KVN Station Report   (June 2015)

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EVN Observations

KVN has participated two network monitoring observations (N14Q2 and N15Q1) and three normal EVN observations (GB075B, GB075C and GA032C) since session III, 2014. Most of observations were successful expect weather and some recording errors etc. However, there was a failure due to hexapod control at KVN Tamna during GB075B. Hexapod at KVN Tamna is relatively unstable compared to other two stations (Yonsei and Ulsan) and cause failures occasionally during KVN observations. We will try to find the fundamental solutions of it during this summer maintenance period (from mid Jun to mid Aug.).

Disk module failure: two disk modules delivered from JIVE (JIVE+073/8000/1024 and HART+105/8000/1024) were failed to record due to an unrecognized error. It was therefore replaced with KVN disk modules.

Summer Maintenance

KVN has a summer maintenance season from middle of June to middle of August every year. We started it last Monday (22 June) and it will be finished around the wee of 9 Aug. During this period, following items will be mainly checked and updated: 129GHz receivers, compressors, Hexapod at Tamna, Photogrammetry and H-maser maintenance at Ulsan.

Technical Development and Update

1. **FILA10G with Mark6**
   FILA10G and Mark6 systems were installed at all KVN telescopes for 8Gbps operation at four frequencies (22/43/86/129GHz, each band has 2Gbps data rate). By using four VSI inputs and outputs as four VSI inputs of FILA10G, we successfully recorded 8Gbpbs data onto the Mark6 system from the four samplers (2Gbps). The 8Gbps fringe test was made recently and will be correlated soon.

2. **2Gbps operation**
   Since KDAS (KVN DAS) works only 1Gbps mode, KVN can perform 2Gbps observation without filters by recording the data directly from the sampler (2Gpbs). Thus, a single 512MHz sub-band is recorded onto Mark5B+ or Mark6. In order to prepare EVN 2Gbps observations, we have investigated possible features for KVN. We have found that the most plausible way is to use both Mark5B(1Gbps) and Mark5B+(2Gbps) to cover each polarization data(1Gbps). E.g. 1Gbps for one polarization with KDAS filter (32MHz x 8CH) and Mark5B and 2Gbps for the other

polarization without filters (512MHz x 1CH) and Mark5B+. We made a short fringe test observation in this mode and JIVE will investigate a way to correlate this with others.

3. **Network status and e-VLBI/e-shipping**

   In 2015, network speed was upgraded. Now each KVN stations is connected to the Daejeon correlation center at KASI using 10/3/3Gbps (Yonsei/Ulsan/Tamna, respectively). After that, we mostly transfer observed data via the network to the storage at the Daejeon correlation center (e-shipping). In addition, 1Gbps real time e-VLBI observation was successfully conducted.