

JVC Symposium 2014 Program

Wednesday, 29 October (First Day)

Time	Speaker (Affiliation)	Title	Abstract
English Session (Chair: Ryoji Kawabata)			
13:00-13:10 (10 min)	Toshihiro Omodaka (Kagoshima Univ.)	Opening Remarks	
13:10-13:40 (30 min)	Yoshiaki Hagiwara (NAOJ)	Recent status of VLBI activities in Japan and east Asia (Invited)	<p>Astronomical observations using VLBI in Japan have been made mainly with the VERA and Japanese VLBI Network (JVN) that is being operated by the University Association.</p> <p>Recently, the open use observation of the KaVA that consists of the VERA and Korean VLBI Network (KVN) has begun, and outcomes in science are being expected.</p> <p>VLBI experiments have been conducted by telescopes in East Asia VLBI Network (EAVN) in which more than 10 telescopes in China, Japan, and Korea participate. To realize the EAVN, a lot of efforts have been made to detect fringes from these telescopes at the first stage of the experiments, and also operational issues and troubles associated with arranging inhomogeneous telescopes are being discussed.</p> <p>This talk will further describe the recent status of these VLBI activities in Japan and east Asia, and discuss the future prospects of the EAVN.</p>
13:40-14:00 (20 min)	Kenta Fujisawa (Yamaguchi Univ.)	Japanese VLBI Network (JVN) (Invited)	<p>Japanese VLBI Network (JVN) is a VLBI network operated by National Astronomical Observatory of Japan together with seven universities. The network consists of more than 10 radio telescopes with diameter of 11 m to 64 m owned or operated by research institutions and universities. The baseline length of JVN ranges 50 - 2500 km, and the observation frequencies are 6.7, 8 and 22 GHz. JVN started its operation in 2005 and there are about 20 published papers so far. Main subjects of research are AGNs and star forming regions by using masers as probes.</p> <p>From 2010, an effort to extend the VLBI network to the East Asia in cooperation with China and Korea has been made. A VLBI survey observation of methanol maser sources was published in 2014 as the first result of EAVN.</p>

14:00-14:30 (30 min)	Hideyuki Kobayashi (NAOJ)	Status and future of VERA	We will present the status and near future plan of VERA.
14:30-14:50 (20 min)	Short Break		
14:50-15:35 (45 min)	Axel Nothnagel (Institute of Geodesy and Geoinformation, University of Bonn)	The IVS and its VLBI Global Observing System VGOS (Invited)	The International VLBI Service for Geodesy and Astrometry (IVS) has made enormous progress advancing towards the realization of the VLBI Global Observing System (VGOS). The key elements of the new generation IVS installations are fast rotating radio telescopes capable of receiving broadband quasar radiation between 2 and 14 GHz in a continuous frequency band. A number of new telescopes have been built or are approved providing a good basis for a thorough refurbishing of the IVS network as a whole. Together with addressing a number of other technique-specific issues, the IVS is on a good path to fulfill the requirements of the Global Geodetic Observing System (GGOS). This presentation will explain the status of VGOS and its future path of development.
15:35-16:05 (30 min)	John Gipson (GSFC)	NASA's Space Geodesy Program—An Informal Perspective (Invited)	NASA' SGP (Space Geodesy Project) has completed a prototype core station at the Goddard Geophysical and Astronomical Observatory (GGAO) near Goddard Space Flight Center including state-of-the-art VLBI, SLR, and GNSS and a DORIS system. NASA has taken broadband data between GGAO and Westford. I present preliminary results from the analysis of the broadband data, and discuss NASA's plans to expand the space geodetic network.
16:05-16:25 (20 min)	Harald Schuh (GFZ German Research Centre for Geosciences Potsdam)	VLBI activities at GFZ Potsdam	The recently established VLBI group at the GFZ German Research Centre for Geosciences Potsdam is working on various topics of geodetic and astrometric VLBI. Main focus of the research is oriented to observing satellites and radiosondes by VLBI radio telescopes with the aim to link the various reference frames.
16:25-16:45 (20 min)	Monica Orienti (INAF-IRA)	The Italy-Japan bilateral collaboration	I will present the bilateral collaboration between Italy and Japan on the development of a East-Asia-Italy VLBI network. I will show preliminary scientific and technological results obtained so far and I discuss about future perspective. The advent of the 64-meter Sardinia Radio Telescope, in addition to the Medicina and Noto antennas, allows the Italian VLBI network which can work together with the VERA array for a ten-thousand km

			baseline, representing a step forward in our study of very compact objects.
16:45-17:05 (20 min)	Hiroshi Imai (Kagoshima Univ.)	Activity of SKA-JP Astrometry sub-Working Group	The Astrometry Science sub-Working Group in the Japan SKA Consortium (SKA-JP) has exchanged the information about SKA and the current related activities that will be linked to future radio astrometry. We have made some consideration and case studies that focus on low-frequency astrometry for hydroxyl masers, pulsars, and other compact non-thermal sources. More clearly the SKA specification for radio astrometry is being fixed, we can make design future radio astrometry projects with the SKA. This will be drafted in our SKA-JP Science Book. Here we will present our such current actions related to the SKA astrometry.
19:00-21:00 (120 min)	Banquet		

Thursday, 30 October (Second Day)

Time	Speaker (Affiliation)	Title	Abstract
Science Session (Chair: Satoko Sawada-Satoh)			
9:00-9:20 (20 min)	Kazuhito Motogi (Yamaguchi Univ.)	Accelerating H ₂ O maser Jet from a Face-on High Mass Young Stellar Object.	We report on a long-term VLBI and single-dish monitoring for intermittent flare activities of a highly blue-shift dominated 22-GHz H ₂ O maser associated with a southern high mass young stellar object, G353.273+0.641. There were five maser flares during five years, and maser distributions in four of them successfully traced by VERA. Most of maser clumps were recurrently excited within 100x100 AU ² region around the radio continuum peak, while their spatial distributions significantly varied between each flare. This confirmed that episodic propagations of outflow shocks recurrently invoke intermittent flare activities. Overall distribution of maser clumps suggests a bipolar jet almost along the east-west direction. The jet is in a nearly face-on geometry with an inclination angle of 8-16 degree from the line-of-sight, that was evaluated from 3D kinematics of masers. We also detected annual parallax. A derived distance of 1.70 ± 0.19 kpc well agrees with the commonly-used photometric distance. Bi-weekly single-dish monitoring using Hokkaido University Tomakomai 11-m radio

