Abstracts:

Authors	Title	Abstract	Talk/ Poster	Proceedings
C.S. Jacobs (1), J.E. Clark (1), C. Garcia-Miro (2), S. Horiuchi (3), L.J. Skjerve (1), O.J. Sovers (1) (1) Jet Propulsion Laboratory, California Institute of Technology / NASA (2) Ingenieria y Servicios Aeroespaciales, Instituto Nacional de Tecnica Aeroespacial/ NASA (3) C.S.I.R.O. Astronomy and Space Science/ NASA	THE CELESTIAL REFERENCE FRAME AT X/ KA-BAND	In order to extend the International Celestial Reference Frame from its S/X-band (2.3/ 8.4 GHz) basis to a complementary frame at X/Ka-band (8.4/32 GHz), we began an ongoing series of X/Ka observations starting in mid-2005 using NASA's Deep Space Network DSN) radio telescopes. We have detected 455 radio sources. We will report global astrometric results from the first 51 sessions. These sessions covered the full 24 hours of right ascension and declination down to -45 degrees. Source position accuracy is at approximately the part-per-billion level. We have developed an error budget which shows the main errors are caused by limited sensitivity, mis-modelling of the troposphere, uncalibrated instrumental effects, and the lack of a southern baseline. Sensitivity has been increased by improving pointing calibrations and by increasing the data rate four-fold. Troposphere calibration has been demonstrated at the mm level. Construction of instrumental phase calibrators for Ka-band began in recent months. We will show projections for the expected effect on the X/Ka frame as these improvements enter the production data stream. The research described in this paper was done under contract with NASA. Government sponsorship acknowledged.	T	ja
Arthur Niell and the VLBI2010 Broadband Development Group	Status of the NASA VLBI2010 Proof-of-concept System	The first VLBI2010 antenna with broadband capability is nearing 'first light'. The antenna is complete and the new hardware is being installed. Observations will initially be made at X-band using the Westford antenna with standard geodetic S/X antenna and receiver, followed by observations using the broadband system on Westford. The status of the 12m implementation and plans for the next stage of development will be reported.	T	nein
Alessandra Bertarini	Polarization Leakage: Final Result	The precision of geodetic and astrometric measurements is degraded by instrumental errors of which polarization leakage is one of the larger. Its effect can be corrected in the data provided one knows the leakage characteristics of the stations. I describe resulting polarization leakage measurements and the algorithm that was implemented to correct for their effect on the geodetic delay measurables. From the measured leakage terms, one would expect polarization leakage to affect the group delay measurements by 0.5 ps to 7 ps, depending on the stations involved in the baseline. This proved to be below the statistical noise in a single VLBI experiment and so the improvement from the correction could not be detected. Polarization leakage was found, unespectedly, not the dominant source of non-closing errors.	T	nein

Authors	Title	Abstract	Talk/ Poster	Proceedings
Walter Alef	Bonn correlator status report	We will present the status of the Bonn MPIfR/BKG VLBI correlator center including a field report on how the MK IV hardware correlator was replaced by the DiFX software correlator.	T	ja
T. Hobiger(1), M. Sekido(1), T. Otsubo(2,1) , T. Gotoh(1), T. Kubooka(1), H. Takiguchi(1) and H. Takeuchi(3) (1) National Institute of Information and Communications Technology (NICT), Japan (2) Hitotsubashi University, Japan (3) Japan Aerospace Exploration Agency(JAXA), Japan	VLBI analysis with c5++ - status quo and outlook	Otsubo et al. (2002) have developed an analysis software package based on Java named CONCERTO4 which enabled the user to consistently process SLR, GPS and other satellite tracking data. Driven by the need to update the software and replace the existing Java code, VLBI was added as an additional module to this analysis package and renamed c5++. The software provides state-of-the-art modules for a variety of geodetic, mathematical and geophysical tasks that can be combined to a stand-alone VLBI application. Although many of these modules can be used for any of the space geodetic techniques, a couple of technique specific solutions (like relativity, antenna deformation, etc.) had to be coded exclusively for VLBI. We are going to discuss details of the software and its development and we are going to summarize how the automated analysis procedure of the real-time UT1 experiments has been realized with c5++. Other fields of applications for this software will be shown as well. We conclude our presentation with an outlook on future applications (including time and frequency transfer and space-craft navigation) as well as discuss the next steps towards a software package which allows combination of space geodetic techniques on the observation level.	T	ja
Bill Petrachenko	VLBI2010: Status and Prospects	The current status and future prospects of VLBI2010 will be discussed from a technique point of view.	T	nein
Oleg Titov (Geoscience Australia), Sebastien Lambert (Paris Observatory)	VLBI measurement of the secular aberration drift	Analysis of VLBI records of distant radio source signals allows to determine the proper motions of the extragalactic objects with an accuracy of a hundred microseconds of arc per year (μas/yr). Such an accuracy is sufficient to investigate the aberration in proper motions of distant bodies due to the rotation of the Solar system barycentre around the Galactic centre. We analyzed geodetic and astrometric VLBI data to produce radio source coordinate time series using the CALC/SOLVE software package. We fitted vector spherical harmonic components of degree 1 and 2 to the velocity field made up of the proper motions of 555 sources of good observational history over the period 1990-2010. The acceleration vector has an amplitude of 6.4+/-1.5 μas/yr and is directed towards equatorial coordinates alpha=263° and delta=-20°. Within errors bars, the magnitude and the direction of the dipole component agree with predictions (magnitude 4-6 μas/yr, alpha=266° and delta=-29°).	T	ja
Oleg Titov (Geoscience Australia), David Jauncey	Optical spectra of the flat-spectrum radio sources	We present the results of spectroscopic observations of 47 radio sources from the International VLBI Service (IVS) Reference Catalogue, made with the 3,58-meter European Southern Observatory New Technology Telescope (NTT). All of the radio	T	nein

