Assessing the IGS tracking network: definition of a repro3 station selection

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Based on a large network of tracking stations and by providing continuously GNSS observations for many years the International GNSS Service (IGS) has a valuable contribution to the realization of the International Terrestrial Reference System. However, due to ongoing modernization of the station equipment – necessary to track the growing number of navigation systems and signals – the number of station discontinuities is rather larger for the IGS network. Moreover, the whole network is inhomogeneously distributed, some stations are subject to significant data gaps, and many stations were added and/or decommissioned over time.

Besides the definition of parametrization and models, the station selection is one of the most important tasks in preparation of the next IGS reprocessing campaign. According to the IGS station list, 696 stations were assigned as IGS station over the past 25 years. Processing all these stations is challenging due to the high processing load and might be unnecessary as several stations are not suitable for reference frame determination. However, a stable set of core sites should be considered. Therefore, this contribution aims to define a station selection for the 3rd IGS reprocessing campaign. First, we will classify the stations based on their metadata (monument, equipment, reported hardware changes). In a second step, criterions for station stability will be added based on a PPP reprocessing of the whole network. Thirdly, additional factors like co-location with other techniques and geographical distribution will be added. The resulting station priority list will be made available to support the 3rd IGS reprocessing campaign.