			telescope has shown that a systematic acceleration continues over four years beyond a lifetime of individual maser clumps. This fact suggests that the H ₂ O maser traces a region where molecular gas is steadily accelerated near the root of the bipolar jet.
9:20-9:40 (20 min)	Nobuyoshi Hiramoto (Yamaguchi Univ.)	Appearing phase of the 6.7 GHz methanol maser in the process of high-mass star formation	We have studied the appearing phase of 6.7 GHz methanol maser in the process of high-mass star formation. The Red MSX Source (RMS) survey is a sample of 1200 massive young stellar objects, compact and ultra-compact HII regions selected from 2000 MSX and 2MASS sources. We have searched 6.7GHz methanol maser emission towards 584 RMS sources, and found 99 maser sources including two new detection. Based on the infrared spectral energy distribution of the detected and non-detected sources, it has been found that the maser is associated with earlier stage of star formation, although the exact stellar age cannot be determined. We also found a negative correlation between the maser luminosity and the stellar age, and a positive correlation between the maser luminosity and the accretion rate. These correlations indicate that the maser is associated with the active accretion phase in the early evolutionary stage. The latter correlation can be simply explained by that the higher accretion luminosity cause the higher maser luminosity. Otherwise, higher accretion rate can cause higher methanol column density by enhanced dust evaporation near the host object, consequently increasing the maser luminosity.
9:40-10:00 (20 min)	Koichiro Sugiyama (Ibaraki Univ.)	The VLBI monitor project for proper motion measurements of the 6.7 GHz methanol masers using the JVN/EAVN	We have initiated a Very Long Baseline Interferometer (VLBI) monitor project of the 6.7 GHz methanol maser sources by using the Japanese VLBI Network (JVN) and East-Asian VLBI Network (EAVN) since August 2010. In the last decade, interferometric observations at submillimeter and infrared wavelengths have demonstrated the existence of rotating disks around forming high-mass protostars. The dynamic motions and the evolution of surrounding disks, however, remains largely unknown. Proper motions on the disk are expected to be tiny of a few milliarcsecond per year (mas/yr) at radii of hundred au scales from central protostars, and therefore the motions can be measured only by VLBI observations. In our VLBI monitor project, we have tried to measure 3-dimensional velocity

			structures on the disk through proper motion measurements of the 6.7 GHz methanol masers in 36 target sources, which are at mainly southern hemisphere, every year in 2010-2013. The systematic proper motion measurements in many sources can provide us chances to not only have evidences of directly rotating and inward motions on the disk, but also make clear the evolution of the disk. In this presentation, we will report progress of the proper motion detections.
10:00-10:20 (20 min)	Yu Saito (Ibaraki Univ.)	Short-period variation of 6.7 GHz methanol masers	The 6.7 GHz methanol masers associated in high-mass star forming regions have been found to show periodic flux variations in some sources. To detect an extremely short-period (about 10 days) variation, we conducted daily monitoring observations to 51 maser sources for 20 days in Aug. 2013. These used the Takahagi antenna. As a result, variability with a period of about 10 days was detected in the maser source 0.167-0.446 with the maximum flux density of 5 Jy and the variable rate of about 30%, and 4 sources show possible variabilities with the period of 20-30 days. We plan to carry out additional daily monitoring observations to these 5 sources for (more than) 2 months to confirm these variabilities.
10:20-10:30 (10 min)	Short Break		
Technology Development Session (Chair: Satoko Sawada-Satoh)			
10:30-10:50 (20 min)	Hiroshi Ikeda (Tsukuba Univ.)	Cooling test of VLBI antenna front-end unit	Cooling of the antenna front-end unit is essential in VLBI2010 standard. And report the results to design a cryostat for cooling the test, since cooling was tested using the 4K refrigerator by 100V specification.
10:50-11:10 (20 min)	Yoshihiro Fukuzaki (GSI)	Construction of VGOS antenna (3)	The Geospatial Information Authority of Japan (GSI) is now constructing new VLBI observing facilities for Next-Generation VLBI (VGOS), and the antenna itself is complete. In this presentation, the preliminary receiving performance of the new antenna will be reported.
11:10-11:30 (20 min)	Mamoru Sekido (NICT)	Development Status of Broadband VLBI System (Gala-V) -(II)	Optical primary frequency standards, which is expected to improve the accuracy of the definition of one second, are being developed. From the necessity of frequency comparison those frequency standards over intercontinental distances, NICT is developing a new broadband VLBI observation system composed of a pair of small diameter antennas and large diameter antenna.

			<p>The observation frequency range of the system is set to be compliant with the VGOS system, which is the next generation geodetic VLBI observation system promoted by the IVS. We have been developing own designed new broadband feed for the Kashima 34m antenna. The first prototype of the feed (6-14GHz) has been mounted on the antenna and the first light observation was successfully done in the beginning of this year. Small diameter antennas have been set up for broadband observation (3.5-14GHz) and one of it was moved to National Metrology Institute of Japan (NMIJ) in Tsukuba in March, and the other became ready at NICT in Koganei. Both of these institutes are engaged in the development of optical frequency standards, thus this is good test-bed for frequency comparison by VLBI. Station coordinates of the small antennas are determined via geodetic VLBI observations in X-band within 6 mm horizontally and 15mm vertically. This talk will report these results and current development status.</p>
11:30-11:50 (20 min)	Hideki Ujihara (NICT)	Development of Wideband Feed	<p>Two wideband feeds will be presented, they were developed for Kashima 34m antenna and MARBLE(1.6m VLBI antenna) of NICT. One will have bandwidth of 2.2GHz-18(or 22GHz), however its lower frequency part(2.2-6.4GHz) is still under fabrication. On upper frequency part(6.4-15GHz), two feeds was set on 34m and tested in some wideband observations, which results will be presented by TAKEFUJI or SEKIDO. Another new feed was developed specially for Gala-V with 3.2-14.4GHz bandwidth, which will be set on 34m and one of MARBLEs in a month.</p>
11:50-12:10 (20 min)	Kazuhiro Takefuji (NICT)	DM measurement by GRP-VLBI observation	<p>We carried out a simultaneously observation of the Crab pulsar between Kashima 34 m and Usuda 64 m on Aug 11, 2014. Pulses from the Crab pulsar were detected with the both L-band receivers and recorded to the digital sampler with a speed of 64 Msp/s and 4-bits quantization, After performing the correlation, we could obtain about 30 fringes. Normally a dispersion measure is measured by single telescope. However we measured the dispersion measure of the Crab pulsar from the VLBI.</p>
12:10-12:30 (20 min)	Fujika Watari (Yokohama City Univ.)	Development of the multi frequency phase referencing method in	<p>In radio astronomy on the ground, we receive celestial radio waves passing through the Earth's atmosphere. Water vapor in the lower atmosphere (troposphere) is problematic in VLBI</p>

