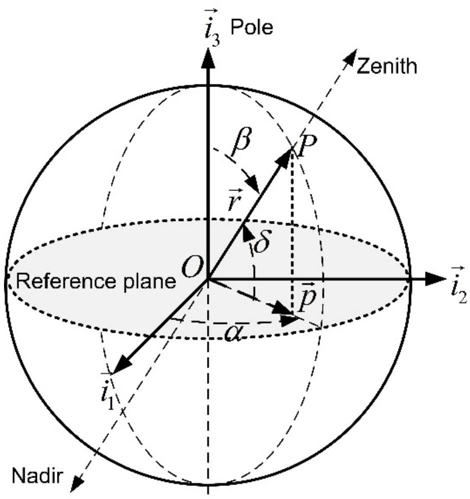
E. Canuto, C. Novara, L. Massotti, C. Perez Montenegro, D. Carlucci, Spacecraft Dynamics and Control. the Embedded Model Control approach, Butterworth-Heinemann (Elsevier), 2018

Chapter 2 Errata corrigendaEquation Chapter 2 Section 1

Erratum: Figure 2.3

Corrigendum



Erratum: page 21

When the antenna points toward $\delta_a = \pi/2$ (to the Zenith), the antenna axis aligns with the …

Corrigendum

When the antenna points toward $\delta_a = \pi/2$, the antenna axis aligns with the …

Erratum: page 44

Since $\varphi = \vartheta/2$, the polar form of the unit quaternion …

Corrigendum

Since $\phi = \vartheta/2$, the polar form of the unit quaternion …

Erratum: page 46, 2nd row of Exercise 26 (August 19,2019)

Three kinds of …

Corrigendum

Four kinds of …

Erratum: page 54

where $a_e = R_e$ is the mean equatorial radius and $b_e = a_e\sqrt{1-e_e^2}$ is the polar radius. ….

the semimajor axis and eccentricity hold $R_e = 6378137.0$ m and $e_e = 0.0818$, respectively.

Corrigendum

where $a_e = R_e$ is the mean equatorial radius, $b_e = a_e\sqrt{1-e^2}$ is the polar radius and e is the eccentricity. …

the semimajor axis and eccentricity hold $R_e = 6378137.0\ \mathrm{m}$ and $e = 0.0818$, respectively.

Erratum

$$e_e = \sqrt{1-(1-f_e)^2} = \sqrt{f_e(2-f_e)}. \tag{2.118}$$

Corrigendum

$$e = \sqrt{1-(1-f_e)^2} = \sqrt{f_e(2-f_e)}. \tag{2.118}$$

Erratum

$$\frac{1}{a_e^2}\left(w_e^2 + \frac{z_e^2}{1-e_e^2}\right) = 1, \tag{2.119}$$

Corrigendum

$$\frac{1}{a_e^2}\left(w_e^2 + \frac{z_e^2}{1-e^2}\right) = 1, \tag{2.119}$$

Erratum, page 55

The relation between Cartesian, geocentric and geodetic coordinates of $\vec{r} = \overline{OC}$ with …

Corrigendum

The relation between Cartesian, geocentric and geodetic coordinates of $\vec{r} = \overline{EC}$ with …

Erratum

$$\tan\varphi = \left(1-\eta(\varphi,h)\right)\tan\phi. \tag{2.123}$$

Corrigendum

$$\tan\varphi = \left(1-\eta(\varphi,h)\right)^{-1}\tan\phi. \tag{2.123}$$

Erratum

$$\begin{aligned} &\varphi_0 = \sin^{-1} s_0, c_0 = \sqrt{1-s_0^2}, |\phi| < 1 \text{ rad} \\ &\varphi_0 = \cos^{-1} c_0, s_0 = \sqrt{1-c_0^2}, 1 \le |\phi| < \pi/2 \text{ rad} \end{aligned}. \tag{2.126}$$

Corrigendum

$$\begin{aligned} &\varphi_0 = \sin^{-1} s_0, c_0 = \sqrt{1-s_0^2}, |\phi| < 1 \text{ rad} \\ &\varphi_0 = \mathrm{sgn}(\phi)\cos^{-1} c_0, s_0 = \mathrm{sgn}(\phi)\sqrt{1-c_0^2}, 1 \le |\phi| < \pi/2 \text{ rad} \end{aligned}. \tag{2.126}$$

