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Tropospheric zenith delay as derived from Era-5 reanalysis in Algeria.

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Tropospheric delay is one of the important error sources in GNSS positioning and is caused when radio signals broadcasted by GNSS satellites propagate into the neutral atmosphere.

This delay is typically divided into wet and hydrostatic components. ZTD is described as the sum of the Zenith Hydrostatic Delay (ZHD) and the Zenith Wet Delay (ZWD) and can be combined with surface pressure and temperature to estimate the integrated content of water vapour above GNSS station.

The main objective of this study is to compute the tropospheric zenith delay from ERA 5 reanalysis for 3 stations in Algeria which have different types of climate. We opt for using integration method for different level of pressure with ERA5.

The values of tropospheric delay are also compared with delays obtained from radiosondes profiles.

The results of this work shows good agreement with a mean correlation of 0.70, a mean bias of 3 mm and a RMS of 4 mm. We plan to extend this work for GNSS station recording for long periods.