		VLBI observation	<p>observations in terms of phase stabilities. The higher the observation frequency is, the bigger its influence becomes, because the excess path delay due to the water vapor is dispersive for the microwave frequency. The phase fluctuation due to the atmosphere has been the most serious problem in VLBI, especially, at high frequencies. To solve this problem, we focus on Multi Frequency Phase Referencing (MFPR) as an effective phase correction method in which higher frequency phases are corrected by lower frequency ones in VLBI observations. In our presentation, we report on MFPR experiment results using the Korean VLBI Network (KVN). First we applied the method to BL Lac and J0244+62 between at 22GHz and 43GHz, and between 22GHz and 86GHz, and quantitatively verified the effectiveness..In this case, we can reduce phase errors at 43GHz and 86GHz less than 1 radian. Now, we are going to apply the MFPR to two maser line observations (water and mono-silicate molecular masers at 22 and 43 GHz, respectively) of a red super giant, S Per, in order to improve the coherence of SiO maser VLBI phases.</p>
12:30-12:40 (10 min)	Group Photo in front of Tsukuba-32m		
12:40-13:40 (60 min)	Lunch (12:40-13:00 Tsukuba-32m Tour)		
Report Session (Chair: Akihiro Doi)			
13:40-14:00 (20 min)	Noriyuki Kawaguchi (SHAO)	The methanol VLBI observation in the EAVN with Tian Ma 65m in C-band and developments toward 22-GHz	The Tian Ma 65m have just started VLBI observation in S- and X-band since February 2014. Here I propose to make methanol observation in C-band. Also I will report the recent developments toward 22-GHz VLBI, which aims at collaborating with Korea and Japanese radio telescopes in the east asia VLBI network, EAVN. The 65m is very powerful telescope and makes the array sensitivity much higher. Before starting 22-GHz VLBI and higher frequencies, the active surface control system needs to be evaluated after confirming the gravitational deformation of the large dish with the holographic surface measurements on the strong water vapor maser. If my presentation time is enough I hope to present recent scientific outputs from CVN.
14:00-14:20 (20 min)	Hiroyuki Kaneko (Tsukuba Univ.)	Institute Report: University of Tsukuba	We report the recent observational studies and instrumental status of K-band of Tsukuba 32m radio telescope. The University

			<p>of Tsukuba uses Tsukuba 32m telescope for both single-dish and VLBI observations under the agreement between the Geospatial Information Authority of Japan (GSI) and the University of Tsukuba since 2005. We faced troubles, some of which were fixed under the cooperation with GSI. After performance evaluation, we have resumed K-band observations as a part of station of the Japanese VLBI Network (JVN) again and started daily 22 GHz VLBI monitor observations of Sgr A*. Our group also started X-band VLBI observations of the JVN. From next season, we will perform single-dish observations such as NH3 (1, 1) – (6, 6) observations toward the Galactic plane.</p>
14:20-14:40 (20 min)	Ryoji Kawabata (GSI)	Report on the GSI VLBI Activities	<p>The Geospatial Information Authority of Japan (GSI) has been operating three VLBI telescopes, i.e. Tsukuba 32-m, Aira 10-m, Chichijima 10-m telescopes. In fiscal year 2014 Tsukuba has participated in CONT14, a 15-days continuous VLBI campaign, and will observe 226 IVS sessions in total. Aira and Chichijima will observe 14 regular IVS sessions including Japanese domestic sessions (JADE sessions). Tsukuba correlator and analysis center process 107 one-hour IVS intensive sessions and five JADE sessions in fiscal 2014. Moreover ultra-rapid dUT1/EOP measurement has been carried out during CONT14 campaign. We are developing a new VLBI telescope, Ishioka VGOS station, to take over the global geodetic reference in Japan from Tsukuba 32-m. The Ishioka-13m telescope will start VLBI observation in legacy S/X sessions in fiscal year 2015 and then be fully involved in the international VGOS sessions from fiscal year 2017. On the other hand, thanks to the development of GNSS analysis technique, Japanese local crustal movement is able to be monitored by GNSS. Thus GSI will finish VLBI observation in Aira and Chichijima by March 2015. Instead we will devote our effort to the newly established Asia-Oceania VLBI Group for Geodesy and Astrometry in operation, correlation, and analysis.</p>
14:40-15:00 (20 min)	Fujisawa Kenta (Yamaguchi Univ.)	Yamaguchi Interferometer	<p>We have started a project to re-use a 34-m antenna in Yamaguchi called Yamaguchi No.2 Antenna. This antenna is located 110m away from Yamaguchi 32-m radio telescope, and we plan to use these two antennas as an interferometer, Yamaguchi Interferometer (YI). Consideration of science cases, construction plan, and the checking the antenna are being carried out. The</p>

			largest potential of YI would be its high sensitivity of 1mJy detection and long operation time for a few selected scientific themes. Searching and monitoring of Galactic compact radio sources would be one of such themes.
15:00-15:10 (10 min)	Short Break		
15:10-15:30 (20 min)	Kimihiro Kimura (Osaka Prefecture Univ.)	Report of Osaka prefecture university astrophysics laboratory	I talk about Osaka prefecture university astrophysics laboratory.
15:30-15:50 (20 min))	Akihiro Doi (ISAS)	Status Report of Balloon-borne VLBI experiment	Status Report of Balloon-borne VLBI experiment for feasibility studies of VLBI in stratosphere is presented. The current status is in the development of gondola systems and ground-based tests of on-board instruments for a test flight.
15:50-16:10 (20 min)	Osamu Kameya (NAOJ)	Activity of the Radio Astronomy Frequency Subcommittee	We will make a review of activity of the Radio Astronomy Frequency Subcommittee in Japan. There are many kinds of artificial interference which may interfere observations of radio astronomy. ITU(International Telecommunication Union) have made frequency allocation for radio astronomy by the ITU-R RA. 769. Japanese government (Ministry of general affair) have followed it and made the frequency allocation in Japan. Some frequency bands (exp. Including HI, H2O, NH3, SiO, CO lines, etc) are included it. However, recently, plenty of developments of new devices may make concern about possible new interferences for radio astronomy. Our subcommittee are belong to NAOJ, and works as the center of protection of radio astronomy frequency bands. In order to conduct it, our subcommittee is supported by many subcommittee members who belong to universities and institutes in Japan. We make regular meeting basically once per month and discuss all of the issues on the protection of radio astronomy. We also participate several international meeting held by ITU and work as members of Japanese government. We will review some important topics of the issues in this talk.
16:10-17:00 (50 min)	Poster Session (50 min)		
17:00-18:00 (60 min)	General Meeting		