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(Australian Telescope National Facility), Helen Johnston (University of Sydney), Richard Hunstead (University of Sydney), Lise Christensen (Munich Technical University)	measured at NTT telescop	sources are involved in observational VLBI programs to establish the celestial reference frame. Of the 47 sources observed we present 31 new redshifts.		
Thomas Artz, Axel Nothnagel, Peter Steigenberger, Sarah Tesmer	Evaluation of Combined Sub-daily UT1-Estimates from GPS and VLBI Observations	Hourly estimates of UT1 are determined in a combination procedure of Very Long Baseline Interferometry (VLBI) and Global Positioning System (GPS) observations based on homogeneous normal equation systems. The combination sustains the strengths of both techniques with the short period variations originating from the GPS observations while VLBI delivers the absolute information. Here, we investigate the impact of several analysis options, like polar motion and nutation handling, on the UT1 time series. In addition, the influence of different VLBI session types is analyzed.	T	ja
Judith Pietzner, Axel Nothnagel	Geodetic VLBI Intensive scheduling based on singular value decomposition	The scheduling of Very Long Baseline Interferometry (VLBI) observing sessions is a crucial step to obtain reliable results with the best possible accuracy. At present, there is no clear strategy for the scheduling of VLBI Intensive sessions for the purpose of dUT1 determination. Here, a new approach for scheduling one hour long Intensive VLBI sessions is presented based on singular value decomposition (SVD). The SVD is a tool that enables a detailed analysis of a matrix X by the decomposition into three matrices that contain the singular values as well as the left-singular vectors (a basis for data space of the matrix X) and the right-singular vectors (a basis for model space of the matrix X). Assuming a least-squares adjustment of the observations for a given schedule, the Jacobian matrix containing the partial derivatives of the functional model with respect to the unknown parameters can be built. The parameters that are usually estimated for an Intensive are: zenith wet delay at both stations, one relative clock o?set and one rate as well as the phase of the Earth's rotation, ΔU T 1. Here we present preliminary results of the scheduling strategy based on SVD. By performing SVDs of the Jacobian matrix, the geometrical concept of projections onto the model space and the data space is used to derive indicators of how precisely the model parameters are determined from the observations and how well the adjusted observations match the original ones. Thereby, a schedule is obtained that is – in sense of a least-squares adjustment – optimal for the parameters that are presumably estimated.	T	ja
Hase, H., Behrend, D., Ma, C., Petrachenko,	The future global VLBI2010	The VLBI2010 concept was developed by the International VLBI Service for Geodesy and Astrometry (IVS) in order to create the next generation VLBI system which meets the goals of the Global Geodetic Observing System (GGOS) of the International	T	ja

Authors	Title	Abstract	Talk/ Poster	Proceedings
W., Schuh, H., Whitney, A. (V2PEG members)	network of the IVS	Association of Geodesy (IAG). The performance goals of 1mm position error and 0.1mm/y site velocity error require new radio telescope designs, new VLBI receiving and recording systems, new concepts for data transmission and correlation, as well as completely updated software for scheduling, data analysis, and archiving. In December 2010 the IVS VLBI2010 Project Executive Group (V2PEG) conducted a survey among the IVS network stations to measure awareness of VLBI2010 and to find out about modernization plans towards VLBI2010. The analysis of this survey indicates that most of the IVS network stations are already planning the transition to VLBI2010. The survey showed that up to 20 new radio telescopes at 17 sites with full VLBI2010 compliance could become operational by 2017. By 2014/15 a sufficient number of VLBI2010-compatible radio telescopes will be available for initial continuous VLBI2010 operations. The survey also showed that many network stations need technical consultation about VLBI2010 and support letters to be successful with VLBI2010 initiatives on the administration and funding level.		
Gino Tuccari	DBBC3 - Multigigabit Backend	DBBC3 is the multigigabit evolution of the DBBC backend system. The minimum instataneous band is 4GHz/IF with a typical output rate of 32 Gbps.	T	ja
Lucia Plank, J. Boehm, H. Schuh	First steps of processing space VLBI data with VieVS	Since 2008 the VLBI group at the Institute of Geodesy and Geophysics (IGG) of the Vienna University of Technology has developed the Vienna VLBI Software VieVS which is capable to process geodetic VLBI data in NGS format. Constantly we are working on upgrading the new software, e.g. by developing a scheduling tool or extending the software from single session solution to a so-called global solution, allowing the joint analysis of many sessions covering several years. In this presentation we report on first steps to enable the processing of space VLBI data with the software. Driven by the recently increasing number of space VLBI applications, our goal is the geodetic usage of such data, primarily concerning frame ties between various reference frames, e. g. by connecting the dynamic reference frame of a space probe with the kinematically defined International Celestial Reference Frame (ICRF). Main parts of the software extension w.r.t. the existing VieVS are the treatment of fast moving targets, the implementation of a delay model for radio emitters at finite distances, and the adequate mathematical model and adjustment of the particular unknowns. Actual work has been done for two mission scenarios so far: On the one hand differential VLBI (D-VLBI) data from the two sub-satellites of the Japanese lunar mission Selene were processed, on the other hand VLBI observations of GNSS satellites were modelled in VieVS. Besides some general aspects, we give details on the calculation of the theoretical delay (delay model for moving sources at finite distances) and its realization in VieVS. First results with real data and comparisons with best fit mission orbit data are also presented.'	T	ja
James Campbell	EVGA - Looking back at the early beginnigs	31 years after the first European VLVI meeting for Geodesy and Astrometry it seems appropriate to take a - perhaps slightly nostalgic - look back at the early beginnings of a cooperative European effort to establish a regional VLBI network dedicated to geodetic, i.e. geodynamic in a broader sense, and astrometric reseach.	T	ja

