

Annex D (normative)

RDs associated with physical objects

D.1 Introduction

This annex presents the specification of RDs whose parameters are determined as a result of measurements of a physical object. Parameter values are specified by value or by reference. Parameters specified by reference use the terminology of the cited references. Those terms are enclosed in brackets ({ }). Referenced values in length units other than metres are converted to metres to specify the corresponding RD parameter. The zero value of flattening for a sphere RD is a precise value.

Abbreviations used in labels in this annex are defined in [Annex F](#).

D.2 RDs

The elements of an ORM specification are defined in [Table 7.9](#). [Table D.1](#) is a directory of these RDs organized by the type of RD surface. The RD entries in each table are grouped by physical object type and then ordered alphabetically by their label. [Table D.1](#) includes RDs specified in this annex and deprecated RDs specified in [Annex J](#).

Table D.1 — RD specification directory

| RD specification table | Tables |
|---|---|
| non-sphere Oblate ellipsoid RD specifications | Table D.2 and Table J.2 |
| Sphere RD specifications | Table D.3 and Table J.3 |
| Prolate ellipsoid RD specifications | Table D.4 and Table J.4 |
| Tri-axial ellipsoid RD specifications | Table D.5 and Table J.5 |

Table D.2 — Oblate ellipsoid RD specifications

| RD label | RD code | Description | Parameters | | | Date | References |
|--------------------------|---------|--|----------------------|-----------------|-----------------|------|---------------------------|
| | | | Major semi-axis, a | Flattening, f | Error estimate | | |
| Object type: Earth | | | | | | | |
| AIRY_1830 | 17 | Airy | 6 377 563,396 | 1/299,324 964 6 | Assumed precise | 1830 | [83502T, App. A-1, "AA"] |
| APL_4r5_1968 | 20 | APL 4.5 | 6 378 144 | 1/298,23 | Unknown | 1968 | [DIGEST, Table 6.1, "AP"] |
| AUSTRALIAN_NATIONAL_1966 | 23 | Australian National | 6 378 160 | 1/298,25 | Assumed precise | 1966 | [83502T, App. A-1, "AN"] |
| AVERAGE_TERRESTRIAL_1977 | 24 | Average Terrestrial System | 6 378 135 | 1/298,257 | Unknown | 1977 | [DIGEST, Table 6.1, "AT"] |
| BESSEL_1841_ETHIOPIA | 26 | Bessel (Ethiopia, Indonesia, Japan, and Korea) | 6 377 397,155 | 1/299,152 812 8 | Assumed precise | 1841 | [83502T, App. A-1, "BR"] |
| BESSEL_1841_NAMIBIA | 27 | Bessel (Namibia) | 6 377 483,865 | 1/299,152 812 8 | Assumed precise | 1841 | [83502T, App. A-1, "BN"] |
| BESSEL_MODIFIED | 156 | Bessel (Modified) | 6 377 492,018 | 1/299,152 812 8 | Unknown | 1841 | [DIGEST, Table 6.1, "BM"] |
| CLARKE_1858 | 33 | Clarke | 6 378 235,6 | 1/294,260 676 8 | Unknown | 1858 | [DIGEST, Table 6.1, "CA"] |
| CLARKE_1858_MODIFIED | 34 | Clarke - Modified | 6 378 293,645 | 1/294,26 | Unknown | 1858 | [DIGEST, Table 6.1, "CB"] |
| CLARKE_1866 | 35 | Clarke | 6 378 206,4 | 1/294,978 698 2 | Assumed precise | 1866 | [83502T, App. A-1, "CC"] |
| CLARKE_1880 | 36 | Clarke | 6 378 249,145 | 1/293,465 | Assumed precise | 1880 | [83502T, App. A-1, "CD"] |
| CLARKE_1880_CAPE | 37 | Clarke - Cape | 6 378 249,145 | 1/293,466 307 7 | Unknown | 1880 | [DIGEST, Table |

