Quantities	Source	References & Comments
General		**Used in most sections**
DE405/LE405 ephemerides	JPL	Standish, E.M., JPL IOM 312.F-98-048, 1998.
ICRS star catalogues	ESA, USNO	Hipparcos, Tycho-2, UCAC2, USNO-B
Reference systems:		
ICRS	IAU 1997	Resolution B2, *Trans. IAU*, **XXIIIB**.
BCRS	IAU 2000	Resolution B1.3, *Trans. IAU*, **XXIVB**.
GCRS	IAU 2000	Resolution B1.4, *Trans. IAU*, **XXIVB**.
CIRS Equinox & Equator TIRS	} } IAU }	"of date" reference systems; functions of frame bias, precession and nutation which are all defined by IAU (see Section B).
ITRS	IAG	International Terrestrial Reference System.
Time scales:		
TAI	IAU 1967	Adopted 1971
TT	IAU 2000	Resolution B1.9. TT = TAI + $32^s.184$
TDB	IAU 2006	Resolution B3.
T_{eph}	1998	Standish, E.M., A&A, **336**, 381-384.
UT1	IERS	ΔT = TT – UT1
Standard epoch	IAU 1976	J2000.0, JD 2451545.0 TT, 2000 Jan 1 12^h TT.
Centuries / days	IAU 1976	Julian centuries of 36525 days of 86400^s.

Quantities	Source	References & Comments
Constants used		
Gaussian gravitation const.	IAU 1976	k = 0.017 202 098 95
Speed of light	IAU	c = 299 792 458 ms^{-1}
Light time for unit distance	JPL	τ_A = 1.49597870691 m
Unit distance	JPL	$A = c\tau_A$ = 149 597 870 691 m
Radius of Earth	IAG 1999	a_e = 6378.1366 km GA XXII, Special Commission SC3, Fundamental Constants, Groten, E., *Geodesists Handbook 2000*, and "Parameters of Common Relevance of Astronomy, Geodesy, and Geodynamics", *J. Geod.*, **74**, 134-140.
Geocentric gravitation const.	JPL	GE = 3.986 4004 329
Heliocentric gravitation const.	JPL	GS = A^3k^2/D^2 = 1.327 124 400 179 87 x 10^{20} m^3s^{-2}
Mean obliquity at J2000	IAU 2006	ε_0 = 23° 26′ 21″.406 (see B)
Rate of advance of ERA	IAU 2000	1.002 737 811 911 354 48 revolutions / UT1 day
Vector/Matrix approach	IAU 1976	
USNO Software	G.K. Kaplan	NOVAS v3, *USNO Circular 179*
HMNAO Software		Includes use of IAU-SOFA software

Quantities	Source	References & Comments
Section A – Phenomena		
Phases of Moon: Lunation	E.W. Brown	*Mon. Not. Roy. Astron. Soc.*, **93**, 603, 1933. No. 1 – 1923 January 16 (see D).
Phenomena defintions		E.g. equinox, oppositions, stationary points, etc.
Rise & set phenomena		Upper limb on the horizon.
Refraction		34′ at horizon.
Timings	IAU	Nearest minute of time.
Civil twilight		ZD = 96°, introduced 1937
Nautical twilight		ZD = 102°, introduced 1937
Astronomical twilight		ZD = 108°
Occultations		*k*, see Eclipses.
Software		HMNAO / SOFA
Eclipses		
Sun's SD at unit distance	IAU 1976	15′ 59″.64
k	IAU 1982 Watts, C. B	*k* = 0.272 5076 corresponding mean radius of Watts datum such that the Moon's apparent SD = $\sin^{-1}(k \sin \pi)$ where π is the Moons HP. *APAE*, XVII, 1963,