Authors	Title	Abstract	Talk/ Poster	Proceedings
~~Rosa M. Torres~~	~~VLBA Determination of the Distance to Nearby Star-Forming Regions~~	~~We will present part of a very large ongoing effort to determine the distance and structure of all star-forming regions within several hundred parsecs of the Sun using multi-epoch VLBA observations. The main results are: (1) the distance to three of the most studied low-mass star-forming regions: Taurus, Ophiuchus and Serpens with accuracies one to two orders of magnitude better than the present values, and (2) the impact to accurate measurements to our understanding of the structure and dynamics of those nearby star-forming regions.~~	~~P~~	~~nein~~
Stefanie Muehle	Recent Developments at the Joint Institute for VLBI in Europe (JIVE)	After an overview of the European VLBI Network (EVN) including new stations, upgrades and operational aspects, we will review the status and capabilites of the correlators at JIVE. The transition phase from the Mark IV hardware correlator to the SFXC software correlator has now reached the point where the first user experiments correlated on the SFXC correlator have been distributed. In addition, we will report on the expanded capabilities of real-time e-VLBI, which now comprises a significant fraction of EVN operations.	T	ja
C.Tierno Ros, J. Boehm, H. Schuh	Use of GNSS-Derived TEC maps for VLBI observations	The ionospheric delay makes up a large fraction of observed VLBI group delays; it depends on the total number of free electrons (TEC) along the ray path. Usually, a correction can be applied by making simultaneous observations in both S and X band. However, this is not always possible. For such cases, the alternative of calculating the ionospheric correction from GNSS TEC maps is studied. A comparison of the ionospheric correction obtained from dual-band VLBI observations and from GNSS TEC maps is shown and first results will be presented if the ionospheric corrections derived from GNSS are applied to VLBI.	P	ja
Hana Spicakova	Terrestrial reference frame solutions with the Vienna VLBI Software VieVS	The Vienna VLBI Software (VieVS) has been developed at the Institute of Geodesy and Geophysics at TU Vienna since 2008. In this presentation, we present the module Vie_glob which is the part of VieVS that allows the parameter estimation from multiple VLBI sessions in a so-called global solution. We focus on the determination of the terrestrial reference frame (TRF) using all suitable VLBI sessions since 1984. We compare different analysis options like the choice of loading corrections or of one of the models for the tropospheric delays. The effect of atmosphere loading corrections on station heights if neglected at observation level will be shown. Time series of station positions (using a previously determined TRF as a priori values) are presented and compared to other estimates of site positions from individual IVS (International VLBI Service for Geodesy and Astrometry) Analysis Centers.	T	ja
Manuela Seitz	Common realization of Terrestrial and Celestial Reference System	The International Celestial Reference System (ICRS) is realized through more than 25 years of VLBI observation data. The realization is referred to as International Celestial Reference Frame (ICRF). VLBI is the only space geodetic technique, which allows for observing extragalactic radio sources with high accuracy and therefore for the realization of the ICRS. Hence, it is also the only technique which links the ICRF and the International Terrestrial Reference Frame (ITRF). Even if consistency between ICRF and ITRF is aspired and achieved to a certain extent, ICRF and ITRF are not adjusted consistently in one adjustment so far. Inconsistencies between the frames are the consequence. The paper deals with the consistent realization of CRF and TRF. We	T	ja

Authors	Title	Abstract	Talk/ Poster	Proceedings
		present results from a combination of homogeneously processed VLBI, GNSS and SLR data. We discuss the computation strategy and the advantages of the TRF-CRF solution as well as the related Earth Orientation Parameters regards consistency and stability. But, we also critically assess the aspect of network deformation caused by local tie misfits at co-location sites, which is a crucial point in ITRF computation.		
~~Mark Kaufman, A. Sinev~~	~~Rapid EOP calculations using VLBI data by means of VieVS software~~	~~Many years the Main metrological center of Russian Time, Frequencies and Earth rotation Service executes the rapid EOP data calculations on the basis of GNSS, VLBI and SLR observations. In 2011 we began to process of new series of VLBI data using VieVS software developed at the Institute of Geodesy and Geophysics (IGG), Vienna University of Technology. According to requirements of operative calculations (the fast automated processing of single session without participation of the operator), the control program *eop_start.m* was writen. Its functions are as follows. 1. Argument -- only a NGS-file name. Operating parameters and options for VieVS are adjusted in advance for daily and hour sessions. 2. Calculated EOP values and some related data are presented in one string according to IVS EOP FORMAT, Version 2.2. This string is than connected to one of two files (for daily or hourly sessions), containing long time series. Introduction of a string in a chronological order or replacement of its earlier version is provided. 3. According to requirements IVS EOP FORMAT, the control program *eop_start.m* makes reduction of calculated EOP values to the mean time of observed session, calculation of daily rates of EOP and their errors, calculation of correlation factors between EOP components. A code designation of session according to IVS *masterXX.txt* files and the list of t he used stations in a 2-letter code is made also. 4. The information of outliers detected by the VIE_LSM module and also of problem station (with many bad data) detected by *eop_start.m* are entering in OUT and OPT files. The new iteration of all process of calculations is then automatically carried out. Any changes in blocks VieVS was not brought by development of the control program. Its task is receiving, processing and sending data without manual intervention. In rare case, however, the visual graphical analysis is required, which can be executed by means of VieVS.~~	~~T~~	~~nein~~
Roger Cappallo	Correlator Post-processing Algorithms for VLBI2010	Many of the characteristics of the new VLBI2010 observing system require changes to the post-processing software that is applied at the correlator. The principal areas of change lie in the phase cal tone distribution, the increased number of channels, broad RF band coverage that enables ionospheric estimation and removal, and linearly polarized feeds that are correlated against circularly polarized feeds from pre-existing antennas. The algorithmic and code changes that are being implemented in the fourfit fringe-fitting program will be discussed.	T	nein
Gerald Engelhardt, Volkmar Thorandt, Dieter Ullrich	VLBI Analysis at BKG	The VLBI group of the Federal Agency for Cartography and Geodesy (BKG) in Leipzig is part of the jointly operated IVS Analysis Center of BKG and the Institute for Geodesy and Geoinformation of the University of Bonn (IGGB). BKG is responsible for regular ubmissions of time series of Earth Orientation Parameters (EOP) and tropospheric parameters, the generation of daily SINEX (Solution INdependent EXchange format) files for 24-hours sessions and Intensive VLBI sessions, quarterly updated solutions to produce terrestrial and celestial reference frame realizations (TRF, CRF), and	P	ja

Authors	Title	Abstract	Talk/ Poster	Proceedings
		generating Intensive schedules (mainly Tsukuba-Wettzell). The data processing steps are explained and also some problems in the procedure of data analysis are pointed out.		
Jing Sun	Status and future plans for the VieVS scheduling package	The development of the new VLBI2010 network, which uses smaller and fast-slewing antennas observing at broader bandwidths, is progressing rapidly with several new radio telescopes currently being constructed or planned. The new VLBI2010 operating modes will require a scheduling strategies different from today. The VieVS scheduling package (VIE_SCHED) is a new scheduling software in Matlab which has been developed at the Institute of Geodesy and Geophysics of the Vienna University of Technology since 2010. Algorithms and models of source structure, slewing time calculation, SNR calculations, and cable wrap have been developed. We generate different schedules and test these through simulations in order to evaluate what is the best observing strategy for the next generation VLBI network. These schedules differ in terms of number of observations and scans, slew time intervals, sky coverage at the individual stations, as well as coverage of the celestial sphere with sources. We also compare the schedules generated by VIE_SCHED with schedules generated with the SKED software, and the differences are analyzed. The planned future developments of VIE_SCHED include an option to analyze the covariance information and allow to consider sites with multiple antennas. We also plan to develop the graphical interface to make it easy to use.	T	ja
John Gipson	Report on IVS Working Group 4: Data Structures	I describe the proposed data structure for storing, archiving and processing VLBI data. In this scheme, most VLBI data is stored in NetCDF files. NetCDF has the advantage that there are interfaces to most common computer languages including Fortran, Fortran-90, C, C++, Perl, etc, and the most common operating systems including linux, Windows and Mac. The data files for a particular session are organized by special ASCII "wrapper" files which contain pointers to the data files. This allows great flexibility in the processing and analysis of VLBI data, and also allows for extending the types of data used, e.g., source maps. I discuss the use of the new format in calc/solve and other VLBI analysis packages. I also discuss plans for transitioning to the new structure.	T	ja
Christopher Beaudoin	Sensitivity evaluation of two VLBI2010 candidate feeds	The VLBI2010 effort will usher in a new generation of geodetic VLBI observing systems possessing far more bandwidth than their predecessors. As such, MIT Haystack Observatory has been actively involved in the evaluation of broadband microwave feeds for the new Patriot 12m antenna installed at the Goddard Geophysical Astronomical Observatory in Greenbelt MD, USA. In our contribution to the meeting, we will present sensitivity measurements of the Patriot 12m antenna as fed by the Chalmers University of Technology design (i.e. the Eleven antenna) as well as a new California Institute of Technology design (i.e. the quadridge feed horn - QRFH) both of which have been realized in hardware prototypes and are considered to be contending feeds for VLBI2010.	T	ja
Vincenza Tornatore, Sergei Pogrebenko,	Single baseline GLONASS observations	Several tests to observe signals transmitted by GLONASS (GLObal NAvigation Satellite System) satellites have been performed using the geodetic VLBI (Very Long Baseline Interferometry) technique. The radio telescopes involved in these experiments were	P	ja

