



## **Raw Observation PPP and Global Network Solution**

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The availability of several GNSS with a multitude of signals offers great opportunities for improvements, but also great challenges. Multiple signals, frequencies and GNSS allow for a better identification and elimination of error sources and increase the availability, the reliability and the accuracy. But all this comes along with numerous new, currently unconsidered biases.

Up to date GNSS processing strategies mitigate those biases by forming differences or signal combinations. This procedure has the decisive disadvantage that for multiple signals and GNSS the forming of differences becomes troublesome if not impossible. Furthermore any kind of difference or combination results in a loss of information, increase in noise and also in the need to take care of the correlations between the different observations.

This presentation introduces a new approach for undifferenced, uncombined signal processing. It allows the parallel processing of any number of signals and frequencies from multiple GNSS. In contrast to the common processing strategies this approach uses all available data and information. Since the processing renounces of any kind of signal combinations the biases and the quality of the original signal can be directly accessed. This fact allows an detailed analyses of all individual signal components and furthermore provides a detailed information about the relations between the individual signals. So the uncalibrated code and phase delays can directly be accessed. Especially for GNSS service providers like the IGS, this fact offers a great potential since the products can be easily referred to any desired signal or signal combination.

The presentation will demonstrate the feasibility of this approach. We show some examples of the excellent performance, based on single signal biases and residuals for PPP and global network solutions.