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Refined and site-augmented tropospheric delay models for CONT11

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Modeling tropospheric delays is one of the major error sources in the analysis of Global Navigation Satellite Systems (GNSS) and Very Long Baseline Interferometry (VLBI) observations. In this presentation, we compare the standard approach containing the Vienna Mapping Functions (VMF; Böhm et al., 2006) and the estimation of linear horizontal gradients (Chen and Herring, 1997) to other strategies including the following options: ray-traced delays for all VLBI observations, refined Vienna Mapping Functions based on temperature values at the site per observation, Global Mapping Functions (GMF; Böhm et al. 2006) in site-augmented mode based on locally measured temperature, as well as higher order gradient functions for the a priori modeling and the estimation of azimuthal asymmetries in the tropospheric delays. We assess the different approaches by investigating baseline length repeatabilities for the continuous VLBI campaign in 2011 (CONT11).