Friday, 31 October (Third Day)

Time	Speaker (Affiliation)	Title	Abstract
Future Planning Session (Chair: Akiharu Nakagawa)			
9:00-9:20 (20 min)	Keitaro Takahashi (Kumamoto Univ.)	SKA and SKA-Japan	Square Kilometer Array (SKA) is the next-generation cm-wave radio telescope which will have a sensitivity better than the existence telescopes by more than one order. It is expected to make a tremendous impact on many fields of astrophysics and cosmology, such as cosmic reionization, cosmic magnetism and pulsar study. In Japan, a consortium was established with more than 100 members and many researchers are studying SKA-related topics. In this talk I will review the SKA project, science and Japanese activity toward SKA.
9:20-9:40 (20 min)	Kazuhiro Hada (NAOJ)	AGN studies with VLBI in the world	High-resolution studies on Active Galactic Nuclei (AGN), supermassive black holes and their high-energy activities (jets/accretion/emission) are one of the most major scientific fields with VLBI and astronomy in general. I will present a brief overview of the current status/situation on VLBI-AGN study in the World in order to help discussing our(Japan) future orientation in this field.
9:40-10:00 (20 min)	Toshihiro Omodaka (Kagoshima Univ.) Naoteru Goda (NAOJ)	Southern Hemisphere VERA	Discussion of Southern Hemisphere VERA as a future project candidate.
10:00-10:10 (10 min)	Short Break		
10:10-10:30 (20 min)	Yasuhiro Murata (ISAS/JAXA)	Space Mission	We are now need to consider / discuss the possible loadmap of the radio astronomy space mission. We will introduce discussions done in Strategic Headquarters for Space Policy in Japanese Government, and discuss about the possible future radioastronomy/space VLBI missions.
10:30-10:50 (20 min)	Fumie Tazaki (NAOJ)	Black Hole Imaging with EHT and Sparse Modeling	The nearest supermassive black hole is in the center of our galaxy. However, no one has taken a picture of even this black hole shadow, because of the small angular size of ~ 40 microarcseconds. Event Horizon Telescope (EHT), which aims to image the shadow, uses the Earth-sized VLBI with short millimeter wave ($\lambda \sim 1.3$ mm, $\nu \sim 230$ GHz). We report the current status of EHT and introduce a new imaging technique

			under development with the sparse modeling to achieve the super resolution.
10:50-11:10 (20 min)	Makoto Miyoshi (NAOJ)	Towards the study of black hole using VLBI in Japan	We talk about a proposal of Japanese strategy for revealing the vicinity of black holes (their horizon and surrounding relativistic disk, etc.).
11:10-11:50 (40 min)	Discussion		
11:50-12:00 (10 min)	Toshihiro Omodaka (Kagoshima Univ.)	Closing Remarks	
12:00-13:30 (90 min)	Lunch		
13:30-16:30 (180 min)	Ishioka Bus Tour (GSI -> Ishioka -> Tsukuba Station -> GSI)		

Posters

ID	Name (Affiliation)	Title	Abstract
1	Ryuichi Ichikawa (NICT)	Evaluation of Processing Strategy for Time and Frequency Transfer using GNSS Precise Point Positioning Technique	Time and frequency transfer using the Global Navigation Satellite System (GNSS) code and carrier phase observations is a popular technique for precise clock comparison. GNSS data processing based on precise point positioning (PPP), which is the standard technique for geodetic applications, allows highly precise time and frequency comparisons between remote clocks. The PPP least-squares solutions showed improved in stability relative to traditional GPS time synchronization methods such as the common view GPS, reaching few parts in 10^{-15} at averaging times of one day (Lahaye et al., 2011). In the PPP processing, the station position, atmospheric propagation delay, and a receiver clock offset are simultaneously estimated. In addition, the PPP time transfer processing requires precise satellite clocks and orbits, which are provided by the International GNSS Service. Thus, to perform the near real-time comparison of UTC(k)'s using GNSS, evaluation of the uncertainties of the unknown parameters and the data quality of satellite clocks and orbits is important. The aim of this study is to investigate the suitable processing strategy to determine the precise differences between remote clocks.
2	Cheulhong Min (SOKENDAI)	Multi-epoch VERA observations of SiO masers toward R Aquarii	We carried out multi-epoch phase-referencing VERA (VLBI Exploration of Radio Astrometry) observations of $v=1,2 J=1-0$ SiO masers toward R Aquarii (R Aqr) covering about three stellar pulsation periods from Oct. 2011 to Jun. 2014. Overall distributions of the SiO masers show clumpy and partial ring-like structures dominant in NE (2012) and SE (2013, 14) regions and the $v=2 J=1-0$ SiO maser rings is located closer than $v=1 J=1-0$ SiO maser, consistent with previous VLBI observations. The SiO maser regions present contraction and expansion with respect to the stellar pulsation phase due to shock propagations.
3	Koichiro Doi (NIPR)	Status report of VLBI at Syowa, Antarctica	VLBI experiments have been conducted regularly at Syowa Station, Antarctica since 1998. Syowa's antenna participated in six OHIG sessions (OHIG82-87) in 2013 and fringes were

