

Evaluation of Long-Term Positioning Error by Weather Forecast Model

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Troposphere delay is evaluated from the 20km weather forecast model of JMA. Difference between zenith delay from 12 hour prediction and that from initial value is not enough to correct the phase value by simple method. The hydrostatic component, however, is relatively stable and may be used for correction.

Mapping functions (MF) are derived by ray tracing with the daily grid model. Most of the annual component seen in the hydrostatic MF is explained by Niell's (1996) MF. Error in vertical coordinate is simulated by estimating it from slant-path delay derived by ray tracing as data with estimation of troposphere. It is inferred that accurate estimate of hydrostatic delay is important to improving long-period precision of vertical coordinate.