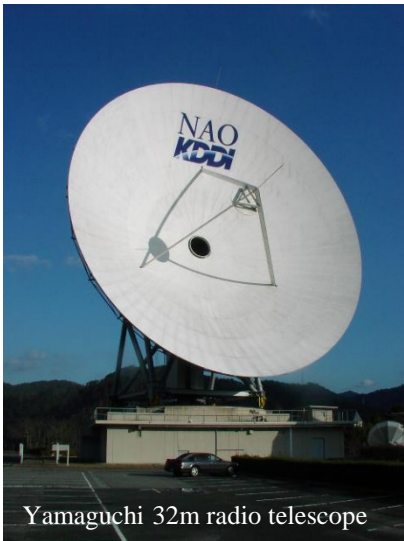


Activity Report of Yamaguchi University

Kenta Fujisawa (Yamaguchi University)



Yamaguchi 32m radio telescope

ABSTRACT

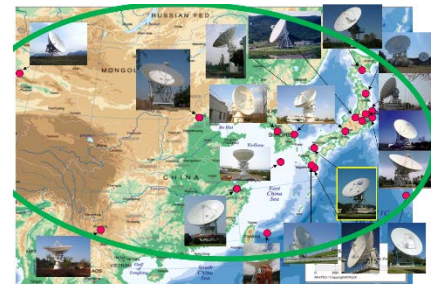
Since the beginning of radio astronomy group in Yamaguchi University in 2002, 12 years have passed. There are more than twenty members in the group now: 4 research staff (including two PosDocs), 9 graduate student, 7 undergraduate student, and one secretary. The main subjects of research are AGN, maser and star formation by VLBI (JVN, EAVN), and maser variability, ionization region in the galactic center by single-dish observation of Yamaguchi 32-m. Five papers have been published in 2014. Fujisawa et al. (2014) and Niinuma et al. (2014) are worthy of mention as initial results of East Asia collaboration. The Second Yamaguchi Project is to be started in 2015.

Laboratory

- STAFFS Fujisawa (P), Niinuma (AP), Motogi (R), Hachisuka (R), Kunihiro (secretary)
- STUDENTS Graduate = 9, Undergraduate = 7
- RESEARCH AGN, Maser & Star Formation, Galactic Center, Observation System
- OBSERVATION Yamaguchi 32-m Radio Telescope (Single / VLBI)
- PROJECT Japanese VLBI Network (JVN), East-Asian VLBI Network (EAVN)

Yamaguchi 32-m Radio Telescope

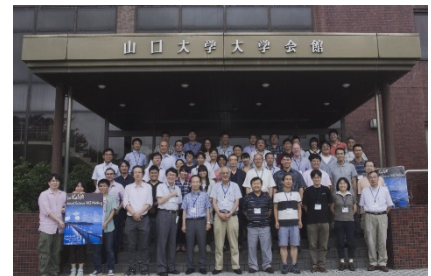
- Telescope Diameter of 32m. Constructed in 1979 as an Earth station for commercial satellite communication (INTELSAT). It turned to a radio telescope in 2002. Owned by NAOJ, operated by Yamaguchi University.
- Tracking Operational, but has a serious problem: the pointing offset increased day-by-day and exceeded 2 degrees in one year! Correction of the offset is required everyday.
- Receiver Observing bands are 6.7 GHz and 8 GHz. Capability of simultaneous observation at dual bands and dual circular polarization. Tsys 40 K.
- VLBI-T OCTAVE (2Gbps), K5/VSSP32 (256Mbps), e-VLBI
- H-maser Operational



East-Asian VLBI Network

Research Topics

- Methanol maser, star formation
 - As a first result of East Asia VLBI, the images of the methanol maser large survey was published (Fujisawa et al. 2014). Proper motion study is underway. Some sources are analyzed by student of our group (Hirano, Hayashi). Single-dish observations of short-term variability are reported by students (Sugiura and Horiuchi, Nakamura). Physical properties of methanol maser is studied by infrared spectra of YSOs associated with methanol maser (Hiramoto). Galactic structure is studied by means of methanol maser observation (Kanazawa).
- AGN
 - The initial result of KaVA was reported by Niinuma et al. (2014) as an imaging study of strong jet AGNs. VLBI observation (one baseline of JVN) searching for gamma-ray emitting AGNs is reported by Fujinaga. A search for galactic black hole is being made (Kimura)
- Radio recombination line
 - Mapping observation of the galactic center region with radio recombination line (H92 α) is reported by Kubose. The observing region is reaching to the top of the galactic center lobe.
- Collaboration and New Project
 - The KaVA Joint Science WG Meeting was held in July 2014 at Yamaguchi University. Fifty participants joined the meeting.
 - The Second Yamaguchi Project will be started in 2015.



Group Photo of the KaVA Meeting



Yamaguchi No.2 antenna