



## **Simulation of Twin Telescopes at Onsala and Wettzell for the VLBI Global Observing System**

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The VLBI2010 committee of the International VLBI Service for Geodesy and Astrometry (IVS) developed a concept to achieve an improvement of the accuracy of geodetic Very Long Baseline Interferometry (VLBI) to 1 mm for station positions and 0.1 mm/yr for station velocities. This so-called VLBI2010 concept includes broadband observations with fast slewing telescopes and proposes twin telescopes to improve the handling of atmospheric turbulence that has been identified as a limiting factor for geodetic VLBI.

There are several VLBI sites that have projects to install a Twin Telescope. The Wettzell Twin Telescope in Germany has already been constructed, and Twin Telescopes will be installed in the coming years at Onsala (Sweden), Ny-Ålesund (Spitsbergen, Norway) and Kazan (Russia). In this study, the Vienna VLBI Software (VieVS) is used to schedule and simulate a global VLBI network following the example of the CONT11 campaign, with and without the Twin Telescopes in Onsala and Wettzell. Different scheduling approaches (e.g., source-based scheduling, Twin Telescope observing in multidirectional mode, Twin Telescopes in continuous mode) were compared by evaluating the numbers of observations and scans as well as baseline length repeatabilities, station positions, Earth orientation parameters, atmospheric parameters and clock estimates.

Comparison of the results show an improvement in estimated parameters with Twin Telescopes, especially with the Onsala Twin Telescope in a continuous observing mode and a strategy with four sources observed simultaneously.