			obtained for the all sessions, although ion pump of the hydrogen maser in Syowa Station was stopped temporarily in OHIG87. The faulty maser was replaced by a new one at the beginning of 2014. In the presentation, we will make a report of the current status of Syowa's antenna.
4	Satoko Sawada-Satoh (NAOJ)	VERA Monitoring of OJ 287 in 2010--2013	We have carried out frequent monitoring of the BL Lac object OJ 287 in the 22-GHz band from 2010 to 2013 using the VLBI Exploration of Radio Astrometry (VERA) telescope array. The 22-GHz light curve of OJ 287 clearly shows three flare events: in 2011 May, 2011 October, and 2012 March, with an activity timescale of < 4 months. The second radio flare event occurred at the same time as the gamma-ray flare detected by the Large Area Telescope on-board Fermi in 2011 October, while the third radio flare seems to precede the gamma-ray flare of 2012 April. This behavior is different from what was observed during the gamma-ray flare in 2009. One jet component moved outward with an apparent superluminal speed of 11 c from 2010 November to 2011 November at a position angle of ~160 degree from North to West, and then it changed direction, moving inward with an apparent superluminal speed of 4 c. The turning point of the jet motion seemed to occur at the same time as the gamma-ray flare in 2011 October. We find a tight connection between an apparent inward motion of the parsec-scale jet and gamma-ray flaring activity seen from 2011 November to 2012 August. Higher resolution images with the Very Long Baseline Array (VLBA) at 43 GHz allow us to detect a new innermost jet component that appeared in 2011 October, simultaneously with the gamma-ray flare. The observed inward motion could be caused by the new jet component unresolved at 22 GHz in the innermost region.
5	Yutaka Hasegawa (Osaka Prefecture Univ.)	Developing 230GHz Dual-Circular-Polarization & Sideband-separation Cartridge Receiver for GLT	GLT-team of ASIAA are forwarding Greenland Telescope (GLT) project - building a telescope for mm/submm VLBI at Greenland . The baseline between Greenland and ALMA (Atacama) , SMA (Maunakea) is one of the longest line on Earth. Moreover, Greenland is the favorable site for radio-observation , as well as Atacama. First goal of GLT project is to image Supermassive Black-Hole (1st target : M87). To that end , VLBI observation on mm/sub-mm is

			essential . We are in charge of developing 230 GHz dual Circular-Polarization Receiver (230GHz CPRx) with SIS-Mixer and waveguide-septum type circular-polarizer . Developing prototype CPRx is already finished , and sent to ASIAA on 25 July 2014. Now ASIAA are preparing to cooling test prototype-CPRx on GLT Dewar.
6	Tomoaki Oyama (NAOJ)	A progress report on the development and performance of OCTAVE-DAS	The new VLBI observing system (OCTAVE-DAS) and software correlator system have developed based on the VSI-H and VDIF specifications at NAOJ (National Astronomical Observatory of Japan). It consists of 1) a high speed 8-Gsps 3-bit RF direct ADC (OCTAD) enable us to acquire not only wide intermediate frequency but also radio frequency up to 50 GHz and have DBBC functions for VGOS (VLBI Global Observing System), 2) a converter (OCTAVIA and OCTAVIA2) between one 10 GigE port and four 2 Gbps input and output ports conformable to VSI-H, and 3) new recorders (OCTADISK, OCTADISK2 and VSREC) at a rate of 4.5 Gbps and above 8 Gbps and 4) Gbit realtime correlator (OCTACOR) and software correlator system (OCTACOR2) using GICO3 was developed by NICT. These OCTAVE-DAS are connected via 10 GigE network with VDIF and VSI specifications. These components have been used for VERA, JVN (Japanese VLBI network) and KJJVC(Korea-Japan Joint VLBI Correlator). We report a progress of evaluation and results of scientific broad-band(>8 Gbps) VLBI observations using OCTAVE-DAS and software correlator system.
7	Yuki Otsuka (TEIKYO University of Science)	H2O-Maser Single-Dish Observations with VERA	We have carried out single-dish observations of H2O masers around Mira-type variable stars with VERA Mizusawa and Ogasawara stations in order to find new H2O maser sources. The observation date is from 2013 December 14 to 2013 December 19. We report the results of these observations for about sixty Miras. Unfortunately we can not find a new maser source, these observations are the first step of the astronomical research activity in our university.
8	Yuzo Kubose (Yamaguchi Univ.)	Radio Continuum and Radio Recombination Line Observations of the Galactic Center Lobe by	We have studied physical property and formation process of the Galactic Center Lobe (GCL) located in the GC region using continuum and H92 α radio recombination line (RRL) observations 8.3 GHz with Yamaguchi 32-m telescope.

		Yamaguchi 32-m Radio Telescope	<p>Observed area for RRL is $-1^{\circ}.00 < l < 0^{\circ}.53$ and $0^{\circ}.10 < b < 0^{\circ}.90$ with sampling grid $0^{\circ}.067$ for l and $0^{\circ}.050$ for b. The observed intensity distributions of continuum and RRL both have two ridges forming the GCL perpendicular to the galactic plane at east and west sides of the galactic center. Although the shapes of the continuum and RRL ridges are similar, the spatial positions of continuum and RRL ridges are not coincident: RRL ridges locate at the inner side of the continuum ridges.</p> <p>Line-of-sight velocity of RRL of GCL range within ± 10 km s$^{-1}$ at entire observed regions. This velocity is far slow compared with the Galactic rotation velocity (~ 220 km s$^{-1}$). From intensity and velocity distribution of RRL, we consider the environment of near the GCL, and formation mechanism of the GCL.</p>
9	Hikari Horiuchi (Yamaguchi Univ.)	Periodic time variation of 6.7 GHz methanol maser in Mon R2	<p>We have observed the 6.7 GHz methanol maser in Mon R2 which is a high-mass star forming region. Previous observation by Yamaguchi 32m radio telescope showed that the methanol maser of this source might show a periodic variability with 22 to 24 days. In the present study, we are intended to confirm the periodicity by daily and long term observation. We report on the results of the light curve and spectrum of Mon R2 from May to October 2014.</p>
10	Kengo Akutagawa (Yamaguchi Univ.)	VERA Observation of Gamma-Ray Blazar DA406	<p>With recent progress in high-energy gamma-ray observations by Fermi/LAT and new generation Cherenkov telescopes, the number of gamma-ray sources associated with AGN jet has drastically increased compared with the EGRET era. However the mechanism and the location of the gamma-ray emission in AGN jets are under debate. To obtain any clues for answering both of these open questions, we are carrying out VLBI monitor for 10 gamma-ray AGNs typically bi-weekly by the Gamma-ray Emitting Notable AGN monitoring by Japanese VLBI (GENJI) programme. GENJI aims to understand the location of gamma-ray emitting region in AGN jets by studying the relation of the flux variation between gamma-ray and radio (especially VLBI flux and also structural changes). For this purpose, we focus on DA406, which is the one of GENJI targets, and analyzed the total of 21 epochs data (2012 Dec 10 – 2013 Dec 24) of DA406 by using AIPS and Difmap software</p>

