9	97.7	593	528		
1985 090B		16111	USSR	3 OCT	96.7	97.7	638	559		
1985 091A	MOLNIYA 3-26	16112	USSR	3 OCT	719.3	64.5	38050	2378		
1985 091D		16125	USSR	3 OCT	734.0	64.8	38609	2543		
1985 092B		16116	US	3 OCT	ELEMENTS NOT AVAILABLE					35*
1985 092C		16117	US	3 OCT	ELEMENTS NOT AVAILABLE					35*
1985 092D		16118	US	3 OCT	ELEMENTS NOT AVAILABLE					
1985 092E		16119	US	3 OCT	ELEMENTS NOT AVAILABLE					
1985 093A		16129	US	9 OCT	718.0	64.0	20508	19855		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1985 LAUNCHES (CONT.)										
1985 093B		16137	US	9 OCT	368.2	63.6	20395	883		
1985 094A	COSMOS 1690	16138	USSR	9 OCT	113.7	82.6	1414	1378		
1985 094B	COSMOS 1691	16139	USSR	9 OCT	114.0	82.6	1413	1409		
1985 094C	COSMOS 1692	16140	USSR	9 OCT	113.8	82.6	1413	1386		
1985 094D	COSMOS 1693	16141	USSR	9 OCT	113.8	82.6	1414	1390		
1985 094E	COSMOS 1694	16142	USSR	9 OCT	113.9	82.6	1414	1395		
1985 094F	COSMOS 1695	16143	USSR	9 OCT	114.0	82.6	1413	1403		
1985 094G		16144	USSR	9 OCT	114.7	82.6	1469	1412		
1985 094K		16266	USSR	9 OCT	114.0	82.6	1432	1388		
1985 094L		16267	USSR	9 OCT	113.1	82.6	1447	1286		
1985 094M		16268	USSR	9 OCT	114.9	82.7	1519	1386		
1985 094N		16269	USSR	9 OCT	114.1	82.6	1425	1400		
1985 094P		16270	USSR	9 OCT	113.7	82.7	1602	1191		
1985 094Q		16271	USSR	9 OCT	114.0	82.6	1414	1402		
1985 094R		16272	USSR	9 OCT	113.4	82.6	1422	1347		
1985 094S		17168	USSR	9 OCT	113.3	82.6	1437	1317		
1985 094U		18777	USSR	9 OCT	114.0	82.6	1412	1410		
1985 097A	COSMOS 1697	16181	USSR	22 OCT	101.9	71.0	854	843		
1985 097B		16182	USSR	22 OCT	101.7	71.0	847	833		
1985 098A	COSMOS 1698	16183	USSR	22 OCT	717.0	64.8	37005	3308		
1985 098D		16186	USSR	22 OCT	707.9	65.0	36668	3196		
1985 099A	MOLNIYA 1-65	16187	USSR	23 OCT	717.5	64.7	38088	2250		
1985 099E		16197	USSR	23 OCT	698.0	64.6	37150	2225		
1985 100A	METEOR 3	16191	USSR	24 OCT	109.3	82.5	1209	1178		
1985 100B		16194	USSR	24 OCT	110.2	82.6	1246	1221		
1985 102A	COSMOS 1700	16199	USSR	25 OCT	1436.8	3.6	35823	35776		
1985 102D		16214	USSR	25 OCT	1431.1	3.6	35786	35589		
1985 103A	MOLNIYA 1-66	16220	USSR	28 OCT	717.5	64.1	39747	595		
1985 103D		16223	USSR	28 OCT	701.0	64.3	38732	791		
1985 105A	COSMOS 1701	16235	USSR	9 NOV	717.7	67.3	37793	2559		
1985 105D		16243	USSR	9 NOV	706.2	67.3	37241	2539		
1985 107A	RADUGA 17	16250	USSR	15 NOV	1436.0	3.7	35798	35770		
1985 107F		16339	USSR	15 NOV	1477.1	3.8	36694	36474		
1985 108A	COSMOS 1703	16262	USSR	22 NOV	97.2	82.5	639	608		
1985 108B		16263	USSR	22 NOV	97.5	82.5	654	621		
1985 109B	MORELOS B	16274	MEXICO	27 NOV	1436.1	0.0	35799	35775		35*
1985 109C	AUSSAT 2	16275	AUSTRL	27 NOV	1436.2	0.0	35797	35778		35*
1985 109D	SATCOM KU2	16276	US	28 NOV	1436.2	0.1	35793	35782		35*
1985 109F		16293	US	27 NOV	642.4	26.0	36179	390		
1985 109G		16294	US	27 NOV	637.7	26.2	35928	396		
1985 109H		16295	US	28 NOV	620.4	26.3	35014	419		
1985 110A	COSMOS 1704	16291	USSR	28 NOV	104.8	82.9	1005	961		
1985 110B		16292	USSR	28 NOV	104.6	83.0	997	953		
1985 113A	COSMOS 1707	16326	USSR	12 DEC	97.2	82.5	640	608		
1985 113B		16327	USSR	12 DEC	97.5	82.5	653	620		
1985 116A	COSMOS 1709	16368	USSR	19 DEC	104.8	82.9	1009	958		
1985 116B		16369	USSR	19 DEC	104.6	82.9	1001	952		
1985 117A	MOLNIYA 3-27	16393	USSR	24 DEC	712.7	63.4	38279	1826		
1985 117F		16402	USSR	24 DEC	732.6	63.4	38990	2093		
1985 119A	COSMOS 1710	16396	USSR	24 DEC	675.7	66.0	19150	19108		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1985 LAUNCHES (CONT.)										
1985 118B	COSMOS 1711	16397	USSR	24 DEC	675.7	66.0	19150	19108		
1985 118C	COSMOS 1712	16398	USSR	24 DEC	676.3	66.0	19153	19134		
1985 118F		16404	USSR	24 DEC	675.5	66.0	19131	19117		
1985 118K		16445	USSR	24 DEC	340.4	65.3	18791	748		
1985 118L		16446	USSR	24 DEC	340.3	65.3	18786	750		
1985 119A	METEOR 2-13	16408	USSR	26 DEC	104.0	82.5	955	934		
1985 119B		16409	USSR	26 DEC	104.0	82.5	955	935		
1986 LAUNCHES										
1986 002A	COSMOS 1716	16449	USSR	9 JAN	115.5	74.0	1490	1461		
1986 002B	COSMOS 1717	16450	USSR	9 JAN	115.8	74.0	1511	1473		
1986 002C	COSMOS 1718	16451	USSR	9 JAN	115.6	74.0	1494	1472		
1986 002D	COSMOS 1719	16452	USSR	9 JAN	115.3	74.0	1482	1453		
1986 002E	COSMOS 1720	16453	USSR	9 JAN	115.1	74.0	1482	1438		
1986 002F	COSMOS 1721	16454	USSR	9 JAN	115.0	74.0	1481	1424		
1986 002G	COSMOS 1722	16455	USSR	9 JAN	114.8	74.0	1482	1410		
1986 002H	COSMOS 1723	16456	USSR	9 JAN	114.6	74.0	1479	1398		
1986 002J		16457	USSR	9 JAN	117.9	74.0	1694	1479		
1986 003B	SATCOM KU1	16482	US	12 JAN	1436.2	0.0	35794	35781		
1986 003C		16483	US	12 JAN	620.6	26.6	35130	317		
1986 005A	COSMOS 1725	16493	USSR	17 JAN	104.8	82.9	1000	966		
1986 005B		16494	USSR	17 JAN	104.6	82.9	991	962		
1986 006A	COSMOS 1726	16495	USSR	17 JAN	97.1	82.5	633	606		
1986 006B		16496	USSR	17 JAN	97.4	82.5	650	619		
1986 007A	RADUGA 18	16497	USSR	17 JAN	1436.0	3.6	35791	35778		
1986 007E		16501	USSR	17 JAN	647.7	47.0	36585	252		
1986 007F		16870	USSR	17 JAN	1472.4	3.7	36640	36348		
1986 008A	COSMOS 1727	16510	USSR	23 JAN	104.8	82.9	1014	955		
1986 008B		16511	USSR	23 JAN	104.7	82.9	1004	956		
1986 010A	PRC 14	16526	PRC	1 FEB	1437.0	2.4	35818	35791		
1986 010B		16528	PRC	1 FEB	628.4	31.1	35363	483		
1986 011A	COSMOS 1729	16527	USSR	1 FEB	718.2	63.3	37739	2634		
1986 011F		16533	USSR	1 FEB	705.7	63.7	37098	2657		
1986 014A		16591	US	9 FEB	ELEMENTS NOT AVAILABLE					
1986 014B		16592	US	9 FEB	ELEMENTS NOT AVAILABLE					
1986 014C		16622	US	9 FEB	CURRENT ELEMENTS NOT MAINTAINED					
1986 014D		16623	US	9 FEB	CURRENT ELEMENTS NOT MAINTAINED					
1986 014E		16624	US	9 FEB	CURRENT ELEMENTS NOT MAINTAINED					
1986 014F		16625	US	9 FEB	CURRENT ELEMENTS NOT MAINTAINED					
1986 014G		16630	US	9 FEB	ELEMENTS NOT AVAILABLE					
1986 014H		16631	US	9 FEB	ELEMENTS NOT AVAILABLE					
1986 015A	COSMOS 1732	16593	USSR	11 FEB	116.0	73.6	1523	1478		
1986 015B		16594	USSR	11 FEB	115.9	73.6	1519	1477		
1986 016A	BS-2B	16597	JAPAN	12 FEB	1436.1	0.2	35802	35771		
1986 016C		16600	JAPAN	12 FEB	451.0	27.9	25998	210		
1986 017A	MIR	16609	USSR	19 FEB	91.9	51.6	378	360		
1986 017B - 017CV			USSR	19 FEB	SEE NOTE		47*			47*
1986 018A	COSMOS 1733	16611	USSR	19 FEB	97.1	82.5	633	608		
1986 018B		16612	USSR	19 FEB	97.4	82.5	647	622		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1986 LAUNCHES (CONT.)										
1986 019A	SPOT 1	16613	FRANCE	22 FEB	101.3	98.7	823	821		
1986 019B	VIKING	16614	SWEDEN	22 FEB	261.6	98.8	13517	823		
1986 019C - 019VL			ESA	22 FEB	SEE NOTE		45*			45*
1986 022C		16663	USSR	13 MAR	89.5	51.6	253	244		
1986 024A	COSMOS 1736	16647	USSR	21 MAR	104.4	65.0	986	945		
1986 024B - 024AF			USSR	21 MAR	SEE NOTE		44*			44*
1986 026A	GSTAR 2	16649	US	28 MAR	1436.1	0.0	35791	35783		
1986 026B	SBTS 2	16650	BRAZIL	28 MAR	1436.2	0.0	35795	35782		
1986 026C		16657	ESA	28 MAR	652.8	7.2	36633	464		
1986 026E		17253	ESA	28 MAR	537.6	7.9	30733	309		
1986 026F		17254	ESA	28 MAR	505.6	8.7	29038	253		
1986 027A	COSMOS 1738	16667	USSR	4 APR	1437.6	3.4	35870	35763		
1986 027F		16676	USSR	4 APR	1474.1	3.5	36694	36357		
1986 030A	COSMOS 1741	16681	USSR	18 APR	100.7	74.0	804	775		
1986 030B		16682	USSR	18 APR	100.5	74.0	796	771		
1986 030C		17942	USSR	18 APR	100.9	74.0	815	787		
1986 030D		17843	USSR	18 APR	100.9	74.0	813	788		
1986 030E		18274	USSR	18 APR	100.4	74.1	807	746		
1986 030F		18525	USSR	18 APR	100.5	74.1	783	777		
1986 030G		18681	USSR	18 APR	100.9	74.0	818	786		
1986 030H		19235	USSR	18 APR	104.0	74.0	951	944		
1986 031A	MOLNIYA 3-28	16683	USSR	18 APR	717.8	64.8	38400	1954		
1986 031D		16685	USSR	18 APR	733.5	65.0	39143	1983		
1986 034A	COSMOS 1743	16719	USSR	15 MAY	97.2	82.6	637	608		
1986 034B		16720	USSR	15 MAY	97.5	82.6	651	621		
1986 037A	COSMOS 1745	16727	USSR	23 MAY	104.8	83.0	1008	960		
1986 037B		16728	USSR	23 MAY	104.7	82.9	999	956		
1986 038A	EKRAN 15	16729	USSR	24 MAY	1491.6	4.3	36919	36810		
1986 038D		16732	USSR	24 MAY	1420.5	4.1	35580	35382		
1986 038E		16733	USSR	24 MAY	254.4	47.9	13280	559		
1986 039A	METEOR 2-14	16735	USSR	27 MAY	104.0	82.5	956	935		
1986 039B		16736	USSR	27 MAY	104.0	82.5	955	935		
1986 042A	COSMOS 1748	16758	USSR	6 JUN	115.1	74.0	1468	1451		
1986 042B	COSMOS 1749	16759	USSR	6 JUN	114.4	74.0	1467	1391		
1986 042C	COSMOS 1750	16760	USSR	6 JUN	114.6	74.0	1468	1406		
1986 042D	COSMOS 1751	16761	USSR	6 JUN	115.6	74.0	1503	1465		
1986 042E	COSMOS 1752	16762	USSR	6 JUN	115.4	74.0	1484	1466		
1986 042F	COSMOS 1753	16763	USSR	6 JUN	115.3	74.0	1475	1460		
1986 042G	COSMOS 1754	16764	USSR	6 JUN	114.9	74.0	1468	1436		
1986 042H	COSMOS 1755	16765	USSR	6 JUN	114.8	74.0	1468	1422		
1986 042J		16766	USSR	6 JUN	117.7	74.0	1681	1470		
1986 044A	GORIZONT 12	16769	USSR	10 JUN	1435.5	3.0	35788	35761		
1986 044F		16797	USSR	10 JUN	1474.4	3.2	36581	36482		
1986 046A	COSMOS 1758	16791	USSR	12 JUN	97.3	82.5	647	612		
1986 046B		16792	USSR	12 JUN	97.5	82.5	656	618		
1986 047A	COSMOS 1759	16798	USSR	18 JUN	104.7	82.9	1001	962		
1986 047B		16799	USSR	18 JUN	104.6	82.9	1025	924		
1986 049A	MOLNIYA 3-29	16802	USSR	19 JUN	717.6	64.9	39422	921		
1986 049D		16805	USSR	19 JUN	733.2	65.1	40206	904		
1986 050A	COSMOS 1761	16849	USSR	5 JUL	718.9	64.6	37281	3125		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1986 LAUNCHES (CONT.)										
1986 050D		16854	USSR	5 JUL	710.0	64.9	36933	3037		
1986 052A	COSMOS 1763	16860	USSR	16 JUL	100.3	74.0	797	750		
1986 052B		16864	USSR	16 JUL	100.3	74.0	797	746		
1986 052C		16865	USSR	16 JUL	99.8	74.0	769	727		
1986 052D		16866	USSR	16 JUL	99.7	74.0	765	725		
1986 052E		16867	USSR	16 JUL	99.9	74.0	774	733		
1986 055A	COSMOS 1766	16881	USSR	28 JUL	97.3	82.5	644	612		
1986 055B		16882	USSR	28 JUL	97.5	82.5	655	621		
1986 057A	MOLNIYA 1-67	16885	USSR	30 JUL	717.8	64.7	38920	1433		
1986 057D		16889	USSR	30 JUL	731.6	65.1	39636	1399		
1986 061A	EGP	16908	JAPAN	12 AUG	115.7	50.0	1497	1479		
1986 061B	JAS-1	16909	JAPAN	12 AUG	115.7	50.0	1497	1479		
1986 061C		16910	JAPAN	12 AUG	116.9	50.0	1594	1484		
1986 062A	COSMOS 1771	16917	USSR	20 AUG	104.2	65.0	994	915		
1986 062C		17035	USSR	20 AUG	103.9	65.0	974	906		
1986 065A	COSMOS 1774	16922	USSR	28 AUG	718.8	64.8	38241	2161		
1986 065D		16925	USSR	28 AUG	707.0	65.3	37472	2350		
1986 067B - 067AF			USSR	3 SEP	SEE NOTE		46*			46*
1986 068A	MOLNIYA 1-68	16934	USSR	5 SEP	717.8	64.7	38248	2105		
1986 068D		16939	USSR	5 SEP	731.3	64.8	38876	2140		
1986 070A	COSMOS 1777	16952	USSR	10 SEP	100.6	74.0	804	771		
1986 070B		16953	USSR	10 SEP	100.4	74.0	786	771		
1986 071A	COSMOS 1778	16961	USSR	16 SEP	675.7	64.8	19142	19115		
1986 071B	COSMOS 1779	16962	USSR	16 SEP	675.7	64.8	19142	19116		
1986 071C	COSMOS 1780	16963	USSR	16 SEP	675.7	64.8	19151	19107		
1986 071F		16968	USSR	16 SEP	675.2	64.8	19151	19081		
1986 071G		16984	USSR	16 SEP	336.9	64.6	19043	274		
1986 071H		16985	USSR	16 SEP	336.4	64.6	19023	263		
1986 073A	NOAA 10	16969	US	17 SEP	101.1	98.5	821	801		
1986 073B		16982	US	17 SEP	99.3	98.6	731	721		
1986 073C		16983	US	17 SEP	97.0	98.6	619	615		
1986 074A	COSMOS 1782	16986	USSR	30 SEP	97.3	82.5	642	616		
1986 074B		16987	USSR	30 SEP	97.5	82.5	651	623		
1986 075A	COSMOS 1783	16993	USSR	3 OCT	358.0	63.6	19587	1061		
1986 075D		16996	USSR	3 OCT	357.0	63.6	19533	1048		
1986 078A	COSMOS 1785	17031	USSR	15 OCT	717.5	66.8	38247	2092		
1986 078D		17037	USSR	15 OCT	707.6	67.5	37744	2106		
1986 079A	MOLNIYA 3-30	17038	USSR	20 OCT	717.8	64.9	38870	1483		
1986 079D		17041	USSR	20 OCT	699.0	64.9	37927	1495		
1986 082A	RADUGA 19	17046	USSR	25 OCT	1435.9	2.8	35790	35774		
1986 082D		17052	USSR	25 OCT	637.1	45.9	36043	252		
1986 082E		17053	USSR	25 OCT	101.8	46.4	1551	132		
1986 082F		17065	USSR	25 OCT	1475.4	2.9	36688	36418		
1986 086A	COSMOS 1791	17066	USSR	13 NOV	104.7	82.9	1010	949		
1986 086B		17067	USSR	13 NOV	104.6	82.9	1000	947		
1986 086C		18552	USSR	13 NOV	104.0	82.9	971	922		
1986 088A	POLAR BEAR	17070	US	14 NOV	104.8	89.5	1016	955		
1986 088B		17071	US	14 NOV	104.8	89.5	1014	954		
1986 088C		18426	US	14 NOV	105.1	89.1	1052	947		
1986 088D		18525	US	14 NOV	104.3	89.9	965	955		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1986 LAUNCHES (CONT.)										
1986 089A	MOLNIYA 1-69	17079	USSR	15 NOV	717.7	63.2	38232	2119		
1986 089D		17081	USSR	15 NOV	735.8	63.2	38774	2463		
1986 090A	GORIZONT 13	17083	USSR	18 NOV	1436.3	2.7	35800	35778		
1986 090D		17125	USSR	18 NOV	1436.8	2.6	35842	35756		
1986 090F		17149	USSR	18 NOV	632.9	47.3	35812	268		
1986 091A	COSMOS 1793	17134	USSR	20 NOV	717.9	65.8	37851	2507		
1986 091D		17147	USSR	20 NOV	705.9	66.5	37434	2331		
1986 092A	COSMOS 1794	17138	USSR	21 NOV	115.6	74.0	1497	1464		
1986 092B	COSMOS 1795	17139	USSR	21 NOV	115.4	74.0	1480	1464		
1986 092C	COSMOS 1796	17140	USSR	21 NOV	115.2	74.0	1476	1452		
1986 092D	COSMOS 1797	17141	USSR	21 NOV	115.0	74.0	1471	1441		
1986 092E	COSMOS 1798	17142	USSR	21 NOV	114.9	74.0	1471	1425		
1986 092F	COSMOS 1799	17143	USSR	21 NOV	114.7	74.0	1470	1411		
1986 092G	COSMOS 1800	17144	USSR	21 NOV	114.5	74.0	1471	1396		
1986 092H	COSMOS 1801	17145	USSR	21 NOV	114.4	74.0	1469	1383		
1986 092J		17146	USSR	21 NOV	117.6	74.0	1673	1474		
1986 093A	COSMOS 1802	17159	USSR	24 NOV	104.9	82.9	1020	959		
1986 093B		17160	USSR	24 NOV	104.8	82.9	1012	955		
1986 094A	COSMOS 1803	17177	USSR	2 DEC	115.9	82.6	1501	1494		
1986 094B		17178	USSR	2 DEC	115.9	82.6	1498	1492		
1986 094C		20284	USSR	2 DEC	117.4	83.2	1741	1383		
1986 096A		17181	US	5 DEC	1436.1	1.4	35875	35699		
1986 097A	COSMOS 1805	17191	USSR	10 DEC	97.2	82.5	636	610		
1986 097B		17192	USSR	10 DEC	97.4	82.5	649	622		
1986 098A	COSMOS 1806	17213	USSR	12 DEC	718.6	63.0	37713	2682		
1986 098D		17216	USSR	12 DEC	705.9	63.5	37157	2607		
1986 100A	COSMOS 1808	17239	USSR	17 DEC	105.0	82.9	1015	969		
1986 100B		17240	USSR	17 DEC	104.9	82.9	1008	964		
1986 100C		18545	USSR	17 DEC	104.4	82.9	983	944		
1986 101A	COSMOS 1809	17241	USSR	18 DEC	104.1	82.5	961	939		
1986 101B		17242	USSR	18 DEC	104.1	82.5	960	940		
1986 101C		17268	USSR	18 DEC	103.8	82.6	958	913		
1986 101D		17269	USSR	18 DEC	104.2	82.6	969	946		
1986 101E		17270	USSR	18 DEC	104.0	82.4	954	944		
1986 101F		17271	USSR	18 DEC	103.5	82.4	947	903		
1986 101G		17272	USSR	18 DEC	103.4	82.5	930	912		
1986 101H		17273	USSR	18 DEC	103.4	82.5	927	909		
1986 101J		17274	USSR	18 DEC	104.2	82.5	982	934		
1986 101K		17844	USSR	18 DEC	103.4	82.5	933	907		
1986 101L		18680	USSR	18 DEC	103.5	82.5	932	912		
1986 103A	MOLNIYA 1-70	17264	USSR	26 DEC	717.8	63.3	39221	1132		
1986 103D		17267	USSR	26 DEC	698.8	63.4	38419	994		
1987 LAUNCHES										
1987 001A	METEOR 2-15	17290	USSR	5 JAN	104.0	82.5	955	938		
1987 001B		17291	USSR	5 JAN	104.0	82.5	953	939		
1987 003A	COSMOS 1812	17295	USSR	14 JAN	97.2	82.5	638	612		
1987 003B		17296	USSR	14 JAN	97.5	82.5	651	622		
1987 004C - 004HC			USSR	15 JAN	SEE NOTE		48*			48*