Authors	Title	Abstract	Talk/ Poster	Proceedings
Dimitry Duev, Ruediger Haas, Simon Casey, Guifre Molera	with VLBI: preliminary results	Medicina (Italy) and Onsala (Sweden), both equipped with L-band receivers. Observations at the stations were performed using the standard Mark4 VLBI data acquisition rack and Mark5A disk-based recorders. The goals of the observations were to develop and test the scheduling, signal acquisition and processing routines to verify the full tracking pipeline, foreseeing the cross-correlation of the recorded data on the baseline Onsala-Medicina. The natural radio source 3c286 was used as a calibrator before the starting of the satellite observation sessions. Delay models, including the tropospheric and ionospheric corrections, which are consistent for both far- and near-field sources are under development. Correlation of the calibrator signal has been performed using the DiFX software, while the satellite signals have been processed using the narrow band approach with the Metsaehovi software and analysed with a near-field delay model. Delay models both for the calibrator signals and the satellites signals, using the same geometrical, tropospheric and ionospheric models, are under investigation to make a correlation of the satellite signals possible.		
Franz Kirsten	Proper motion measurement of pulsars using multi-epoch VLBI mappings of M15	The globular cluster M15 hosts two low-mass X-ray binaries (LMXB) and at least eight millisecond pulsars (MSP) detected via pulsed radio searches. Using multi-epoch 1.6 GHz VLBI observations at high spectral resolution, we detect the already known MSPs and perform a model independent proper motion analysis. Furthermore, we search for new radio sources being potential candidates for new LMXBS or MSPs in the vicinity of the core of M15. Combining the proper motion results of all sources under consideration we will be able to further constrain the central mass distribution in the cluster and, in case of high proper motions near the core, find further evidence for the central object being an intermediate mass black hole. I will present preliminary results from the first three of a total of six observation epochs.	P	ja
Tobias Nilsson	Status and future plans for the Vienna VLBI Software VieVS	The Vienna VLBI Software (VieVS) is a new VLBI analysis software which has been developed at the Institute of Geodesy and Geophysics of the Vienna University of Technology since 2008. In this software, which is written in Matlab, the most recent IERS Conventions and are implemented, and through a graphical user interface it is easy to use. Lately, two new modules have been added to the official version of VieVS. One is a simulation module (VIE_SIM) which allows to create simulated VLBI observations. The other is a global solution module (VIE_GLOB) which can be used for combining several sessions in a global solution in order to derive e.g. a terrestrial and/ or a celestial reference frame. In this presentation an overview of VieVS and its current status will be given and its performance will be demonstrated by showing selected results. We also discuss the planned future developments of VieVS. These include the possibility to use external tropospheric delays obtained, e.g. by ray-tracing through numerical weather models, to use external ionospheric corrections from, e.g. GNSS TEC maps, and to implement a Kalman filter solution. We also plan to cover earlier steps in the VLBI data processing chain, like ambiguity resolution, which have not been considered so far in VieVS.	T	ja
Geraldine Bourda	Towards an accurate alignment of	The space astrometry mission Gaia will construct a dense optical QSO-based celestial reference frame. For consistency between optical and radio positions, it will be important to align the Gaia and VLBI frames with the highest accuracy. However, the	T	ja

Authors	Title	Abstract	Talk/ Poster	Proceedings
	the VLBI frame and the future Gaia optical frame: Global VLBI observations status to image candidate sources	number of quasars that are bright in optical wavelength (for the best position with Gaia), that have a compact core (to be detectable on VLBI scales), and that do not exhibit complex structures (to ensure a good astrometric quality), is currently rather limited (Bourda et al. 2008). It was hence realized that the densification of the list of such objects was necessary. Accordingly, we initiated a multi-step VLBI observational project, dedicated to finding additional suitable radio sources for aligning the two frames. The sample consists of ~450 optically-bright radio sources, which have been selected by cross-correlating optical and radio catalogs. The initial observations, aimed at checking whether these sources are detectable with VLBI, and conducted with the European VLBI Network in 2007, showed an excellent ~90% detection rate (Bourda et al. 2010). The second step, dedicated to extract the most point-like sources of the sample, by imaging their VLBI structures, was initiated in 2008. About 25% of the detected targets were observed with the Global VLBI array during a pilot imaging experiment, revealing ~50% of them as point-like sources on VLBI scales (Bourda et al. 2011). The rest of the sources were observed in March and November 2010 with the final imaging experiment planned in February 2011. In this paper, we present the results of these two imaging campaigns from 2010. And finally, the third step of this project, dedicated to measuring accurately the VLBI position of the most point-like sources of the sample, will be engaged in 2011.		
Martin Ettl, Alexander Neidhardt, Matthias Mühlbauer, Walter Alef, Ed Himwich, Christopher Beaudoin, Christian Plötz, Arpad Szomoru	Concepts for continuous quality monitoring and station remote control	In the newly funded “Novel EXploration Pushing Robust e-VLBI Services”–project (NEXPReS) the Technische Universitaet Muenchen realize concepts for continuous quality monitoring and station remote control in cooperation with the Max-Planck-Institute for Radioastronomy, Bonn. NEXPReS is a three-year project aimed at further developing e-VLBI services of the European VLBI Network (EVN), with the goal of incorporating e-VLBI into every astronomical observation conducted by the EVN. This project focus on developments of an operational e-control system with authentication and authorization. It includes an appropriate role management with different remote access states for future observation strategies. To allow a flexible control of different systems in parallel sophisticated graphical user interfaces are designed and realized. It requires also a session oriented data management. Because of the higher degree of automation additional system parameters and information is collected with a new system monitoring. The whole system for monitoring and control is fully compatible to the NASA field system as extension. The concept will be proofed with regular tests between Wettzell and Effelsberg.	T	ja
Alexander Neidhardt, Martin Ettl, Helge Rottmann, Christian Plötz, Matthias Mühlbauer, Hayo Hase, Walter Alef, Sergio Sobarzo,	New observation strategies with e-control	New remote control technologies for VLBI observations offers the possibilities of remote observations. This means that an operator has not to be on location of the telescope all the time (remote observation). This also allows to control more than one telescope by one operator(shared observation). At Wettzell also completely unattended observations have been done especially for the weekend sessions for over 2 years now. The development goal is to simplify operational workflows in combination with general control structures. These new observation control strategies are not limited to VLBI. They can also be applied to other geodetic space techniques such as SLR which are necessary to realize the Global Geodetic Observing System (GGOS). The demand for continuous and reliable observations requires to ease inconvenient night and weekend	T	ja

