Express Production Real-time e-VLBI Service

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Monthly Report
January 2007

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Co-Authors	EXPReS Management Team
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Delivery Slip

	Name	Partner	Date	Signature
From	T. Charles Yun	JIVE	2007 Feb 02	
Approved by	Huib Jan van Langevelde	JIVE		

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1.0	2007 Feb 02	Final	TCYun
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Project Information

Project Acronym	EXPReS
Project Full Title	Express Production Real-Time e-VLBI Service
Proposal/Contract number	DG-INFSO #026642

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Section 1.0- Introduction

The new year starts with preparation and execution of a back to back e-VLBI science run at the end of the month. This mode of operation highlights the strengths of e-VLBI and we are hoping for interesting results. The new year also begins a full year's worth of regularly scheduled, monthly e-VLBI observations. The monthly sessions should reinforce the maturity and reliability of the service.

In addition to operational science, EXPReS participants are preparing for the annual review. This activity will take an increasing amount of the project leaders time leading up to the review.

Happy New Year from the EXPReS project participants,

- The EXPReS Project Team

Section 2.1- NA1- Management

The activity reporting process for January concluded quite easily. Parties submitted information on time and are reporting good progress. Note that there are no deliverables that come due this month, a handful of older items have been completed and are reported.

For NA1, there have been a handful of interesting activities over the past month. On 17 January, the project manager remotely participated in Interwork2006 (Santiago, Chile) with Hayo Hase of TIGO, who participated on site. The presentations provided the South American networking community an overview of EXPReS and the work TIGO has completed to improve connectivity based on lessons learned after the SMART-1 test. The presentation was particularly useful because the audience consisted of many of the relevant networking experts with whom we would like to improve communications. From the exposure at this meeting, the project manager has been asked to assist in several conversations regarding FP7 between groups who would like to work with, and build upon the activities of EXPReS. The absolute amount of effort has been small, but it is encouraging to see that EXPReS continues to interest people.

Activity for the annual review is ramping up with a series of teleconferences and email exchanges already completed. Drafts will circulate during the next few weeks culminating in the final report. All parties are preparing to submit audited financials as suggested early in the project.

Personnel

January was also a busy month in terms of personnel changes. As mentioned in the last report, Mike Garrett is leaving JIVE and Huib Jan van Langevelde is taking the position of Interim Director. Some of the changes that will take place due to the change have been decided. Details are available in the JRA1 section of the report. We were notified that JIVE's contact point at SURFnet had changed. While the loss of organizational memory is unfortunate, we have already seen positive results with a new SURFnet engineer Wouter Huisman. Huismann has a background in optical networking. Huisman has met with and is working with the SA1 group and has been contributing to the project. The last personnel note concerns JIVE's new office manager, Aukelien van den Poll. The update is primarily to introduce her name as she may send information to your office. Diana van Dijk remains the primary EXPReS support person, with van den Poll providing assistance during absences.

Proceduralization

EXPReS's forward progress generally focuses on technology.   The proposals process, an important organizational element, is maturing along with the technological capabilities. In the past, traditional VLBI required long periods where people waited for data to arrive via post. This environment created little motivation to reduce the time between call for proposals and the start of observation. E-VLBI has changed the environment and the EVN PC (European VLBI Network Program Committee) has responded.

Dr. Robert Campbell provided a summary of the e-VLBI proposal evaluation process. He points out that the e-VLBI proposal response time is more responsive (weeks compared to 4+ months) and that the process is integrated into the greater VLBI process. Campbell's note is attached in the appendices.

Section 2.2- NA2- EVN-NREN

Activity for NA2 was quiet over the past month. The major deliverable, EVN-NREN Meeting 1, was completed earlier and the next is not scheduled until month 18. The forum continues to be active with discussions between the VLBI and networking community.

Deliverables

D #	Activity	Activity Specific Deliverable Number	Deliverable description	Current Status (x of 4)
D4	NA2	NA2.01	EVN-NREN meeting No. 1 (under auspices of EXPReS)	4

Section 2.3- NA3- e-VLBI Science Forum

A reminder of the call for proposals for the 'double header/adaptive' e-VLBI run 29th Jan/1st Feb was sent out by the eVSAG chairman to the community on Jan 2nd (it was originally sent out Dec 14th). This special e-VLBI run was designed to exercise a unique capability of e-VLBI, so called 'adaptive' observing, where the schedule for a second run could be changed in response to results of the first run.