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1987 LAUNCHES (CONT.)										
1987 006A	COSMOS 1814	17303	USSR	21 JAN	100.5	74.1	801	765		
1987 006B		17304	USSR	21 JAN	100.4	74.1	796	760		
1987 006C		18257	USSR	21 JAN	100.4	74.0	781	769		
1987 008A	MOLNIYA 3-31	17328	USSR	22 JAN	717.8	63.2	38453	1901		
1987 008D		17333	USSR	22 JAN	730.7	63.2	38898	2093		
1987 009A	COSMOS 1816	17359	USSR	29 JAN	104.8	82.9	1009	958		
1987 009B		17360	USSR	29 JAN	104.6	82.9	1006	947		
1987 011A	COSMOS 1818	17369	USSR	1 FEB	100.7	65.0	806	773		
1987 012A	ASTRO C	17480	JAPAN	5 FEB	93.8	31.1	495	420		
1987 012B		17481	JAPAN	5 FEB	95.5	31.1	606	478		
1987 012K		18927	JAPAN	5 FEB	94.9	30.8	563	465		
1987 015A		17506	US	12 FEB	ELEMENTS NOT AVAILABLE					
1987 015B		17507	US	12 FEB	ELEMENTS NOT AVAILABLE					
1987 017A	COSMOS 1821	17525	USSR	18 FEB	104.8	82.9	1014	957		
1987 017B		17526	USSR	18 FEB	104.6	82.9	1008	946		
1987 018A	MOS-1	17527	JAPAN	19 FEB	103.2	99.1	908	908		
1987 018B		17528	JAPAN	19 FEB	99.9	97.5	878	628		
1987 020A	COSMOS 1823	17535	USSR	20 FEB	116.0	73.6	1521	1477		
1987 020B		17536	USSR	20 FEB	115.9	73.6	1519	1476		
1987 020B - 020DJ			USSR	20 FEB	SEE NOTE		49*			49*
1987 022A	GOES 7	17561	US	26 FEB	1436.0	0.0	35811	35762		
1987 022B		17562	US	26 FEB	98.8	21.7	1176	225		
1987 022C		17563	US	26 FEB	655.5	17.1	36976	262		
1987 024A	COSMOS 1825	17566	USSR	3 MAR	97.2	82.5	638	606		
1987 024B		17567	USSR	3 MAR	97.4	82.5	652	619		
1987 026A	COSMOS 1827	17582	USSR	13 MAR	113.8	82.6	1407	1394		
1987 026B	COSMOS 1828	17583	USSR	13 MAR	113.7	82.6	1407	1383		
1987 026C	COSMOS 1829	17584	USSR	13 MAR	114.0	82.6	1413	1407		
1987 026D	COSMOS 1830	17585	USSR	13 MAR	113.9	82.5	1408	1406		
1987 026E	COSMOS 1831	17586	USSR	13 MAR	113.8	82.6	1407	1390		
1987 026F	COSMOS 1832	17587	USSR	13 MAR	113.9	82.6	1408	1399		
1987 026G		17588	USSR	13 MAR	114.6	82.6	1468	1408		
1987 027A	COSMOS 1833	17589	USSR	18 MAR	101.9	71.0	851	845		
1987 027B		17590	USSR	18 MAR	101.7	71.0	841	836		
1987 027C		18416	USSR	18 MAR	104.7	71.0	1122	841		
1987 027D		18417	USSR	18 MAR	105.0	71.0	1145	839		
1987 027E		18527	USSR	18 MAR	104.9	71.0	1137	839		
1987 027F		18550	USSR	18 MAR	104.6	71.0	1114	838		
1987 028A	RADUGA 20	17611	USSR	19 MAR	1436.2	2.9	35800	35776		
1987 028D		17705	USSR	19 MAR	1442.0	2.8	36014	35788		
1987 028E		17709	USSR	19 MAR	635.6	47.4	35901	318		
1987 029A	PALAPA B-2P	17706	INDNSA	20 MAR	1436.1	0.0	35793	35780		
1987 030A	KVANT 1	17845	USSR	31 MAR	92.0	51.6	379	361		
1987 036A	COSMOS 1838	17902	USSR	24 APR	137.3	64.7	4752	124		
1987 036B	COSMOS 1839	17903	USSR	24 APR	127.4	64.6	3887	126		
1987 036C	COSMOS 1840	17904	USSR	24 APR	167.4	64.6	7234	130		
1987 036G		17910	USSR	24 APR	98.0	64.4	1216	111		
1987 036H		17913	USSR	24 APR	176.2	64.7	7858	210		
1987 038A	COSMOS 1842	17911	USSR	27 APR	97.3	82.5	642	614		
1987 038B		17912	USSR	27 APR	97.5	82.5	652	623		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1987 LAUNCHES (CONT.)										
1987 040A	GORIZONT 14	17969	USSR	11 MAY	1436.1	4.5	35795	35777		
1987 040D		17972	USSR	11 MAY	1397.9	4.4	35095	34974		
1987 040E		18111	USSR	11 MAY	537.1	46.9	30892	128		
1987 040F		18112	USSR	11 MAY	597.7	47.0	34107	144		
1987 041A	COSMOS 1844	17973	USSR	13 MAY	101.9	70.9	852	845		
1987 041B		17974	USSR	13 MAY	101.7	71.0	848	826		
1987 041C		18410	USSR	13 MAY	105.0	71.0	1148	839		
1987 041D		18411	USSR	13 MAY	104.8	71.0	1129	841		
1987 041E		18412	USSR	13 MAY	104.8	71.0	1133	837		
1987 041F		18476	USSR	13 MAY	105.1	71.0	1155	839		
1987 041G		18687	USSR	13 MAY	99.6	71.0	742	735		
1987 043A		17997	US	15 MAY	ELEMENTS NOT AVAILABLE					
1987 043B		17998	US	15 MAY	ELEMENTS NOT AVAILABLE					
1987 043C		18007	US	15 MAY	ELEMENTS NOT AVAILABLE					
1987 043D		18008	US	15 MAY	ELEMENTS NOT AVAILABLE					
1987 043E		18009	US	15 MAY	ELEMENTS NOT AVAILABLE					
1987 043F		18010	US	15 MAY	ELEMENTS NOT AVAILABLE					
1987 043G		18024	US	15 MAY	ELEMENTS NOT AVAILABLE					
1987 043H		18025	US	15 MAY	ELEMENTS NOT AVAILABLE					
1987 048A	COSMOS 1849	18083	USSR	4 JUN	718.4	66.7	38587	1795		
1987 048D		18086	USSR	4 JUN	706.2	67.0	38017	1764		
1987 049A	COSMOS 1850	18095	USSR	9 JUN	100.6	74.0	800	777		
1987 049B		18096	USSR	9 JUN	100.5	74.0	794	770		
1987 050A	COSMOS 1851	18103	USSR	12 JUN	717.2	63.2	38232	2092		
1987 050D		18106	USSR	12 JUN	707.4	63.3	37704	2134		
1987 051A	COSMOS 1852	18113	USSR	16 JUN	115.6	74.0	1497	1471		
1987 051B	COSMOS 1853	18114	USSR	16 JUN	115.4	74.0	1480	1470		
1987 051C	COSMOS 1854	18115	USSR	16 JUN	115.3	74.0	1479	1456		
1987 051D	COSMOS 1855	18116	USSR	16 JUN	115.1	74.0	1475	1444		
1987 051E	COSMOS 1856	18117	USSR	16 JUN	114.9	74.0	1475	1429		
1987 051F	COSMOS 1857	18118	USSR	16 JUN	114.8	74.0	1475	1415		
1987 051G	COSMOS 1858	18119	USSR	16 JUN	114.6	74.0	1476	1399		
1987 051H	COSMOS 1859	18120	USSR	16 JUN	114.4	74.0	1474	1385		
1987 051J		18121	USSR	16 JUN	117.8	74.0	1685	1475		
1987 052A	COSMOS 1860	18122	USSR	18 JUN	104.0	65.0	982	911		
1987 052D		18241	USSR	18 JUL	103.7	65.0	951	911		
1987 053A		18123	US	20 JUN	101.7	98.8	851	831		
1987 053B		18127	US	20 JUN	100.6	98.8	796	780		
1987 053C		18128	US	20 JUN	100.0	98.8	762	755		
1987 053D		18154	US	20 JUN	100.0	98.8	762	750		
1987 054A	COSMOS 1861	18129	USSR	23 JUN	104.9	82.9	998	979		
1987 054B		18130	USSR	23 JUN	104.7	82.9	992	964		
1987 054C		18131	USSR	23 JUN	105.0	82.9	1020	970		
1987 055A	COSMOS 1862	18152	USSR	1 JUL	97.3	82.5	647	612		
1987 057A	COSMOS 1864	18160	USSR	6 JUL	104.7	82.9	1004	954		
1987 057B		18161	USSR	6 JUL	104.6	82.9	1001	950		
1987 060A	COSMOS 1867	18187	USSR	10 JUL	100.7	65.0	804	777		
1987 062A	COSMOS 1869	18214	USSR	16 JUL	97.3	82.5	644	613		
1987 062B		18215	USSR	16 JUL	97.5	82.5	653	622		
1987 065C		19033	USSR	1 AUG	115.5	102.0	1497	1458		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1987 LAUNCHES (CONT.)										
1987 068A	METEOR 2-16	18312	USSR	18 AUG	104.0	82.6	956	938		
1987 068B		18313	USSR	18 AUG	104.0	82.6	955	939		
1987 070A	ETS-V	18316	JAPAN	27 AUG	1436.1	0.0	35806	35766		
1987 073A	EKRAN 16	18328	USSR	4 SEP	1492.5	2.9	36908	36859		
1987 073D		18331	USSR	4 SEP	1420.4	2.8	35479	35476		
1987 073E		18332	USSR	4 SEP	470.4	46.5	27080	232		
1987 074A	COSMOS 1875	18334	USSR	7 SEP	113.7	82.6	1406	1384		
1987 074B	COSMOS 1876	18335	USSR	7 SEP	114.0	82.6	1413	1406		
1987 074C	COSMOS 1877	18336	USSR	7 SEP	113.9	82.6	1407	1406		
1987 074D	COSMOS 1878	18337	USSR	7 SEP	113.9	82.6	1407	1400		
1987 074E	COSMOS 1879	18338	USSR	7 SEP	113.8	82.6	1407	1394		
1987 074F	COSMOS 1880	18339	USSR	7 SEP	113.8	82.6	1406	1390		
1987 074G		18340	USSR	7 SEP	114.6	82.6	1470	1407		
1987 078A	AUSSAT K3	18350	AUSTRL	16 SEP	1436.1	0.0	35795	35778		
1987 078B	ECS 4	18351	ESA	16 SEP	1435.9	0.1	35991	35572		
1987 078C		18352	ESA	16 SEP	233.9	7.2	12251	145		
1987 079A	COSMOS 1883	18355	USSR	16 SEP	675.7	65.6	19153	19105		
1987 079B	COSMOS 1884	18356	USSR	16 SEP	675.7	65.7	19156	19102		
1987 079C	COSMOS 1885	18357	USSR	16 SEP	675.7	65.6	19155	19102		
1987 079F		18360	USSR	16 SEP	674.7	65.7	19139	19070		
1987 079G		18374	USSR	15 SEP	339.7	65.4	18869	625		
1987 079H		18375	USSR	16 SEP	339.6	65.3	18851	640		
1987 080A		18361	US	16 SEP	107.2	90.3	1179	1011		
1987 080B		18362	US	16 SEP	107.2	90.3	1181	1011		
1987 080C		18363	US	16 SEP	107.2	90.3	1180	1013		
1987 080E		18365	US	16 SEP	107.0	90.3	1168	1008		
1987 080F		18530	US	16 SEP	106.4	90.4	1121	994		
1987 080G		18561	US	16 SEP	107.0	90.4	1166	1012		
1987 080H		18562	US	16 SEP	107.8	90.2	1264	987		
1987 084A	COSMOS 1889	18384	USSR	1 OCT	1436.1	1.8	35823	35751		
1987 084E		18388	USSR	1 OCT	129.5	46.7	4108	89		
1987 087A	COSMOS 1891	18402	USSR	14 OCT	104.8	82.9	1023	950		
1987 087B		18403	USSR	14 OCT	104.7	82.9	1021	936		
1987 088A	COSMOS 1892	18421	USSR	20 OCT	97.2	82.5	639	608		
1987 088B		18422	USSR	20 OCT	97.5	82.5	654	621		
1987 090A		18441	US	26 OCT	ELEMENTS NOT AVAILABLE					
1987 091A	COSMOS 1894	18443	USSR	28 OCT	1436.3	1.9	35798	35781		
1987 091D		18446	USSR	28 OCT	1436.0	1.9	35870	35698		
1987 091F		18448	USSR	28 OCT	599.4	46.8	34204	135		
1987 095A	TVSAT 1	18570	FRG	21 NOV	1452.5	2.0	36173	36040		
1987 096A	COSMOS 1897	18575	USSR	26 NOV	1436.0	1.7	35793	35776		
1987 096D		18578	USSR	26 NOV	1432.0	1.6	35801	35610		
1987 097A		18583	US	29 NOV	ELEMENTS NOT AVAILABLE					
1987 097B		18584	US	29 NOV	ELEMENTS NOT AVAILABLE					
1987 098A	COSMOS 1898	18585	USSR	1 DEC	100.6	74.0	803	771		
1987 098B		18586	USSR	1 DEC	100.5	74.0	797	765		
1987 098C		18697	USSR	1 DEC	100.5	74.0	788	776		
1987 098D		18698	USSR	1 DEC	100.9	74.0	813	785		
1987 100A	RADUGA 21	18631	USSR	10 DEC	1436.2	1.7	35796	35781		
1987 100D		18634	USSR	10 DEC	1392.6	1.6	34998	34865		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1987 LAUNCHES (CONT.)										
1987 100E		18635	USSR	10 DEC	122.4	46.7	3434	142		
1987 101A	COSMOS 1900	18665	USSR	12 DEC	99.2	66.1	743	700		
1987 105A	COSMOS 1903	18701	USSR	21 DEC	717.7	63.4	38982	1367		
1987 105D		18704	USSR	21 DEC	705.2	64.2	38274	1456		
1987 106A	COSMOS 1904	18709	USSR	23 DEC	104.8	82.9	1004	964		
1987 106B		18710	USSR	23 DEC	104.7	82.9	997	960		
1987 109A	EKRAN 17	18715	USSR	27 DEC	1436.3	1.4	35803	35777		
1987 109D		18718	USSR	27 DEC	1428.2	1.4	35889	35372		
1987 109E		18719	USSR	27 DEC	492.5	46.6	28354	204		
1988 LAUNCHES										
1988 001A	COSMOS 1908	18748	USSR	6 JAN	97.2	82.5	641	611		
1988 001B		18749	USSR	6 JAN	97.5	82.5	653	621		
1988 002A	COSMOS 1909	18738	USSR	15 JAN	114.0	82.6	1411	1408		
1988 002B	COSMOS 1910	18739	USSR	15 JAN	113.9	82.6	1408	1404		
1988 002C	COSMOS 1911	18790	USSR	15 JAN	113.9	82.6	1408	1397		
1988 002D	COSMOS 1912	18791	USSR	15 JAN	113.8	82.6	1408	1392		
1988 002E	COSMOS 1913	18792	USSR	15 JAN	113.7	82.6	1408	1387		
1988 002F	COSMOS 1914	18793	USSR	15 JAN	113.7	82.6	1408	1381		
1988 002G		18794	USSR	15 JAN	114.6	82.6	1468	1409		
1988 005A	METEOR 2-17	18820	USSR	30 JAN	104.0	82.5	957	933		
1988 005B		18921	USSR	30 JAN	103.9	82.5	955	933		
1988 006A		18822	US	3 FEB	101.2	98.6	820	812		
1988 006B		18845	US	3 FEB	99.5	98.7	736	728		
1988 006C		18846	US	3 FEB	99.1	98.7	720	713		
1988 006D		18955	US	3 FEB	99.5	98.7	738	729		
1988 006F		18984	US	3 FEB	100.0	98.7	762	753		
1988 012A	CS-3A	18877	JAPAN	19 FEB	1436.1	0.0	35789	35784		
1988 012C		18879	JAPAN	19 FEB	526.7	27.0	29882	571		
1988 012D		20760	JAPAN	19 FEB	468.6	27.4	27022	191		
1988 013A	COSMOS 1922	18881	USSR	26 FEB	718.2	63.0	37917	2457		
1988 013C		18883	USSR	26 FEB	705.7	63.5	37379	2379		
1988 014A	PRC 22	18922	PRC	7 MAR	1436.2	0.1	35797	35780		
1988 016A	COSMOS 1924	18937	USSR	11 MAR	115.7	74.0	1512	1458		
1988 016B	COSMOS 1925	18938	USSR	11 MAR	115.5	74.0	1494	1457		
1988 016C	COSMOS 1926	18939	USSR	11 MAR	115.3	74.0	1477	1458		
1988 016D	COSMOS 1927	18940	USSR	11 MAR	115.1	74.0	1465	1453		
1988 016E	COSMOS 1928	18941	USSR	11 MAR	114.9	74.0	1460	1442		
1988 016F	COSMOS 1929	18942	USSR	11 MAR	114.7	74.0	1459	1427		
1988 016G	COSMOS 1930	18943	USSR	11 MAR	114.6	74.0	1458	1412		
1988 016H	COSMOS 1931	18944	USSR	11 MAR	114.4	74.0	1459	1395		
1988 016J		18945	USSR	11 MAR	117.6	74.0	1685	1462		
1988 016K		19451	USSR	11 MAR	117.5	74.0	1683	1457		
1988 017A	MOLNIYA 1-71	18946	USSR	11 MAR	717.7	63.2	38500	1852		
1988 017D		18949	USSR	11 MAR	695.6	63.2	37513	1741		
1988 018A	SPACENET 3R	18951	US	11 MAR	1436.0	0.0	35790	35782		
1988 018B	TELECOM 1C	18952	FRANCE	11 MAR	1436.1	0.1	35793	35781		
1988 018C		18953	ESA	11 MAR	570.3	7.0	32539	266		
1988 019A	COSMOS 1932	18957	USSR	14 MAR	104.4	65.0	1008	920		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1988 LAUNCHES (CONT.)										
1988 019D		19162	USSR	14 MAR	104.0	65.0	977	921		
1988 020A	COSMOS 1933	18958	USSR	15 MAR	97.3	82.5	640	616		
1988 020B		18959	USSR	15 MAR	97.4	82.5	648	624		
1988 021A	IRS-1A	18960	INDIA	17 MAR	103.1	98.9	913	893		
1988 021B		18961	USSR	17 MAR	102.8	98.9	930	850		
1988 022A	MOLNIYA 1-72	18980	USSR	17 MAR	717.7	64.7	39224	1124		
1988 022D		18983	USSR	17 MAR	731.7	64.9	39936	1102		
1988 023A	COSMOS 1934	18985	USSR	22 MAR	104.6	83.0	1007	945		
1988 023B		18986	USSR	22 MAR	104.5	83.0	994	946		
1988 028A	GORIZONT 15	19017	USSR	31 MAR	1436.1	1.4	35800	35774		
1988 028D		19020	USSR	31 MAR	1472.7	1.4	36601	36398		
1988 028E		19036	USSR	31 MAR	640.4	46.4	36344	122		
1988 028F		19037	USSR	31 MAR	621.6	46.4	35148	346		
1988 029A	COSMOS 1937	19038	USSR	5 APR	100.5	74.0	800	763		
1988 029B		19039	USSR	5 APR	100.4	74.0	799	755		
1988 032A	COSMOS 1939	19045	USSR	20 APR	96.8	97.8	625	588		
1988 032B		19046	USSR	20 APR	97.3	97.8	666	592		
1988 033A		19070	US	26 APR	108.5	90.3	1303	1012		
1988 033B		19071	US	26 APR	108.5	90.3	1301	1013		
1988 033C		19072	US	26 APR	108.5	90.3	1304	1013		
1988 033D		19077	US	26 APR	108.2	90.3	1280	1005		
1988 033E		19078	US	26 APR	107.6	90.6	1237	995		
1988 033F		19140	US	26 APR	108.1	90.3	1273	1004		
1988 033G		19141	US	26 APR	109.1	90.1	1379	993		
1988 034A	COSMOS 1940	19073	USSR	26 APR	1430.4	1.4	35778	35570		
1988 034D		19076	USSR	26 APR	1438.9	1.4	35964	35716		
1988 034E		19082	USSR	26 APR	639.3	48.6	36022	387		
1988 034F		19083	USSR	26 APR	649.6	47.3	36714	223		
1988 036A	EKRAN 18	19090	USSR	6 MAY	1513.5	2.2	37358	37217		
1988 036E		19094	USSR	6 MAY	1424.1	2.2	35649	35453		
1988 039A	COSMOS 1943	19119	USSR	15 MAY	101.8	71.0	855	837		
1988 039B		19120	USSR	15 MAY	101.5	71.0	847	816		
1988 039C		19125	USSR	15 MAY	104.6	71.0	1110	840		
1988 039D		19126	USSR	15 MAY	104.7	71.0	1119	841		
1988 039E		19127	USSR	15 MAY	105.1	71.0	1155	842		
1988 039F		19128	USSR	15 MAY	105.1	71.0	1151	844		
1988 040A	INTELSAT 5A F-13	19121	ITSO	17 MAY	1436.0	0.0	35803	35770		
1988 040B		19122	ESA	17 MAY	635.0	7.9	35706	482		
1988 043A	COSMOS 1946	19163	USSR	21 MAY	675.7	64.9	19147	19111		
1988 043B	COSMOS 1947	19164	USSR	21 MAY	675.7	64.9	19140	19117		
1988 043C	COSMOS 1948	19165	USSR	21 MAY	675.7	64.9	19144	19114		
1988 043F		19168	USSR	21 MAY	674.5	64.9	19116	19079		
1988 043G		19169	USSR	21 MAY	339.8	65.4	18766	740		
1988 043H		19170	USSR	21 MAY	339.9	65.3	18768	742		
1988 044A	MOLNIYA 3-32	19139	USSR	26 MAY	717.7	64.5	39185	1164		
1988 044B		19190	USSR	26 MAY	732.9	64.7	39964	1134		
1988 046A	COSMOS 1950	19195	USSR	30 MAY	116.0	73.6	1520	1482		
1988 046B		19196	USSR	30 MAY	116.0	73.6	1515	1481		
1988 050A	COSMOS 1953	19210	USSR	14 JUN	97.3	82.5	648	614		
1988 050B		19211	USSR	14 JUN	97.5	82.5	654	620		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1988 LAUNCHES (CONT.)										
1988 051A	METEOSAT	19215	ESA	15 JUN	1436.2	0.3	35794	35781		
1988 051B	OSCAR 13	19216	US	15 JUN	586.7	56.8	37815	994		
1988 051C	PAS-1	19217	US	15 JUN	1436.2	0.0	35800	35777		
1988 051D		19218	ESA	15 JUN	431.8	10.1	24896	192		
1988 051E		19219	ESA	15 JUN	611.7	9.7	34723	259		
1988 051F		19220	ESA	15 JUN	501.7	10.1	28781	292		
1988 051G		19857	ESA	15 JUN	633.0	6.8	35342	742		
1988 051H		19951	ESA	15 JUN	632.1	8.0	35201	840		
1988 052A		19223	US	16 JUN	108.9	90.0	1198	1150		
1988 053A	COSMOS 1954	19256	USSR	21 JUN	100.6	74.1	798	774		
1988 053B		19257	USSR	21 JUN	100.5	74.1	796	764		
1988 053C		19260	USSR	21 JUN	100.6	74.1	792	779		
1988 053D		19261	USSR	21 JUN	100.6	74.1	799	774		
1988 056A	OKEAN 1	19274	USSR	5 JUL	97.3	82.5	644	616		
1988 056B		19275	USSR	5 JUL	97.5	82.5	653	624		
1988 058A	PHOBOS 1	19281	USSR	7 JUL	TRANS-MARS TRAJECTORY					
1988 058B		19282	USSR	7 JUL	HELIOCENTRIC ORBIT					
1988 059A	PHOBOS 2	19287	USSR	12 JUL	TRANS-MARS TRAJECTORY					
1988 059B		19288	USSR	12 JUL	HELIOCENTRIC ORBIT					
1988 062A	COSMOS 1959	19324	USSR	18 JUL	104.7	82.9	1004	951		
1988 062B		19325	USSR	18 JUL	104.6	82.9	996	950		
1988 063A	INSAT 1C	19330	INDIA	21 JUL	1435.9	1.3	35826	35738		
1988 063B	ECS 5	19331	ESA	21 JUL	1436.2	0.1	35789	35785		
1988 063C		19332	ESA	21 JUL	502.7	7.4	28900	226		
1988 063E		20127	ESA	21 JUL	632.7	7.8	35634	434		
1988 063F		20488	ESA	21 JUL	338.3	7.5	19152	259		
1988 064A	METEOR 3-2	19336	USSR	26 JUL	109.3	82.5	1206	1181		
1988 064B		19337	USSR	26 JUL	109.3	82.5	1205	1181		
1988 065B - 065AF			USSR	28 JUL	SEE NOTE		50*			50*
1988 066A	COSMOS 1961	19344	USSR	1 AUG	1436.1	1.0	35808	35765		
1988 066D		19347	USSR	1 AUG	1459.6	1.1	36393	36097		
1988 066E		19348	USSR	1 AUG	462.6	46.8	26595	274		
1988 069A	MOLNIYA 1-73	19377	USSR	12 AUG	717.8	64.6	39742	611		
1988 069D		19380	USSR	12 AUG	730.8	64.9	40500	492		
1988 071A	GORIZONT 16	19397	USSR	18 AUG	1436.1	1.0	35798	35776		
1988 071D		19400	USSR	18 AUG	1432.3	1.0	35808	35615		
1988 071E		19401	USSR	18 AUG	500.1	46.7	34244	131		
1988 071F		19402	USSR	18 AUG	338.2	46.6	19245	160		
1988 074A		19419	US	25 AUG	107.3	89.9	1172	1034		
1988 074B		19420	US	25 AUG	107.3	89.9	1172	1033		
1988 074C		19421	US	25 AUG	107.4	89.9	1177	1031		
1988 074D		19515	US	25 AUG	107.2	89.9	1172	1024		
1988 074E		19516	US	25 AUG	107.2	89.9	1165	1026		
1988 074F		19559	US	25 AUG	107.2	89.4	1169	1028		
1988 074G		19577	US	25 AUG	107.3	90.5	1169	1030		
1988 076A	COSMOS 1966	19445	USSR	30 AUG	718.9	65.4	38840	1567		
1988 076D		19448	USSR	30 AUG	705.5	65.8	38245	1502		
1988 077A		19458	US	2 SEP	ELEMENTS NOT AVAILABLE					
1988 077B		19459	US	2 SEP	ELEMENTS NOT AVAILABLE					
1988 077C		19490	US	2 SEP	ELEMENTS NOT AVAILABLE					