Authors	Title	Abstract	Talk/ Poster	Proceedings
Cristian Herrera, Ed Himwich		shifts. Remote controlled and autonomous observations will become more important in the future. The state-of-the-art software for control and monitoring is publicly available for testing and further developments. The most recent release integrates several new and comfortable features to support the daily work of an operator.		
Martin Ettl, Alexander Neidhardt, Matthias Mühlbauer, Christian Plötz, Hayo Hase, Sergio Sobarzo, Cristian Herrera, Eric Oñate, Pedro Zaror, Felipe Pedreros, Octavio Zapato	Experiences with regular remote attendance towards new observation strategies	Current VLBI observations are controlled and attended locally at the radio telescopes on the basis of pre-scheduled session files. Operations dealing with system specific station commands and individual setup procedures. Neither the scheduler nor the correlator nor the analyst get a real-time feedback about system parameters during a session. Remotely induced changes in schedules after the start of a session are impossible. For future scientific applications more flexibility in the session control would optimize the station resources. Therefore a proposed shared-observation control of the global network of radio telescopes will be an advantage. Remote attendance/ control as well as completely unattended-observations will become a necessity for VLBI2010 observation programs. To approach the goal of remote controlled VLBI operation the Geodetic Observatory Wettzell in cooperation with the Max-Planck-Institute for Radio Astronomy in Bonn are developing a software extension for remote control to the existing NASA Field System. The status of this developments allow already regularly remote controlled observations at Wettzell. The software extension was also tested in both ways in geodetic VLBI session between Wettzell, Germany and Concepción, Chile. The Intensive-sessions during weekends from Wettzell with Tsukuba are regularly operated remotely. The experiences gathered by these different session setups have led to new features like automatic connection reestablishment and internet performance measurements. Future developments for an authentication and user role management will be subject of the upcoming NEXPRES project.	P	ja
G. Kronschnabl, Hayo Hase, T. Klügel, A. Neidhardt, K. Pausch, W. Göldi, VLBI-Team Wettzell	VLBI2010 – Current status of the TWIN radio telescope project at Wettzell, Germany	The Twin Telescope Wettzell Project is carried out by BKG during the period of 2008–2011. The design of the TTW was based on the VLBI2010 concept of an IVS Working Group. In the first project year the final design was fixed after numerous simulations to meet the technical specifications needed for the VLBI2010 concept. For the construction of the radio telescopes at the Geodetic Observatory Wettzell a thorough soil analysis was made in order to define the most suitable locations.. Since 2009 the construction work is ongoing and close to its end. In parallel several acceptance tests of different telescope parts had been conducted, e.g. azimuth bearings. The new radio telescopes are almost completely assembled and the time schedule is kept. For the last project year the design of the receiver parts needs to be finished and the construction and installation are on the agenda.	P	ja
Dmitry Duev	A Tropospheric Signal Delay Model for Radio Astronomical Observations	The New VLBI System for Geodesy and Astrometry VLBI2010 of the International VLBI Service specify, among other things, the precision of the coordinates calculation of radio telescopes involved in VLBI observations at the level of 1 mm on global baselines, which is much better than available at the moment. With the Earth's troposphere being the main accuracy limiting factor, the problem of high-precision modeling of the tropospheric influence on the signal delay in radio astronomical observations is extremely urgent. In this work, a three-dimensional refraction model is proposed, which allows one to calculate the tropospheric delay of the signal. The method of	T	nein

Authors	Title	Abstract	Talk/ Poster	Proceedings
		raytracing through the three-dimensional troposphere (numerical weather model) is used. Results of the VLBI observations of spacecraft processing are presented showing that, in terms of accuracy, the developed model performs at the level of the best modern analogues.		
Alan Whitney	A COTS-Hardware Candidate for the Next-Generation VLBI Data System	A new real-time high-data-rate disk-array system based on entirely commercial-off-the-shelf hardware components is being evaluated for possible use as a next-generation VLBI data system. The system, developed by XCube Communications of Nashua, NH, USA was originally developed for the automotive industry for testing/ evaluation of autonomous driving systems that require continuous capture of an array of video cameras and automotive sensors at ~8Gbps from multiple 10GigE data links and other data sources. In order to sustain the required recording data rate, the system is designed to account for slow and/or failed disks by shifting the load to other disks as necessary in order to maintain the target data rate. The system is based on a Linux OS with some modifications to memory management and drivers in order to guarantee the timely movement of data, and the hardware/software combination is highly tuned to achieve the target data rate; data are stored in standard Linux files. A kit is also being designed that will allow existing Mark 5 disk modules to be modified to be used with the XCube system (though PATA disks will need to be replaced by SATA disks). Demonstrations of the system at Haystack Observatory and NRAO Socorro have proved very encouraging; some modest software upgrades/revisions are being made by XCube in order to meet VLBI-specific requirements. The system is easily expandable, with sustained 16 Gbps likely to be supported before end CY2011.	T	ja
Sergei Bolotin	Current Status of Development of New VLBI Data Analysis Software	At the 2010 IVS GM in Hobart we proposed a design of a next generation VLBI data analysis software. In this talk we review the current status of this software and plans for future development. We also demonstrate the current capabilities of the software.	T	ja
R. Haas, T. Hobiger, M. Sekido, Y. Koyama, T. Kondo, H. Takiguchi, S. Kurihara, K. Kokado, D. Tanimoto, K. Nozawa, M. Uunila, J. Wagner, J. Ritakari, A. Mujunen	Near real-time monitoring of UT1 with geodetic VLBI	Geodetic VLBI is unique among the geodetic space techniques since it provides a direct connection between the international terrestrial reference frame and the international celestial reference frame. The Earth rotation angle, usually expressed as UT1, can be determined directly from geodetic VLBI observations. Accurate information about the Earth rotation angle is necessary and important for navigation purposes, in particular for satellite missions and space navigation. A near real-time knowledge of UT1 with high accuracy is therefore highly desirable. During the last few years the advances in data transfer over high-speed optical fibre lines have made it possible to electronically send the observational data from a VLBI radio telescope on one side of the globe in real-time to a VLBI correlator on the other side of the globe. Thus, data of two telescopes on opposite sides of the Earth, forming a long east-west oriented baseline, can be correlated in near real-time. Furthermore, advances in automated processing of the correlation results have made it possible to derive the Earth rotation angle UT1 in near real-time. Since 2007, the VLBI research groups in Sweden, Finland and Japan collaborate to derive UT1 in near real-time. Several dedicated so-called ultra-rapid	T	ja