The call for proposals for the Feb 20th/21st run was sent out to the exploders on Jan 24th. The deadline for receiving proposals is Feb 6th. For the first time the new web-based submission tool Northstar was advertised as the only means of submitting proposals - given the short time to review (1 week) and schedule (2 weeks) e-VLBI proposals this tool is of special importance for e-VLBI. The call (see appendices) also gave a forward look for e-VLBI session dates for the rest of the first half of 2007.

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Within the eVSAG there has been in the second half of January some email discussion about the spacing and nature of the e-VLBI runs in the second half of 2007. With more antennas joining e-VLBI during this period (specifically Bonn, Metsahovi, the new Yebes antenna, Chinese antennas perhaps Arecibo) it is likely that there will be a great expansion in science capabilities for e-VLBI. These additional antennas also facilitate offering a wider range of wavelengths (1.3 cm,3.6 cm, 5 cm) and other observing modes (spectral line as well as continuum). A teleconference meeting is being arranged early in the first week of February to make final decisions on scheduling for the second half of 2007. As part of this discussion the teleconference will address the experience obtained with the double header/adaptive experiment conducted on Jan 29th/Feb 1st; and whether another similar session should be run in the second half of 2007. After the broad form of the scheduling is decided Zsolt Paragi (JIVE) will iterate with antennas to determine exact dates.

Some thought is also being given to scheduling in 2008. At the EVN directors meeting at the end of 2007 it was thought worth investigating the idea of combining e-VLBI and disk recording observations in perhaps 6 short sessions per year instead of the present 3 long ones. As e-VLBI capabilities improve a larger and larger fraction of these sessions will be run using e-VLBI. A small group was set up to discuss this idea and started work in January with e-VLBI represented by the eVSAG chairman who will consult with the full eVSAG. A similar group has been set up to produce an integrated EVN policy and set of procedures for conducting 'Target of Opportunity' (suddenly flaring sources which become detectable for short times) using both e-VLBI and disk recording.

Deliverables

D #	Activity	Activity Specific Deliverable Number	Deliverable description	Current Status (x of 4)
D6	NA3	NA3.1	First meeting of eVSAG under auspices of EXPReS	4

Section 2.4- NA4- Public Outreach, Dissemination and Communications

The first e-VLBI science paper was published in a refereed journal in January, and the second is expected to be published in the same journal in February. These papers mark a significant milestone in the adoption of e-VLBI by the astronomy community. A press release regarding this milestone was published and a copy is available on the website:

> http://www.expres-eu.org/First_eVLBI_Papers.html

At the moment, the EXPReS brochure is in final draft form- layout, copy and graphics are finalized. A copy of the brochure will be circulated internally among the project and the brochure should be on its way to the printer after the final review.

Copyright: EXPReS
Telescope photos used with permission.

EXPReS Participating Telescopes: Highlight from the Brochure

Deliverable NA4.04 (due month 12, but status ongoing): EXPReS members continued to attend and make presentations at network and astronomy meetings, including INTERWORKING 2006 in Chile and the ESTRELA workshop in the Netherlands. Presentations are available at
http://www.expres-eu.org/papers.html

Deliverables

D #	Activity	Activity Specific Deliverable Number	Deliverable description	Current Status (x of 4)
D1	NA4	NA4.01	Creation of Public EXPReS web-site	4
D7	NA4	NA4.02	Creation of EXPReS web-based management tools	4
D10	NA4	NA4.03	Generation of PR material (phase 1)	X

Section 3.1- SA1- Production e-VLBI Correlation

Mark5 Enhancements

There have been plans to work with MIT Haystack Observatory (Haystack) to extend and expand the capabilities of the Mark5 recording and playback system. The Mark5 system is based on off-the-shelf PC technology, in combination with proprietary soft- and hardware from Conduant. Haystack develops and maintains the system, also handling the contacts with Conduant.

EXPReS staff members (and members of the e-VLBI community as a whole) have often provided code for minor improvements. However, EXPReS's ongoing efforts to improve real-time transmission and analysis of e-VLBI data have revealed the need for additional functionality which would not be easily implemented by engineers outside of Haystack. Direct involvement of Haystack software engineers is essential to guarantee an effective and speedy implementation of modifications and bug fixes. Moreover, the lack of direct access to Conduant would make it cumbersome to request or respond to upgrades in proprietary software libraries.

