GPS MPD-NetDemo data
Version 1.0

This dataset contains three Global Positioning System (GPS) datasets collected during the MPD-NetDemo field campaign. The data were collected between 16 April 2019 and 22 July 2019. The GFZ German Research Centre for Geosciences in Potsdam, Germany processed the data to provide precipitable water vapor (PWV) fields. For more information on MPD-NetDemo, see www.eol.ucar.edu/field_projects/mpd-netdemo.

Instrument description

GPS/GNSS (Global Navigation Satellite System) receivers are used worldwide for autonomous, all-weather, continuous, full-column observations of integrated precipitable water vapor (PWV) retrieved from time delays of signals from the GNSS satellites to the ground-based receivers. These quasi-vertical columns of PWV can be retrieved with high accuracy.

The instrumentation consists of an antenna, receiver and collocated weather station to provide the surface temperature, relative humidity and pressure measurements.

Data description

This dataset contains data from two EOL GPS systems and one GFZ GNSS system at these locations:

EOL1 was located at E37 (collocated with MPD01) in the SW corner of the SGP domain:
36.31 deg N; 97.93 deg W; 387.4 m MSL
EOL4 was located at E41 (collocated with MPD02) in the NE corner of the SGP domain:
36.88 deg N; 97.07 deg W; 343.8 m MSL
SGPO was a GFZ GNSS system located at the Central Facility (collocated with MPD05):
36.61 deg N; 97.49 deg W; 310.0 m MSL.

PWV retrievals are derived every 15 min to give PWV (mm) and standard deviation of PWV (mm), along with the collocated surface pressure (hPa), temperature (deg C) and RH (%).

Data processing

GFZ contributed to the EOL MPD Net Demo field campaign with its expertise in processing the ground-based GNSS network data to generate precise PWV products. GFZ was responsible for GNSS data transfer, data processing and providing GNSS-derived PWV products every 15 minutes. GNSS data processing in near real-time and generating PWV products were performed with GFZ EPOS software (Gendt et al., Ge et al., Ning et al.). Markus Bradke

supported handling of GNSS raw data and Galina Dick was responsible for the data processing and product generation.

References

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Citation

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Contact

EOL Data Support eol-datahelp@ucar.edu
UCAR/NCAR - Earth Observing Laboratory
Remote Sensing Facility