

Errata in The Explanatory Supplement to the Astronomical Almanac (3rd edition, 1st printing)

Last update: 11 Dec. 2012

Pg. xxxiii, Contributing Authors:

For “Barnard Guinot”, read “Bernard Guinot”.

Pg. 27, Chapter 1, 1st bullet:

For “Stages 5, 6, and 7 would be...”, read “Stages 5 and 6 would be...”

Pg. 27, Chapter 1, 2nd bullet:

For “Stages 3 through 7 can be...”, read “Stages 3 through 6 can be...”

Pg. 200, Eq. 6.2:

The matrix $\mathbf{R}_2(\theta)$ is incorrect. It should read:

$$\mathbf{R}_2(\theta) = \begin{bmatrix} \cos \theta & 0 & -\sin \theta \\ 0 & 1 & 0 \\ \sin \theta & 0 & \cos \theta \end{bmatrix} \quad (6.2)$$

Pg. 200, Eq. 6.4:

The first rotation matrix is in error. It should read:

$$\mathbf{W} = \mathbf{R}_3(-s') \mathbf{R}_2(x) \mathbf{R}_1(y) \quad (6.4)$$

Pg. 210, Figure 6.2(d):

One tickmark is mislabeled. For “ $Y = -50^\circ$ ”, read “ $Y = -5^\circ$ ”.

Pg. 211, Eq. 6.14 and following line:

The units of the coefficients are incorrect. It should read:

$$\begin{aligned} \Delta\psi - \Delta\psi_{2000A} &= (0.4697 \times 10^{-6} - 2.7774 \times 10^{-6} T) \Delta\psi_{2000A} \\ \Delta\varepsilon - \Delta\varepsilon_{2000A} &= -2.7774 \times 10^{-6} T \Delta\varepsilon_{2000A} \end{aligned} \quad (6.14)$$

where T is in centuries and -2.7774×10^{-6} is in cy^{-1} .

Pg. 214, Figure 6.4:

Topmost angle label is in error. It should read, “ $180^\circ - \Pi_A - \psi_A$ ”.

Pg. 216, Table 6.3

Three individual elements of the table are in error.

ψ_A coefficient for units of (arcsec/cent.³) should read $-0.001\,140\,45$.

ω_A coefficient for units of (arcsec/cent.) should read $-0.025\,754$.

χ_A coefficient for units of (arcsec/cent.³) should read $-0.001\,211\,97$.

Pg. 228, Eq. 6.51:

Individual matrix elements \mathcal{X} , $-\mathcal{X}$, \mathcal{Y} , and $-\mathcal{Y}$ have the wrong signs. The equation should read:

$$\begin{aligned} \text{NPB}_{\text{CIO}} &= \mathbf{R}_3(-s)\mathbf{R} \\ &= \mathbf{R}_3(-s) \begin{bmatrix} 1 - a\mathcal{X}^2 & -a\mathcal{X}\mathcal{Y} & -\mathcal{X} \\ -a\mathcal{X}\mathcal{Y} & 1 - a\mathcal{Y}^2 & -\mathcal{Y} \\ \mathcal{X} & \mathcal{Y} & 1 - a(\mathcal{X}^2 + \mathcal{Y}^2) \end{bmatrix} \end{aligned} \quad (6.51)$$

Pg. 229, Eq. 6.53:

A factor in the last line of the equation is incorrect. It should read:

$$s = \dots - 0''.07257411 T^3 + 2''.798 \times \dots \quad (6.53)$$

Pg. 229, paragraph following Eq. 6.53:

The paragraph should read: “Approximate formulae for the position of the CIP—accurate to 0.1 mas—and the CIO locator—accurate to 0.5 μ as—are found on pages B46 and B47 of *The Astronomical Almanac*.”

Pg. 302, Chapter 7 References:

A reference is missing. Add: “Mueller, I.I. (1969). *Spherical and Practical Astronomy as Applied to Geodesy*. New York, NY: Ungar.”

Pg. 411, last paragraph, 3rd sentence:

The sentence should read: “Those of the other planets and Pluto⁵ are based on Harris (1961) for all but Jupiter, whose $V(1,0)$ value is from Irvine et al. (1968).”

Pg. 413, Table 10.6:

Some values are inconsistent with the sources quoted on pg. 411. The modified table is given below. Bodies with changes are highlighted.

Body	$V(1,0)$ (mag)	V_0 (mag)	$\Delta m(i)^a$ (mag)
Mercury	-0.60	—	$0.0498 i - 0.000488 i^2 + 3.02 \times 10^{-6} i^3$
Venus ^b	-4.47	—	$0.0103 i + 0.000057 i^2 + 0.13 \times 10^{-6} i^3$
Venus ^c	0.98	—	$-0.0102 i$
Earth	-3.87	—	$0.0130 i + 0.000019 i^2 + 0.48 \times 10^{-6} i^3$
Mars	-1.52	-2.01	$0.016 i$
Jupiter	-9.40	-2.70	$0.005 i$
Saturn	-8.88	+0.67	$0.044 i$
Uranus	-7.19	+5.52	$0.002 i$
Neptune	-6.87	+7.84	—
Pluto	-1.01	+14.90	—
Io	-1.68	+5.02	$0.46 i - 0.0010 i^2$
Europa	-1.41	+5.29	$0.0312 i - 0.00125 i^2$
Ganymede	-2.09	+4.61	$0.323 i - 0.00066 i^2$
Callisto	-1.05	+5.65	$0.078 i - 0.00274 i^2$

^aThe coefficient i is the phase angle in degrees.

^b $2^\circ.2 < i < 163^\circ.6$

^c $163^\circ.6 < i < 170^\circ.2$

Pg. 428, Eq. 10.49:

The matrix $\mathbf{R}_2(\theta)$ is incorrect. It should read:

$$\mathbf{R}_2 = \begin{bmatrix} \cos \theta & 0 & -\sin \theta \\ 0 & 1 & 0 \\ \sin \theta & 0 & \cos \theta \end{bmatrix} \quad (10.49)$$

Pg. 448, Chapter 10 References:

The de Vaucouleurs (1970) book title is in error. It should read, "*Surfaces and Interiors of Planets and Satellites*".