Climatic Effects on GPS PPP Accuracy

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Recently researchers revealed that meteorological seasons have an effect on the accuracy of GPS. This modified the conventional prediction formulation in which the accuracy was dependent on observing session duration. However, the available accuracy model is from a major climate zone classification. In this study, we evaluate climatic effects on PPP accuracy from a different climate classification: the widely used Köppen Geiger climate zones. GPS data are obtained from SOPAC (Scripps Orbit and Permanent Array Centre) archives. Synthetic GPS campaigns are generated from the permanent stations of the IGS (International GNSS Service). The data are processed using the PPP module of the NASA/JPL’s GipsyX software. The RMS values obtained from the processing solutions are used to determine the effect of climate on PPP accuracy. Eventually, we compare the two climate classifications and present our initial impressions from a core network across the new climate zones.

Keywords: GPS, GNSS, accuracy, PPP, climatic effects