Erratum

$$
\begin{aligned}
l_0 &= -w_0 \sin\varphi_0 + z_0 \cos\varphi_0 \\
h_0 &= w_0 \cos\varphi_0 + z_0 \sin\varphi_0 \\
w_0 &= w - R_n \cos\varphi_0 \\
z_0 &= z - \left(1-e^2\right) R_n \cos\varphi_0
\end{aligned}
\qquad (2.127)
$$

Corrigendum

$$
\begin{aligned}
l_0 &= -w_0 \sin\varphi_0 + z_0 \cos\varphi_0 \\
h_0 &= w_0 \cos\varphi_0 + z_0 \sin\varphi_0 \\
w_0 &= w - R_n \cos\varphi_0 \\
z_0 &= z - \left(1-e^2\right) R_n \sin\varphi_0
\end{aligned}
\qquad (2.127)
$$

Erratum, page 59, third row below (2.134) (August 19, 2019) Sorry!

… The *mean solar day* during the course of the year is $S_{mean} = 84600$ s. The

Corrigendum

… The *mean solar day* during the course of the year is $S_{mean} = 86400$ s. The

Erratum (September 9, 2019)

$$
\begin{aligned}
&\Omega_0(t) = S_{mean}\theta_e(t) + \left(\varpi_1 + \left(\varpi_2 + \varpi_3 C(t)\right)C(t)\right)C(t) \\
&\varpi_1 = 8.640184812866\times10^{6}, \varpi_2 = 93.104\times10^{-3}, \varpi_3 = 6.2\times10^{-6}
\end{aligned},
\qquad (2.11)
$$

Corrigendum

$$
\begin{aligned}
&\Omega_0(t) = S_{mean}\theta_e(t) + \left(\varpi_1 + \left(\varpi_2 + \varpi_3 C(t)\right)C(t)\right)C(t) \;\; [\mathrm{s}] \\
&\varpi_1 = 8.640184812866\times10^{6}, \varpi_2 = 93.104\times10^{-3}, \varpi_3 = -6.2\times10^{-6}
\end{aligned},
\qquad (2.12)
$$

Erratum, Sorry! (September 9, 2019)

$$
\begin{aligned}
&\theta_e(t) = \theta_{e0} + \varpi_e D(t) \\
&\theta_{e0} = 0.2790572733, \;\; \varpi_e = 1.002737909350795 \; d^{-1}
\end{aligned},
\qquad (2.13)
$$

Corrigendum

$$
\begin{aligned}
&\theta_e(t) = \theta_{e0} + \varpi_e D(t) \;\; [\mathrm{fraction}] \\
&\theta_{e0} = 0.7790572733, \;\; \varpi_e = 1.002737909350795 \; d^{-1}
\end{aligned},
\qquad (2.14)
$$

Erratum (September 9, 2019)

$$
\omega_e = \varpi_e / s_e = 2\pi\varpi_e / S_{mean} = 72.92115 \;\mu\mathrm{rad/s}. \qquad (2.15)
$$

Corrigendum

$$\omega_e = \varpi_e / s_e = 2\pi\varpi_e / S_{mean} = 72.92115855306587 \ \mu\text{rad/s} . \quad (2.16)$$

Erratum, page 82, end of second paragraph (August 19,2019)

The vector $\boldsymbol{\theta} = [\theta_1, \theta_2, \theta_3]$ can be referred to as the *Cartesian angle vector*, as opposed to Euler and Tait-Bryan angles.

Corrigendum

The vector $\boldsymbol{\theta} = \vartheta \mathbf{v} = [\theta_1, \theta_2, \theta_3]$, which can be referred to as the *Cartesian angle vector,* coincides with the vector $\boldsymbol{\theta} = [\theta_1, \theta_2, \theta_3]$ of Euler and Tait-Bryan angles - beware of the same notation- for $|\boldsymbol{\theta}| \to 0$, as equations (2.207) and (2.211) prove.