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1988 LAUNCHES (CONT.)										
1988 078A		19460	US	5 SEP	ELEMENTS NOT AVAILABLE					
1988 078B		19461	US	5 SEP	ELEMENTS NOT AVAILABLE					
1988 080A	FENGYUN 1	19467	PRC	6 SEP	102.7	99.2	938	833		
1988 080B		19468	PRC	6 SEP	102.7	99.3	895	875		
1988 081A	GSTAR 3	19483	US	8 SEP	1436.0	3.1	35796	35775		
1988 081B	SBS 5	19484	US	8 SEP	1436.0	0.0	35791	35780		
1988 081C		19485	ESA	8 SEP	499.0	7.2	28698	226		
1988 085A	COSMOS 1970	19501	USSR	16 SEP	675.7	65.4	19156	19102		
1988 085B	COSMOS 1971	19502	USSR	16 SEP	675.7	65.4	19161	19096		
1988 085C	COSMOS 1972	19503	USSR	16 SEP	675.7	65.5	19141	19117		
1988 085E		19505	USSR	16 SEP	674.9	65.4	19127	19089		
1988 085F		19535	USSR	16 SEP	339.3	65.1	18873	595		
1988 085G		19537	USSR	16 SEP	339.3	65.0	18876	594		
1988 086A	CS-3B	19508	JAPAN	16 SEP	1436.1	0.0	35790	35785		
1988 086C		19558	JAPAN	16 SEP	629.3	27.9	35800	95		
1988 089A	NOAA 11	19531	US	24 SEP	101.9	99.0	860	843		
1988 089B		19532	US	24 SEP	100.2	98.9	773	758		
1988 089C		19534	US	24 SEP	99.4	98.9	735	719		
1988 090A	MOLNIYA 3-33	19541	USSR	29 SEP	717.6	64.7	39682	663		
1988 090D		19544	USSR	29 SEP	698.2	64.7	38688	694		
1988 091B	TDRS 3	19548	US	29 SEP	1436.3	0.8	35804	35777		35*
1988 091C		19549	US	29 SEP	512.1	26.7	34656	347		
1988 091D		19550	US	29 SEP	1433.4	0.4	35804	35663		
1988 092A	COSMOS 1974	19554	USSR	3 OCT	717.9	62.6	38818	1543		
1988 092D		19557	USSR	3 OCT	705.4	63.2	38187	1557		
1988 093A	COSMOS 1975	19573	USSR	11 OCT	97.3	82.5	647	613		
1988 093B		19574	USSR	11 OCT	97.5	82.5	653	620		
1988 093C		20471	USSR	11 OCT	96.9	82.5	626	597		
1988 095A	RADUGA 22	19596	USSR	20 OCT	1436.0	0.8	35795	35774		
1988 095E		19600	USSR	20 OCT	602.6	46.6	34363	144		
1988 095F		19601	USSR	20 OCT	545.2	46.6	31321	138		
1988 095F		19777	USSR	20 OCT	1470.4	0.8	36519	36390		
1988 096A	COSMOS 1977	19608	USSR	25 OCT	718.0	62.8	38364	2003		
1988 096D		19611	USSR	25 OCT	704.9	63.1	37730	1985		
1988 098A	TDF-1	19621	FRANCE	28 OCT	1436.2	0.1	35805	35770		
1988 098B		19622	ESA	28 OCT	590.9	3.9	33615	282		
1988 098C		20132	ESA	26 OCT	463.0	3.9	26644	248		
1988 099A		19625	US	6 NOV	ELEMENTS NOT AVAILABLE					
1988 099B		19626	US	6 NOV	ELEMENTS NOT AVAILABLE					
1988 102A	COSMOS 1980	19649	USSR	23 NOV	101.9	71.0	850	845		
1988 102B		19650	USSR	23 NOV	101.8	71.0	852	830		
1988 102C		19656	USSR	23 NOV	105.2	71.0	1162	841		
1988 102D		19657	USSR	23 NOV	105.1	71.0	1161	839		
1988 102E		19658	USSR	23 NOV	104.9	71.0	1140	840		
1988 102F		19659	USSR	23 NOV	104.7	71.0	1124	840		
1988 102H		19813	USSR	23 NOV	105.1	71.0	1162	839		
1988 102J		20301	USSR	23 NOV	101.9	71.0	855	840		
1988 106B		19671	US	2 DEC	ELEMENTS NOT AVAILABLE					
1988 108A	EKRAN 19	19683	USSR	8 DEC	1436.1	0.7	35796	35776		
1988 108D		19686	USSR	8 DEC	1418.5	0.6	35514	35369		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1988 LAUNCHES (CONT.)										
1988 108E		19691	USSR	8 DEC	182.0	46.6	8376	145		
1988 108F		19699	USSR	10 DEC	572.2	46.7	32759	145		
1988 109A	SKYNET 4B	19687	UK	11 DEC	1435.1	0.9	35852	35683		
1988 109B	ASTRA 1A	19688	LUXBRG	11 DEC	1436.1	0.1	35800	35774		
1988 109C		19689	ESA	11 DEC	541.1	7.2	36070	431		
1988 109D		19690	ESA	11 DEC	418.8	6.8	24078	250		
1988 111A	PRC 25	19710	PRC	22 DEC	1436.3	0.1	35795	35785		
1988 112A	MOLNIYA 3-34	19713	USSR	22 DEC	717.9	62.9	39047	1311		
1988 112D		19716	USSR	22 DEC	696.1	62.9	38047	1232		
1988 113A	COSMOS 1985	19720	USSR	23 DEC	93.5	73.5	447	441		
1988 113H		19764	USSR	23 DEC	94.5	73.5	500	491		
1988 115A	MOLNIYA 1-74	19730	USSR	28 DEC	717.9	64.4	39968	390		
1988 115D		19733	USSR	28 DEC	695.9	64.3	38848	419		
1989 LAUNCHES										
1989 001A	COSMOS 1987	19749	USSR	10 JAN	675.7	64.9	19148	19110		
1989 001B	COSMOS 1988	19750	USSR	10 JAN	675.7	64.9	19148	19110		
1989 001C	COSMOS 1989	19751	USSR	10 JAN	675.5	64.9	19150	19099		
1989 001E		19753	USSR	10 JAN	675.5	64.9	19154	19095		
1989 001F		19754	USSR	10 JAN	674.7	64.9	19142	19065		
1989 001G		19755	USSR	10 JAN	339.6	65.2	18865	629		
1989 001H		19856	USSR	10 JAN	339.6	65.3	18860	632		
1989 004A	GORIZONT 17	19765	USSR	26 JAN	1436.0	0.6	35795	35774		
1989 004D		19768	USSR	26 JAN	635.8	46.3	36005	225		
1989 004E		19771	USSR	26 JAN	384.4	46.9	22051	217		
1989 004F		19776	USSR	26 JAN	1469.5	0.6	36545	36330		
1989 005A	COSMOS 1992	19769	USSR	26 JAN	100.5	74.1	800	767		
1989 005B		19770	USSR	26 JAN	100.4	74.0	779	771		
1989 005C		19831	USSR	26 JAN	100.5	74.1	797	768		
1989 005D		19945	USSR	26 JAN	100.8	74.0	819	771		
1989 006A	INTELSAT 5A F-15	19772	ITSO	27 JAN	1436.1	0.0	35802	35774		
1989 006B		19773	ESA	27 JAN	637.6	8.6	35805	518		
1989 009A	COSMOS 1994	19785	USSR	10 FEB	113.9	82.6	1414	1392		
1989 009B	COSMOS 1995	19786	USSR	10 FEB	114.1	82.6	1415	1410		
1989 009C	COSMOS 1996	19787	USSR	10 FEB	114.0	82.6	1414	1404		
1989 009D	COSMOS 1997	19788	USSR	10 FEB	113.9	82.6	1414	1397		
1989 009E	COSMOS 1998	19789	USSR	10 FEB	113.8	82.6	1414	1387		
1989 009F	COSMOS 1999	19790	USSR	10 FEB	113.7	82.6	1414	1381		
1989 009G		19791	USSR	10 FEB	114.7	82.6	1468	1414		
1989 011A	COSMOS 2001	19796	USSR	14 FEB	717.9	64.1	38707	1652		
1989 011D		19799	USSR	14 FEB	705.7	64.5	38167	1589		
1989 013A		19802	US	14 FEB	718.0	55.0	20317	20047		
1989 014A	MOLNIYA 1-75	19807	USSR	15 FEB	720.8	63.3	39062	1438		
1989 014D		19810	USSR	15 FEB	694.4	63.3	37810	1385		
1989 016A	EXOS-D	19822	JAPAN	21 FEB	198.2	75.1	9497	265		
1989 016C		19824	JAPAN	21 FEB	189.7	75.1	8852	264		
1989 016K		19952	JAPAN	21 FEB	143.9	75.0	5169	265		
1989 016L		19962	JAPAN	21 FEB	171.0	75.7	7389	263		
1989 016M		19963	JAPAN	21 FEB	183.8	75.2	8391	265		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1989 LAUNCHES (CONT.)										
1989 016P		20034	JAPAN	21 FEB	125.0	74.9	3559	243		
1989 017A	COSMOS 2004	19826	USSR	22 FEB	105.0	83.0	1013	970		
1989 018A	METEOR 2-18	19851	USSR	28 FEB	104.0	82.5	955	937		
1989 018B		19852	USSR	28 FEB	104.0	82.5	959	936		
1989 020A	JCSAT-1	19874	JAPAN	6 MAR	1436.2	0.0	35794	35781		
1989 020B	MOP-1	19876	ESA	6 MAR	1436.1	0.3	35793	35780		
1989 020C		19877	ESA	6 MAR	377.8	6.5	21660	204		
1989 020D		19878	ESA	6 MAR	375.3	6.6	21472	240		
1989 020E		20800	UK	6 MAR	1433.8	0.7	36257	35224		
1989 021B	TDRS-D	19883	US	13 MAR	1435.9	0.8	35794	35774		
1989 021C		19884	US	13 MAR	582.2	26.7	33180	257		
1989 021D		19913	US	13 MAR	1431.4	3.8	35817	35570		
1989 025A	COSMOS 2008	19902	USSR	24 MAR	114.5	74.0	1469	1391		
1989 025B	COSMOS 2009	19903	USSR	24 MAR	114.6	74.0	1470	1406		
1989 025C	COSMOS 2010	19904	USSR	24 MAR	114.8	74.0	1469	1422		
1989 025D	COSMOS 2011	19905	USSR	24 MAR	115.0	74.0	1469	1437		
1989 025E	COSMOS 2012	19906	USSR	24 MAR	115.1	74.0	1469	1454		
1989 025F	COSMOS 2013	19907	USSR	24 MAR	115.3	74.0	1478	1463		
1989 025G	COSMOS 2014	19908	USSR	24 MAR	115.5	74.0	1488	1468		
1989 025H	COSMOS 2015	19909	USSR	24 MAR	115.7	74.0	1508	1467		
1989 025J		19910	USSR	24 MAR	117.7	74.0	1683	1471		
1989 026A		19911	US	24 MAR	93.5	47.7	446	442		
1989 027A	TELE-X	19919	SWEDEN	2 APR	1436.0	0.1	36408	35161		
1989 028A	COSMOS 2016	19921	USSR	4 APR	104.7	83.0	1012	951		
1989 028B		19922	USSR	4 APR	104.6	83.0	1002	948		
1989 030A	RADUGA 23	19928	USSR	14 APR	1436.2	0.4	35798	35780		
1989 030D		19931	USSR	14 APR	1470.5	0.4	36540	36376		
1989 030F		19933	USSR	14 APR	597.5	46.8	34087	154		
1989 033B	MAGELLAN	19969	US	4 MAY	TRANS-VENUS TRAJECTORY					
1989 033C		19970	US	4 MAY	436.4	28.0	25065	294		
1989 033D		19971	US	4 MAY	CURRENT ELEMENTS NOT MAINTAINED					
1989 035A		19976	US	10 MAY	ELEMENTS NOT AVAILABLE					
1989 035B		19977	US	10 MAY	CURRENT ELEMENTS NOT MAINTAINED					
1989 035C		19983	US	10 MAY	CURRENT ELEMENTS NOT MAINTAINED					
1989 039A	COSMOS 2022	20024	USSR	31 MAY	675.7	65.2	19139	19119		
1989 039B	COSMOS 2023	20025	USSR	31 MAY	675.7	65.2	19165	19093		
1989 039C	COSMOS 2024	20026	USSR	31 MAY	675.4	65.2	19145	19096		
1989 039E		20028	USSR	31 MAY	674.5	65.2	19142	19056		
1989 039F		20044	USSR	31 MAY	675.4	65.2	19148	19093		
1989 039G		20081	USSR	31 MAY	339.5	64.9	18978	505		
1989 039H		20082	USSR	31 MAY	339.5	65.0	18973	512		
1989 041A	SUPERBIRD A	20040	JAPAN	5 JUN	1443.8	0.2	35952	35920		
1989 041B		20041	FRG	5 JUN	1436.1	0.0	35846	35728		
1989 041C		20042	ESA	5 JUN	517.2	6.5	29699	232		
1989 041D		20043	ESA	5 JUN	246.2	6.8	13066	201		
1989 042A	COSMOS 2026	20045	USSR	7 JUN	104.7	82.9	1006	949		
1989 042B		20046	USSR	7 JUN	104.5	82.9	998	947		
1989 043A	MOLNIYA 3-35	20052	USSR	8 JUN	717.8	64.2	39923	431		
1989 043D		20055	USSR	8 JUN	733.6	64.3	40732	399		
1989 044A		20061	US	10 JUN	718.0	54.9	20420	19943		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1989 LAUNCHES (CONT.)										
1989 044C		20063	US	10 JUN	115.4	37.3	2804	145		
1989 045A	COSMOS 2027	20064	USSR	14 JUN	93.1	65.8	442	411		
1989 046A		20066	US	14 JUN	ELEMENTS NOT AVAILABLE					
1989 046B		20067	US	14 JUN	ELEMENTS NOT AVAILABLE					
1989 046C		20068	US	14 JUN	ELEMENTS NOT AVAILABLE					
1989 046D		20069	US	14 JUN	ELEMENTS NOT AVAILABLE					
1989 046E		20319	US	14 JUN	ELEMENTS NOT AVAILABLE					
1989 048A	RADUGA 1-1	20083	USSR	21 JUN	1436.0	0.2	35791	35779		
1989 048D		20086	USSR	21 JUN	1471.1	0.2	36570	36367		
1989 048F		20094	USSR	21 JUN	482.5	47.0	27704	294		
1989 050A	NADEZHDA	20103	USSR	4 JUL	104.8	83.0	1010	956		
1989 050B		20104	USSR	4 JUL	104.7	83.0	1001	955		
1989 052A	GORIZONT 18	20107	USSR	5 JUL	1436.3	0.2	35800	35780		
1989 052D		20110	USSR	5 JUL	1397.2	0.2	35153	34891		
1989 052E		20115	USSR	5 JUL	182.1	46.6	8386	138		
1989 052F		20116	USSR	5 JUL	540.8	47.2	30831	387		
1989 053A	OLYMPUS	20122	ESA	12 JUL	1436.2	0.0	35806	35769		
1989 053B		20123	ESA	12 JUL	464.1	6.2	26752	206		
1989 053C		20229	ESA	12 JUN	640.0	6.0	35992	452		
1989 059A	COSMOS 2034	20149	USSR	25 JUL	104.8	82.9	1011	963		
1989 059B		20150	USSR	25 JUL	104.7	82.9	1002	957		
1989 061B		20167	US	8 AUG	ELEMENTS NOT AVAILABLE					
1989 061C		20172	US	8 AUG	ELEMENTS NOT AVAILABLE					
1989 061D		20344	US	8 AUG	CURRENT ELEMENTS NOT MAINTAINED					
1989 062A	TV-SAT 2	20168	FRG	8 AUG	1436.1	0.0	35804	35770		
1989 062B	HIPPARCOS	20169	ESA	8 AUG	639.2	6.7	35880	525		
1989 062C		20170	ESA	8 AUG	629.3	7.4	35520	376		
1989 062D		20171	ESA	8 AUG	242.1	7.3	12771	204		
1989 064A		20185	US	18 AUG	718.0	54.9	20238	20125		
1989 067A	BSB-R1	20193	UK	27 AUG	1436.2	0.0	35797	35780		
1989 067C		20195	US	27 AUG	644.7	23.3	36412	272		
1989 068A	COSMOS 2037	20196	USSR	28 AUG	116.0	73.6	1522	1482		
1989 068B		20197	USSR	28 AUG	116.0	73.6	1520	1482		
1989 069A		20202	US	4 SEP	ELEMENTS NOT AVAILABLE					
1989 069B		20203	US	4 SEP	ELEMENTS NOT AVAILABLE					
1989 069D		20205	US	4 SEP	CURRENT ELEMENTS NOT MAINTAINED					
1989 070A	GMS-4	20217	JAPAN	5 SEP	1436.2	0.4	35793	35785		
1989 070B		20230	JAPAN	5 SEP	561.3	28.1	32148	173		
1989 070C		20317	JAPAN	5 SEP	1458.1	0.4	38624	33807		
1989 072A		20220	US	6 SEP	CURRENT ELEMENTS NOT MAINTAINED					
1989 074A	COSMOS 2038	20232	USSR	14 SEP	113.8	82.6	1408	1389		
1989 074B	COSMOS 2039	20233	USSR	14 SEP	113.7	82.6	1408	1383		
1989 074C	COSMOS 2040	20234	USSR	14 SEP	114.0	82.6	1413	1408		
1989 074D	COSMOS 2041	20235	USSR	14 SEP	113.8	82.6	1408	1394		
1989 074E	COSMOS 2042	20236	USSR	14 SEP	113.9	82.6	1408	1399		
1989 074F	COSMOS 2043	20237	USSR	14 SEP	113.9	82.6	1408	1406		
1989 074G		20238	USSR	14 SEP	114.7	82.6	1472	1407		
1989 077A		20253	US	25 SEP	1436.4	3.9	35813	35770		
1989 077B		20254	US	25 SEP	145.6	28.0	5447	132		
1989 078A	MOLNIYA 1-76	20255	USSR	27 SEP	717.7	63.2	39603	745		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1989 LAUNCHES (CONT.)										
1989 078D		20258	USSR	27 SEP	698.4	63.0	38665	727		
1989 079A	COSMOS 2046	20259	USSR	27 SEP	92.7	65.0	416	401		
1989 080A	INTER-COSMOS 24	20261	USSR	28 SEP	115.6	82.6	2470	497		
1989 080B		20291	USSR	28 SEP	115.6	82.6	2466	496		
1989 080C		20252	USSR	28 SEP	115.7	82.6	2478	498		
1989 081A	GORIZANT 19	20263	USSR	28 SEP	1436.0	0.2	35784	35783		
1989 081D		20266	USSR	28 SEP	1431.3	0.2	35813	35570		
1989 081F		20271	USSR	28 SEP	551.0	46.5	31649	120		
1989 084B	GALILEO	20298	US	18 OCT	ELEMENTS NOT AVAILABLE					
1989 084C		20299	US	18 OCT	CURRENT ELEMENTS NOT MAINTAINED					
1989 084D		20300	US	18 OCT	ELEMENTS NOT AVAILABLE					
1989 085A		20302	US	21 OCT	718.0	54.5	20269	20096		
1989 085B		20303	US	21 OCT	99.1	35.7	940	490		
1989 085C		20304	US	21 OCT	187.9	37.6	8821	154		
1989 086A	METEOR 3-3	20305	USSR	24 OCT	109.4	82.6	1209	1185		
1989 086B		20306	USSR	24 OCT	109.4	82.6	1209	1184		
1989 087A	INTELSAT 6A	20315	ITSO	27 OCT	1436.2	0.0	35794	35782		
1989 087B		20316	ESA	27 OCT	612.1	7.8	34724	279		
1989 089A	COBE	20322	US	18 NOV	102.6	99.0	889	876		
1989 089B		20323	US	18 NOV	99.8	97.1	808	693		
1989 089C		20324	US	18 NOV	102.5	99.0	885	866		
1989 089D		20328	US	18 NOV	102.7	99.0	890	882		