| RD label | RD code | Description | Parameters | | | Date | References |
|-----------------------|---------|---|----------------------|-----------------|-----------------|------|---|
| | | | Major semi-axis, a | Flattening, f | Error estimate | | |
| | | | | | | | 6.1, "CE"] |
| CLARKE_1880_FIJI | 38 | Clarke - Fiji | 6 378 301 | 1/293,465 | Unknown | 1880 | [DIGEST , Table 6.1, "CJ"] |
| CLARKE_1880_IGN | 39 | Clarke - IGN | 6 378 249,2 | 1/293,466 020 8 | Unknown | 1880 | [DIGEST , Table 6.1, "CG"] |
| CLARKE_1880_PALESTINE | 40 | Clarke - Palestine | 6 378 300,782 | 1/293,466 307 7 | Unknown | 1880 | [DIGEST , Table 6.1, "CF"] |
| CLARKE_1880_SYRIA | 41 | Clarke - Syria | 6 378 247,842 | 1/293,466 351 7 | Unknown | 1880 | [DIGEST , Table 6.1, "CI"] |
| DANISH_1876 | 45 | Danish - Andrae | 6 377 104,430 | 1/300 | Unknown | 1876 | [DIGEST , Table 6.1, "DA"] |
| DELAMBRE_1810 | 47 | Delambre | 6 376 985,228 | 1/308,64 | Unknown | 1810 | [DIGEST , Table 6.1, "DB"] |
| EVEREST_1948 | 57 | Everest | 6 377 304,063 | 1/300,801 7 | Assumed precise | 1948 | [83502T , App. A-1, "EE"] |
| EVEREST_1956 | 58 | Everest | 6 377 301,243 | 1/300,801 7 | Assumed precise | 1956 | [83502T , App. A-1, "EC"] |
| EVEREST_1969 | 60 | Everest | 6 377 295,664 | 1/300,801 7 | Assumed precise | 1969 | [83502T , App. A-1, "ED"] |
| EVEREST_ADJ_1937 | 56 | Everest 1830 - Adjusted | 6 377 276,345 | 1/300,801 7 | Assumed precise | 1937 | [83502T , App. A-1, "EA"] |
| EVEREST_BRUNEI_1967 | 61 | Everest 1830 - 1967 definition (Brunei and East Malaysia - Sabah and Sarawak) | 6 377 298,556 | 1/300,801 7 | Assumed precise | 1967 | [83502T , App. A-1, "EB"] |
| EVEREST_REVISIED_1962 | 59 | Everest 1830 - Revised definition | 6 377 309,613 | 1/300,801 7 | Assumed precise | 1962 | [83502T , App. A-1, "EF"] |

| RD label | RD code | Description | Parameters | | | Date | References |
|-----------------------|---------|-----------------------------------|----------------------|-------------------|-----------------|------|---------------------------|
| | | | Major semi-axis, a | Flattening, f | Error estimate | | |
| FISCHER_1960 | 62 | Fischer - Mercury | 6 378 166 | 1/298,3 | Unknown | 1960 | [DIGEST, Table 6.1, "FM"] |
| FISCHER_1968 | 63 | Fischer | 6 378 150 | 1/298,3 | Unknown | 1968 | [DIGEST, Table 6.1, "FC"] |
| GRS_1967 | 67 | GRS | 6 378 160 | 1/298,247 167 4 | Unknown | 1967 | [DIGEST, Table 6.1, "RE"] |
| GRS_1980 | 68 | GRS | 6 378 137 | 1/298,257 222 101 | Assumed precise | 1980 | [83502T, App. A-1, "RF"] |
| HELMERT_1906 | 70 | Helmert | 6 378 200 | 1/298,3 | Assumed precise | 1906 | [83502T, App. A-1, "HE"] |
| HOUGH_1960 | 72 | Hough | 6 378 270 | 1/297 | Assumed precise | 1960 | [83502T, App. A-1, "HO"] |
| IAG_1975 | 74 | IAG Best Estimate | 6 378 140 | 1/298,257 | Unknown | 1975 | [DIGEST, Table 6.1, "IA"] |
| INDONESIAN_1974 | 77 | Indonesian | 6 378 160 | 1/298,247 | Assumed precise | 1974 | [83502T, App. A-1, "ID"] |
| INTERNATIONAL_1924 | 78 | International | 6 378 388 | 1/297 | Assumed precise | 1924 | [83502T, App. A-1, "IN"] |
| KRASOVSKY_1940 | 84 | Krassovsky | 6 378 245 | 1/298,3 | Assumed precise | 1940 | [83502T, App. A-1, "KA"] |
| KRAYENHOFF_1827 | 85 | Krayenhoff | 6 376 950,4 | 1/309,65 | Unknown | 1827 | [DIGEST, Table 6.1, "KB"] |
| MODIFIED_AIRY_1849 | 97 | Modified Airy | 6 377 340,189 | 1/299,324 964 6 | Assumed precise | 1849 | [83502T, App. A-1, "AM"] |
| MODIFIED_FISCHER_1960 | 98 | Modified Fischer | 6 378 155 | 1/298,3 | Assumed precise | 1960 | [83502T, App. A-1, "FA"] |

