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## Impact of the Galileo constellation on GNSS Tropospheric Tomography

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GNSS Tomography is a promising tool to reconstruct the wet refractivity field ( $N_w$ ) related to water vapor due to the continuous pass of GNSS rays through the atmosphere. To improve observation geometry compared to a sole GPS/ Glonass system scenario, applying further multi-GNSS observations in GNSS Tomography has become an essential research point in the recent decade. Therefore, the aim of this presentation is to investigate the impact of different constellations to solve the ill-posed inverse problem to retrieve a wet refractivity field by focusing on Galileo's effect on the accuracy of the estimated refractivity. Regarding this, the designed models loosely constrained due to provide an optimum situation for assessing the influence of Galileo constellation in the tomography solution. Test computations are based on data from a regional RTK-GNSS network close to Vienna operated by the Austrian power-supply company EVN (Energieversorgung Niederösterreich) and mostly located in the west part of Austria. The span DoYs 233-246 in August 2019 was chosen as a period of interest due to the high precipitation during that time. Consequently, we have considered the following processing schemes: 1- GPS+ Glonass (GR), 2- GPS+ Galileo (GE), and 3- GPS + Glonass + Galileo (GRE) to generate the reconstructed  $N_w$  field by means of the in-house Tomography software TOMTRP. Furthermore, as the Slant Tropospheric Delays (SWDs) and corresponding residuals are used as input data for GNSS tomography, so the impact of the mentioned schemes to estimate SWDs has been investigated here. Finally, in order to analyze the efficiency of the three schemes, the reconstructed refractivity profiles are compared to radiosonde profiles available in that area.