1989 090B		20355	US	23 NOV	ELEMENTS NOT AVAILABLE					
1989 090C		20356	US	23 NOV	ELEMENTS NOT AVAILABLE					
1989 090D		20357	US	23 NOV	ELEMENTS NOT AVAILABLE					
1989 091A	COSMOS 2050	20330	USSR	23 NOV	718.0	63.0	39467	898		
1989 091D		20333	USSR	23 NOV	705.2	63.2	38825	904		
1989 093A	KVANT -2	20335	USSR	26 NOV	92.0	51.6	379	361		
1989 094A	MOLNIYA 3-36	20338	USSR	28 NOV	717.8	63.2	39657	697		
1989 094B		20339	USSR	28 NOV	732.2	63.1	40357	706		
1989 096A	GRANAT	20352	USSR	1 DEC	5893.4	77.5	189891	13507		
1989 096C		20354	USSR	1 DEC	5770.8	76.6	187299	13092		
1989 096D		20358	USSR	1 DEC	90.0	51.5	377	169		
1989 097A		20361	US	11 DEC	718.0	55.0	20349	20015		
1989 097B		20362	US	11 DEC	99.0	35.7	931	488		
1989 098A	RADUGA 24	20367	USSR	15 DEC	1436.3	0.3	35795	35786		
1989 098D		20370	USSR	15 DEC	1471.6	0.3	36564	36393		
1989 098E		20371	USSR	15 DEC	577.0	46.3	33014	147		
1989 098F		20372	USSR	15 DEC	613.8	46.7	34952	142		
1989 100A	COSMOS 2053	20389	USSR	27 DEC	94.5	73.5	501	484		
1989 100B		20390	USSR	27 DEC	94.8	73.5	521	498		
1989 100B - 100AE			USSR	27 DEC	SEE NOTE		51*			51*
1989 101A	COSMOS 2054	20391	USSR	27 DEC	1436.1	0.4	35797	35775		
1989 101D		20394	USSR	27 DEC	1465.7	0.4	36413	36314		
1989 101E		20399	USSR	27 DEC	491.0	46.6	29261	214		
1989 101F		20400	USSR	27 DEC	335.6	45.2	19021	214		
1990 LAUNCHES										
1990 001A	SKYNET 4A	20401	UK	1 JAN	1436.2	2.6	35792	35783		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1990 LAUNCHES (CONT.)										
1990 001B	JCSAT	20402	JAPAN	1 JAN	1436.2	0.0	35796	35779		
1990 001D		20404	US	1 JAN	610.7	21.3	34637	295		
1990 001F		20406	US	1 JAN	335.2	26.7	18928	282		
1990 002B	LEASAT 5	20410	US	9 JAN	1436.1	2.9	35808	35766		
1990 002C		20411	US	9 JAN	273.4	27.2	14824	327		
1990 004A	COSMOS 2056	20432	USSR	18 JAN	100.6	74.0	805	772		
1990 004B		20433	USSR	18 JAN	100.5	74.0	808	757		
1990 004C		20434	USSR	18 JAN	100.9	74.0	817	788		
1990 004D		20435	USSR	18 JAN	100.5	74.0	797	763		
1990 005A	SPOT-2	20436	FRANCE	22 JAN	101.3	98.7	822	821		
1990 005B	OSCAR 14	20437	UK	22 JAN	100.7	98.7	800	783		
1990 005C	OSCAR 15	20438	UK	22 JAN	100.7	98.7	800	785		
1990 005D	OSCAR 16	20439	US	22 JAN	100.7	98.7	800	783		
1990 005E	OSCAR 17	20440	BRAZIL	22 JAN	100.7	98.7	800	782		
1990 005F	OSCAR 18	20441	US	22 JAN	100.7	98.7	900	781		
1990 005G	OSCAR 19	20442	ARGNT	22 JAN	100.7	98.7	800	781		
1990 005H		20443	ESA	22 JAN	100.6	98.6	794	777		
1990 006A	MOLNIYA 3	20444	USSR	23 JAN	717.5	63.6	39935	407		
1990 006C		20446	USSR	23 JAN	697.3	63.6	38911	428		
1990 007A	MUSES A	20448	JAPAN	24 JAN	ELEMENTS NOT AVAILABLE					
1990 007B	HAGOROMO	20618	JAPAN	24 JAN	SELENOCENTRIC ORBIT					
1990 007D		20451	JAPAN	24 JAN	ELEMENTS NOT AVAILABLE					
1990 008A		20452	US	24 JAN	718.0	54.4	20305	20060		
1990 008B		20453	US	24 JAN	102.2	35.6	1270	450		
1990 008C		20450	US		275.7	37.7	15108	197		
1990 010A	COSMOS 2058	20465	USSR	30 JAN	ELEMENTS NOT AVAILABLE					
1990 010B		20466	USSR	30 JAN	97.6	82.5	658	626		
1990 011A	PRC-26	20473	PRC	4 FEB	1436.2	0.1	35792	35785		
1990 011B		20474	PRC	4 FEB	618.7	30.0	35069	276		
1990 013A	MOS 18	20478	JAPAN	7 FEB	103.2	99.2	909	908		
1990 013B	DEBUT	20479	JAPAN	7 FEB	112.2	99.0	1743	909		
1990 013C	JAS 1-B	20480	JAPAN	7 FEB	112.2	99.0	1743	908		
1990 013D		20491	JAPAN	7 FEB	110.5	99.0	1607	889		
1990 015A		20496	US	14 FEB	95.0	43.1	532	507		
1990 015B		20497	US	14 FEB	93.1	43.1	441	416		
1990 016A	RADUGA 25	20499	USSR	15 FEB	1436.2	0.5	35799	35776		
1990 016D		20502	USSR	15 FEB	1439.9	0.5	36028	35692		
1990 016E		20506	USSR	15 FEB	568.7	46.7	32590	128		
1990 016F		20507	USSR	15 FEB	491.2	46.6	28263	224		
1990 017A	NADEZHDA-2	20508	USSR	27 FEB	104.8	83.0	1016	952		
1990 017B		20509	USSR	27 FEB	104.7	82.9	1010	949		
1990 018A	OKEAN-2	20510	USSR	28 FEB	97.6	82.5	657	628		
1990 018B		20511	USSR	28 FEB	97.6	82.5	660	630		
1990 019B		20516	US	28 FEB	ELEMENTS NOT AVAILABLE					
1990 019C		20517	US	28 FEB	ELEMENTS NOT AVAILABLE					
1990 019D		20518	US	28 FEB	ELEMENTS NOT AVAILABLE					
1990 019E		20519	US	28 FEB	ELEMENTS NOT AVAILABLE					
1990 019F		20520	US	28 FEB	ELEMENTS NOT AVAILABLE					
1990 019G		20521	US	28 FEB	ELEMENTS NOT AVAILABLE					
1990 021A	INTELSAT-6	20523	ITSO	14 MAR	95.9	28.3	570	549		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1990 LAUNCHES (CONT.)										
1990 022A	COSMOS 2060	20525	USSR	14 MAR	92.8	65.0	416	402		
1990 023A	COSMOS 2061	20527	USSR	20 MAR	104.9	82.9	1014	969		
1990 023B		20528	USSR	20 MAR	104.8	82.9	1004	969		
1990 025A		20533	US	26 MAR	718.0	55.2	20274	20089		
1990 025C		20535	US	26 MAR	243.4	37.5	12901	169		
1990 026A	COSMOS 2063	20536	USSR	27 MAR	717.6	63.8	39480	866		
1990 026D		20539	USSR	27 MAR	709.3	64.2	39062	872		
1990 028A	PEGSAT	20546	US	5 APR	95.4	94.1	629	446		
1990 028B		20547	US	5 APR	96.1	94.2	659	484		
1990 029A	COSMOS 2064	20549	USSR	6 APR	115.4	74.0	1487	1461		
1990 029B	COSMOS 2065	20550	USSR	6 APR	115.2	74.0	1472	1460		
1990 029C	COSMOS 2066	20551	USSR	6 APR	114.3	74.0	1461	1383		
1990 029D	COSMOS 2067	20552	USSR	6 APR	114.4	74.0	1461	1398		
1990 029E	COSMOS 2068	20553	USSR	6 APR	114.6	74.0	1461	1412		
1990 029F	COSMOS 2069	20554	USSR	6 APR	114.8	74.0	1461	1426		
1990 029G	COSMOS 2070	20555	USSR	6 APR	114.9	74.0	1462	1440		
1990 029H	COSMOS 2071	20556	USSR	6 APR	115.1	74.0	1461	1456		
1990 029J		20557	USSR	6 APR	117.7	74.0	1696	1461		
1990 030A	ASIASAT 1	20558	UK	7 APR	1436.2	0.1	35792	35785		
1990 030B		20559	PRC	7 APR	630.6	30.8	35737	227		
1990 031A		20560	US	11 APR	ELEMENTS NOT AVAILABLE					
1990 031B		20561	US	11 APR	ELEMENTS NOT AVAILABLE					
1990 031C		20562	US	11 APR	ELEMENTS NOT AVAILABLE					
1990 031D		20563	US	11 APR	ELEMENTS NOT AVAILABLE					
1990 031E		20564	US	11 APR	ELEMENTS NOT AVAILABLE					
1990 031F		20565	US	11 APR	ELEMENTS NOT AVAILABLE					
1990 031G		20575	US	11 APR	ELEMENTS NOT AVAILABLE					
1990 031H		20576	US	11 APR	ELEMENTS NOT AVAILABLE					
1990 034A	PALAPA B2R	20570	INDO	13 APR	1436.2	0.1	35792	35786		
1990 034B		20571	US	13 APR	104.1	22.8	1401	501		
1990 034C		20572	US	13 APR	510.3	18.2	29362	188		
1990 036A	COSMOS 2074	20577	USSR	20 APR	104.9	82.9	1004	961		
1990 036B		20578	USSR	20 APR	104.7	82.9	993	963		
1990 037B	HST	20580	US	24 APR	96.9	28.5	615	607		
1990 038A	COSMOS 2075	20581	USSR	25 APR	93.6	74.0	463	435		
1990 038B		20582	USSR	25 APR	93.4	74.0	457	421		
1990 039A	MOLNIYA 1-77	20583	USSR	25 APR	720.5	62.9	39577	913		
1990 039D		20586	USSR	26 APR	733.0	62.9	40198	906		
1990 040A	COSMOS 2076	20596	USSR	28 APR	717.8	63.1	39586	770		
1990 040D		20599	USSR	28 APR	707.6	63.7	39084	767		
1990 043A	SCOUT M-1	20607	US	9 MAY	98.4	89.9	762	606		
1990 043B		20608	US	9 MAY	98.4	89.9	760	606		
1990 043C		20609	US	9 MAY	98.3	89.9	753	601		
1990 043D		20610	US	9 MAY	98.2	89.9	752	592		
1990 043E		20611	US	9 MAY	98.1	89.9	747	590		
1990 043F		20612	US	9 MAY	98.0	89.9	732	597		
1990 043G		20613	US	9 MAY	97.3	89.9	689	568		
1990 043H		20614	US	9 MAY	98.0	89.9	729	597		
1990 043J		20634	US	9 MAY	97.5	89.9	707	575		
1990 043K		20651	US	9 MAY	98.7	90.1	818	576		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1990 LAUNCHES (CONT.)										
1990 043L		20759	US	9 MAY	97.4	89.7	673	595		
1990 045A	COSMOS 2079	20619	USSR	19 MAY	675.7	65.1	19185	19073		
1990 045B	COSMOS 2080	20620	USSR	19 MAY	675.7	65.1	19150	19108		
1990 045C	COSMOS 2081	20621	USSR	19 MAY	675.7	65.1	19160	19097		
1990 045E		20623	USSR	19 MAY	674.7	65.1	19155	19053		
1990 045F		20630	USSR	19 MAY	339.8	65.0	19078	427		
1990 045G		20631	USSR	19 MAY	339.8	64.9	19078	427		
1990 046A	COSMOS 2082	20624	USSR	22 MAY	101.9	71.0	855	841		
1990 046B		20625	USSR	22 MAY	101.8	71.0	857	833		
1990 046C		20626	USSR	22 MAY	105.1	71.0	1154	842		
1990 046D		20627	USSR	22 MAY	105.2	71.0	1165	843		
1990 046E		20628	USSR	22 MAY	105.1	71.0	1158	841		
1990 046F		20629	USSR	22 MAY	105.0	71.0	1143	843		
1990 048A	KRISTALL	20635	USSR	31 MAY	91.9	51.6	379	361		
1990 049A	ROSAT	20638	FRG	1 JUN	96.0	53.0	576	555		
1990 049B		20639	US	1 JUN	93.7	52.5	493	419		
1990 050A		20641	US	8 JUN	ELEMENTS NOT AVAILABLE					
1990 050B		20682	US	8 JUN	ELEMENTS NOT AVAILABLE					
1990 050C		20691	US	8 JUN	ELEMENTS NOT AVAILABLE					
1990 050D		20692	US	8 JUN	ELEMENTS NOT AVAILABLE					
1990 050E		20642	US	8 JUN	ELEMENTS NOT AVAILABLE					
1990 051A	INSAT-1D	20643	INDIA	12 JUN	1436.1	0.0	35802	35772		
1990 051C		20645	US	12 JUN	703.0	27.2	39517	103		
1990 052A	MOLNIYA 3-38	20646	USSR	13 JUN	717.7	62.9	39505	847		
1990 052D		20649	USSR	13 JUN	733.7	62.9	40278	857		
1990 054A	GORIZONT 20	20659	USSR	20 JUN	1436.2	0.8	35817	35759		
1990 054D		20662	USSR	20 JUN	1433.0	0.8	35792	35658		
1990 054E		20704	USSR	20 JUN	574.8	46.5	32898	143		
1990 054F		20711	USSR	20 JUN	593.0	46.6	33868	135		
1990 055A	COSMOS 2084	20663	USSR	21 JUN	98.0	62.8	773	554		
1990 055D		20665	USSR	21 JUN	97.9	62.8	762	550		
1990 056A	INTELSAT	20667	ITSO	23 JUN	1436.2	0.0	35790	35785		
1990 056C		20669	US	23 JUN	675.4	24.0	37872	373		
1990 057A	METEOR 2-19	20670	USSR	27 JUN	104.0	82.5	958	935		
1990 057B		20671	USSR	27 JUN	104.0	82.5	956	935		
1990 058A	GAMMA	20683	USSR	11 JUL	92.7	51.6	411	407		
1990 061A	COSMOS 2085	20693	USSR	18 JUL	1436.1	0.8	35810	35763		
1990 061D		20696	USSR	18 JUL	1436.3	0.9	35931	35650		
1990 061E		20697	USSR	18 JUL	596.7	46.6	34059	138		
1990 061F		20698	USSR	18 JUL	607.6	46.5	34614	156		
1990 063A	TDF-2	20705	FRANCE	24 JUL	1436.2	0.1	35791	35784		
1990 063B	DFS-2	20706	FRG	24 JUL	1436.1	0.0	35799	35773		
1990 063C		20717	ESA	24 JUL	637.6	4.2	35927	396		
1990 063D		20718	ESA	24 JUL	608.8	4.8	34485	345		
1990 064A	COSMOS 2087	20707	USSR	25 JUL	717.9	62.9	39294	1064		
1990 064D		20710	USSR	25 JUL	704.0	63.0	38623	1047		
1990 065A	CRRES	20712	US	25 JUL	590.2	18.0	33503	357		
1990 065B		20713	US	25 JUL	587.6	17.9	33395	327		
1990 065C		20811	US	25 JUL	578.0	18.0	32886	329		
1990 066A	COSMOS 2088	20720	USSR	30 JUL	116.0	73.6	1522	1481		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1990 LAUNCHES (CONT.)										
1990 066B		20721	USSR	30 JUL	116.0	73.6	1519	1481		
1990 068A		20724	US	2 AUG	718.0	54.7	20438	19926		
1990 070A	COSMOS 2090	20735	USSR	8 AUG	113.8	82.6	1411	1388		
1990 070B	COSMOS 2091	20736	USSR	8 AUG	114.0	82.6	1412	1409		
1990 070C	COSMOS 2092	20737	USSR	8 AUG	114.0	82.6	1411	1404		
1990 070D	COSMOS 2093	20738	USSR	8 AUG	113.9	82.6	1411	1397		
1990 070E	COSMOS 2094	20739	USSR	8 AUG	113.8	82.6	1410	1393		
1990 070F	COSMOS 2095	20740	USSR	8 AUG	113.7	82.6	1411	1381		
1990 070G		20741	USSR	8 AUG	114.6	82.6	1466	1410		
1990 071A	MOLNIYA 1-7H	20742	USSR	10 AUG	717.7	62.9	39351	998		
1990 071D		20745	USSR	10 AUG	732.6	62.9	40082	1002		
1990 074A	BSB-R2	20762	UK	18 AUG	1436.2	0.0	35795	35781		
1990 074B		20763	US	18 AUG	102.7	24.8	1292	478		
1990 074C		20764	US	18 AUG	672.0	20.9	37663	410		
1990 075A	COSMOS 2096	20765	USSR	23 AUG	92.8	65.0	416	402		
1990 076A	COSMOS 2097	20767	USSR	28 AUG	717.6	63.8	39571	775		
1990 076D		20770	USSR	28 AUG	707.9	63.8	39114	751		
1990 077A	BS-3A	20771	JAPAN	29 AUG	1436.2	0.1	35799	35777		
1990 077C		20773	JAPAN	29 AUG	586.3	28.9	33547	104		
1990 078A	COSMOS 2098	20774	USSR	28 AUG	108.8	83.0	1945	395		
1990 078B		20775	USSR	28 AUG	108.5	83.0	1934	379		
1990 079A	SKYNET 4C	20776	UK	30 AUG	1436.1	4.0	35790	35783		
1990 079B	EUTELSAT II F1	20777	ESA	30 AUG	1389.5	0.5	36966	32772		
1990 079C		20778	ESA	30 AUG	593.9	7.4	33871	179		
1990 079D		20781	ESA	30 AUG	534.2	7.3	30675	188		
1990 081A	FENGYUN 1-2	20788	PRC	3 SEP	102.7	98.9	898	876		
1990 081C	PRC 32	20790	PRC	3 SEP	100.2	99.0	781	754		
1990 081D		20791	PRC	3 SEP	103.4	98.9	960	881		
1990 081D - 081CG			PRC	3 SEP	SEE NOTE		52*			52*
1990 081E		20792	PRC	3 SEP	102.6	98.9	895	867		
1990 081F		20793	PRC	3 SEP	102.6	98.9	894	871		
1990 081G		20797	PRC	3 SEP	102.6	98.9	890	877		
1990 081H		20798	PRC	3 SEP	102.6	98.9	891	873		
1990 081J		20846	PRC	3 SEP	106.0	99.0	1204	877		
1990 081K		20847	PRC	3 SEP	101.7	98.9	877	801		
1990 081L		20848	PRC	3 SEP	105.6	98.9	1202	842		
1990 081M		20849	PRC	3 SEP	103.3	98.9	949	874		
1990 081N		20850	PRC	3 SEP	101.3	98.9	882	761		
1990 083A	COSMOS 2100	20804	USSR	14 SEP	104.8	82.9	1012	955		
1990 083B		20805	USSR	14 SEP	104.7	82.9	1005	951		
1990 084A	MOLNIYA 3-39	20813	USSR	20 SEP	717.8	62.9	39595	760		
1990 084D		20816	USSR	20 SEP	731.7	62.9	40272	765		
1990 086A	METEOR 2-20	20826	USSR	28 SEP	104.0	82.5	960	938		
1990 086B		20827	USSR	28 SEP	104.0	82.5	958	938		
1990 088A		20830	US	1 OCT	718.0	54.9	20379	19984		
1990 088C		20832	US	1 OCT	210.2	37.6	10528	133		
1990 090B	ULYSSES	20842	US	6 OCT	HELIOCENTRIC ORBIT					
1990 090C		20843	US	6 OCT	561.8	28.4	32029	320		
1990 090D		20844	US	6 OCT	ELEMENTS NOT AVAILABLE					
1990 090E		20845	US	6 OCT	ELEMENTS NOT AVAILABLE					