| RD label | RD code | Description | Parameters | | | Date | References |
|--|---------|-------------------------|----------------------|-------------------|---|------|------------------------------|
| | | | Major semi-axis, a | Flattening, f | Error estimate | | |
| PLESSIS_MODIFIED_1817 | 115 | Plessis - Modified | 6 376 523 | 1/308,64 | Unknown | 1817 | [DIGEST, Table 6.1, "PM"] |
| SOUTH_AMERICAN_1969 | 125 | South American | 6 378 160 | 1/298,25 | Assumed precise | 1969 | [83502T, App. A-1, "SA"] |
| SOVIET_GEODETTIC_1985 | 126 | Soviet Geodetic System | 6 378 136 | 1/298,257 | Unknown | 1985 | [DIGEST, Table 6.1, "SG"] |
| SOVIET_GEODETTIC_1990 | 127 | Soviet Geodetic System | 6 378 136 | 1/298,257 839 3 | Unknown | 1990 | [DIGEST, Table 6.1, "SN"] |
| STRUVE_1860 | 128 | Struve | 6 378 298,3 | 1/294,73 | Unknown | 1860 | [DIGEST, Table 6.1, "ST"] |
| WALBECK_AMS_1963 | 140 | Walbeck 1819 - AMS | 6 376 896 | 1/302,78 | Unknown | 1963 | [DIGEST, Table 6.1, "WB"] |
| WALBECK_PLANHEFT_1942 | 141 | Walbeck 1819 - Planheft | 6 376 895 | 1/302,782 156 5 | Unknown | 1942 | [DIGEST, Table 6.1, "WA"] |
| WAR_OFFICE_1924 | 142 | War Office - McCaw | 6 378 300 | 1/296 | Unknown | 1924 | [DIGEST, Table 6.1, "WO"] |
| WGS_1972 | 146 | World Geodetic System | 6 378 135 | 1/298,26 | Assumed precise | 1972 | [83502T, App. A-1, "WD"] |
| WGS_1984 | 145 | World Geodetic System | 6 378 137 | 1/298,257 223 563 | Assumed precise | 1984 | [83502T, App. A-1, "WE"] |
| Object type: Planet (non-Earth) | | | | | | | |
| JUPITER_1988 | 82 | Jupiter | 71 492 000 | 1/15,414 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 4, "Jupiter"] |
| MARS_2000 | 89 | Mars | 3 396 190 | 1/169,894 | As specified accompanying the parameter value | 2000 | [RIIC06, Table 4, "Mars"] |

| RD label | RD code | Description | Parameters | | | Date | References |
|-------------------------------|---------|--------------------------------|----------------------|-----------------|---|------|------------------------------|
| | | | Major semi-axis, a | Flattening, f | Error estimate | | |
| NEPTUNE_1991 | 105 | Neptune | 24 764 000 | 1/58,544 | As specified accompanying the parameter value | 1991 | [RIIC06, Table 4, "Neptune"] |
| SATURN_1988 | 123 | Saturn | 60 268 000 | 1/10,208 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 4, "Saturn"] |
| URANUS_1988 | 138 | Uranus | 25 559 000 | 1/43,616 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 4, "Uranus"] |
| Object type: Satellite | | | | | | | |
| LARISSA_1991 | 86 | Larissa (satellite of Neptune) | 104 000 | 1/6,93 | As specified accompanying the parameter value | 1991 | [RIIC06, Table 5, "Larissa"] |
| METIS_2000 | 93 | Metis (satellite of Jupiter) | 30 000 | 1/3 | As specified accompanying the parameter value | 2000 | [RIIC06, Table 5, "Metis"] |
| Object type: Sun | | | | | | | |

