

The Effect of UNBabc Mapping Function Modification To GPS Tropospheric Delay

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ABSTRACT

Tropospheric delay refers to the refraction of the Global Positioning System (GPS) signal as it passes through the neutral atmosphere from the satellite to the earth, which causes longer distance traveled by the signal. The zenith tropospheric delay can be amplified by mapping function, especially for less than 5 degrees elevation angle. Many mapping functions have been established however the mapping functions give large value when the elevation angles less than 5 degrees. A modification of UNBabc mapping function has been proposed. The modified UNBabc mapping function model shows a significant reduction of mapping function scale factor. As the coefficient of the zenith tropospheric delay, the value of mapping function will affect total tropospheric delay. The modification UNBabc mapping function has improved the tropospheric delay up to 19.1 percent at two degree elevation angles.

Keywords: Tropospheric, mapping function, zenith, modification