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 From: Jim Ray (USNO 202-762-1444)
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 Subject: [GPST] updated pseudorange bias corrections
 To: gpst@maia.usno.navy.mil
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 IGS Electronic Mail 05 Jan 06:11:04 PST 2001 Message Number 3160

Author: Jim Ray

Dear Colleagues,

With reference to IGS Mail #2879 (09 Jun 2000) and previous messages on the handling of pseudorange bias values, I propose a somewhat different strategy for updating biases. Updated values are needed now because of the addition of the new satellites PRN28 (Aug 2000) and PRN14 (Dec 2000), and the decommissioning of PRN16 (Jul 2000) and PRN18 (Jun 2000).

The current IGS bias values were determined by David Jefferson (JPL) based on Ashtech Z12 data only. Since then, direct estimates of the biases from a mixed network of cross-correlation style and non-cross-correlation receivers have become available as a standard byproduct of the ionospheric analysis made by Stefan Schaer; see IGS Mail #2827 (09 May 2000) and the web site at www.igs.org. A set of biases is maintained automatically based on a 7-day moving average of the latest bias estimates from the CODE clock analysis procedure.

For the following reasons I propose that Stefan's bias values be adopted for use with the IGS official products: 1) his estimates are continuously and automatically updated which eases future IGS updates; 2) his bias values are estimated directly from the data sets for which they will be applied (i.e., mostly TurboRogue receivers); 3) the CODE analysis includes a large number of receivers, usually a superset of those used by other Analysis Centers, and does not explicitly rely on any particular receiver models.

Consequently, the following set of new bias values is recommended for use by all IGS Analysis Centers and users of IGS clock products, preferably starting with data collected on 14 January 2001 (start of GPS week 1097). (These are the 7-day averages posted by Stefan on 26 December 2000.)

average biases (ps) in PRN order:

222	-546	42	1294	-798	625	-523	-193	48	-1002	PRN01-10
-329		1545	-409	-755		-522		582	-958	PRN11-20
-172	-1374	-1018	459	775	1077	213	-144	611	1745	PRN21-30
-496										PRN31-40

NOTE THE CHANGE IN UNITS FROM mm BEFORE to ps NOW! 1 mm = 3.3356410 ps

The RINEX converter utility, *cc2noncc*, has been updated accordingly. This utility can be used to transform AOA TurboRogue, AOA ICS-4000Z, and Trimble 4000 RINEX files to be compatible with modern receiver types. The Fortran code is available at <ftp://maia.usno.navy.mil/pub/biases/cc2noncc.f> (version 2.0, 04 Jan 2001).

--Jim Ray