

Chapter 5 Errata corrigenda

Erratum (August 19, 2019)

$$\begin{aligned}\bar{\omega}_1 &= \dot{\theta}_1 \bar{h}_3 = \frac{h}{r_1^2} \bar{h}_3 = \omega_1 \bar{h}_3 \\ \dot{\bar{\omega}}_2 &= -2 \frac{h}{r_{\theta 1}^3} \dot{r}_1 \bar{h}_3 = -2 \omega_1 \frac{\dot{r}_1}{r_1} \bar{h}_3 = \dot{\omega}_1 \bar{h}_3. \\ h &= r_1^2 \dot{\theta}_1\end{aligned}\tag{5.87}$$

Corrigendum

$$\begin{aligned}\bar{\omega}_1 &= \dot{\theta}_1 \bar{h}_3 = \frac{h}{r_1^2} \bar{h}_3 = \omega_1 \bar{h}_3 \\ \dot{\bar{\omega}}_1 &= -2 \frac{h}{r_1^3} \dot{r}_1 \bar{h}_3 = -2 \omega_1 \frac{\dot{r}_1}{r_1} \bar{h}_3 = \dot{\omega}_1 \bar{h}_3. \\ h &= r_1^2 \dot{\theta}_1\end{aligned}\tag{5.87}$$

Erratum, 1st paragraph, second row above (5.91) (August 19, 2019)

into $e = e_1$, $\theta = \theta_1$, $\dot{\theta} = \omega_1$, $\dot{\omega}_1 = -2\dot{\theta}^2 \sin \theta (1 + e \cos \theta)^{-1}$ and $\mu / r_1^3 = \dot{\theta}^2 (1 + e \cos \theta)^{-1}$,

Corrigendum

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Erratum (August 19, 2019)

$$\begin{bmatrix} \mathbf{r}_s \\ \mathbf{v}_s \end{bmatrix}(\theta) = S(\theta) \begin{bmatrix} \mathbf{r} \\ d\mathbf{r} / d\theta \end{bmatrix} = \begin{bmatrix} (1 + e_1 \cos \theta(t)) I_3 & 0 \\ -e_1 \sin \theta(t) I_3 & (1 + e_1 \cos \theta(t)) I_3 \end{bmatrix} \begin{bmatrix} \mathbf{r} \\ d\mathbf{r} / d\theta \end{bmatrix}, \tag{5.94}$$

Corrigendum

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Erratum (August 19, 2019)

$$\begin{aligned}
x(t-t_0) &= x_c - x_{\max} \sin(\omega_o(t-t_0) + \theta_r) \\
y(t-t_0) &= y_c + 2x_{\max} \cos(\omega_o(t-t_0) + \theta_r) \\
z(t-t_0) &= z_{\max} \sin(\omega_o(t-t_0) + \psi_0)
\end{aligned} \tag{5.109}$$

Corrigendum

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x(t-t_0) &= x_c - x_{\max} \cos(\omega_o(t-t_0) + \theta_r) \\
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z(t-t_0) &= z_{\max} \sin(\omega_o(t-t_0) + \psi_0)
\end{aligned} \tag{5.109}$$

Erratum

$$\begin{aligned}
\ddot{x} - 2\omega_p \dot{y} - \omega_p^2 x &= \frac{\partial}{\partial x} U_g(x, y, z) \\
\ddot{y} + 2\omega_p \dot{x} - \omega_p^2 y &= \frac{\partial}{\partial y} U_g(x, y, z) \\
\ddot{z} &= \frac{\partial}{\partial z} U_g(x, y, z)
\end{aligned} \tag{5.130}$$

Corrigendum

$$\begin{aligned}
\ddot{x} - 2\omega_0 \dot{y} - \omega_0^2 x &= \frac{\partial}{\partial x} U_g(x, y, z) \\
\ddot{y} + 2\omega_0 \dot{x} - \omega_0^2 y &= \frac{\partial}{\partial y} U_g(x, y, z) \\
\ddot{z} &= \frac{\partial}{\partial z} U_g(x, y, z)
\end{aligned} \tag{5.130}$$

Erratum

$$\ddot{x}\ddot{x} + \ddot{y}\ddot{y} + \ddot{z}\ddot{z} - \omega_p^2 x\dot{x} - \omega_p^2 y\dot{y} = \dot{x} \frac{\partial}{\partial x} U_g + \dot{y} \frac{\partial}{\partial y} U_g + \dot{z} \frac{\partial}{\partial z} U_g = \frac{d}{dt} U_g. \tag{5.131}$$

Corrigendum

$$\ddot{x}\ddot{x} + \ddot{y}\ddot{y} + \ddot{z}\ddot{z} - \omega_0^2 x\dot{x} - \omega_0^2 y\dot{y} = \dot{x} \frac{\partial}{\partial x} U_g + \dot{y} \frac{\partial}{\partial y} U_g + \dot{z} \frac{\partial}{\partial z} U_g = \frac{d}{dt} U_g. \tag{5.131}$$

Erratum: Table 5.3

Corrigendum

Table 1. Earth-Moon Lagrangian points				
No.	Point	Earth to point distance [km]	Moon to point distance [km]	$\Delta\omega_o^2 / \omega_o^2$ [rad/s ²]
1	CoM	4700 (+)	379700	NA
2	L_4, L_5	384400	384400	0

3	L_1	326400	58000	4.1
4	L_2	448900	64500	2.2
5	L_3	381700	766100	0.01
(+ inside the Earth body, NA=not applicable)				