Table D.3 — Sphere RD specifications

| RD label | RD code | Description | Parameters | | | Date | References |
|--------------------------|---------|---|----------------------|-----------------|----------------|------|--|
| | | | Major semi-axis, a | Flattening, f | Error estimate | | |
| Object type: Earth | | | | | | | |
| COAMPS_1998 | 42 | COAMPS TM | 6 371 229 | 0 | Precise | 1998 | [ERNWM , Table 1, "COAMPS"] |
| MASS_1999 | 91 | MASS | 6 371 221,3 | 0 | Precise | 1999 | [ERNWM , Table 1, "MASS"] |
| MM5_1997 | 96 | MM5 (AFWA) | 6 370 000 | 0 | Precise | 1997 | [ERNWM , Table 1, "MM5 (AFWA)"] |
| MODTRAN_MIDLATITUDE_1989 | 99 | MODTRAN (midlatitude regions) | 6 371 230 | 0 | Precise | 1989 | [ERNWM , Table 1, "MODTRAN, Midlatitude"] |
| MODTRAN_SUBARCTIC_1989 | 100 | MODTRAN (subarctic regions) | 6 356 910 | 0 | Precise | 1989 | [ERNWM , Table 1, "MODTRAN, Subarctic"] |
| MODTRAN_TROPICAL_1989 | 101 | MODTRAN (tropical regions) | 6 378 390 | 0 | Precise | 1989 | [ERNWM , Table 1, "MODTRAN, Tropical"] |
| MULTIGEN_FLAT_EARTH_1989 | 103 | Multigen Flat Earth | 6 366 707,02 | 0 | Precise | 1989 | [MFCG] |
| NOGAPS_1988 | 107 | NOGAPS | 6 371 000 | 0 | Precise | 1988 | [ERNWM , Table 1, "NOGAPS"] |

| RD label | RD code | Description | Parameters | | | Date | References |
|---------------------------------|---------|-------------------------------|----------------------|-----------------|---|------|------------------------------|
| | | | Major semi-axis, a | Flattening, f | Error estimate | | |
| Object type: Planet (non-Earth) | | | | | | | |
| MARS_SPHERE_2000 | 90 | Mars | 3 389 500 | 0 | As specified accompanying the parameter value | 2000 | [RIIC06, Table 4, "Mars"] |
| MERCURY_2000 | 92 | Mercury | 2 439 700 | 0 | As specified accompanying the parameter value | 2000 | [RIIC06, Table 4, "Mercury"] |
| PLUTO_1994 | 116 | Pluto | 1 195 000 | 0 | As specified accompanying the parameter value | 1994 | [RIIC06, Table 4, "Pluto"] |
| VENUS_1991 | 139 | Venus | 6 051 800 | 0 | As specified accompanying the parameter value | 1991 | [RIIC06, Table 4, "Venus"] |
| Object type: Satellite | | | | | | | |
| ANANKE_1988 | 19 | Ananke (satellite of Jupiter) | 10 000 | 0 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Ananke"] |
| BELINDA_1988 | 25 | Belinda (satellite of Uranus) | 33 000 | 0 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Belinda"] |
| BIANCA_1988 | 28 | Bianca (satellite of Uranus) | 21 000 | 0 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Bianca"] |
| CARME_1988 | 31 | Carme (satellite of Jupiter) | 15 000 | 0 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Carme"] |

| RD label | RD code | Description | Parameters | | | Date | References |
|----------------|---------|---------------------------------|----------------------|-----------------|---|------|--------------------------------|
| | | | Major semi-axis, a | Flattening, f | Error estimate | | |
| CHARON_2006 | 147 | Charon (satellite of Pluto) | 605 000 | 0 | As specified accompanying the parameter value | 2006 | [RIIC06, Table 5, "Charon"] |
| CORDELIA_1988 | 43 | Cordelia (satellite of Uranus) | 13 000 | 0 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Cordelia"] |
| CRESSIDA_1988 | 44 | Cressida (satellite of Uranus) | 31 000 | 0 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Cressida"] |
| DESDEMONA_1988 | 48 | Desdemona (satellite of Uranus) | 27 000 | 0 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Desdemona"] |
| DESPINA_1991 | 49 | Despina (satellite of Neptune) | 74 000 | 0 | As specified accompanying the parameter value | 1991 | [RIIC06, Table 5, "Despina"] |
| ELARA_1988 | 51 | Elara (satellite of Jupiter) | 40 000 | 0 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Elara"] |
| GALATEA_1991 | 64 | Galatea (satellite of Neptune) | 79 000 | 0 | As specified accompanying the parameter value | 1991 | [RIIC06, Table 5, "Galatea"] |
| HELENE_1992 | 69 | Helene (satellite of Saturn) | 17 500 | 0 | As specified accompanying the parameter value | 1992 | [RIIC06, Table 5, "Helene"] |
| HIMALIA_1988 | 71 | Himalia (satellite of Jupiter) | 85 000 | 0 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Himalia"] |