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1990 LAUNCHES (CONT.)										
1990 091A	SBS-6	20872	US	12 OCT	1436.1	0.0	35799	35776		
1990 091B	GALAXY VI	20873	US	12 OCT	1436.2	0.0	35795	35780		
1990 091C		20874	ESA	12 OCT	646.1	7.3	36519	240		
1990 091D		20875	ESA	12 OCT	555.9	7.0	31860	176		
1990 093A	INMARSAT 2 F1	20918	UK	30 OCT	1436.1	2.4	35863	35710		
1990 093B		20919	US	30 OCT	100.0	24.8	1132	380		
1990 093C		20920	US	30 OCT	612.1	23.2	34873	129		
1990 094A	GORIZONT 21	20923	USSR	3 NOV	1436.1	1.0	35792	35779		
1990 094D		20926	USSR	3 NOV	1427.6	1.1	35850	35391		
1990 094E		20927	USSR	3 NOV	625.7	46.7	35519	188		
1990 094F		20928	USSR	3 NOV	603.7	46.7	34425	143		
1990 095A		20929	US	13 NOV	ELEMENTS NOT AVAILABLE					
1990 095C		20931	US	13 NOV	ELEMENTS NOT AVAILABLE					
1990 095D		20932	US	13 NOV	ELEMENTS NOT AVAILABLE					
1990 096A	COSMOS 2103	20933	USSR	14 NOV	91.8	65.0	369	353		
1990 097B		20963	US	15 NOV	ELEMENTS NOT AVAILABLE					
1990 097C		20964	US	15 NOV	ELEMENTS NOT AVAILABLE					
1990 097D		20965	US	15 NOV	ELEMENTS NOT AVAILABLE					
1990 099A	COSMOS 2105	20941	USSR	20 NOV	717.7	63.8	39666	684		
1990 099D		20944	USSR	20 NOV	707.5	63.7	39075	768		
1990 100A	SATCOM I	20945	US	20 NOV	1436.1	0.0	35789	35783		
1990 100B	GSTAR IV	20946	US	20 NOV	1436.1	0.0	35792	35780		
1990 100C		20947	ESA	20 NOV	630.1	7.0	35663	273		
1990 100D		20948	ESA	20 NOV	500.9	6.8	28824	207		
1990 101A	MOLNIYA 1-79	20949	USSR	23 NOV	720.5	63.2	39933	554		
1990 101D		20952	USSR	23 NOV	730.7	63.2	40433	556		
1990 102A	GORIZONT 22	20953	USSR	23 NOV	1436.0	1.1	35803	35765		
1990 102D		21046	USSR	23 NOV	1471.4	1.1	36570	36378		
1990 102E		20957	USSR	23 NOV	632.8	46.7	35913	159		
1990 102F		20958	USSR	23 NOV	632.9	46.7	35920	161		
1990 103A		20959	US	26 NOV	718.0	55.0	20302	20061		
1990 103B		20960	US	26 NOV	96.8	21.4	709	502		
1990 103C		20961	US	26 NOV	315.4	34.6	17787	156		
1990 104A	COSMOS 2106	20966	USSR	28 NOV	94.9	82.5	525	504		
1990 104B		20967	USSR	28 NOV	95.0	82.5	529	509		
1990 104G		21069	USSR	28 NOV	92.8	82.5	423	399		
1990 105A		20978	US	1 DEC	100.6	98.8	843	728		
1990 105B		20979	US	1 DEC	100.0	98.8	817	698		
1990 105B - 105AC			US	1 DEC	SEE NOTE		53*			53*
1990 105D		20984	US	1 DEC	97.9	98.9	793	521		
1990 105F		20988	US	1 DEC	96.7	98.8	680	524		
1990 105J		20991	US	1 DEC	96.3	98.9	718	442		
1990 105L		20993	US	1 DEC	97.6	98.8	724	565		
1990 105M		20998	US	1 DEC	96.4	98.9	675	496		
1990 107A	SOYUZ TM 11	20981	USSR	2 DEC	91.9	51.6	379	360		
1990 108A	COSMOS 2107	20985	USSR	4 DEC	92.7	65.0	415	402		
1990 110A	COSMOS 2109	21006	USSR	8 DEC	675.7	64.8	19287	18971		
1990 110B	COSMOS 2110	21007	USSR	8 DEC	675.7	64.9	19229	19029		
1990 110C	COSMOS 2111	21008	USSR	8 DEC	675.7	64.8	19157	19101		
1990 110F		21011	USSR	8 DEC	675.2	64.9	19237	18996		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1990 LAUNCHES (CONT.)										
1990 110G		21012	USSR	8 DEC	340.3	64.9	19081	453		
1990 110H		21013	USSR	8 DEC	340.3	64.8	19081	453		
1990 111A	COSMOS 2112	21014	USSR	10 DEC	100.6	74.0	809	767		
1990 111B		21015	USSR	10 DEC	100.5	74.1	801	764		
1990 112A	RADUGA 26	21016	USSR	20 DEC	1436.1	1.2	35791	35781		
1990 112D		21019	USSR	20 DEC	1439.5	1.2	35957	35747		
1990 112E		21024	USSR	21 DEC	630.3	46.9	35740	208		
1990 112F		21025	USSR	20 DEC	634.8	46.9	35934	242		
1990 113A	COSMOS 2113	21026	USSR	21 DEC	89.7	64.7	279	243		
1990 114A	COSMOS 2114	21028	USSR	22 DEC	114.0	82.6	1411	1408		
1990 114B	COSMOS 2115	21029	USSR	22 DEC	113.9	82.6	1408	1405		
1990 114C	COSMOS 2116	21030	USSR	22 DEC	113.9	82.6	1408	1399		
1990 114D	COSMOS 2117	21031	USSR	22 DEC	113.8	82.6	1408	1393		
1990 114E	COSMOS 2118	21032	USSR	22 DEC	113.8	82.6	1408	1388		
1990 114F	COSMOS 2119	21033	USSR	22 DEC	113.7	82.6	1408	1382		
1990 114G		21034	USSR	22 DEC	114.6	82.6	1471	1407		
1990 116A	RADUGA 1-2	21038	USSR	27 DEC	1436.2	1.2	35812	35766		
1990 116D		21041	USSR	27 DEC	1470.2	1.3	36608	36296		
1990 116E		21044	USSR	27 DEC	645.4	47.2	36465	257		
1990 116F		21045	USSR	27 DEC	641.6	46.9	36328	199		
1991 LAUNCHES										
1991 001A	NATO IVA	21047	NATO	8 JAN	1410.9	4.1	35664	34918		
1991 001B		21048	NATO	8 JAN	121.7	18.5	2724	786		
1991 001C		21049	NATO	8 JAN	635.9	25.5	35479	757		
1991 003A	ITALSAT-1	21055	ITALY	15 JAN	1436.1	0.1	35804	35768		
1991 003B	EUTELSAT	21056	ESA	15 JAN	1436.1	0.0	35967	35605		
1991 003C		21057	ESA	15 JAN	630.7	6.6	35700	268		
1991 003D		21058	ESA	15 JAN	605.0	6.7	34376	256		
1991 005A	COSMOS 2122	21065	USSR	18 JAN	92.8	65.0	416	402		
1991 005C		21067	USSR	18 JAN	91.6	65.0	356	345		
1991 006A	INFORMTR-1	21087	USSR	29 JAN	104.7	82.9	1008	953		
1991 006B		21088	USSR	29 JAN	104.6	82.9	995	955		
1991 007A	COSMOS 2123	21089	USSR	5 FEB	104.8	82.9	1005	960		
1991 007B		21090	USSR	5 FEB	104.6	82.9	995	960		
1991 007C		21091	USSR	5 FEB	104.6	82.9	998	955		
1991 008A	COSMOS 2124	21092	USSR	7 FEB	89.6	62.8	333	173		
1991 009A	COSMOS 2125	21100	USSR	12 FEB	115.2	74.0	1470	1455		
1991 009B	COSMOS 2126	21101	USSR	12 FEB	115.5	74.0	1494	1464		
1991 009C	COSMOS 2127	21102	USSR	12 FEB	115.3	74.0	1476	1465		
1991 009D	COSMOS 2128	21103	USSR	12 FEB	115.0	74.0	1466	1443		
1991 009E	COSMOS 2129	21104	USSR	12 FEB	114.8	74.0	1466	1428		
1991 009F	COSMOS 2130	21105	USSR	12 FEB	114.5	74.0	1467	1399		
1991 009G	COSMOS 2131	21106	USSR	12 FEB	114.4	74.0	1466	1385		
1991 009H	COSMOS 2132	21107	USSR	12 FEB	114.7	74.0	1466	1414		
1991 009J		21108	USSR	12 FEB	118.2	74.1	1739	1457		
1991 009J - 009BE			USSR	12 FEB	SEE NOTE		54*			54*
1991 009K		21109	USSR	12 FEB	118.2	74.0	1743	1459		
1991 009L		21110	USSR	12 FEB	119.4	74.0	1846	1463		