Understanding the needs of EXPReS, MIT Haystack indicated that they have a small window of time in which a group of their engineers could work on specific elements of Mark5 functionality and support. EXPReS feels that taking advantage of this window is advantageous for multiple reasons. First off, the features to be addressed are necessary for EXPReS's longer term goals. More importantly, this window of opportunity allows us a chance simultaneously to obtain time from multiple Haystack engineers to address features and in a coherent manner. Were we to miss this chance, the features might be addressed, but in a haphazard fashion, potentially later than we desire.

MIT Haystack has the expertise to address the Haystack-developed FPGA code. There is no FPGA programming expertise within JIVE. While it would certainly be possible to train one of the staff members, the learning curve is steep. Additionally, the acquired skills would be applicable for a very limited purpose. Another option would be to hire a local contractor, who then would face a learning curve in radio astronomy. It will be far more time-efficient to outsource this work to the people who actually designed the system.

EXPReS and Haystack have identified specific activities and have outlined a contract for the work. The total cost of the work will be approximately 49,000 EUR. Haystack will be brought on as a sub-contractor. Due to the desire to capture as much of the Haystack available engineering time as possible, EXPReS will move to quickly complete the contract and begin work.

Improvements in reliability and throughput

Connectivity to TIGO was improved over the past months to sustain file transfers at rates of up to 60 Mbps. An attempt was made to include TIGO in a so-called formatter test, in which data with valid headers is generated at the telescope and processed by the correlator at JIVE (without the telescope actually observing). This was successful in terms of logistics, but some unusual problems were encountered.

The attached graph shows that it was possible, for a short time, to reach approximately 60 Mbps. However, there is the very unfortunate drop-out in the middle of the session. The failure mode is proving difficult to determine and engineers on both sides are looking into the problem. More tests are planned in the near future. The upside to the test is that it is reasonable to expect a significant improvement in the connectivity once the current bottleneck is identified.
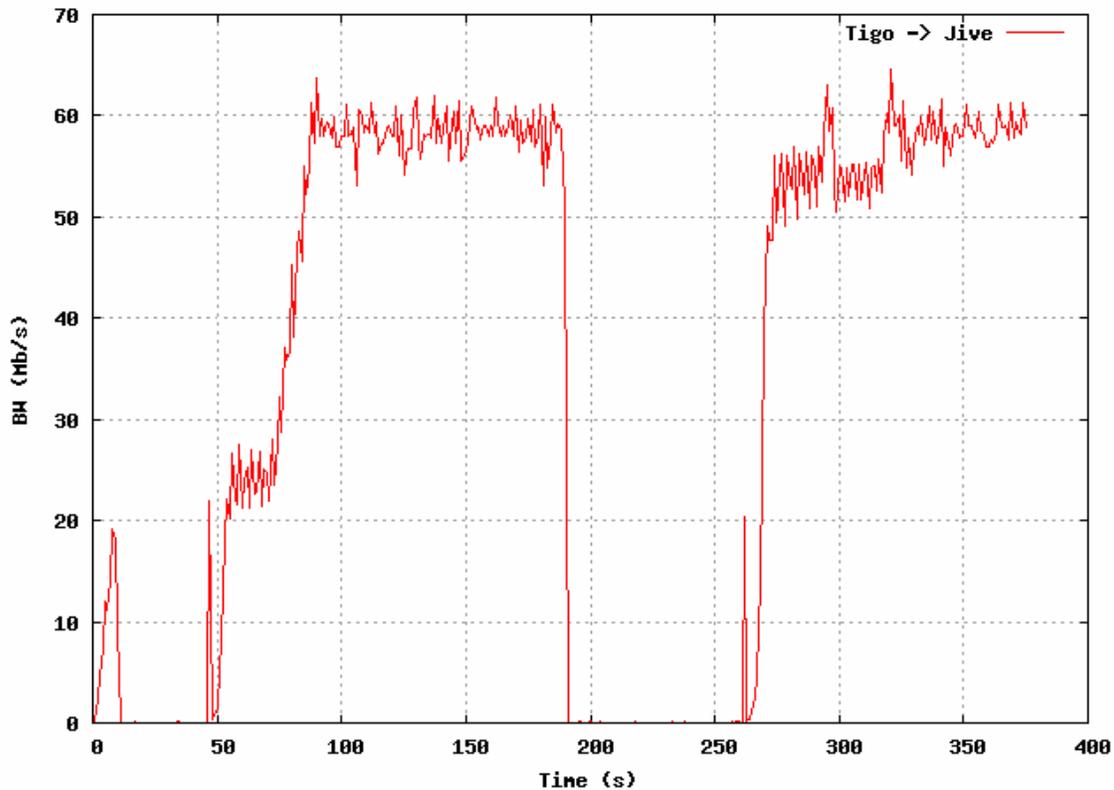
Graph description: Network throughput test between TIGO and JIVE, early January 2007