Authors	Title	Abstract	Talk/ Poster	Proceedings
		UT1-sessions with 1-2 hours duration were performed. It was shown that final UT1-results can be derived within a few minutes after the end of an observing session (Sekido et al., 2008; Matsuzaka et al., 2008). The quality of the UT1-results is on the same level as the so-called IERS rapid solutions, but with a much lower latency (Haas et al., 2010). Recently, the ultra-rapid approach has been applied to standard 24 hour long VLBI observing sessions that are organized by the International VLBI Service for Geodesy and Astrometry (IVS). The long east-west baseline between Onsala (Sweden) and Tsukuba (Japan) is used to derive UT1 with a sliding window approach already during the ongoing IVS-session. The data processing and analysis is performed with a fully automated analysis software (Hobiger et al., 2010). We present results from the ultra-rapid UT1-sessions, both, from dedicated one-baseline sessions, as well from 24-hour ultra-rapid sessions during standard IVS-experiments. The near real-time UT1 results are compared to corresponding post-processing results, and results from independent analyses and techniques. Refrences: Sekido et al. (2008) Ultra-rapid UT1 measurements by e-VLBI, Earth Planets and Space, Vol. 60, 865??870. Matsuzaka et al. (2008) Ultra Rapid UT1 Experiment with e-VLBI, In: Proc. 5th IVS General Meeting, 68??71. Haas R et al. (2010) Ultra-Rapid DUT1-Observations with E-VLBI. Artificial Satellites, 45, 75??79. Hobiger et al. (2010) Fully automated VLBI analysis with c5++ for ultra-rapid determination of UT1, Earth Planets Space.		
Kensuke Kokado	Recent Activities for Ultra-Rapid dUT1 Mesurement	UT1 (Universal Time 1) is essential data for orbit control of an artificial satellite, space exploration or analysis of GPS data. Although the UT1 value is calculated by international VLBI observations operated by International VLBI Service for Geodesy and Astrometry (IVS), it takes several hours or several days to obtain UT1 values because it takes a lot of time to process the VLBI data. Although we conduct some data analysis, we use the final solution of UT1 which is calculated using the observed UT1 value on VLBI observation. The final solution includes the prediction UT1 values, which accuracies decrease with time. Therefore, many users of the UT1 solution require submission of observed UT1 value as soon as possible after the observation. Geospatial Information Authority of Japan (GSI) has implemented a number of experiments for quasi real-time estimation of UT1 value since 2007. In 2008, we introduced the system for quasi real-time estimation into an international VLBI session, and it enables us to obtain the UT1 results within a few minutes after the observing session of regular VLBI session. GSI became an IVS analysis center in April, 2010. Since then, we have improved the system and checked the qualities of the results. I will report our recent activities in my presentation.	P	ja
Fengchun Shu	The current status of a Chinese domestic geodetic VLBI observing program	In the framework of the project Crustal Movement Observation Network of China, a domestic geodetic VLBI observing program is scheduled to be operational regularly from this year onward. I will present the current status of the observing system with the use of Seshan25, Urumqi and Kunming stations and Shanghai correlator, and then the first results of test observations and correlations.	T	nein

Authors	Title	Abstract	Talk/ Poster	Proceedings
Johannes Boehm	Impact of a priori gradients on VLBI- and GNSS-derived reference frames	Tropospheric gradients are usually estimated in the analysis of space geodetic observations to account for the azimuthal asymmetry of troposphere delays. Whereas some analysis centres use a priori gradients for the analysis of Very Long Baseline Interferometry (VLBI) observations, no a priori information is generally applied in the analysis of Global Navigation Satellite Systems (GNSS) observations. We introduce a spherical harmonic expansion of total gradients derived from climatology data of the European Centre for Medium-Range Weather Forecasts (ECMWF), and we compare it to the gradients which have been determined for selected VLBI sites from data of the Data Assimilation Office (DAO) at Goddard Space Flight Center. The latter are usually applied in VLBI analysis. We show the effect of using both types of a priori gradients on the terrestrial and celestial reference frames which are determined from GNSS and VLBI analysis.	T	ja
Younghee Kwak, Jungho Cho	Current status of KASI combination center	We report on the current activities of the Korea Astronomy and Space Science Institute (KASI) combination center. We adopt Bernese S/W which is a GPS data processing S/W developed by Astronomical Institute at the University of Bern (AIUB) for the combination analysis. It provides the function of stacking normal equation matrices and vectors, and estimating parameters. We modify the Bernese S/W to apply it to VLBI daily SINEX format. To validate the modified Bernese S/W, we reanalyze CONT08 solutions of BKG, GSFC and OPA, and combine them with the S/W. This paper shows the comparison results of the reanalyzed and the combined solutions for X-pole, Y-pole, UT1-UTC, and their rates.	P	nein
Younghee Kwak, Tetsuro Kondo, Tadahiro Gotoh, Jun Amagai, Hiroshi Takiguchi, Mamoru Sekido, Ryuichi Ichikawa, Tetsuo Sasao, Junghe Cho, Tuhwan Kim	Validation Experiment of the GPS-VLBI hybrid system	We carried out 24-hour GPS-VLBI (GV) hybrid observation between Kashima and Koganei baseline to validate GV hybrid system on December 25, 2009. We could detect the correlation peaks of GPS signals with high signal to noise ratio from correlation processing as well as quasar signals. GPS signals are regarded as white noise signals. Although effective bandwidth of GPS signal is smaller than that of geodetic VLBI observation, larger SNR of GPS signal compensates for the disadvantage in the bandwidth. However, scatters of the O-C (Observed-Calculated) of GPS data were bigger than expected thermal noise errors from the actual analysis results. In this paper, we iscuss the results of the 24-hour GV hybrid observation and the causes of the larger scatters of GPS data.	T	ja
Nataliya Zubko and M. Poutanen	Crustal movements in Europe observed with EUROPE and IVS-T2 VLBI networks	The comparative analysis of the EUROPE and IVS-T2 geodetic VLBI sessions has been performed. The main purpose of both campaigns is to observe and accurately determine the VLBI station coordinates and their time evolution. In this analysis our interest is to understand the influence of network configuration on the estimated parameters and, also, how much the results of these two campaigns are consistent. We have used the VieVS software developing at Vienna University of Technology to analyze the EUROPE and IVS-T2 sessions of 2002??2009. We have analyzed the difference of crustal movements obtained with these two networks and the effect of network configuration and station selection. The EPN (EUREF permanent GNSS Network) and IGS (International GNSS Service) networks can be used to compare the results.	P	ja

