

Metsähovi Geodetic VLBI Station: Status Report

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Abstract

The astronomical VLBI system of the Metsähovi Radio Observatory of the Helsinki University of Technology is being upgraded also for geodetic work by adding five baseband converters, a cooled S/X receiver, a removable subreflector and the cable delay and phase calibration units. The station is situated 40 km west from Helsinki.

The Cassegrain telescope with a radome has a primary paraboloid dish with a diameter of 13.7 m and a focal length of 5.08 m, and a removable secondary mirror (a hyperboloid with a diameter of 1.7 m, an eccentricity of 1.5562, and an interfocal distance of 3.17 m) to be constructed from carbon fiber reinforced plastic. The cooled, axially positioned and removable, S/X receiver (15 K) and feed will be constructed by a Spanish company TTINorte. The cable delay calibrator will be of own design and the existing antenna unit for phase calibration is from Istituto di Radioastronomia, Italia. The existing data acquisition terminal is of type VLBA4. The estimated position of the antenna in ITRF2000 (Epoch 1997.0) is according to the survey in 1994: $x = 2892585.59$, $y = 1311715.33$, $z = 5512639.81$. The name METS 7601 in the IERS ITRF2000 VLBI catalog refers to the site named Sjökkulla about 3 km North, where a mobile MV-3 instrument took five one-day-long observations in 1989.

The geodetic VLBI system will be an important addition to the existing space geodetic and related instrumentation at the Metsähovi Geodetic Observatory of the Finnish Geodetic Institute (GPS, GLONASS, SLR, DORIS, a superconducting gravimeter, an absolute gravimeter, and a seismometer). Initial test measurements are expected within this year.