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IVS WG 7 – Observation of satellites using VLBI

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One of the main products of space geodesy are reference frames, e.g. the International Terrestrial Reference Frame (ITRF). A combined application of the various space geodetic techniques to derive reference frame products requires connecting the space geodetic instruments and their reference points. Currently, these connections are usually achieved by so-called co-location on the ground, i.e. local tie vectors between the respective space geodetic instruments at co-location stations. One idea to improve the combination methods is to realize additionally co-locations in space by dedicated co-location satellites. These satellites are planned to be equipped with instruments for several space geodetic techniques, e.g. receivers for Global Navigation Satellite Systems (GNSS), retro-reflectors for Satellite Laser Ranging (SLR) and transmitters for Very Long Baseline Interferometry (VLBI), in order to allow a combination of these space geodetic techniques. A first prototype satellite, the Chinese APOD satellite, has already been launched in 2015, and other missions have been proposed to NASA (GRASP) and ESA (E-GRASP/Eratosthenes), respectively.

In preparation for future co-location satellites, the International VLBI Service for Geodesy and Astrometry (IVS) initiated a working group on the topic of satellite observations with VLBI. This working group, IVS working group 7 (IVS WG7), is working on all aspects of this topic, i.e. technical issues, scheduling and simulations, data correlation , and data analysis.

We will present IVS WG7 and the current status of the work performed.