| RD label | RD code | Description | Parameters | | | Date | References |
|---------------|---------|---------------------------------|----------------------|-----------------|---|------|-------------------------------|
| | | | Major semi-axis, a | Flattening, f | Error estimate | | |
| JULIET_1988 | 81 | Juliet (satellite of Uranus) | 42 000 | 0 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Juliet"] |
| LEDA_1988 | 87 | Leda (satellite of Jupiter) | 5 000 | 0 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Leda"] |
| LYSITHEA_1988 | 88 | Lysithea (satellite of Jupiter) | 12 000 | 0 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Lysithea"] |
| MOON_1991 | 102 | Moon (satellite of Earth) | 1 737 400 | 0 | As specified accompanying the parameter value | 1991 | [RIIC06, Table 5, "Moon"] |
| NAIAD_1991 | 104 | Naiad (satellite of Neptune) | 29 000 | 0 | As specified accompanying the parameter value | 1991 | [RIIC06, Table 5, "Naiad"] |
| NEREID_1991 | 106 | Nereid (satellite of Neptune) | 170 000 | 0 | As specified accompanying the parameter value | 1991 | [RIIC06, Table 5, "Nereid"] |
| OBERON_1988 | 108 | Oberon (satellite of Uranus) | 761 400 | 0 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Oberon"] |
| OPHELIA_1988 | 109 | Ophelia (satellite of Uranus) | 15 000 | 0 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Ophelia"] |
| PAN_1991 | 110 | Pan (satellite of Saturn) | 10 000 | 0 | As specified accompanying the parameter value | 1991 | [RIIC06, Table 5, "Pan"] |

| RD label | RD code | Description | Parameters | | | Date | References |
|---------------|---------|---------------------------------|----------------------|-----------------|---|------|-------------------------------|
| | | | Major semi-axis, a | Flattening, f | Error estimate | | |
| PASIPHAE_1988 | 112 | Pasiphae (satellite of Jupiter) | 18 000 | 0 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Pasiphae"] |
| PORTIA_1988 | 117 | Portia (satellite of Uranus) | 54 000 | 0 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Portia"] |
| PUCK_1988 | 120 | Puck (satellite of Uranus) | 77 000 | 0 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Puck"] |
| ROSALIND_1988 | 122 | Rosalind (satellite of Uranus) | 27 000 | 0 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Rosalind"] |
| SINOPE_1988 | 124 | Sinope (satellite of Jupiter) | 14 000 | 0 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Sinope"] |
| THALASSA_1991 | 132 | Thalassa (satellite of Neptune) | 40 000 | 0 | As specified accompanying the parameter value | 1991 | [RIIC06, Table 5, "Thalassa"] |
| TITAN_1982 | 134 | Titan (satellite of Saturn) | 2 575 000 | 0 | As specified accompanying the parameter value | 1982 | [RIIC06, Table 5, "Titan"] |
| TITANIA_1988 | 135 | Titania (satellite of Uranus) | 788 900 | 0 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Titania"] |
| TRITON_1991 | 136 | Triton (satellite of Neptune) | 1 352 600 | 0 | As specified accompanying the parameter value | 1991 | [RIIC06, Table 5, "Triton"] |

| RD label | RD code | Description | Parameters | | | Date | References |
|-------------------------|---------|-------------------------------|----------------------|-----------------|---|------|------------------------------|
| | | | Major semi-axis, a | Flattening, f | Error estimate | | |
| UMBRIEL_1988 | 137 | Umbriel (satellite of Uranus) | 584 700 | 0 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Umbriel"] |
| Object type: Sun | | | | | | | |
| SUN_1992 | 129 | Sun | 696 000 000 | 0 | As specified accompanying the parameter value | 1992 | [SEID, Table 15.4, "Sun"] |

