

1 Nuclear materials in space

Spacecraft	Launch	Power source	Fuel	Power (W) per RTG	Fuel mass (kg)	Status
US reactors						
SNAPSHOT	1965 Apr 3	SNAP-10A	U-235	650	5	In orbit
US RTG						
Transit 4A	1961 Jun 29	SNAP 3B-7	Pu-238	2.7	0.1	In orbit
Transit 4B	1961 Nov 15	SNAP 3B-8	Pu-238	2.7	0.1	In orbit
Transit 5BN1	1963 Sep 28	SNAP 9A	Pu-238	26		In orbit
Transit 5BN2	1963 Dec 5	SNAP 9A	Pu-238	26		In orbit
Transit 5BN3	1964 Apr 21	SNAP 9A	Pu-238	26		Burnt up in reentry
Nimbus B	1968 May 18	SNAP 19 (2)	Pu-238	28	1	Recovered from ocean
Nimbus B2	1969 Apr 14	SNAP 19 (2)	Pu-238	28	1	Recovered from ocean
ALSEP A-1	1969 Nov 14	SNAP-27	Pu-238	73		On Moon
ALSEP B	1970 Apr 11	SNAP-27	Pu-238	73		Fell in S Pacific
ALSEP C	1971 Jan 31	SNAP-27	Pu-238	73		On Moon
ALSEP A-2	1971 Jul 26	SNAP-27	Pu-238	73		On Moon
Pioneer 10	1972 Mar 2	SNAP 19 (4)	Pu-238	40	1	Solar system escape
TRIAD	1972 Apr 2	Transit-RTG	Pu-238	36		In orbit
ALSEP D	1972 Apr 16	SNAP-27	Pu-238	73		On Moon
ALSEP E	1972 Dec 7	SNAP-27	Pu-238	73		On Moon
Pioneer 11	1973 Apr 5	SNAP 19 (4)	Pu-238	40	1	Solar system escape
Viking VL1	1975 Aug 20	SNAP 19 (2)	Pu-238	42		On Mars
Viking VL2	1975 Sep 9	SNAP 19 (2)	Pu-238	42		On Mars
LES 8	1976 Mar 14	MHW RTG (2)	Pu-238	150	5	In orbit
LES 9	1976 Mar 14	MHW RTG (2)	Pu-238	150	5	In orbit
Voyager 1	1977 Aug 20	MHW RTG (3)	Pu-238	158	5	Solar system escape
Voyager 2	1977 Sep 5	MHW RTG (3)	Pu-238	158	5	Solar system escape
Galileo	1989 Oct 18	GPHS-RTG (2)	Pu-238	292	22	Destroyed on Jupiter entry
Ulysses	1990 Oct 6	GPHS-RTG (1)	Pu-238	292	11	In solar orbit
Cassini	1997 Oct 15	GPHS-RTG (3)	Pu-238	292	33	In Saturn orbit
New Horizons	2006 Jan 19	GPHS-RTG	Pu-238	292?	11	En route Pluto
US RHU						

