

[KVN-07] Early Science of KVN: 43GHz fringe survey

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This paper presents the results of one of early sciences with Korean VLBI Network (KVN): a large fringe survey of compact radio sources at 43GHz. We established the catalog of correlated flux densities in three ranges of baseline projection lengths of 637 sources from a 43 GHz (Q-band) survey observed with the Korean VLBI Network. Of them, 623 sources have not been observed before at Q-band with VLBI. The goal of this work in the early science phase of the new VLBI array is twofold: to evaluate the performance of the new instrument that operates in a frequency range of 22 - 129 GHz and to build a list of objects that can be used as targets and as calibrators. We have observed the list of 799 target sources with declinations down to -40° . Among them, 724 were observed before with VLBI at 22 GHz and had correlated flux densities greater than 200 mJy. The overall detection rate is 78%. The detection limit, defined as the minimum flux density for a source to be detected with 90% probability in a single observation, was in a range of 115 - 180 mJy depending on declination. However, some sources as weak as 70 mJy have been detected. Of 623 detected sources, 33 objects are detected for the first time in VLBI mode. We determined their coordinates with the median formal uncertainty 20 mas. The results of this work set the basis for future efforts to build the complete flux-limited sample of extragalactic sources at frequencies 22 GHz and higher at 3/4 of the celestial sphere.

[KVN-08] MOGABA: Monitoring of Gamma-ray Bright AGN with KVN 21-m radio telescopes at 22, 43 and 86GHz

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We report preliminary results of MOGABA project for monitoring total flux density, linearly polarized flux, and polarization angle at 22, 43 and 86GHz of Gamma-ray bright AGN (Active Galactic Nuclei) with KVN (Korean VLBI Network) 21-m radio telescopes. The project has been conducted in one year since May 2011 with an effective monitoring cycle of 1 week, observing four main objects (3C 454.3, BL Lac, 3C 273, and 3C 279). More objects were included in the source list when they had flared in Gamma-ray. Especially, we included a compact radio source at the Galactic center, SgrA* since Jan. 2012. In this paper, we report the current status of the project and preliminary results for the monitoring observations.