Improving GNSS Zenith Wet Delay Interpolation by Utilizing Tropospheric Gradients: Results from the dense station network in Japan

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In a recent study we have shown how GNSS Zenith Wet Delay (ZWD) interpolation and therefore Integrated Water Vapor (IWV) maps can be improved by utilizing tropospheric gradients (Zus et al., 2019). For a station configuration with an average distance of 50 km in Germany and a period of two months in the summer 2013 we demonstrated an average improvement of 10\% in interpolated ZWDs. We extended this work by a new study. It differs from the previous one in two respects: (1) we consider more than 1,200 stations with an average distance of 20 km in Japan and (2) ZWDs and tropospheric gradients are taken from the Nevada Geodetic Laboratory (NGL) (Blewitt et al., 2018). We present results and propose future directions. For example, we may consider a mixed approach where ZWDs and tropospheric gradients from a numerical weather prediction model are utilized as well.