			<p>packages. In our data analysis, we obtained three components (named as C0 – C2) by two-dimensional Gaussian fitting procedure in Difmap, and then we measured the position of C1 and C2 with respect to the C0. We here assumed that C0 is the radio core. As a result, we found that not only the radio core represented the flux increase within a year, but also C1 and C2 moved outward from the radio core at apparent velocities of $6.05 \pm 0.62 c$, $1.47 \pm 1.23 c$, respectively. Now we are discussing the relation between gamma-ray variation and our results.</p>
11	Seina Kimura (Yamaguchi Univ.)	High sensitivity VLBI observation for black hole candidates near Sgr A *	<p>Supermassive black holes (hereafter SMBHs) exist in the center of many galaxies, and they are observed as active galactic nuclei. The formation process of the SMBHs, however, remains unclear at present. A possible formation model of the SMBHs in the galactic center is BHs merging by collision and merging of small galaxies. Many small galaxies have been merged and absorbed into our galaxy in the past. Such galaxies had BHs in their center. If BHs evolve by merger, there is a possibility that relatively large BHs wander in the vicinity of the Sgr A*. The purpose of the study is to find BH candidates that have character like Sgr A*. We have performed VLBI observation in three baselines Yamaguchi, Tsukuba and Hitachi for elected five compact radio sources.</p>
12	Sho Kanazawa (Yamaguchi Univ.)	6.7 GHz Methanol Maser Survey in Outer Galaxy beyond the Galactic Center	<p>Study on the area beyond the Galactic Center is poor. Since objects in the area are far from the sun, they are difficult to be observed in terms of angular size and flux density. The area beyond the Galactic Center has not been well considered in the studies of the star formation and Galactic astronomy. Recently, however, new spiral arm was found in the Galactic First Quadrant beyond the Outer Arm, and it is called as Outer Scutum - Centaurus Arm. HII regions and molecular clouds were also found in the arm. Only a few 6.7 GHz methanol maser sources have been found in the Outer Galaxy beyond Galactic Center region. We have made a 6.7 GHz methanol maser survey toward Outer Galaxy beyond the Galactic Center, Outer Scutum - Centaurus Arm in the range of $350^\circ < l < 25^\circ$, for determining the distance to Outer Scutum - Centaurus Arm using Yamaguchi 32 m telescope and VERA. As a result, 11 methanol maser sources were detected, of which</p>

			<p>one was new detection. The detected sources are probably in the inner Galaxy because of their line-of-sight velocities. Bright sources like W3(OH) was not found in this survey, and it is likely bright source does not exist in the Outer Scutum - Centaurus Arm.</p>
13	Yoshitaka Fujinaga (Yamaguchi Univ.)	The survey for new AGN candidates within the field of Fermi unassociated gamma-ray sources	<p>We report on the results of survey for new gamma-ray AGN candidates by using Japanese VLBI Network. Aims of our survey are 1) verification of Blazar Sequence with taking account of faint blazars and 2) discovery of new types of AGN with gamma-ray emission. To achieve our purpose, we observed all NVSS and FIRST sources located within the positional uncertainty of unassociated gamma-ray sources listed in Fermi/LAT 2nd catalog. As a result of our JVN observations of 845 radio sources, we detected 29 VLBI sources. In our poster, we will show not only the results of estimations of types of these sources but also several correlation diagrams of them.</p>
14	Yusuke Miyamoto (Ibaraki Univ.)	Observations of ammonia toward the center of the Seyfert 2 galaxy NGC 3079	<p>We present the results of ammonia observations toward the center of the Seyfert 2 galaxy NGC 3079. The NH₃ (J,K)=(1,1) and (2,2) inversion lines were detected in absorption with the Tsukuba 32-m telescope, and the NH₃(1,1) through (6,6) lines with the VLA, although the profile of NH₃(3,3) was in emission in contrast to the other transitions. All ammonia absorption lines have two distinct velocity components: one is at the systemic velocity and the other is blueshifted, and both components are aligned along the nuclear jets. For the systemic components, the relatively low temperature gas is extended more than the high temperature gas. The blueshifted NH₃(3,3) emission can be regarded as ammonia masers associated with shocks by strong winds probably from newly formed massive stars or supernova explosions in dense clouds in the nuclear megamaser disk. Using para-NH₃(1,1), (2,2), (4,4) and (5,5) lines with VLA, we derived the rotational temperature $T_{rot} = 120 \pm 12$ K and 157 ± 19 K for the systemic and blueshifted components, respectively. The rotational temperatures are higher than temperatures in other galaxies already reported. In addition, the ammonia abundance in the nuclear region of NGC 3079 is higher than that of the other</p>

			galaxies. These results would be caused by mechanical heating due to the nuclear jets. To clarify the reason, we have a plan to observe the nuclear region with JVN.
15	Hiromu Nakamura (Yamaguchi Univ.)	Long-term flux variation of 6.7 GHz methanol maser in high-mass star forming region	It is known that 6.7 GHz methanol maser in high-mass star-forming region shows the flux variation. The methanol maser is excited by IR radiation, and the variation of the maser is caused by the variability of the central source. However, the maser of the Mon R2 can not be simply explained by IR excitation of the circumstellar gas. Mon R2 shows significant flux variation ($\sim 180\text{Jy}$) as well as the variation of its line shape. The maser spot distribution is perpendicularly to the radial direction from the central star. The variability and distribution suggest that the maser trace the shock region caused by outflows from the central star. Therefore the excitation mechanism of the 6.7 GHz methanol maser in Mon R2 is still unclear. We plan to find sources like Mon R2 and to reveal the excitation mechanism by comparing such as nature of the flux variation and spatial distribution in many sources. Currently, we are looking for candidate sources that show the behavior of the flux variation similar to Mon R2 based on the data of monitoring of the long-term flux variation over 100 sources in Yamaguchi 32m radio telescope (2004~2007,2010) and Torun1999(szymczak et al.2000).
16	Daiki Hirano (Yamaguchi Univ.)	Internal proper motion of 6.7GHz methanol maser in high mass star forming regions	We have observed the spatial distributions of the 6.7 GHz methanol maser in 38 high mass star forming regions using Very Long Baseline Interferometry (VLBI) to study the gas motion around high mass young stellar objects. The morphology of the distribution of the maser were divided into five spatial types (Linear, Arched, Elliptical, Paired, Complex). The next step of this study is to derive the proper motions of these sources. Proper motion of rotation and infalling have been reported on an Elliptical source (CepA; Sugiyama et al. 2014). In this work, we report on the proper motions of the maser spots of four morphological types (Linear, Elliptical, Paired, Complex).
17	Kyonosuke Hayashi (Yamaguchi Univ.)	Internal proper motion of high-mass star formation region G9.61+0.19	High-mass stars play a prominent role in Galactic evolution in terms of induction of star formation and generation of heavy elements. The structure and dynamics of accretion disks

