GPS Calibration System for High-Accuracy Geodetic Measurements (poster, 1999)

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Abstract

Site-specific GPS phase-measurement errors, such as antenna scattering and multipath, are cm level. These systematic errors affect the estimates of both the horizontal and vertical components of site position. The vertical errors, larger than the horizontal, amount to several cm, and are probably the limiting source of error for determining vertical signals at the level of accuracy of mm/yr and smaller. A calibration of such errors is essential for improvement in the determination of geophysical signals using GPS.

As part of a "GPS calibration system" effort to characterize these errors at a level of 1 mm, we are developing an Antenna and Multipath Calibration System (AMCS). This level represents an improvement in accuracy of one order of magnitude. The AMCS system consists of a high-gain, multipath-free parabolic antenna and two GPS receivers, and will be transportable. Site visits of the AMCS will be used to determine calibrations for a particular site. The AMCS is scheduled to be fully operational by mid-2000.

Elosegui, P., P.O.J. Jarlemark, B.E. Corey, J.L. Davis, A.E. Niell, C.M. Meertens, GPS calibration system for high-accuracy geodetic measurements, (invited abstract), EOS, Trans., Amer. Geophy. Union, Spring Meeting, 80, (17), S80, 1999.

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