Authors	Title	Abstract	Talk/ Poster	Proceedings
Evgeny Nosov	Next-generation DAS for the Russian VLBI-network	The digital DAS R1002M was developed by Institute of Applied Astronomy. The system consists of 16 Base Band Converters (BBC) with digital signals processing on video frequencies and provides the total data recording rate up to 2048 Mbps. The data format is VSI-H. Input frequency range is 100-1000 MHz. Selectable bandwidths of BBC??s are from 0.5 to 32 MHz. The sample rate of ADC is 64 Msps. R1002M system is compatible to analog systems and is intended for their replacement. Two R1002M systems have been installed in Svetloe and Zelenchukskaya observatories. The results of Svetloe-Zelenchukskaya observation with use of R1002M are considered. In 2011 the same system will be established in Badary.	P	ja
~~Weimin Zheng~~	~~e-VLBI development and applications of Chinese VLBI Network~~	~~Recently the stations and the data processing center of the Chinese VLBI Network (CVN) were updated to achieve new e-VLBI capabilities. The new terminals like digital BBC and MK5B+ are mounted at four station of CVN; and two sets of correlator and the post-processing software are improved for e-VLBI applications. One is for the deep space spacecraft tracking, while another is for astronomical observations. Until now, we have done several e-VLBI demonstration experiments for rapid extragalactic radio source mapping and UT1 measurement, besides the successfully tracking of two Chinese lunar probes in the near real time mode. These activities demonstrate the prospect of e-CVN in the astronomy, geodesy as well as deep space navigation.~~	~~T~~	~~nein~~
Susana Garcia-Espada	Application of ray-tracing through the high resolution numerical weather model HIRLAM for the analysis of European VLBI data	In space geodetic techniques like VLBI and GPS, accuracy is limited by atmospheric propagation effects by neutral atmosphere in the troposphere. In recent years numerical weather models (NWM) have been applied to improve mapping functions which are used for tropospheric delay modeling in VLBI and GPS data analyses. A troposphere correction model applying raytracing to the Conformal Theory of Refraction through the Limited Area numerical weather prediction (NWP) HIRLAM 3D-VAR is developed and applied to Europe VLBI data. The advantages of HIRLAM model are the high spatial resolution (0.2^o x 0.2^o) and the high temporal resolution in prediction mode (every 3 hours). The advantages of the Conformal Theory of Refraction is that the atmospheric propagation effects are evaluated along the line of sight and the known vacuum elevation angle is used so no iterative calculations are needed.	T	ja
A.Finkelstein, A.Salnikov, A.Ipatov, S. Smolentsev, I.Surkis, I. Gayazov, I.Rahimov, A.Dyakov, R.Sergeev, E. Skurikhina, S.Kurdubov	EOP determination from observations of Russian VLBI-network QUASAR	Regular determinations of Earth orientation parameters are performed by the Russian QUASAR VLBI network since August 2006. The observations are carried out weekly in the framework of two national programs: 24-hour sessions for the determination of all EOP using all three QUASAR network observatories (Ru-E program) and 1-hour sessions for UT1 determination at Zelenchukskaya - Badary baseline (Ru-U program) using e-VLBI Transfer. For 2010 observations the RMS of EOP deviations from the IERS 05C04 series for the Ru-E program consist 1.1 mas for Pole position, 35??s for UT1-UTC, and 0.37 mas for Celestial Pole position, the RMS of UT1 deviation from IERS C04 series for the Ru-U program is 59 ??s.	T	ja

Authors	Title	Abstract	Talk/ Poster	Proceedings
Dan MacMillan	Assessing the accuracy of geodetic measurements for the VLBI2010 observing network	We investigate the expected accuracy of geodetic estimates made by the next generation VLBI2010 network. To do this we simulated the effect of several known input contributions including troposphere turbulence, troposphere mapping function error, antenna deformation, and site pressure error. These contributions propagate to estimates of station coordinates and Earth orientation parameters. By comparing estimated values of parameters with known input values, we can evaluate biases that result from mismodeling. We also consider how network geometry can lead to biases.	T	ja
~~Sergey Kurdubov~~	~~Estimation of Solar system acceleration from VLBI~~	~~The estimation of Solar system acceleration from VLBI observations was ob-tained. Obtained value compared with the results of other authors. Calculation was performed by the global adjustment of the VLBI data using QUASAR software. The estimated value of acceleration vector a=(4.7??0.5)·10⁻???? м/с??, α=288????5??, δ=0????5?? significantly differs from the theoretical one but comparable with the other results.~~	~~P~~	~~nein~~
Dmitrij Ivanov	Experiment of Injecting Phase Cal ahead of the Feed: New Results	The phase calibration system has been developed for the Russian VLBI-network of new generation. The special feature of this phase calibration system is to radiate phase cal impulses from a special broadband feed located ahead of the receiving feed. The main advantage of injecting phase cal ahead the receiving feed is to put most part of the VLBI signal path into the phase calibration loop. The research carried out in 2009 showed the absence of multipath effects in the external radiation phase cal signal. In 2010 the long-period phase stability was investigated with broadband TEM horn. The results of these experiments are considered.	P	ja
Alexander Salnikov, Andrey Finkelstein, Alexander Ipatov, Michael Kaidanovsky, Ilia Bezrukov, Andrey Mikhailov	The Quasar Network Observations in e-VLBI Mode	This paper describes activity of the Institute of Applied Astronomy in developing real-time VLBI-system using high speed digital communication links. Real-time VLBI-technology has been developing at IAA since 2007 when the very first experiment was successfully done with Haystack observatory. All observatories of VLBI-Network Quasar were connected by "last mile" communication channels and via the Internet at 100 Mbps rate. Additional UNIX servers were installed for data buffering. Now e-VLBI sessions are carried out routinely within domestic VLBI-programs for UT1-determination. Observational data of 1-hour sessions are transmitted simultaneously from Svetloe, Zelenchukskaya and Badary observatories to the IAA Data Processing Center in Saint-Petersburg through fiber lines at 50-70 Mbps via Tsunami-UDP protocol. In September 2010 few scans were successfully transmitted from Quasar-Network observatories to Correlator Center at Shanghai observatory and vice-versa from Shanghai observatory to Correlator of RAS. Within these experiments observation data recorded by Mark 5B recorder are transmitted to the buffer server during time interval when an antenna pointed from one source to another. This procedure allows us to reduce total time of obtaining final result by 30%. Now an advanced algorithm for automation of the data transmitting process from the recorder to correlator is developing.	T	ja
Gennady Ilin	Radio frequency interference at	Different sources of radio frequency interference (RFI) at Quasar-network observatories and their affect on VLBIsessions are discussed. For example, the stronger of them registered last time are UMTS mobile phone base stations which were built not	P	ja