The team also reported on a connection test with Metsahovi. Connecting at 128 and 256 Mbps was accomplished without effort. With a few configuration changes, a sustained 512 Mbps test was run for over half an hour. This level of performance and the ease with which was accomplished leads us to believe that fringes with Metsahovi at these speeds should be feasible during normal e-VLBI sessions.

Deliverables

D #	Activity	Activity Specific Deliverable Number	Deliverable description	Current Status (x of 4)
D5	SA1	SA1.1	Central data link control	3
D11	SA1	SA1.2	Job preparation utilities	0
D12	SA1	SA1.3	Fast/adaptive scheduling tools	0
D27	SA1	SA1.4	eMERLIN VSI interfaces design	0
D28	SA1	SA1.5	Selective data processor controls	1

Section 3.2- SA2- Telescope Network Connections

Progresses on telescope connections continues at different rates among participants. Medicina has completed their e-VLBI test observations and are functioning operationally. Metsahovi is making progress towards 10 Gbps and should have hardware in place quite soon to begin testing. However, we received word of a setback with the connection to China. Our colleagues report that the 2006

December 26 earthquake damaged one of the cable links used by CSTNET. The connection links Beijing to Europe (via Hong Kong and the United States). The communication is included in the appendix and we will report updates on the situation as we receive them.

Since the SMART-1 session, a great deal of work has gone into analyzing and improving the TIGO connection. The tests highlighted earlier in this report show that the existing connection can sustain far higher speeds than experienced during the SMART-1 session, however, optimizations are still required.

Arecibo reports that significant progress is not expected before the end of the project year.

The final feasibility study for CNIG-IGN is expected in February. CNIG-IGN reports that construction is expected before the end of 2007, around project month 18. MPIfR is also expected to begin construction in 2007.

Several of the feasibility studies that were in draft have been registered as complete. Note that the report from MPIfR is currently restricted as the study combines not only the initial feasibility information, but larger sections on the actual tender process that would be inappropriate to publish and is noted in the wiki.

The deliverable for the e-VLBI test with Medicina is awaiting a formal document. Medicina has been participating in both tests and science runs, so the observations and proof of connection are "obvious" but lacking a submitted document to address the deliverable. A document is expected before the next report.

Deliverables

D #	Activity	Activity Specific Deliverable Number	Deliverable description	Current Status (x of 4)
D13	SA2	SA2.01	Feasibility study of the last-mile connection to the nearest NREN node for participant CNIG-IGN	4
D14	SA2	SA2.02	Feasibility study of the last-mile connection to the nearest NREN node for participant MPIfR	4
D15	SA2	SA2.03	Equipment of the last-mile infrastructure for participant INAF (telescope in Medicina)	4
D16	SA2	SA2.04	Feasibility study of the last-mile connections to the nearest GEANT NREN node for participant CAS (Shanghai, Urumqi, Miyun, Yunnan)	3
D17	SA2	SA2.05	Feasibility study of the last-mile connection to the nearest NREN node for participant VIRAC	4
D18	SA2	SA2.06	Feasibility study of the last-mile connection to the nearest NREN node for participant HRAO	3
D19	SA2	SA2.07	Feasibility study of the last-mile connection to the nearest NREN node for participant NAIC (Arecibo)	3
D20	SA2	SA2.08	Feasibility study of the last-mile connection to the nearest NREN node for participant TIGO	3
D21	SA2	SA2.09	Feasibility study of the last-mile connection to AARNET for participant CSIRO	3

