Correction to: Determining parameters of Moon's orbital and rotational motion from LLR observations using GRAIL and IERS-recommended models

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Correction 1. Equation (15) must be

$$\begin{aligned} \frac{I}{m} = & \frac{2R_M^2 \tilde{J}_2}{2\beta - \gamma + \beta\gamma} \begin{bmatrix} 1 - \beta\gamma & 0 & 0 \\ 0 & 1 + \gamma & 0 \\ 0 & 0 & 1 + \beta \end{bmatrix} - \frac{I_c}{m} \\ & - k_2 \frac{\mu_E}{\mu_M} \left(\frac{R_M}{r} \right)^5 \begin{bmatrix} x^2 - \frac{1}{3}r^2 & xy & xz \\ xy & y^2 - \frac{1}{3}r^2 & yz \\ xz & yz & z^2 - \frac{1}{3}r^2 \end{bmatrix} \\ & + k_2 \frac{R_M^5}{3\mu_M} \begin{bmatrix} \omega_x^2 - \frac{1}{3}(\omega^2 - n^2) & \omega_x\omega_y & \omega_x\omega_z \\ \omega_x\omega_y & \omega_y^2 - \frac{1}{3}(\omega^2 - n^2) & \omega_y\omega_z \\ \omega_x\omega_z & \omega_y\omega_z & \omega_z^2 - \frac{1}{3}(\omega^2 + 2n^2) \end{bmatrix} \end{aligned}$$

In the original, the bottom-right diagonal element of the last term had $(\omega^2 - n^2)$.

Correction 2. Equation (24) must be

$$\begin{aligned} \Delta_{\text{solidmoon}} = & \frac{\mu_A R_M^4}{\mu_M r_{MA}^3} \left[\frac{h_2}{2} \left(3 \left(\hat{r}_{MA} \cdot \hat{l} \right)^2 - 1 \right) \hat{l} \right. \\ & \left. + 3l_2 \left(\hat{r}_{MA} \cdot \hat{l} \right) \left(\hat{r}_{MA} - \left(\hat{r}_{MA} \cdot \hat{l} \right) \hat{l} \right) \right] \end{aligned}$$

In the original, $\hat{r}_{MA}$ was given instead of $\hat{l}$ at the end of the first line before the plus.

The original article can be found online at <https://doi.org/10.1007/s10569-016-9712-1>.

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Correction 3. In Table 8, lines 7–9, the first columns should be $\omega_c.x$, $\omega_c.y$, $\omega_c.z$. In the original, there were dots above the omegas.

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