

[ID-04] 100-GHz test observations of the KVN Antennas

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Three KVN antennas have been constructed by American company Antedo in collaboration with its domestic counterpart High Gain Antenna. The antennas are expected to have pointing accuracies of 4" and aperture efficiencies of 60% at 100 GHz. We have carried out 100GHz test observations with KVN antennas in order to investigate whether their performances satisfy the requirements. In this talk we will present the results.

**■ Session : 기기/자료처리 II (ID)
4월 29일(수) 16:25 - 17:25 제4발표장**

[ID-05] Single-dish test observations of the KVN Yonsei telescope at 22/43GHz

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We have carried out 22/43-GHz single-dish test observations of the KVN Yonsei telescope, which was firstly equipped with 22/43GHz receivers among the KVN telescopes. We measured its pointing accuracy and aperture efficiencies. We also investigated how well 22/43-GHz beams are aligned and performed phase stability tests. The pointing accuracy is < 5 arcsec RMS and the estimated efficiencies are 64%-68%. The 22/43-GHz beams are aligned within 5 arcsec.

[ID-06] 초고속 대용량 자료 저장 시스템 구축

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한일공동VLBI상관기(Korea-Japan Joint VLBI Correlator, KJJVC)는 초당 최대 1.4기가바이트의 속도로 상관 처리 자료를 출력하는 초고속 계산기이다. 초당 최대 1.4기가바이트에 이르는 상관 처리 결과를 저장 처리할 수 있는 대용량 자료 저장 장치를 구성하기 위하여, 10GbE 광케이블 4회선을 통하여 상관자료를 입력 받고, 동일한 저장 공간에 적절한 크기의 파일들로 동시에 고속으로 저장될 수 있도록 설계하였다. 2009년 1월 완성된 초고속 대용량 자료저장 시스템(Peta-scale Epoch Data Archive

(PEDA) system)은, 현재 KJJVC의 세계 최고속의 전파 자료 전송 능력(1.4Gigabytes/sec)과 119테라바이트의 실 저장용량을 갖추고 있다. PEDA 시스템은 전체 한일공동VLBI상관기의 한 부분이며, KVN, 한일공동 VLBI 네트워크에 중요 장비로 사용될 예정이다. 이 시스템의 구성과 특징 등을 소개하고자 한다.

[ID-07] Simulation of sources distribution for KVN Calibrator Survey (KVNCS)

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In order to observe weak radio sources with VLBI, their visibility phase should be corrected via the visibility phase of the nearby calibrators. For that, we need the phase reference sources. We have carried out the calibrator candidate selection to prepare the KVN Calibrator Survey (KVNCS). Prior to observation, we studied the source distribution at higher than -30° of declination. Our study were based on the VCS (VLBA Calibrator Survey) catalogue. Using 3799 sources from VCS, we estimated the expected flux of K and Q bands and selected sources which have flux stronger than 100mJy. First, we confirmed the spatial distribution of the calibrator candidates so that we found out how many sources we have to detect in the future. When we performed the phase-referencing observation, in general, a separation angle between target source and calibrator should be 2° to 5°. Using Delauney Triangulation technique to calculate the effective area of each source, we compared with the area of spherical triangles. Through this calculation, we are able to confirm the region where we have to find more calibrators. We will carry out a test run on the sample of the candidates to verify and to monitor their flux in the first half of 2009.

[ID-08] First fringe detection, sensitivity estimation and operation mode of KVN

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We report the result of the KVN-VERA fringe detection. The experiments were carried out on 1st and 3rd November 2008. Further tests are done on 12th and 13th of March 2009. KVN Yonsei telescope and all available VERA telescopes participated in the observations. Strong water