Quantities	Source	References & Comments
		Radius of Moon =1737.97 km
Section B – Time Scales & Coordinate Systems		
Software		HMNAO / SOFA
Earth Rotation angle / UT1	IAU 2000	Resolution B1.8, *Trans. IAU*, **XXIVB**.
GMST / UT1	IAU 2006	Capitaine, N., Wallace, P.T., and Chapront, J., *Astron. Astrophys.*, **432**, 355-367, 2005.
GAST Equation of Equinoxes		
Equation of Origins	IAU 2006	Defined by the WG on Nomenclature, *Trans IAU,* **XXVIB**.
Bias		IERS Conventions 2003, *Technical Note 32*, eds., McCarthy, D.D. & Petit, G.
Precession	IAU 2006	Resolution B1, *Celest. Mech.*, **94**, 351-367, 2006. • P03: Capitaine, N., Wallace, P.T., & Chapront, J., *Astron. Astrophys.*, **412**, 567-586, 2003. • Wallace, P.T., and Capitaine, N., *Astron. Astrophys*. **459**, 981-985, 2006.
Mean obliquity ε_A	IAU 2006	Resolution B1 *Celest. Mech.*, **94**, 351-367, 2006.

Quantities	Source	References & Comments
Nutation, $\Delta\psi$, $\Delta\varepsilon$ Tiny adjustments (μas level)	IAU 2000A IAU 2006	Resolution B1.6; implementations: • IERS Conventions 2003, *Technical Note 32*, eds., McCarthy, D.D. & Petit, G. • USNO Circular 179, G. Kaplan • IAU-SOFA code, NUT00A & Resolution B1: IAU-SOFA code NUT06A, which includes tiny adjustments for use with IAU 2006 precession http://iau-sofa.hmnao.com.
CIP & CIO Locator; *X*, *Y*, & *s*	IAU 2006	See Precession and Resolution B1, & Resolution B 2. • Capitaine, N., and Wallace, P.T., *Astron. Astrophys.*, **450**, 855-872, 2006,
Space motion		No light time included AsA, NOVAS simple light time formulation, IAU-SOFA, Stumpff, P., *Astron. Astrophys.* **144**, 232-240, 1985.
Polar motion *x*, *y*	IERS	Bulletin B

Quantities	Source	References & Comments
Section C - Sun		
Ephemerides: DE 405	JPL	Standish, E.M., JPL IOM 312.F-98-048, 1998.
Software		USNO / NOVAS
Solar parallax	IAG 1999	$\pi_O = \sin^{-1}(a_e/A) = 8''.794\,143$ (see a_e & A above).
Mean elements L', Γ', Ω, D	Simon *et al.*	*Astron. Astrophys.*, **282**, 663, 1994.
Mean obliquity ε_A	IAU 2006	Resolution B1 *Celest. Mech.*, **94**, 351-367, 2006.
Carrington reference system	1863 IAU 1985	Continuation of Greenwich photoheliographic series; and synodic rotation numbers, No 1, 1853 November 9. Resolution C6
Physical ephemeris and rotation parameters	IAU 2006 1863 1992	WGCCRE Report 10, Seidelmann P.K., *et al.*, *Celest. Mech.*, **98**, 155-180, 2007, based on Carrington, R.C., *Observations of the Spots of the Sun* & updated using Seidelmann P.K., *et al.*, *Explanatory Supplement to the AsA*, p 397.
GCRS positions		Apparent (not intermediate) places at 0^h TT tabulated
Transit times		Transit over the ephemeris meridian.

Quantities	Source	References & Comments
Section D - Moon		
Ephemerides: DE405/LE405	JPL	Standish, E.M., JPL IOM 312.F-98-048, 1998.
Software		HMNAO / SOFA
Radius of Moon	IAU 2006	r_m = 1737.4 km; WGCCRE Report 10, Seidelmann P.K., *et al*., *Celest. Mech.*, **98**, 155-180, 2007.
k and Semi-diameter		$k = 0.272\,399 = r_m / a_e$ (see Eclipses), $SD = \sin^{-1}(k \sin \pi)$ where π is the Moons HP.
Phases of Moon: Lunations	E.W. Brown	*Mon. Not. Roy. Astron. Soc.*, **93**, 603, 1933. No. 1 - 1923 January 16 (see A).
Mean elements L', Γ', Ω, D	Simon *et al.*	*Astron. Astrophys*., **282**, 663, 1994.
Inclination (I) of the mean lunar equator to the ecliptic	Newhall & Williams	$I = 1° 32' 33''.6$ DE/LE 405 compatible value, *Celest. Mech*., **66**, 21, 1997.
Inclination (I) of the mean lunar equator to the ecliptic	IAU	$I = 1° 32' 32''.7$, used in the physical ephemerides (see Librations).
Librations	D. Eckhardt	*The Moon and the Planets*, **25**, 3, 1981; "High Precision Earth Rotation & Earth-Moon Dynamic's, ed. Calame, O., 193-198, 1982, but using IAU Inclination (I) (see above).

