Multi-GNSS Slant Wet Delay Retrieval Using Multipath Mitigation Maps

Addisu Hunegnaw¹, Yohannes Getachew Ejigu², Felix Norman Teferle¹, and Gunnar Elgered³

¹University of Luxembourg, Geodesy and Geospatial Engineering, Department of Engineering, Luxembourg
²Ethiopian Space Science and Technology Institute, Ethiopia
³Chalmers University of Technology, Sweden

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Constructions of Multipath Stacking Maps

a) Multi-GNSS raw post-fit carrier phase residuals, b) Multipath Stacked Maps, c) Corrected post-fit carrier phase residuals
Slant Precipitable Water Vapour (SPWV)

a) SPWV from the multi-GNSS observations corrected for site-specific multipath

b) SPWV corrected for site-specific multipath from individual GNSS
Slant Precipitable Water Vapour contributions from post-fit carrier phase residuals

a) Post-fit carrier phase residual contributions to SPWV budget from multi-GNSS observations

b) Post-fit carrier phase residual contributions to SPWV budget from the individual GNSS
Slant Precipitable Water Vapour representations with elevation angles

- **a)** Estimated SPWV from individual GNSS observation,
- **b)** contributions of post-fit carrier phase residuals to the SPWV budget,
- **c)** the standard deviations of SPWV for each GNSS observation
Conclusions

- Multi-GNSS stacking reduce the multipath effects: The amount depends on how severely the multipath affects the station.
- The residual MPS map RMS improves when GPS+GLONASS+GALILEO+ BDS are combined.
- The post-fit residuals contribute to the finer tropospheric information to the slant water vapour budget.
Where are we going next?

• Compare the Multi GNSS derived slant water vapour with water vapour radiometer measurements for selected GNSS stations
• Compare space-brone SAR interferometric derived slant water vapour