| D29 | SA2 | SA2.10 | e-VLBI test observations, Medicina | 0 |

Section 4.1- JRA1- FABRIC

As mentioned in the previous monthly report, Huib Jan van Langevelde will assume the role of Interim Project Coordinator until a permanent Director of JIVE is selected. Due to his additional responsibilities, a set of JRA1 responsibilities are being delegated through the activity. It is currently planned for Mark Kettenis to take responsibility for the distributed correlator aspects of the project. The project manager will assume the remaining responsibilities. Both Kettenis and the project manager will work in conjunction with van Langevelde to maintain consistency and completeness.

Most activities are making progress. However, there are a few modifications and items of note. First off, deliverable "Visualization software" is now actively delayed. The tasks evolved into a more complex problem than initially expected and posed a coding problem for the team. This is not a critical dependency for other actions and the team continues to seek alternatives. A new plan to address this deliverable will be addressed with the annual update. Secondly, the decision to re-write deliverable 22 "Overall Design Document" was taken to include participation from Kettenis and the project manager per above. It is believed that the combined effort will help establish the foundation to help control the project. The document is to be delivered by mid February.

The Poznan team indicated that work on D30 "eVLBI-Grid Interface Document" continues but is still not in final draft. The team is close enough to a final version that they are promising a final draft for the first week of February.

The MRO team has received D26 "Data Acquisition Design Document" back from reviewers. The document simply needs to integrate final comments and it will be considered final. It is expected that the final version will be submitted as this monthly report is itself being submitted.

The LOFAR team presented "LOFAR - Connections Strategic Document" for deliverable 25. The deliverable has been added to the wiki and noted on the deliverables table.

Deliverables

D #	Activity	Activity Specific Deliverable Number	Deliverable description	Current Status (x of 4)
D2	JRA1	J1.1	Data acquisition requirements document	4
D22	JRA1	J1.5	Overall design document	0
D23	JRA1	J1.6	e-VLBI-Grid design document	4
D24	JRA1	J1.7	e-VLBI fringes PC-EVN	4
D25	JRA1	J1.8	LOFAR connection strategic document	4
D26	JRA1	J1.9	Data acquisition design document	3
D3	JRA1	J1.2	Protocols strategic document	4
D30	JRA1	J1.10	eVLBI-Grid interface document	1
D8	JRA1	J1.3	Visualization software	0
D9	JRA1	J1.4	Correlator design specification	3

Section 5.0- Appendices

The following sections contain the text of emails or links to documents referenced in the report. Shorter documents and emails are quoted in their entirety below. Longer documents are provided as

linked documents. If you would like documents in a different format, please contact us and we will attempt to assist you.

Appendix - EXPReS Contact Points

For convenience, a list of the activities and the associated contact points are listed here for reference.

ID	Description	Contact	email
PC	Interim Project Coordinator	Huib Jan van Langevelde	langevelde // jive nl
NA1	Management of I3	T. Charles Yun	tcyun // jive nl
NA2	EVN-NREN Forum	John Chevers	john.chevers // dante org uk
NA3	e-VLBI Science Forum	John Conway	jconway // oso chalmers se
NA4	Public outreach	Kristine Yun	kyun // jive nl
SA1	Production Services	Arpad Szomoru	szomoru // jive nl
SA2	Network provisioning	Francisco Colomer	f.colomer // oan es
JRA1	FABRIC	Huib Jan van Langevelde	langevelde // jive nl

Appendix - Deliverables

The deliverables are being tracked on the wiki at:

                                                            <http://www.jive.nl/dokuwiki/doku.php/expres:management:deliverables2>

The wiki contains additional information to that listed below, including some comments on drafts that are nearing full completion and some additional meta-data used to track deliverables. The snapshot below is here for reference.