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	TRANSMITTING FREQ.(MHZ)	NOTES
1991 LAUNCHES (CONT.)										
1991 009M		21115	USSR	12 FEB	118.4	74.0	1758	1461		
1991 009N		21136	USSR	12 FEB	120.4	74.0	1931	1461		
1991 010A	COSMOS 2133	21111	USSR	14 FEB	1436.2	2.2	35811	35765		
1991 010D		21114	USSR	14 FEB	634.2	47.2	35883	261		
1991 010F		21129	USSR	14 FEB	1438.6	2.2	35907	35763		
1991 011A	COSMOS 2134	21116	USSR	15 FEB	89.2	64.7	259	206		
1991 012A	MOLNIYA 1-80	21118	USSR	15 FEB	717.9	62.8	39902	455		
1991 012D		21121	USSR	15 FEB	700.6	62.8	39053	450		
1991 012E		21122	USSR	15 FEB	635.9	47.2	35918	317		
1991 013A	COSMOS 2135	21130	USSR	26 FEB	104.5	82.8	1017	921		
1991 013B		21131	USSR	26 FEB	104.4	82.8	1008	920		
1991 014A	RADUGA 27	21132	USSR	28 FEB	1436.5	1.4	35801	35786		
1991 014D		21135	USSR	28 FEB	1392.2	1.5	35031	34816		
1991 014E		21201	USSR	28 FEB	618.0	47.5	35033	279		
1991 014F		21202	USSR	28 FEB	615.8	47.4	34966	229		
1991 015A	ASTRA 1-B	21139	LUXEM	2 MAR	1424.2	0.1	35637	35468		
1991 015B	MOP-2	21140	ESA	2 MAR	1435.8	1.1	35790	35771		
1991 015C		21141	ESA	2 MAR	636.4	7.0	36010	248		
1991 015D		21142	ESA	2 MAR	616.4	7.1	34980	248		
1991 017A		21147	US	8 MAR	ELEMENTS NOT AVAILABLE					
1991 017B		21148	US	8 MAR	ELEMENTS NOT AVAILABLE					
1991 018A	INMARSAT-2	21149	UK	8 MAR	1436.3	2.7	35814	35767		
1991 018B		21150	US	8 MAR	100.7	25.0	1170	414		
1991 018C		21151	US	8 MAR	640.3	23.7	36238	221		
1991 019A	NADEZHDA	21152	USSR	12 MAR	104.8	82.9	1014	954		
1991 019B		21153	USSR	12 MAR	104.7	82.9	1007	952		
1991 020A	PROGRESS M-7	21188	USSR	19 MAR	91.9	51.6	379	361		
1991 021A	COSMOS 2137	21190	USSR	19 MAR	94.0	65.8	491	443		
1991 021B		21191	USSR	19 MAR	93.8	65.8	485	439		
1991 022A	MOLNIYA 3-40	21196	USSR	22 MAR	717.7	62.9	39911	440		
1991 022B		21197	USSR	22 MAR	90.5	62.8	402	199		
1991 022D		21199	USSR	22 MAR	700.2	62.9	39005	478		
1991 023A	COSMOS 2138	21203	USSR	26 MAR	89.3	67.1	302	175		
1991 023B		21204	USSR	26 MAR	84.7	67.1	30	12		
1991 024A	ALMAZ-1	21213	USSR	30 MAR	89.8	72.7	273	259		
1991 024B		21214	USSR	30 MAR	85.2	72.7	60	35		

