

## Correlation Analysis of GNSS ZTD Observations and GDAS-Derived Total Precipitable Water

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**Abstract:** A correlation analysis of the zenith total delay (ZTD) retrieved from ground-based Global Navigation Satellite System (GNSS) stations and the total precipitable water (TPW) derived from Global Data Assimilation System (GDAS) model is presented. The ZTD, derived from GPS measurements at 12 stations across Thailand over one-year period, is collocated in space and time with the GDAS-derived TPW. We found a high correlation between ZTD and TPW for our data, with some offsets across GNSS station locations due to the altitude differences. An empirical model was also developed to provide a unique relationship between the ZTD and the TPW, given a station altitude. These first results are promising for incorporating GNSS-based meteorological in Thailand.

**Keywords:** GNSS Remote Sensing, Zenith Total Delay, Total Precipitable Water, RTKLIB