The status of the deliverable on an "x" to 4 scale:

                        x = Ongoing effort
                        0 = No work started
                        1 = Some work started
                        2 = Most work completed
                        3 = Deliverable in draft form
                        4 = Deliverable completed and presented to Project Manager

D #	Activity	Activity Specific Deliverable Number	Deliverable description	Planned Delivery Month	Actual Delivery Month	Current Status (x of 4)
D1	NA4	NA4.01	Creation of Public EXPReS web-site	2	2	4
D2	JRA1	J1.1	Data acquisition requirements document	2	3	4
D3	JRA1	J1.2	Protocols strategic document	2	2	4
D4	NA2	NA2.01	EVN-NREN meeting No. 1 (under auspices of EXPReS)	3	6	4
D5	SA1	SA1.1	Central data link control	3		3
D6	NA3	NA3.1	First meeting of eVSAG under auspices of EXPReS	4	9	4
D7	NA4	NA4.02	Creation of EXPReS web-based management tools	4	4	4
D8	JRA1	J1.3	Visualization software	4		0

D9	JRA1	J1.4	Correlator design specification	5		3
D10	NA4	NA4.03	Generation of PR material (phase 1)	6	1	X
D11	SA1	SA1.2	Job preparation utilities	6		0
D12	SA1	SA1.3	Fast/adaptive scheduling tools	6		0
D13	SA2	SA2.01	Feasibility study of the last-mile connection to the nearest NREN node for participant CNIG-IGN	6	9	4
D14	SA2	SA2.02	Feasibility study of the last-mile connection to the nearest NREN node for participant MPIfR	6	9	4
D15	SA2	SA2.03	Equipment of the last-mile infrastructure for participant INAF (telescope in Medicina)	6	9	4
D16	SA2	SA2.04	Feasibility study of the last-mile connections to the nearest GEANT NREN node for participant CAS (Shanghai, Urumqi, Miyun, Yunnan)	6	9	3
D17	SA2	SA2.05	Feasibility study of the last-mile connection to the nearest NREN node for participant VIRAC	6	9	4
D18	SA2	SA2.06	Feasibility study of the last-mile connection to the nearest NREN node for participant HRAO	6	9	3
D19	SA2	SA2.07	Feasibility study of the last-mile connection to the nearest NREN node for participant NAIC (Arecibo)	6	9	3
D20	SA2	SA2.08	Feasibility study of the last-mile connection to the nearest NREN node for participant TIGO	6	9	3
D21	SA2	SA2.09	Feasibility study of the last-mile connection to AARNET for participant CSIRO	6	9	3
D22	JRA1	J1.5	Overall design document	6		0
D23	JRA1	J1.6	e-VLBI-Grid design document	6	9	4
D24	JRA1	J1.7	e-VLBI fringes PC-EVN	7	7	4
D25	JRA1	J1.8	LOFAR connection strategic document	7	11	4
D26	JRA1	J1.9	Data acquisition design document	8		3
D27	SA1	SA1.4	eMERLIN VSI interfaces design	9		0
D28	SA1	SA1.5	Selective data processor controls	9		1
D29	SA2	SA2.10	e-VLBI test observations, Medicina	10		0
D30	JRA1	J1.10	eVLBI-Grid interface document	10		1