INITIAL ELEMENTS OF OBJECTS WHICH WERE LAUNCHED/CATALOGED AND DECAYED WITHIN THE REPORTING PERIOD

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	PERIOD MINUTES	INCLINATION	APOGEE KM.	PERIGEE KM.	NOTES
1990 115D		21061	USSR	26 DEC	85.4	82.5	83	36	
1990 115E		21062	USSR	26 DEC	87.8	82.5	200	159	
1990 115G		21068	USSR	26 DEC	86.5	82.5	124	97	
1991 002B		21054	USSR	14 JAN	85.5	51.6	72	55	
1991 004B		21060	USSR	17 JAN	85.6	82.5	82	56	
1991 004D		21096	USSR	17 JAN	85.0	82.5	59	21	
1991 004E		21097	USSR	17 JAN	86.7	82.5	140	104	
1991 004F		21098	USSR	17 JAN	85.0	82.5	44	25	
1991 004G		21099	USSR	17 JAN	INITIAL ELEMENTS NOT AVAILABLE				
1991 005B		21066	USSR	18 JAN	INITIAL ELEMENTS NOT AVAILABLE				
1991 008C		21094	USSR	7 FEB	95.5	62.7	69	49	
1991 010B		21112	USSR	14 FEB	86.3	51.6	114	97	
1991 010C		21113	USSR	14 FEB	88.2	51.6	211	180	
1991 011B		21117	USSR	15 FEB	85.9	64.7	91	69	
1991 011C		21123	USSR	15 FEB	85.5	64.7	70	49	
1991 012B		21119	USSR	15 FEB	89.9	62.8	344	190	
1991 012C		21120	USSR	15 FEB	89.0	62.8	294	154	
1991 014C		21134	USSR	28 FEB	88.3	51.6	209	189	
1991 016A	COSMOS 2136	21143	USSR	6 MAR	89.0	62.8	250	203	
1991 016B		21144	USSR	6 MAR	88.9	62.8	231	204	
1991 016C		21145	USSR	6 MAR	85.7	62.8	80	58	
1991 016D		21146	USSR	6 MAR	86.4	62.8	127	84	
1991 016E		21192	USSR	6 MAR	87.0	62.8	151	123	
1991 016F		21193	USSR	6 MAR	85.1	62.8	51	29	
1991 016G		21194	USSR	6 MAR	86.6	62.8	125	103	
1991 016H		21195	USSR	6 MAR	89.1	62.9	298	157	
1991 020B		21189	USSR	19 MAR	87.3	51.6	165	145	
1991 022C		21198	USSR	22 MAR	89.5	62.8	338	164	
1991 022E		21200	USSR	22 MAR	90.4	62.8	397	190	

