



ZWD time series analysis derived from NRT data processing. A regional study of PW in Greece.

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ZWD (Zenith Wet/non-hydrostatic Delay) estimates are routinely derived Near Real Time from the new established Analysis Center in the Department of Geodesy and Surveying of Aristotle University of Thessaloniki (DGS/AUT-AC), in the framework of E-GVAP (EUMETNET GNSS water vapour project) since October 2014. This process takes place on an hourly basis and yields, among else, station coordinates and tropospheric parameter estimates for a network of 90+ permanent GNSS (Global Navigation Satellite System) stations. These are distributed at the wider part of Hellenic region.

In this study, temporal and spatial variability of ZWD estimates were examined, as well as their relation with coordinate series extracted from both float and fixed solution of the initial phase ambiguities. For this investigation, Bernese GNSS Software v5.2 was used for the acquisition of the 6 month dataset from the aforementioned network.

For time series analysis we employed techniques such as the Generalized Lomb-Scargle periodogram and Burg's maximum entropy method due to inefficiencies of the Discrete Fourier Transform application in the test dataset. Through the analysis, interesting results for further geophysical interpretation were drawn.

In addition, the spatial and temporal distributions of Precipitable Water vapour (PW) obtained from both ZWD estimates and ERA-Interim reanalysis grids were investigated.