



# Errata Corrigenda

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*I appologize to the readers because I have overlooked some mistakes and/or due to typos that are present in the text. In the errata sheet only correct values of wrong entries are given.*

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## 13 Analemmic curve or analemma

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$$[13.17] \quad x = -h \cdot (\vec{n}^T \cdot \vec{s})^{-1} \vec{r}_x^T \cdot \vec{s}$$

$$[13.18] \quad \vec{r}_y^T = [-\cos \beta \sin \psi \quad \cos \beta \cos \psi \quad \sin \beta]$$

$$[13.21] \quad \vec{r}_y^T \vec{s} = [-\cos \beta \sin \psi \quad \cos \beta \cos \psi \quad \sin \beta] \begin{bmatrix} \cos \delta \sin \omega \\ -\sin \varphi \cos \delta \cos \omega + \cos \varphi \sin \delta \\ \cos \varphi \cos \delta \cos \omega + \sin \varphi \sin \delta \end{bmatrix}$$

$$= -\cos \beta \sin \psi \cos \delta \sin \omega + \cos \beta \cos \psi (\sin \varphi \cos \delta \cos \omega - \cos \varphi \sin \delta) \\ + \sin \beta (\cos \varphi \cos \delta \cos \omega + \sin \varphi \sin \delta)$$

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$$[13.22] \quad y = h \frac{\sin \varphi \cos \delta \cos \omega - \cos \varphi \sin \delta}{\cos \varphi \cos \delta \cos \omega + \sin \varphi \sin \delta}$$

$$[13.23] \quad x = -h \frac{\cos \delta \sin \omega}{\cos(\varphi - \beta) \cos \delta \cos \omega + \sin(\varphi - \beta) \sin \delta}$$

$$[13.24] \quad y = -h \frac{\cos \varphi \cos \delta \cos \omega + \sin \varphi \sin \delta}{\sin \varphi \cos \delta \cos \omega - \cos \varphi \sin \delta}$$

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$$[13.26] \quad y = h \frac{\sin \varphi \cos \delta \cos(\omega + E \cdot \frac{15^\circ}{60}) - \cos \varphi \sin \delta}{\cos \varphi \cos \delta \cos(\omega + E \cdot \frac{15^\circ}{60}) + \sin \varphi \sin \delta}$$

$$[13.27] \quad \mathbf{R}_\beta \mathbf{R}_\psi \mathbf{R}_\phi = \begin{bmatrix} \cos \psi & \sin \varphi \sin \psi & \cos \varphi \sin \psi \\ -\cos \beta \sin \psi & \cos \beta \sin \varphi \cos \psi - \sin \beta \cos \varphi & \cos \beta \cos \varphi \cos \psi + \sin \beta \sin \varphi \\ \sin \beta \sin \psi & -\sin \beta \sin \varphi \cos \psi - \cos \beta \cos \varphi & -\sin \beta \cos \varphi \cos \psi + \cos \beta \sin \varphi \end{bmatrix}$$

# APPENDIX D

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Equation D.14 is correct if azimuth is measured from the North. If azimuth is measured from the South the following correction needs to be taken into account:

$$\frac{\sin(\overbrace{90^\circ - \alpha_s}^z)}{\sin \omega} = \frac{\sin(90^\circ - \delta)}{\sin(180^\circ - \theta)}$$

$$\cos \alpha_s \sin \theta = \cos \delta \sin \omega$$

**[D.14]**  $\sin z \sin \theta = \cos \delta \sin \omega$