Appendix - Special Call For 'Adaptive' EVN e-VLBI Observations

John Conway sent the announcement for the January Adaptive e-VLBI observations in mid December. The observations should be underway as this report is delivered. Note, the text of the email has been formatted slightly to fit onto the page.

```
Subject: EVNtech: Reminder - Adaptive eVLBI deadline (Jan 10th)
Date: Tue, 2 Jan 2007 09:44:24 +0100 (CET)
From: John Conway <jconway@oso.chalmers.se>
To: evntech@jb.man.ac.uk

        SPECIAL CALL FOR  'ADAPTIVE' EVN e-VLBI OBSERVATIONS

A special EVN eVLBI observing opportunity has been organised early in 2007
comprising two closely spaced  eVLBI runs. These runs will test the unique eVLBI-
enabled  capability of 'adaptive' observing - in which the  observing schedule for
a second run is  changed in response to results from earlier observations.
Envisioned uses include observing a sample of (possibly variable) sources in the
first run, then concentrating on mapping one or two in the second. The scheduled
dates of the two runs are;

            Run start                     Run end
Run 1  - Mon, 29 Jan. 13:00 UTC       Tue,  30 Jan. 13:00 UTC
Run 2  - Thur, 1 Feb. 16:00 UTC        Fri,  2 Feb. 16:00 UTC

** PROPOSAL DEADLINE - Wednesday 10th January 23:59 UTC **

The runs will use the six antenna array of  Wb14 (tied array), Tr, On, Mc, Jb2 and
Cm. Available observing bands are either 6cm or 18cm (but not both). Both runs
must use the same frequency band and observing setup. Only continuum proposals
will be supported. Proposals can be made for any length of time within the above
periods up to 24 hours in length. The observations will be run at the highest
possible bit rate allowed by internet traffic. Based on recent experience it is
expected that 128 Mbit/s will be achieved and probably 256 Mbit/s; however due to
the still experimental nature of the system this performance cannot be guaranteed.

Note all proposals *must* be sent to and checked by Bob Campbell
(campbell@jive.nl) *prior*  to submission in order to ensure that all needed
technical information for scheduling is included in the proposal (see details
below).

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PROPOSAL AND OBSERVING DETAILS

- A unique capability allowed by real-time eVLBI is the ability to quickly adapt
observing to results. A first test of this observing mode using two observing runs
3 days apart has been organised for the end of January/start of February.

- A requirement to obtain observing time is that a member of the proposal team be
present at JIVE in Dwingeloo for the observations.  For proposals eligible for
RadioNet Transnational Access support, reimbursement for travel for a member of
the proposal team may be provided.  See http://www.evlbi.org/access  for further
details about the eligibility criteria.
- A single proposal for using both runs in an integrated fashion should be
submitted by Wednesday 10th January. Proposals will be evaluated by the EVN-PC
within one week. Proposals should carefully describe the criteria used  for
selecting sources to observe in the second run. The proposal should contain
sufficient detail (list of sources and calibrators, number and length of scans per
source etc, etc) so that the schedule  for the first run can be made by JIVE
staff.

- To support adaptive observing  new correlator tools at JIVE have been developed
including  integrating fringe displays, which should allow the immediate detection
of sources >35mJy. Furthermore it is expected that pipeline reduction of the first
run will be completed by Tuesday evening allowing phase-reference detection and
mapping of sources. JIVE staff will be available to help reduce data and to help
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adapt the observing schedule for the second run. This schedule must be distributed
to all telescopes by 0800 UTC Thursday 1st Feb or else the second run will be
cancelled.

**** All proposers MUST contact Bob Campbell (campbell@jive.nl) ***** in good time
PRIOR to submitting their proposal to ensure that all technical aspects required
for observation and correlation are fully described in the proposal. Likewise the
proposal should explain which selection criteria will be used for the second run,
and explain which data reduction tools will be used.

- Only targets and calibrator sources observed in run 1 can be observed in run 2.
Furthermore the second observation must use the same frequencies and observing
mode as the first, likewise the same phase-referencing strategy.

- Proposals for this special eVLBI session are primarily solicited to make use of
adaptivity in observing as enabled by eVLBI. Other uses of the time will be
considered only in the case that there are no such suitable adaptive observing
proposals.

PROPOSAL SUBMISSION

Before submitting a proposal, proposers should consult the web pages at
http://www.evlbi.org/evlbi/per_session_status.html where updated information about
the status of each run can be found. Proposals should use the standard VLBI
proposal cover sheet and include the normal scientific justification. The standard
limits of 2 pages of text and 2 additional pages of diagrams will be strictly
enforced. Proposals must be mailed to proposevn@mpifr-bonn.mpg.de. The email
subject line should clearly state 'e-VLBI proposal'.

FINANCIAL SUPPORT

The continuing development of e-VLBI within the EVN is made possible via the
EXPReS project funded by the EC FP6 IST Integrated infrastructure initiative
contract #026642 - with a goal to achieve 1 Gbit/s e-VLBI real time data transfer.

   John Conway
    Chairman of the EXPReS eVLBI Science Advisory Group (eVSAG)

