



Korean Geodetic VLBI Project

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A permanent geodetic VLBI station with a 22-m diameter antenna will be newly constructed in Korea by the National Geographic Information Institute, Korea (NGII) for the project named Korea VLBI system for Geodesy (KVG) that aims at maintaining the Korean geodetic datum accurately. The KVG has started officially since October, 2008. The construction of all system will be completed by the end of 2011.

In Korea, the Korea Astronomy and Space Science Institute (KASI) has already promoted Korean VLBI Network (KVN) project dedicated to radio astronomy since 2001, and three 21-m diameter antennas have been constructed at Seoul, Ulsan, and Jeju Island. Although their receivers have not yet been fully installed, the antenna is designed to be able to receive 22, 43, 86, and 129 GHz bands simultaneously. In parallel with the KVN project, the National Geographic Information Institute, Korea (NGII) has been planning to construct their own VLBI antenna dedicated to geodetic measurements since 2001 to maintain the Korean Geodetic Datum accurately on the International Terrestrial Reference Frame (ITRF). It also aims at a fundamental station in East Asia and will contribute to the better determination of the ITRF there. A grand design for KVG project realizing NGII's plan has been proposed by the Ajou University under the collaborations with the National Institute of Information and Communications Technology, Japan (NICT), National Astronomical Observatory, Japan (NAO), and the Geographical Survey Institute, Japan (GSI).

The design of KVG antenna follows the VLBI2010 except for receiving frequencies and the diameter; VLBI2010 is the guideline for next generation's geodetic VLBI system compiled by the International VLBI Service for Geodesy and Astrometry (IVS). The antenna is designed to be able to receive 2, 8, 22, and 43 GHz bands simultaneously in order to carry out geodetic VLBI observations not only with current geodetic VLBI stations equipped with 2/8 GHz receivers but also with KVN stations that will be equipped with 22/43 GHz receivers in future. This is an outstanding feature of the KVG system distinguished from other geodetic VLBI stations. The antenna is also designed to be able to introduce a broadband feed and receivers in the future according to VLBI2010's suggestion. The KVG project has got a national budget for construction formally, and it has entered the three-year term of construction and development phase since October, 2008. A new geodetic VLBI station will be constructed in Sejong city (about 120km south from Seoul and about 20 km north-northwest from Daejeon) and construction of all system will be completed in 2011.

Although the KVN promoted by the KASI is a VLBI network dedicated to radio astronomy, geodetic VLBI observations with the KVG antenna will be performed in collaboration with the NGII. The installation of geodetic-VLBI receiving bands, such as a broadband feed system, into the KVN system is also considered as a plan in the future. However the KVG operated by the NGII will be an IVS component as a central facility dedicated to geodetic VLBI in Korea.