OBJECTS DECAYED WITHIN THE REPORTING PERIOD

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	DECAY	NOTES
OMICRON 16		539	US	29 JUN	24 FEB 91	
OMICRON 17		550	US	29 JUN	3 FEB 91	
OMICRON 26		14499	US	29 JUN	20 MAR 91	
1965 027AG		18670	US	3 APR	19 JAN 91	
1965 082N		1651	US	15 OCT	27 JAN 91	
1965 082UP		19182	US	15 OCT	8 FEB 91	
1968 049B		3283	USSR	12 JUN	26 JAN 91	
1968 091Z		3607	USSR	20 OCT	20 MAR 91	
1970 025JB		5027	US	8 APR	17 JAN 91	
1970 025JV		5152	US	8 APR	13 MAR 91	
1970 025LJ		5505	US	8 APR	20 MAR 91	
1970 025LK		5506	US	8 APR	28 MAR 91	
1970 025LP		5510	US	8 APR	18 MAR 91	
1970 025LY		5693	US	8 APR	29 MAR 91	
1971 015AU		5200	USSR	25 FEB	13 FEB 91	
1971 015BJ		5325	USSR	25 FEB	25 FEB 91	
1971 015BP		5434	USSR	25 FEB	19 MAR 91	
1971 015CM		10398	USSR	25 FEB	28 FEB 91	
1971 015DT		19829	USSR	25 FEB	27 FEB 91	
1971 031A	METEOR	5142	USSR	17 APR	10 JAN 91	
1972 058L		7840	US	23 JUL	16 MAR 91	
1972 058DJ		8083	US	23 JUL	22 MAR 91	
1972 058FG		8390	US	23 JUL	7 MAR 91	
1973 086CP		7125	US	6 NOV	26 JAN 91	
1974 089BE		8297	US	15 NOV	10 JAN 91	
1976 126P		9657	USSR	27 DEC	6 JAN 91	
1976 126BH		9967	USSR	27 DEC	5 MAR 91	
1977 065H		10179	US	14 JUL	25 FEB 91	
1977 065BK		10232	US	14 JUL	21 JAN 91	
1978 026BM		12220	US	5 MAR	13 MAR 91	
1979 026HG		18679	US	5 MAR	22 MAR 91	
1979 017AL		16083	US	24 FEB	27 FEB 91	
1980 030W		12348	USSR	18 APR	26 FEB 91	
1980 030AH		13925	USSR	18 APR	10 MAR 91	
1980 030AP		13931	USSR	18 APR	18 FEB 91	
1980 089AK		13340	USSR	4 NOV	6 FEB 91	
1981 028BF		13689	USSR	20 MAR	4 FEB 91	
1981 028BR		14221	USSR	20 MAR	4 FEB 91	
1981 053AH		12689	USSR	4 JUN	4 MAR 91	
1981 053EL		12965	USSR	4 JUN	1 FEB 91	
1981 053EN		13015	USSR	4 JUN	24 MAR 91	
1981 057E		14125	ESA	19 JUN	17 JAN 91	
1981 100A	SME	12887	US	6 OCT	5 MAR 91	
1982 033A	SALYUT 7	13138	USSR	19 APR	7 FEB 91	
1983 044AL		15719	USSR	7 MAY	22 MAR 91	
1983 044DC		17739	USSR	7 MAY	13 FEB 91	
1983 044EY		18812	USSR	7 MAY	12 FEB 91	
1985 086A	COSMOS 1686	16095	USSR	27 SEP	7 FEB 91	
1986 017CT		21050	USSR	19 FEB	4 FEB 91	
1986 017CU		21051	USSR	19 FEB	5 FEB 91	
1986 017CV		21082	USSR	19 FEB	18 MAR 91	

OBJECTS DECAYED WITHIN THE REPORTING PERIOD

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	DECAY	NOTES
1986 017CW		21084	USSR	19 FEB	5 MAR 91	
1986 017CX		21085	USSR	19 FEB	1 MAR 91	
1986 017CY		21086	USSR	19 FEB	24 FEB 91	
1986 019DN		17341	ESA	22 FEB	1 JAN 91	
1986 019GF		17444	ESA	22 FEB	3 FEB 91	
1986 019JP		17574	ESA	22 FEB	2 MAR 91	
1986 019JU		17593	ESA	22 FEB	15 FEB 91	
1986 019KN		17672	ESA	22 FEB	25 FEB 91	
1986 019MC		17813	ESA	22 FEB	15 FEB 91	
1986 019SF		18297	ESA	22 FEB	26 MAR 91	
1986 019VD		19812	ESA	22 FEB	11 FEB 91	
1986 083A	COSMOS 1789	17050	USSR	27 OCT	21 JAN 91	
1987 020K		18732	USSR	20 FEB	2 MAR 91	
1987 020S		18739	USSR	20 FEB	18 FEB 91	
1987 020BH		19149	USSR	20 FEB	17 FEB 91	
1987 020BR		19184	USSR	20 FEB	1 FEB 91	
1987 020CW		19982	USSR	20 FEB	28 MAR 91	
1987 020DA		20020	USSR	20 FEB	17 JAN 91	
1987 020DL		20226	USSR	20 FEB	17 FEB 91	
1989 027B		19920	ESA	2 APR	19 FEB 91	
1989 045B		20065	USSR	14 JUN	25 MAR 91	
1989 058A	COSMOS 2033	20147	USSR	24 JUL	6 JAN 91	
1989 092A	COSMOS 2051	20334	USSR	24 NOV	21 JAN 91	
1989 096B		20353	USSR	1 DEC	9 MAR 91	
1989 100V		21020	USSR	31 DEC	6 FEB 91	
1989 100X		21022	USSR	31 DEC	7 FEB 91	
1989 100Y		21023	USSR	31 DEC	8 FEB 91	
1989 100Z		21042	USSR	31 DEC	12 FEB 91	
1989 100AA		21043	USSR	31 DEC	12 FEB 91	
1989 100AB		21064	USSR	27 DEC	12 FEB 91	
1990 068C		20726	US	2 AUG	18 MAR 91	
1990 081B	PRC 31	20789	PRC	3 SEP	11 MAR 91	
1990 081AB		20863	PRC	3 SEP	10 JAN 91	
1990 081BZ		20916	PRC	3 SEP	2 JAN 91	
1990 104C		20975	USSR	28 NOV	21 FEB 91	
1990 104D		20976	USSR	28 NOV	23 FEB 91	
1990 104E		20977	USSR	28 NOV	6 MAR 91	
1990 104F		21070	USSR	28 NOV	10 MAR 91	
1990 104H		21081	USSR	28 NOV	10 MAR 91	
1990 105C		20983	US	1 DEC	6 FEB 91	
1990 105E		20987	US	1 DEC	23 FEB 91	
1990 105G		20989	US	1 DEC	16 FEB 91	
1990 105H		20990	US	1 DEC	10 JAN 91	
1990 105K		20992	US	1 DEC	2 MAR 91	
1990 105N		20999	US	1 DEC	2 FEB 91	
1990 105P		20997	US	1 DEC	5 JAN 91	
1990 105R		21072	US	1 DEC	18 MAR 91	
1990 105T		21074	US	1 DEC	9 MAR 91	
1990 105U		21075	US	1 DEC	9 FEB 91	
1990 105V		21076	US	1 DEC	21 FEB 91	
1990 109A	COSMOS 2108	21000	USSR	4 DEC	28 JAN 91	

OBJECTS DECAYED WITHIN THE REPORTING PERIOD

INTERNATIONAL DESIGNATION	NAME	CATALOG NUMBER	SOURCE	LAUNCH	DECAY	NOTES
1990 115D		21061	USSR	26 DEC	18 JAN 91	
1990 115E		21062	USSR	26 DEC	19 JAN 91	
1990 115F		21063	USSR	26 DEC	19 JAN 91	
1990 115G		21068	USSR	26 DEC	21 JAN 91	
1991 002A	PROGRESS M6	21053	USSR	14 JAN	15 MAR 91	
1991 002B		21054	USSR	14 JAN	15 JAN 91	
1991 004A	COSMOS 2121	21059	USSR	17 JAN	10 FEB 91	
1991 004B		21060	USSR	17 JAN	19 JAN 91	
1991 004C		21095	USSR	17 JAN	21 FEB 91	
1991 004D		21096	USSR	17 JAN	12 FEB 91	
1991 004E		21097	USSR	17 JAN	12 FEB 91	
1991 004F		21098	USSR	17 JAN	14 FEB 91	
1991 004G		21099	USSR	17 JAN	11 FEB 91	
1991 008B		21093	USSR	7 FEB	11 FEB 91	
1991 008C		21094	USSR	7 FEB	8 FEB 91	
1991 010B		21112	USSR	14 FEB	16 FEB 91	
1991 010C		21113	USSR	14 FEB	14 FEB 91	
1991 011B		21117	USSR	15 FEB	19 FEB 91	
1991 011C		21123	USSR	15 FEB	16 FEB 91	
1991 012B		21119	USSR	15 FEB	26 FEB 91	
1991 012C		21120	USSR	15 FEB	22 FEB 91	
1991 014B		21133	USSR	28 FEB	2 MAR 91	
1991 014C		21134	USSR	28 FEB	28 FEB 91	
1991 016A	COSMOS 2136	21143	USSR	6 MAR	20 MAR 91	
1991 016B		21144	USSR	6 MAR	17 MAR 91	
1991 016C		21145	USSR	6 MAR	8 MAR 91	
1991 016D		21146	USSR	6 MAR	9 MAR 91	
1991 016E		21192	USSR	6 MAR	22 MAR 91	
1991 016F		21193	USSR	6 MAR	24 MAR 91	
1991 016G		21194	USSR	6 MAR	21 MAR 91	
1991 016H		21195	USSR	6 MAR	22 MAR 91	
1991 020B		21189	USSR	19 MAR	20 MAR 91	
1991 022C		21198	USSR	22 MAR	28 MAR 91	
1991 022E		21200	USSR	22 MAR	29 MAR 91	

FOOTNOTES

1* 297 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1961 OMICRON 1 AND 1961 OMICRON 2. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

2* 149 BJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1963 014A, 1963 014B, AND 1963 014C. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

3* 19 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1963 047A. THE OBJECT OF THIS SERIES THAT HAS DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

4* 28 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUCHED WITH 1964 006A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

5* 51 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1965 027A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

6* DEBRIS DISCOVERED IN ORBIT WHICH HAS NOT BEEN IDENTIFIED WITH ANY LAUNCH OR COUNTRY OF ORIGIN.

7* 472 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1965 082A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

8* 110 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1968 091A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

9* A MANNED SPACECRAFT WHICH SUCCESSFULLY LANDED ON THE MOON AND RETURNED TO SELENOCENTRIC ORBIT.

10* 138 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1968 097A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

11* 270 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1969 082A, 1969 082B, 1969 082C, 1969 082D, 1969 082E, 1969 082F, 1969 082G, 1969 082H, 1969 082J, AND 1969 082K. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

12* 368 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1970 025A AND 1970 025B. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

13* 103 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1970 089A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

14* DEBRIS DISCOVERED IN ORBIT WHICH HAS NOT BEEN IDENTIFIED WITH ANY LAUNCH.

FOOTNOTES (CONT)

15* 46 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1970 091A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

16* 120 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1971 015A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

17* 229 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1972 058A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

18* 198 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1973 086A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

19* 150 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1974 089A. 1974 089B, AND 1974 089C. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

20* 208 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1975 004A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

21* 71 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 067A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

22* 159 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 077A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

23* 14 OBJECT HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 105A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

24* 51 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 120A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

25* 79 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1976 126A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

26* 172 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1977 065A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

27* 70 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1977 121A. THE OBJECT OF THIS SERIES THAT HAS DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

FOOTNOTES (CONT)

28* 210 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1978 026A AND 1978 026B. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

29* 400 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1978 100A. 1978 100B. AND 1978 100C. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

30* 288 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1979 017A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

31* 47 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1980 030A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

32* 80 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1980 089A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMATY SATELLITE SITUATION REPORT.

33* 69 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1981 028A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

34* 305 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1981 053A OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

35* DEPLOYED FROM SPACE TRANSPORTATION VEHICLE.

36* 33 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1982 115A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

37* 59 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1982 055A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

38* 27 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1983 091A. OBJECTS OF THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

39* 164 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1983 044A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

40* 30 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1984 104A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

41* 46 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1984 083A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

FOOTNOTES (CONT)

42* 24 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1985 082A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

43* 25 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1985 030A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

44* 30 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1986 024A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

45* 499 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1986 019A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

46* 30 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1986 067A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

47* 96 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1986 017A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

48* 195 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1987 004A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

49* 112 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1987 020A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

50* 18 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1988 065A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

51* 29 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1989 100A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

52* 78 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1990 081A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

53* 26 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1990 105A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

54* 53 OBJECTS HAVE BEEN IDENTIFIED AS HAVING BEEN LAUNCHED WITH 1991 009A. OBJECTS IN THIS SERIES THAT HAVE DECAYED CAN BE FOUND IN THE DECAYED OBJECTS LIST IN THE DECEMBER 31 END-OF-THE-YEAR SUMMARY SATELLITE SITUATION REPORT.

FOOTNOTES (CONT)

NNN NO NATIONAL NAME