Table D.4 — Prolate ellipsoid RD specifications

| RD label | RD code | Description | Parameters | | | Date | References |
|---------------------------------|---------|-------------|----------------------|-----------------|----------------|------|------------|
| | | | Minor semi-axis, a | Flattening, f | Error estimate | | |
| Object type: Earth | | | | | | | |
| Object type: Planet (non-Earth) | | | | | | | |
| Object type: Satellite | | | | | | | |
| Object type: Sun | | | | | | | |

Table D.5 — Tri-axial ellipsoid RD specifications³⁴

| RD label | RD code | Description | Parameters | | | | Date | References |
|---------------------------------|---------|---------------------------------------|----------------|----------------|----------------|---|------|-------------------------------|
| | | | Semi-axis, a | Semi-axis, b | Semi-axis, c | Error estimate | | |
| Object type: Earth | | | | | | | | |
| Object type: Planet (non-Earth) | | | | | | | | |
| EROS_2006 | 150 | Eros (asteroid 433, a minor planet) | 17 000 | 5 500 | 5 500 | As specified accompanying the parameter value | 2006 | [RIIC06, Table 6, "Eros"] |
| GASPRA_1991 | 66 | Gaspra (asteroid 951, a minor planet) | 9 100 | 5 200 | 4 400 | As specified accompanying the parameter value | 1991 | [RIIC06, Table 6, "Gaspra"] |
| IDA_1991 | 76 | Ida (asteroid 293, a minor planet) | 26 800 | 12 000 | 7 600 | As specified accompanying the parameter value | 1991 | [RIIC06, Table 6, "Ida"] |
| Object type: Satellite | | | | | | | | |
| ADRASTEIA_2000 | 16 | Adrastea (satellite of Jupiter) | 10 000 | 8 000 | 7 000 | As specified accompanying the parameter value | 2000 | [RIIC06, Table 5, "Adrastea"] |
| AMALTHEA_2000 | 18 | Amalthea (satellite of Jupiter) | 125 000 | 73 000 | 64 000 | As specified accompanying the parameter value | 2000 | [RIIC06, Table 5, "Amalthea"] |
| ARIEL_1988 | 21 | Ariel (satellite of Uranus) | 581 100 | 577 900 | 577 700 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Ariel"] |

³⁴ Because the hydrostatic shape of a body in synchronous rotation about a larger body is approximately a tri-axial ellipsoid, the *a*, *b*, and *c* semi-axes of RDs for satellites are respectively the equatorial subplanetary, equatorial along orbit, and polar semi-axes. For asteroids, the semi-axes are ordered by descending size. Asteroids may be extremely irregular in shape and their fit by a tri-axial ellipsoid may be poor. However, a tri-axial ellipsoid is a common reference shape for photometric analysis of such bodies.

| RD label | RD code | Description | Parameters | | | | Date | References |
|-----------------|---------|----------------------------------|---------------------|---------------------|---------------------|---|------|---------------------------------|
| | | | Semi-axis, <i>a</i> | Semi-axis, <i>b</i> | Semi-axis, <i>c</i> | Error estimate | | |
| ATLAS_1988 | 22 | Atlas (satellite of Saturn) | 18 500 | 17 200 | 13 500 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Atlas"] |
| CALLISTO_2000 | 29 | Callisto (satellite of Jupiter) | 2 409 400 | 2 409 200 | 2 409 300 | As specified accompanying the parameter value | 2000 | [RIIC06, Table 5, "Callisto"] |
| CALYPSO_1988 | 30 | Calypso (satellite of Saturn) | 15 000 | 8 000 | 8 000 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Calypso"] |
| DEIMOS_1988 | 46 | Deimos (satellite of Mars) | 7 500 | 6 100 | 5 200 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Deimos"] |
| DIONE_2006 | 148 | Dione (satellite of Saturn) | 563 800 | 561 000 | 560 300 | As specified accompanying the parameter value | 2006 | [RIIC06, Table 5, "Dione"] |
| ENCELADUS_2006 | 149 | Enceladus (satellite of Saturn) | 256 600 | 251 400 | 248 300 | As specified accompanying the parameter value | 2006 | [RIIC06, Table 5, "Enceladus"] |
| EPIMETHEUS_1988 | 53 | Epimetheus (satellite of Saturn) | 69 000 | 55 000 | 55 000 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Epimetheus"] |
| EUROPA_2000 | 55 | Europa (satellite of Jupiter) | 1 564 130 | 1 561 230 | 1 560 930 | As specified accompanying the parameter value | 2000 | [RIIC06, Table 5, "Europa"] |
| GANYMEDE_2000 | 65 | Ganymede (satellite of Jupiter) | 2 632 400 | 2 632 290 | 2 632 350 | As specified accompanying the parameter value | 2000 | [RIIC06, Table 5, "Ganymede"] |
| HYPERION_2000 | 73 | Hyperion (satellite of Saturn) | 164 000 | 130 000 | 107 000 | As specified accompanying the parameter value | 2000 | [RIIC06, Table 5, "Hyperion"] |

