# GNSS Aided Navigation and Tracking
Errata / clarifications

Corrections are needed for two figures plus a few statements, cross-references, and mathematical symbols. In addition, a few areas would benefit from brief clarifications as well. All are listed, in sequential order, below.

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page 12, Fig. 2.2 : Estimated position includes adjustment as shown in corrected version below.
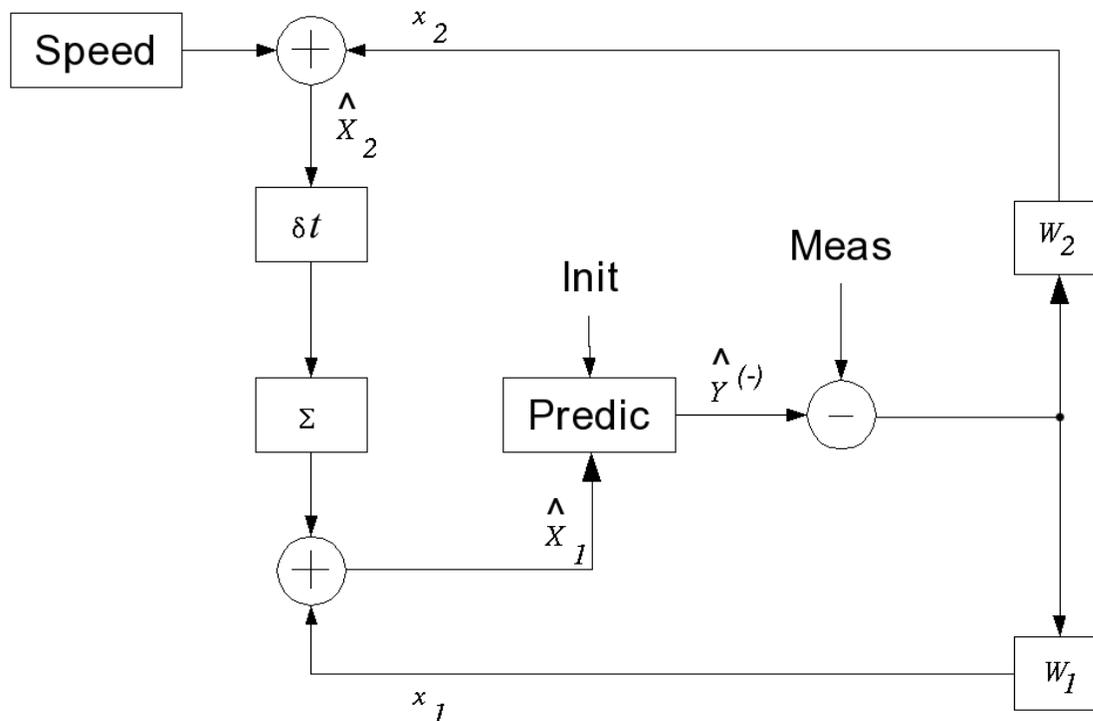
page 56 :   Detailed IMU specifications for motion-sensitive errors are understood to be needed only for usage in applications requiring long-term coast capability. For operations offering frequent updates (*e.g.*, including all test results shown in Chapter 8 !), the quasistatic short-term bias model – augmented by adjustment with conservative tolerances via Section 4.5.1 – effectively absorbs total resultant inertial instrument degradations.

