



IPW from various sources: GPS tropospheric solution, sunphotometer, radiosounding and numerical weather prediction model - conformity analysis

Michał Kruczyk, Tomasz Liwosz, and Jerzy Rogowski

Department of Geodesy and Geodetic Astronomy, Warsaw University of Technology, Warsaw, Poland
(kruczyk@gik.pw.edu.pl)

We describe several interesting results of IPW time series comparisons and analyses.

Integrated Precipitable Water - important meteorological parameter is easily derivable from GPS tropospheric solutions (ZTD's). IPW values from other sources can be much more problematic through various technical shortages. We present results of quite many comparisons: different static solutions (mainly EPN) versus three meteorological water vapour data sources. We use: radiosoundings, sun photometer and operational numerical weather prediction model. Sun photometer (CIMEL 318) data at Central Geophysical Observatory PAS (Belsk, Poland) is compared not only to close IGS/EPN GPS stations but has its own GPS point established by us and suitably solved. Both input fields of operational numerical weather prediction model COSMO-LM (version maintained by Polish Institute of Meteorology and Water Management) and first prognosis steps were treated as IPW source and processed for comparisons and analysis.

Results which lead to the conclusion of GPS IPW high quality will be recapitulated. Next some analyses show value of GPS IPW as a geophysical tool.