

PLANETARY SATELLITES

This list excludes the numerous small satellites of the outer planets discovered since 1999. At the time of going to press, the numbers of known satellites were: Jupiter 62, Saturn 61, Uranus 27, Neptune 13 and Pluto 3. Data on these may be obtained from <http://ssd.jpl.nasa.gov/?satellites>

Planet and Satellite	Mean Distance (10 ³ km)	Mean Sidereal Period (days)	Eccentricity (1)	Inclination (2) °	Diameter(s) km	Reciprocal Mass (Planet = 1)	Mean Opp'n Visual Mag.
EARTH							
Moon	384.4	27.322	0.055	18.3–28.6	3476 x 3472	81.301	-12.7
MARS							
I Phobos	9.38	0.319	0.0151	1.08	27 x 22 x 18		11.3
II Deimos	23.46	1.262	0.0005	1.79	15 x 12 x 10		12.4
JUPITER							
XVI Metis	128	0.295	0.0002	0.06	40		17.5
XV Adrastea	129	0.298	0.0015	0.03	26 x 20 x 16		19.1
V Amalthea	181.4	0.498	0.003	0.40	262 x 146 x 134		14.1
XIV Thebe	221.9	0.675	0.018	0.8	110 x 90		15.7
I Io	421.6	1.769	0.004	0.04	3643	21 260	5.0
II Europa	670.9	3.551	0.010	0.47	3122	39 550	5.3
III Ganymede	1070.4	7.155	0.002	0.21	5262	12 810	4.6
IV Callisto	1882.7	16.689	0.007	0.51	4820	17 650	5.6
XIII Leda	11170	240.92	0.164	27.5	10		20.2
VI Himalia	11460	250.57	0.162	27.6	170		14.8
X Lysithea	11720	259.22	0.112	27.4	24		18.4
VII Elara	11740	259.65	0.217	24.8	80		16.7
XII Anake	21280	629.8r	0.244	148.9	20		18.9
XI Carme	23400	734.2r	0.253	164.9	30		18.0
VIII Pasiphae	23620	743.6r	0.409	151.4	36		17.0
IX Sinope	23940	758.9r	0.250	158.1	28		18.3
SATURN							
XVIII Pan	133.58	0.575	0.000	0.00	20		20
XV Atlas	137.67	0.602	0.000	0.30	37 x 34 x 27		18
XVI Prometheus	139.35	0.613	0.002	0.00	148 x 100 x 68		16.5
XVII Pandora	141.70	0.629	0.004	0.00	110 x 88 x 62		16
XI Epimetheus	151.42	0.694	0.009	0.34	138 x 110 x 110		15.5
X Janus	151.47	0.695	0.007	0.14	194 x 190 x 154		14.5
I Mimas	185.52	0.942	0.020	1.53	418 x 392 x 382	15 158 930	12.9
II Enceladus	238.02	1.370	0.005	0.00	512 x 494 x 490	8 745 540	11.7
III Tethys	294.66	1.888	0.000	1.86	1072 x 1056 x 1052	906 640	10.2
XIII Telesto	294.66	1.888	0.000	0.00	30 x 25 x 15		18.5
XIV Calypso	294.66	1.888	0.000	0.00	30 x 16 x 16		18.7
IV Dione	377.40	2.737	0.002	0.02	1 120	516 780	10.4
XII Helene	377.40	2.737	0.005	0.00	36 x 32 x 30		18.5
V Rhea	527.04	4.518	0.001	0.35	1 528	246 090	9.7
VI Titan	1221.83	15.945	0.029	0.33	5 150	4 225	8.3
VII Hyperion	1481.1	21.277	0.104	0.43	370 x 280 x 226	28 423 000	14.2
VIII Iapetus	3561.3	79.330	0.028	14.72	1 436	357 520	10.2–11.9
IX Phoebe	12952	550.48r	0.163	175.3	230 x 220 x 210		16.5

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SATURN'S RINGS							
D inner edge					133 800		
D outer edge					149 020		
C inner edge					149 316		
C outer edge					184 000		
B inner edge					184 000		
B outer edge					235 160		
A inner edge					244 340		
Encke gap					267 178		
Keeler gap					273 060		
A outer edge					273 550		
F centre					280 360		
G inner edge					340 000		
G outer edge					350 000		
E inner edge					362 000		
E outer edge					966 000		
URANUS							
VI Cordelia	49.77	0.335	0.0003	0.08	40		24.1
VII Ophelia	53.79	0.376	0.0099	0.10	42		23.8
VIII Bianca	59.17	0.435	0.0009	0.19	54		23.0
IX Cressida	61.78	0.464	0.0004	0.01	80		22.2
X Desdemona	62.68	0.474	0.0001	0.11	64		22.5
XI Juliet	64.35	0.493	0.0007	0.07	94		21.5
XII Portia	66.09	0.513	0.0000	0.06	136		21.0
XIII Rosalind	66.94	0.558	0.0001	0.28	72		22.5
XIV Belinda	75.26	0.624	0.0001	0.03	80		22.1
XV Puck	86.01	0.762	0.0001	0.32	162		20.2
V Miranda	129.39	1.413	0.0027	4.22	480 x 468 x 466	1 315 640	16.3
I Ariel	191.02	2.520	0.0034	0.31	1162 x 1156 x 1155	64 320	14.2
II Umbriel	266.30	4.144	0.0050	0.36	1 169	74 220	14.8
III Titania	435.91	8.706	0.0022	0.14	1 578	24 670	13.7
IV Oberon	583.52	13.463	0.0008	0.10	1 523	28 850	13.9
XVI Caliban	7230	579.5r	0.159	140.88	96		22.4
XX Stephano	8002	676.5r	0.230	144.06	20		24.1
XVII Sycorax	12179	1283.4r	0.522	159.40	190		20.8
XVIII Prospero	16418	1992.8r	0.443	151.91	30		23.2
XIX Setebos	17459	2202.3r	0.588	158.17	30		23.3
NEPTUNE							
III Naiad	48.23	0.294	0.0003	4.74	96 x 60 x 52		24.7
IV Thalassa	50.08	0.311	0.0002	0.21	108 x 100 x 52		23.8
V Despina	52.53	0.335	0.0001	0.07	180 x 148 x 128		22.6
VI Galatea	61.95	0.429	0.0001	0.05	204 x 184 x 144		22.3
VII Larissa	73.55	0.555	0.0014	0.20	216 x 204 x 168		22.0
VIII Proteus	117.65	1.122	0.0004	0.04	440 x 416 x 404		20.3
I Triton	354.76	5.877	0.000016	157.35	2707	4 786	13.5
II Nereid	5513.4	360.136	0.7512	7.23	340	3 414 330	18.7
PLUTO							
I Charon	19.6	6.387	0.0	0.0	1186	7.72	17.3

Data taken from <http://nssdc.gsfc.nasa.gov/planetary/planetfact.html>

For definitions of the parameters, see <http://nssdc.gsfc.nasa.gov/planetary/factsheet/factnotes.html>

(1) The elements, in particular the eccentricities, of the satellite orbits are all subject to considerable variations.

The orbits of the outer satellites of Jupiter are not even approximately elliptical owing to severe solar perturbations; the eccentricity of the orbit of Jupiter VIII, for example, varies between 0.16 and 0.66.

(2) Orbital inclinations are with respect to the planet's equator. r = retrograde.