Authors	Title	Abstract	Talk/ Poster	Proceedings
	Quasar Network Observatories	far from Quasar-network observatories location. These stations emit signals near 2100MHz and produce RFI of critical level. To control RFI level regular spectral measurements of the intermediate frequency signals at the outputs of the receivers are conducted. As a result, real spread of RFI sources, including DORIS, have to be taken into account in planning of VLBI observation sessions and especially it is concerned VLBI 2010 project realization.		
~~Vadim Gubanov~~	~~Solid Earth Tides parameters estimation from VLBI~~	~~The most accurate 3273 sessions of VLBI observations were processed in order to estimate tidal Love/Shida parameters of the IERS Conventions 2010 Solid Earth Tide model. Data processing was performed with the QUASAR software. Significant corrections were obtained for all tidal parameters and phase lags. The resonance effects for diurnal and long period bands are investigated now.~~	~~P~~	~~nein~~
Iskander Gayazov, E.Skurikhina	Improved velocities of the "Quasar" network stations	VLBI observations performed after release of ITRF2008 have been used for improvement of velocities of the "Quasar" network stations Svetloe, Zelenchukskaya and Badary. Obtained values of velocities being compared with those of derived from GPS data show agreement within 1.5 mm/y in NEU-components, while differences of velocities in VLBI and GPS subframes of ITRF2008 for Zelenchukskaya and Badary stations exceeded 3 mm/y. Baselines for VLBI antenna reference points and GPS antenna markers are also compared taking into account local tie parameters and show the consistency within 10 mm for the epoch 2005.0.	P	ja
Adam Deller	PSRPI: A large VLBA pulsar parallax program	Obtaining pulsar parallaxes via relative astrometry yields distances and transverse velocities that can be used to probe properties of the pulsar population and the interstellar medium. Large programs are essential to obtain the sample sizes necessary for these population studies, but must be efficiently conducted to avoid requiring infeasibly large amounts of observing time. I will describe the PSRPI program which uses new features of the DiFX software correlator to efficiently locate in-beam calibrators for an astrometric survey of 60 pulsars, including the selection and observing strategies, initial results, and the likely science outcomes.	T	ja
~~Carsten Rieck, Rüdiger Haas, Per Jarlemark, Kenneth Jaldehag~~	~~VLBI Time-Transfer for CONT-Experiments~~	~~VLBI stations are equipped with highly stable frequency standards, i.e. hydrogen masers. This makes VLBI stations interesting for studies of time- and frequency transfer techniques. Most VLBI stations that participate in the IVS also host receiver equipment for Global Navigation Satellite Systems (GNSS) and contribute observation data to the IGS. Often the same hydrogen maser is used as the frequency and time reference for both VLBI and GNSS observations, which makes a direct comparison between the two techniques possible. We discuss an alternative approach for the VLBI data analysis and its effect to the clock difference estimate. Traditional daily batch processing introduces time discontinuities on day boundaries similar to code/carrier phase batch combination of GNSS. For VLBI derived clock differences these discontinuities are in the order of a few hundred picoseconds, which can be avoided by continuous estimation of the clock parameters during analysis of long time series such as the CONT experiments. Previous studies [1,2] concerning the use of the VLBI technique for precise time-transfer showed promising results. During CONT08 the aligned batch processed VLBI clock difference between Onsala and Wettzell yields~~	~~T~~	~~nein~~

Authors	Title	Abstract	Talk/ Poster	Proceedings
		~~frequency link instabilities of about 1.2e-15 (ADEV) for averaging times of one day, which is comparable to the performance of GPS carrier phase. In this paper we also present an extended comparison of VLBI and GPS Carrier Phase (GPSCP) relative time-transfer on the baseline between Onsala and Wettzell using data from several CONT and R1 experiments.~~		
Arnaud Collioud	IVS Live: All IVS sessions on your desktop...	IVS Live (http://ivslive.obs.u-bordeaux1.fr/) is a new tool that can be used to follow the observing sessions organized by the International VLBI Service for Geodesy and Astrometry (IVS), navigate through past or coming sessions, or search and display specific information about sessions, sources (like images) and stations. The user interface and the various functionalities will be presented during this talk.	T	ja
Xiuzhong Zhang	The Orbiting of Chinese Lunar Mission with CVN		T	nein
Karine Le Bail, J.M. Gipson	Strategy to improve the homogeneity of meteorological data in CALC/ SOLVE database	Errors in modeling the troposphere is a major part in the error budget in VLBI processing, making the meteorological data an element of high significance. The GSFC/ NASA VLBI team is working actively on improving those data in the CALC/SOLVE database. Summary tables of the different missing meteorological data in the database point on the lack of data for stations of importance in the network (Zelenchukskaya during the CONT08 campaign for example). The first step is to detect such issues in an automatic way, then to correct them. To adopt the most suitable strategy, we perform various studies on the impact of pressure offset and the use of a constant value (as used by default by SOLVE), as well as comparisons with different models, such as ECMWF, or other onsite recorded meteorological data, such as sensors associated with GPS receivers. Different cases will be showed, but the presentation will be focused on the Westford station which represents a good study example.	T	ja
Walter Brisken	The NRAO-Haystack ROACH Digital Backend project		T	nein