| RD label | RD code | Description | Parameters | | | | Date | References |
|-----------------|---------|----------------------------------|---------------------|---------------------|---------------------|---|------|---------------------------------|
| | | | Semi-axis, <i>a</i> | Semi-axis, <i>b</i> | Semi-axis, <i>c</i> | Error estimate | | |
| IAPETUS_2006 | 151 | Iapetus (satellite of Saturn) | 747 400 | 747 400 | 712 400 | As specified accompanying the parameter value | 2006 | [RIIC06, Table 5, "Iapetus"] |
| IO_2000 | 79 | Io (satellite of Jupiter) | 1 829 400 | 1 819 300 | 1 815 700 | As specified accompanying the parameter value | 2000 | [RIIC06, Table 5, "Io"] |
| JANUS_1988 | 80 | Janus (satellite of Saturn) | 97 000 | 95 000 | 77 000 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Janus"] |
| MIMAS_2006 | 152 | Mimas (satellite of Saturn) | 207 400 | 196 800 | 190 600 | As specified accompanying the parameter value | 2006 | [RIIC06, Table 5, "Mimas"] |
| MIRANDA_1988 | 95 | Miranda (satellite of Uranus) | 240 400 | 234 200 | 232 900 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Miranda"] |
| PANDORA_1988 | 111 | Pandora (satellite of Saturn) | 55 000 | 44 000 | 31 000 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Pandora"] |
| PHOBOS_1988 | 113 | Phobos (satellite of Mars) | 13 400 | 11 200 | 9 200 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Phobos"] |
| PHOEBE_2006 | 153 | Phoebe (satellite of Saturn) | 108 600 | 170 700 | 101 500 | As specified accompanying the parameter value | 2006 | [RIIC06, Table 5, "Phoebe"] |
| PROMETHEUS_1988 | 118 | Prometheus (satellite of Saturn) | 74 000 | 50 000 | 34 000 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Prometheus"] |
| PROTEUS_1991 | 119 | Proteus (satellite of Neptune) | 218 000 | 208 000 | 201 000 | As specified accompanying the parameter value | 1991 | [RIIC06, Table 5, "Proteus"] |

| RD label | RD code | Description | Parameters | | | | Date | References |
|------------------|---------|-------------------------------|---------------------|---------------------|---------------------|---|------|------------------------------|
| | | | Semi-axis, <i>a</i> | Semi-axis, <i>b</i> | Semi-axis, <i>c</i> | Error estimate | | |
| RHEA_2006 | 154 | Rhea (satellite of Saturn) | 767 200 | 762 500 | 763 100 | As specified accompanying the parameter value | 2006 | [RIIC06, Table 5, "Rhea"] |
| TELESTO_1988 | 130 | Telesto (satellite of Saturn) | 15 000 | 12 500 | 7 500 | As specified accompanying the parameter value | 1988 | [RIIC06, Table 5, "Telesto"] |
| TETHYS_2006 | 155 | Tethys (satellite of Saturn) | 540 400 | 531 100 | 527 500 | As specified accompanying the parameter value | 2006 | [RIIC06, Table 5, "Tethys"] |
| THEBE_2000 | 133 | Thebe (satellite of Jupiter) | 58 000 | 49 000 | 42 000 | As specified accompanying the parameter value | 2000 | [RIIC06, Table 5, "Thebe"] |
| Object type: Sun | | | | | | | | |

<http://standards.iso.org/ittf/PubliclyAvailableStandards/>