			<p>around high-mass young stellar objects(HMYSOs) have been observed by sub-millimeter and infrared bands, and it has been recognized that high-mass star formation process is similar to that of low-mass stars. However, the detail of the accretion process is still unknown. We have made VLBI observations of 6.7 GHz methanol maser emitted from sites of high-mass star formation because the maser is thought to be a good tool for tracing the gas around HMYSOs. We report the result of internal proper motion of maser spots of G9.61+0.19 whose spatial morphology is linear. We also perform the simulation of the internal proper motion of maser spots of linear morphology, and compare with the VLBI result and simulation.</p>
18	Yoshinori Yonekura (Ibaraki Univ.)	Present status of the Ibaraki station (Hitachi and Takahagi 32-m antennas)	<p>In 2013-2014 season, 6-9 GHz cooled receiver was installed on the Hitachi antenna all year round. For the Takahagi antenna, 22 GHz cooled receiver was installed for about 9 months except summer season, and 6-9 GHz cooled receiver was installed for the rest 3 months. VLBI observations were carried out in 6.7, 8.4, and 22 GHz for about 200 hours. About half of the observations, the DIR-1000 magnetic tape recording system (128Mbps = 32 Msampling/s * 2 ch * 2 bits) was used, and the remaining half, the OCTADISK HDD recording system (2Gbps = 1024 Msampling/s * 1 ch * 2 bits) was used. Short baseline VLBI observations to monitor the flux density of Sgr A* with Takahagi-32m, Mizusawa-10m, and Gifu-11m on 22 GHz using IP-VLBI system (K5/VSSP32) were executed for 2 hours every day, which amount to the total observing time of about 570 hours from Feb. 2013 to Aug. 2014. Single dish observations to monitor the flux density of about 400 methanol masers in 6.7 GHz were carried out for 10 hours every day. The two-element array using Hitachi and Takahagi antennas are now in the commissioning phase.</p>
19	Tomoharu Kurayama (TEIKYO University of Science)	Parallax measurements of a star-forming region GPSR 034.257+0.155	<p>We have observed a star-forming region GPSR 034.257+0.155 with VERA in order to measure its annual parallax. The tentative value of annual parallax is 0.41 +/- 0.09 mas, which corresponds to the distance of 2.44/+0.69/-0.44 kpc. The parallax varies from 0.319 mas to 0.510 mas by changing the data points using the parallax fitting. Its kinematic distance is 3.7 kpc, which corresponds to the parallax of 0.27 mas. The</p>

			<p>smallest parallax is consistent with the kinematic distance.</p> <p>We also try to develop a new method for the determination of the position at each epoch, using the sidelobe peaks of the dirty images.</p>
20	Masachika Kijima (Tokushima Univ.)	Long light curves of 17 never-observed sources in southern hemisphere using geodetic VLBI	<p>Fermi's all-sky monitoring program in gamma-ray band requires new radio observations with high time-sampling and all-sky monitoring. I propose the application of geodetic VLBI to obtain light curves in radio band for AGN science. In this method, the problem is how to calibrate visibility amplitude and source structure to estimate total flux. Kijima+12 focused on amplitude calibration and drew 800 light curves with relative error of 15%. In my presentation, light curves of 17 southern sources those have not been observed with single dish observations at 8 GHz are prepared. Using these curves, physical parameters are estimated and compared with previous research. This application will support not only observational requirements in astronomy, but also future plan in geodesy (VLBI2010).</p>
21	Nozomi Okada (Osaka Prefecture Univ.)	Development of 22 GHz band balloon borne VLBI telescope	<p>We are developing a new 22 GHz band balloon borne VLBI telescope. This development aims at detecting the VLBI fringe pattern by the telescope lored on a flying object, and at gaining a VLBI observation site in sub-mm-wave bands. We already designed optical system and receiver's system. In our optical design, classical Cassegrain design is chosen, and edge-level at sub-reflector is -12 dB. Also we choose a corrugated horn, which have smaller sidelobes and cross polarization than the usual conical horn. In our receiver's system, RF signal is converted into electric signal by the corrugated horn, divided into circularly polarized wave by a polarizer, amplified by two amplifiers, and down-converted into 0.5-2.5 GHz signal by mixers. Now, we are measuring receiver's performance in ordinary temperature and normal pressure, and preparing measuring system of receiver's performance in low temperature and low pressure; these are a little lower than stratospheric temperature and pressure. In this poster, we show about these features.</p>
22	Daisuke Sakai (Tokyo Univ./NAOJ)	Absolute proper motions measurement of Sgr D HII	<p>Sgr D HII region is one of the radio source toward the Galactic Center region. The galactic longitude of this source is</p>

		region with VERA	<p>$l=1.14$deg. Line-of-sight velocity of thermal molecular line associated with this source is -16 km/s, which is prohibited in flat rotation at positive galactic longitude. Narrowness of the molecular line width($\sim 4-5$ km/s) seems to avoid this source locating in Galactic Center, because typical line width in Galactic Center region is $20-30$ km/s. These facts make determination of distance for this source difficult. We have conducted astrometric observations for 22 GHz water maser source associated with Sgr D HII region with VERA. We obtained absolute proper motion for this source, and the measured motion implies this source locating in near side relative to the Galactic Center. By considering the measured absolute proper motion, we constrained the location of this source on near 3 kpc arm or near central molecular zone(CMZ).</p>
23	Yui Sugiura (Yamaguchi Univ.)	Bursting Activity in a High-Mass-Star-Formng Region G33.641-0.228 Observed with the 6.7 GHz Methanol Maser	<p>We report on our observational results of single dish monitoring observations of the 6.7 GHz methanol maser emission in a high mass star-forming region G33.641-0.228. Previous observations using the Yamaguchi 32-m radio telescope have revealed that the maser shows the bursting activity (the rapidly rise of flux). Since the timescale of bursts is quite short less than a day, the details of the variation of the burst has been unclear. This study aims to reveal the variations by high frequent monitoring observations. As a result of these observations, we have detected three bursts. One of the spectral components of this maser in this source changed its flux density ten times that of the previous day, and its decaying phase, the variation was not smooth, but showed very rapid rise and fall repeatedly in eight days.</p>
24	Kazuya Hachisuka (Yamaguchi Univ.)	Time Variation of 6.7 GHz methanol maser features	<p>We are performing the East Asian VLBI Network (EAVN) observations towards 6.7 GHz methanol maser sources which trace gases around massive protostar. The past VLBI observations (includes our EAVN observations) have detected internal proper motion of 6.7 GHz methanol maser, however it is hard to detect because it is too small to detect. Moreover the structure of maser (maser feature) changes within few years, this change is also the reason for difficulty of detection. Here we report the time variation of maser features which observed by EAVN. This is very preliminary result.</p>