page 68 :   At the end of the first line after Eq. (5.1), spacing correction produces a notation $|\mathbf{H}_m|$.
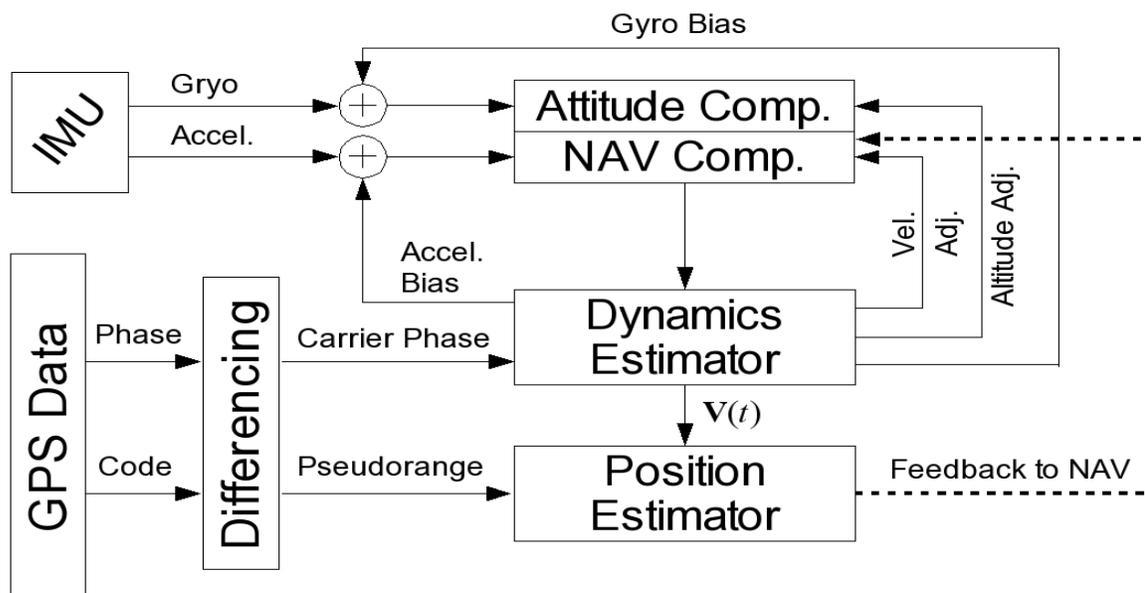
pp.68-70 :   Change Eq. #'s (1.4)–(1.6) to (2.59)–(2.61) in 2nd line of Section 5.1 and first line after Eq. (5.8). On page 69: (1.5,1.6) to (2.60,2.61) (line 4) and (1.8) to (2.63) (mid-page)

page 72 :   Delete the extraneous parenthese ")" that ends the third line up from the footnote.

page 74:: Replace $\boldsymbol{L}_{m-1} \times \mathbf{h}_m{}^{\mathsf{T}}$ by $l \times (\mathbf{h}_m \mathbf{T}_{L/A})^{\mathsf{T}}$ for drift states *in vehicle axes*

page 75:   Eq. (5.32): Premultiply $\boldsymbol{\omega}_R \times \mathbf{R}$ by $\mathbf{h}_m$
Eq. (5.33): Multiply upper right partition $\mathbf{T}_{L/A}\,\mathbf{1}_3$ by k

page 76:   Velocity and attitude adjustment labels are close to corresponding lines of Fig. 5.1 :

IMU — Gryo, Accel.

Gyro Bias

⊕ ⊕ → **Attitude Comp.** / **NAV Comp.**

Vel. Adj. — Altitude Adj.

GPS Data — Phase, Code

Differencing

Accel. Bias

Carrier Phase → **Dynamics Estimator**

Pseudorange → **Position Estimator**

$\mathbf{V}(t)$

Feedback to NAV

page 77 : 2nd paragraph, line 2: "(both are ~~both~~ formulated here)."

page 82 : Text after *Sequentially uncorrelated rate observations without position* should refer to Section 4.3.2 rather than 3.3.2.

page 89 : Discussion at end, after the statement "(5-48) produces less *than 1* cm at Elev > *11°* " is pessimistic. During flight, 1-sec phase residuals for one SV were acceptable all the way down to horizon, while rejection of its pseudorange data was imperative.

page 121 Add "[20]" after 2nd sentence.

page 128 Eq. (6.49) : Replace $\mathbf{R}_m$ by $\boldsymbol{R}_m$.

page 148 Eq. (7.10) : The right--hand side has the correct elements but, rather than a marix, those elements on the diagonal form a vector.

page 187 : For the second bulleted item, understand that one participant's world view may differ from another, as long as each participant's chosen reference is consistent within itself.

page 199 : Line 4 could be clearer by citing *position-dependent* measurements.

page 203 : "T" should be italicized ("*T*") two lines above the figure.

page 221 : Delete period before "observations " in second paragraph.

page 235 : Two lines above the table in Section I.2 – row vectors **H**, **h**, **h**, and **J**.

page 251 : Matrix "EF" in function eprop should not be multiplied by "dt" (computational results were unaffected because the time step was set equal to *1* sec.; the interval comparison noted on *p.* 247 was done with the simple program from [2] of that APPENDIX) :

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dY = TAP'*(EF*wadt + dt*x8(1:3)') + dt * ( Y(3)*[V(1)/RE  ws+V(2)/RE  0]');
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page 253 : A font correction in the 5th line from bottom — replace $\mathbf{P}_0$ by $\mathbf{P}_0$.

Further scrutiny could produce additional corrections or clarifications. Not many are expected to arise, since this book is largely a coordination / integration of earlier manuscripts that underwent several rewrites (plus, in many cases, reviews for Journal publication).