

This article was published in *The Journal of the Astronautical Sciences*, Vol. 57, Nos. 1 and 2, January–June 2009, pp. 233–260. It contains several errata:

Equation (69) should read

$$\mathbf{r} = \tilde{\mathbf{H}}\mathbf{e}_*^- + \mathbf{u}_d + \mathbf{v} \quad (69)$$

The comment between equations (77) and (78) should read

”with $P_*^- = P(t_*^-)$,”

Equation (82) should read

$$= \begin{cases} Q_d(t_i, t_*)\Phi^\top(t_j, t_i) & t_* < t_i \leq t_j, \\ \Phi(t_i, t_j)Q_d(t_j, t_*) & t_* < t_j \leq t_i, \\ \Phi(t_i, t_*)Q_d(t_*, t_j)\Phi^\top(t_j, t_*) & t_i \leq t_j < t_*, \\ \Phi(t_i, t_*)Q_d(t_*, t_i)\Phi^\top(t_j, t_*) & t_j \leq t_i < t_*, \\ 0 & \text{otherwise.} \end{cases} \quad (82)$$

Equations (86)–(88) should read

$$\mathbf{N}_d(t) = \mathbf{E} [\mathbf{e}_{w*}^+ \mathbf{w}_d^\top(t, t_*)] \quad (86)$$

$$= -\mathbf{E} [\tilde{\mathbf{S}}_* \sum_i \mathbf{K}_i \mathbf{u}_{di} \mathbf{w}_d^\top(t, t_*)] \quad (87)$$

$$= -\tilde{\mathbf{S}}_* \sum_i \mathbf{K}_i \mathbf{H}_i \mathbf{Q}_d(t_*, t, t_i) \quad (88)$$

The line immediately above equation (94) should read

“at epoch. In equation (75) the matrix $(\mathbf{I}_n - \tilde{\mathbf{S}}_* \sum_i \mathbf{K}_i \tilde{\mathbf{H}}_i)$ is replaced by”

The assumption made below equation (74) that the errors in \mathbf{e}_{a*}^+ , \mathbf{e}_{v*}^+ , and \mathbf{e}_{w*}^+ are uncorrelated is certainly valid if t_* is prior to all the measurements, so the results of the paper are equally valid in that case. If t_* is later than some or all of the measurements, however, it might be more reasonable to assume that \mathbf{e}_{a*}^+ includes the process noise accumulated between the beginning of the observation span and t_* , in which case it has nontrivial correlations with \mathbf{e}_{w*}^+ . This modifies the manner in which process noise appears in the covariance analysis of the batch estimator, and will be considered in a future paper.