DORIS Zenith Tropospheric Delays available from the IGN Analysis Center

Pascal Willis, Olivier Bock, Yoaz Bar-Sever, Kamil Teke
SUMMARY

• Overview of DORIS tropospheric results
• Spatial/temporal interpolation issues
• Some results
• Conclusions
## Recent studies at IGN

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Spatial/temporal interpolation

• Temporal : need to interpolate GPS (or other) and to compare at DORIS data points (related to satellite passes)

• Spatial : need to correct for dry and wet delays (from antenna reference point to antenna reference point)

NB: especially important for VLBI (2-3 km away)
Correcting with tropospheric tie

→ Need to correct as reference points are different for hydrostatic + wet

From Teke et al., in prep.
Examples of CONT11 results

From Teke et al., in prep.
CONT11 results

DORIS vs. ECMWF

DORIS vs. VLBI

DORIS vs. GPS

NB: light grey = standard deviation of differences, dark grey = mean bias
ZTD vs. number of DORIS satellites

Bock et al., in prep
Comparisons at GAVB (ECMWF)
ZTD comparisons at GAVD (with GPS)

From Willis et al., submitted
Horizontal gradients

Latitude dependency

GPS/DORIS correlation

From Willis et al., 2012
Using DORIS to calibrate GPS


Update with IGS/repro1 and trop_new
Tropospheric North gradients / CONT11

From Teke et al., in prep.
Conclusions

• ZTD: multiple comparisons were done
  – VLBI, GPS, ECMWF
  – Short time periods (CONT-type comparisons)
  – Long time periods (station-specific)

• Horizontal gradients
  – GPS inter-comparisons + recent CONT results

Possible use for climatological studies (long-term, post-processing mode):
Stable network, 2 types of antennas, unique reprocessing,...