Quantities	Source	References & Comments
GCRS positions		Apparent (not intermediate) places at 0^h TT tabulated
Section E – Planets & Pluto		
Ephemerides: DE 405	JPL	Standish, E.M., JPL IOM 312.F-98-048, 1998.
Software		USNO / NOVAS
Pluto	IAU 2006	Resolutions 5 & 6, Pluto is a dwarf planet.
SD at unit distance		tan(radius of object/τ_A) expressed in arc.
Physical ephemerides; equatorial radius flattening sidereal period rotational elements	IAU 2006	WG on Cartographic Coordinates & Rotational Elements, Report 10, Seidelmann P.K., *et al.*, *Celest. Mech.*, **98**, 155-180, 2007.
Magnitudes: Mercury & Venus Mars – Pluto	 J.L. Hilton D.L. Harris	Also used in Section A. *Astron. Jour.*, **129**, 2902, 2005, *Astron. Jour.*, **130**, 2928, 2005. *Planets & Satellites*, eds., Kuiper, G.P., & Middlehurst, B.L., 272, 1961.
GCRS positions		Apparent (not intermediate) places at 0^h TT tabulated.
Transit times		Transit over the ephemeris meridian

Quantities	Source	References & Comments
Section G – Minor Planets & Comets		
Ephemerides: USNO/AE98 USNO/AE2001	J.L. Hilton	*Astron. Jour.* **117**, 1077, 1999. Ephemerides of largest 15: Ceres, Pallas, Juno, Vesta, Hebe, Iris, Flora, Metis, Hygiea, Eunomia, Psyche, Europa, Cybele, Davida, Interamnia. Ephemerides of "next" 78 asteroids.
Software		HMNAO / SOFA
Magnitudes H & G parameters	IAA	Institute of Applied Astronomy, St Petersburg *Minor Planet Ephemerides.*
Diameters		Various of sources.
Masses: (a) (b)	J.L. Hilton	"Asteroid Masses and Densities" in *Asteroids III,* Eds. Bottke, Cellino, Paolicchi & Binzel, Univ. of Arizona Press, 103-112, 2003.
Positions of minor planets		Astrometric position tabulated at 0^h TT
Comets	SAO	Smithsonian Astrophysical Observatory: Brian Marsden see http://cfa-www.harvard.edu/iau/Ephemerides/Comets/ index.html.

Quantities	Source	References & Comments
Section H – Stars & Stellar Systems		**The Main References**
All Section H Tables		Astrometry from ICRS-based catalogs: Hipparcos, Tycho-2, UCAC2, and USNO-B.
Bright Stars	Variety	List from Bright Star Catalog, FK5, Hipparcos.
Double Stars	WDS	Mason, AJ, **122**, 3466, 2001 + updates.
UBVRI Standards	Landolt	Landolt, AJ, **104**, 340, 1992.
uvby and Hβ		Perry, Olsen, & Crawford, PASP, **99**, 1184, 1987.
Radial Velocity Standards	IAU	Comm. 30 WG on Radial Velocity Standards.
Variable Stars		Amer. Assoc. of Variable Stars Observers
Bright Galaxies		3rd Ref. Catalog of Bright Galaxies.
Open Clusters		Dias et al., A&A, **389**, 871, 2002 + updates.
Globular Clusters		Harris, AJ, **112**, 1487, 1996.
ICRF Sources	IAU/IERS	Ma & Feissel, IERS Tech Note 23, 1997.
Radio Flux Calibrators		Baars et al., A&A, **61**, 99, 1977 + updates.
X-Ray Sources	Variety	4th Uhuru Cat. & source from Paradijs.
Quasars		Véron-Cetty & Véron, A&A, **455**, 773, 2006.
Pulsars		Manchester et al., AJ, **129**, 1993, 2005.

Quantities	Source	References & Comments
Gamma Ray Sources		Macomb & Gehrels, ApJ Supp, **120**, 335, 1999.