EASEP	1969 Jul 16	ALRH RHU	Pu-238	15W	On Moon
MPF	1996 Dec 4	LWRHU	Pu-238	1	On Mars
MER 1 Spirit	2003	RHU	Pu-238		On Mars
MER 2 Opportunity	2003	RHU	Pu-238		On Mars
Russian RTG					
Strela-1 (K-84)	1965 Sep 3	Orion-1 RTG	Po-210		
Strela-1 (K-90)	1965 Sep 18	Orion-1 RTG	Po-210		
Mars-96	1996 Nov 16	RTG Angel (4)	Pu-238	0.2	0.2?
Russian RHU					
8EL No. 201	1969 Feb 19	V3-R70-4 RHU	Po-210		
8EL No. 203 (Lunokhod-1)	1970 Nov 10	V3-R70-4 RHU	Po-210		
8EL No. 204 (Lunokhod-2)	1973 Jan 8	V3-R70-4 RHU	Po-210		
Russian reactors					
US-A F6 (Kosmos-367)	1970 Oct 3	Buk reactor 1	U-235	3000	In orbit
US-A F7 (Kosmos-402)	1971 Apr 1	Buk reactor 2	U-235	3000	In orbit
US-A F8 (Kosmos-469)	1971 Dec 25	Buk reactor 3	U-235	3000	In orbit
US-A F9 (Kosmos-516)	1972 Aug 21	Buk reactor 4	U-235	3000	In orbit
US-A F10	1973 Apr 25	Buk reactor 5	U-235	3000	Fell in Pacific
US-A F11 (Kosmos-626)	1973 Dec 27	Buk reactor 6	U-235	3000	In orbit
US-A F12 (Kosmos-651)	1974 May 15	Buk reactor 7	U-235	3000	In orbit
US-A F13 (Kosmos-654)	1974 May 17	Buk reactor 8	U-235	3000	In orbit
US-A F14 (Kosmos-723)	1975 Apr 2	Buk reactor 9	U-235	3000	In orbit
US-A F15 (Kosmos-724)	1975 Apr 7	Buk reactor 10	U-235	3000	In orbit
US-A F16 (Kosmos-785)	1975 Dec 12	Buk reactor 11	U-235	3000	In orbit
US-A F17 (Kosmos-860)	1976 Oct 17	Buk reactor 12	U-235	3000	In orbit
US-A F18 (Kosmos-861)	1976 Oct 21	Buk reactor 13	U-235	3000	In orbit
US-A F19 (No 123) (Kosmos-952)	1977 Sep 16	Buk reactor 14	U-235	3000	In orbit
US-A F20 (No 125) (Kosmos-954)	1977 Sep 18	Buk reactor 15	U-235	3000	Fell on Canada
US-A F21 (Kosmos-1176)	1980 Apr 29	Buk reactor 16	U-235	3000	In orbit
US-A F22 (Kosmos-1249)	1981 Mar 5	Buk reactor 17	U-235	3000	In orbit
US-A F23 (Kosmos-1266)	1981 Apr 21	Buk reactor 18	U-235	3000	In orbit
US-A F24 (Kosmos-1299)	1981 Aug 24	Buk reactor 19	U-235	3000	In orbit
US-A F25 (Kosmos-1365)	1982 May 15	Buk reactor 20	U-235	3000	In orbit
US-A F26 (Kosmos-1372)	1982 Jun 2	Buk reactor 21	U-235	3000	In orbit

US-A F27 (Kosmos-1402)	1982 Aug 30	Buk reactor 22	U-235	3000	25	Reent. in Indian ocean
US-A F28 (Kosmos-1412)	1982 Oct 1	Buk reactor 23	U-235	3000	25	In orbit
US-A F29 (Kosmos-1579)	1984 Jun 29	Buk reactor 24	U-235	3000	25	In orbit
US-A F30 (Kosmos-1607)	1984 Oct 31	Buk reactor 25	U-235	3000	25	In orbit (?)
US-A F31 (Kosmos-1670)	1985 Aug 1	Buk reactor 26	U-235	3000	25	In orbit
US-A F32 (Kosmos-1677)	1985 Aug 23	Buk reactor 27	U-235	3000	25	In orbit
US-A F33 (Kosmos-1736)	1986 Mar 21	Buk reactor 28	U-235	3000	25	In orbit
US-A F34 (Kosmos-1771)	1986 Aug 20	Buk reactor 29	U-235	3000	25	In orbit
Plazma-A No. 1 (K1818)	1987 Feb 1	TEU-5 Topaz reactor	U-235	6000	12	In orbit
US-A F35 (Kosmos-1860)	1987 Jun 18	Buk reactor 30	U-235	3000	25	In orbit
Plazma-A No. 2 (K1867)	1987 Jul 10	TEU-5 Topaz reactor	U-235	6000	12	In orbit
US-AM F36 (Kosmos-1900)	1987 Dec 12	Buk reactor 31	U-235	3000	25	In orbit
US-AM F37 (Kosmos-1932)	1988 Mar 14	Buk reactor 32	U-235	3000	25	In orbit