25	Kazuya Hachisuka (Yamaguchi Univ.)	Japan VLBI Consortium Symposium and Japanese VLBI Network since 1998	Japan VLBI Consortium (JVC) established in 1990 and JVC annual symposium (or related workshop) are held since 1991. On the other hand, current Japanese VLBI Network (JVN) started to operation since 2004, especially Japanese universities operate their own radio telescope and educate students. One decade later, Japanese VLBI community has extended and many students study radio astronomy/technology in the universities. Because the 10th anniversary of JVN in this year, the JVN should consider own future. Sometimes the history helps to consider future, I summarize the past JVC symposium and then I would like to show activities of JVN and Japanese universities.
26	Fuyuhiko Kikuchi (NAOJ)	Performance evaluation of wide-band and multi-beam receiver system	VLBI is one of the effective methods for investigating the lunar and planetary internal structure. VLBI measures a difference in an arrival time of a signal transmitted from a spacecraft source to two ground stations. This measurement gives plane-of-sky position information of spacecraft in contrast to 2-way Doppler measurement that gives line-of-sight position information. The combination of VLBI with Doppler is effective for precise position determination of the spacecraft. The gravity field and rotation state of the planet can be estimated from the position of the orbiter and lander. We have developed a wide-band and multi-beam receiver system for future exploration. This presentation shows the designing of a Vivaldi antenna and its performances especially for return loss, beam pattern and receiver noise temperature.
27	Akiharu Nakagawa (Kagoshima Univ.)	Astrometric observation of 'very' long period variables	Long period variables shows high mass-ross and plays an important role in chemical enrichment of the universe. They are also used as a standard candles in distance estimation of celestial objects. Though astrometric observations of long period variables revealed their period-luminosity relation, especially for Mira type variables (van Leeuwen et al.1997, Whitelock et al. 2008, Nakagawa et al. 2014), the relation for stars with period longer than ~1000 days are not studied in the Milky Way Galaxy. Astrometric observations of these kind of sources are little or nothing. We started water maser survey toward potential sources of 'very' long period variables. Optical monitoring are also considered using 1m telescope at

			Kagoshima.
28	Hiroshi Imai (Kagoshima Univ.)	OH maser exploration in the first-year SPLASH observations	The SPLASH (Southern Parkes Large Area Survey in Hydroxyl) is an unbiased survey of hydroxyl (OH) (1612, 1665, 1667, 1720 MHz) thermal and maser lines in a large area along the Galactic plane using the Parkes 64 m telescope. The first SPLASH paper was published in Dawson et al. (2014, MNRAS, 439, 1596) and described the results of a survey in 1/3 of the whole survey area, including the basic properties of the reduced data and detected lines in forms of emission, absorption, and maser. In our poster, we focus on the 1612 MHz OH maser sources detected in the first published survey data. There are approximately 130 maser sources identified. We found that the distribution of the maser on the sky is attributed to two Gaussian components, the Galactic thin and thick disks. We estimated that the total number of the maser sources that will be detected with the Parkes telescope (brighter than 0.5 Jy) will be about 4700. Taking into account the existence of a few sources that were not detected in Dawson et al. but found in the previous survey conducted 19 years ago, we estimated the duration of OH maser activity to be 800 years or shorter. This is inconsistent with that of a stellar super wind (1000–3000 years). Further investigation is necessary using the whole data of SPLASH and those in the follow-up observations using the Australia Telescope Compact Array (ATCA).
29	Hiroshi Imai (Kagoshima Univ.)	KaVA Large Programs of Circumstellar Masers	We will present our activities linking to planning of possible forms of large programs to study on circumstellar H ₂ O and SiO maser sources with KaVA (KVN and VERA Array). A great advantage of KaVA for the stellar maser observations is the combination of the unique capability of the multi-frequency phase referencing technique and the dual-beam astrometry using KVN and VERA, respectively, with a KaVA's relative dense antenna configuration. We have demonstrated this advantage through the test observations conducted by the KaVA Evolved Stars Sub-working Group from 2012 March to 2014 March. Snapshot KaVA imaging is confirmed to be possible in integration time of 0.5 hour at the 22 GHz band and 1.0 hour at the 43 GHz band in typical cases. This implies that

			<p>large snapshot imaging surveys towards many H₂O and SiO stellar masers are possible within a reasonable machine time (e.g., scans on ~100 masers within ~200 hours). This possibility enables us to select the maser sources, which are suitable for future long-term (~10 years) intensive (biweekly–monthly) monitoring observations, from ~400 potential target candidates selected from dual-frequency band (K-/Q-bands) KVN single-dish observations. The output of the survey programs will be used for statistical analysis of the structures of individual stellar maser clumps and the spatio-kinematical structures of circumstellar envelopes with accelerating outflows. The combination of astrometry in milliarcsecond level and the multi-phase referencing technique yields not only trigonometric parallax distances to the masers but also precise position reference for registration of different maser lines. The accuracy of the map registration affects interpretation of the excitation mechanism of the SiO maser lines and the origin of the variety of the maser actions, which are expected to reflect periodic behaviors of the circumstellar envelope with stellar pulsation. Currently we are checking the technical feasibility of KaVA operations for this combination. After this feasibility test, the long-term monitoring campaign program will run as one of KaVA's Large Programs.</p>
30	Kenta Fujisawa (Yamaguchi Univ.)	Activity Report of Yamaguchi University	The activity report of Yamaguchi University is presented
31	Kenta Fujisawa (Yamaguchi University)	VLBI Operation Committee and Program Committee	The report of VLBI Operation Committee and Program Committee is presented.
32	Yasuhiro Murata (JAXA)	Status of JAXA VLBI stations.	Introduce current status of use of JAXA antenna for VLBI. Currently, we can use Usuda 64m and Uchinoura 34m. Recently we made upgrade of the X band receiver and recording system. We also consider the single dish use of VLBI and discuss about the upgrade plan. Uchinoura 34m used to use for VLBI, and we also considering the possibility to use Usuda-10m as a 22 GHz VLBI station, which used to use for VSOP-1 (HALCA) mission.