Appendix - Call for Feb 20th/21st observations

The call for the February 2007 e-VLBI session was has been sent to the community. The text of the
call is included below. Aside from the normal scientific and procedural elements of the call, it is
worth highlighting the requirement to use the Northstar submission system. This is the online system
that improves the submission and review process, allowing the reviewers a system to be as responsive
as e-VLBI is for events.

              CALL FOR EXPERIMENTAL EVN e-VLBI SCIENCE PROPOSALS

Proposals for experimental science use of the EVN's developing e-VLBI real-time
VLBI capability are invited for the following 24 hr period

    Run start   Run end   Proposal Deadline

Tues 20 Feb 13 UTC   Wed 21 Feb 13 UTC   Tue 6th Feb, 23:59:59 UTC

Using antennas Wb14 (tied array), Tr, On85, Mc, Jb2, Cm

Available observing bands are either 6cm or 18cm (but not both). Only continuum
proposals are presently supported. Proposals can be made for any length of time
within the above slot up to 24 hours in length.

The observations will be run at the highest possible bit rate allowed by internet
traffic. Based on recent experience it is expected that 256 Mbit/s will be
achieved; however due to the still experimental nature of the system this
performance cannot be guaranteed.

Note all proposals *must* be checked by Bob Campbell (campbell@jive.nl) *prior*
to submission in order to ensure that all necessary technical information for
scheduling is included (see details below). Proposers should therefore contact
Bob, in good time before the proposal deadline, so that he can then check the
technical aspects of the proposal in the NorthStar database

PROPOSAL DETAILS

To accommodate observations requiring rapid reaction and results, e-VLBI proposals
can be made before the deadline given above. Envisioned uses for e-VLBI runs are
1) Targets of Opportunity, 2) Preliminary fringe test or other observations where
rapid turnaround is required to plan future proposals or observations. Any
submitted e-VLBI proposals which can be better executed in regular session
observations are very unlikely to be scheduled for these e-VLBI runs. In all cases
proposed projects should take account of the limited numbers of telescopes and
bandwidth available, carefully justifying that the science goals can be reached.

Proposals are eligible for scheduling only for the above advertised run.
Proprietary rights on the data are the standard ones of one year after data
distribution. PIs are strongly encouraged to visit JIVE during or immediately
after the observations to help rapidly reduce their data. Proposals submitted for
the above e-VLBI deadline will be reviewed by the EVN PC within one week.
Scheduling of these proposals will be carried out by JIVE staff using information
supplied in the proposal. Proposals must therefore contain all the necessary
information needed for scheduling, including the exact target and calibrator
positions etc. **** All proposers MUST contact Bob Campbell (campbell@jive.nl)
***** in good time PRIOR to submitting their proposal to ensure that all
technical aspects are fully described in the proposal on the Northstar database.

Before submitting a proposal, proposers should also consult the web pages at
http://www.evlbi.org/evlbi/per_session_status.html where updated information about
the status of each run can be found. Proposals must use the Northstar online
submission tool (see details below).

HOW TO SUBMIT

The on-line proposal submission tool Northstar replaces the old Latex-email way of
submission for all proposals which involve the EVN, including proposals for eVLBI
runs. A separate text with more detailed instructions on how to use Northstar has
recently been distributed over the VLBI exploder.
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To use Northstar, people should register at http://proposal.jive.nl (only for the
first proposal submission), complete technical information on-line (equivalent to
that previously in the coversheet), and upload a scientific justification in pdf
or ps format. Standard page limitations apply and will be enforced. The deadline
for submission is 23:59:59 UTC on 6th Feb 2007.

Because of the need for rapid distribution and review of eVLBI proposals,
submission via Northstar is the **only** means of submission allowed for eVLBI
proposals for the Feb 6th and future eVLBI deadlines. If advice is needed about
submitting via Northstar please contact Cormac Reynolds (reynolds@jive.nl) or
other JIVE staff.

FORWARD LOOK

Three more 24hr long eVLBI runs have been organised for the first half of 2007
with dates and proposal deadlines given below.

 Run   Deadline

```
27/28 March      13th March

22/23 May         8th May

25/26 Jun.       11th June


Detailed calls for  proposals will be issued approximately two weeks before each
of the above deadlines. The schedule of eVLBI observations for the second half of
2007 (July -December) is presently being organised, but will probably also consist
of 24hr observations spaced  every 6 weeks between regular EVN sessions. It is
anticipated that several more stations will become available for eVLBI toward the
end of 2007.


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ACKNOWLEDGEMENT

The continuing development of e-VLBI within the EVN is made possible via the
EXPReS project funded by the EC FP6 IST Integrated infrastructure initiative
contract #026642 - with a goal to achieve 1 Gbit/s e-VLBI real time data transfer.

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Appendix - e-VLBI run summary: 14 December 2006

Dr. Zsolt Paragi, e-VLBI Support Scientist, provided a short summary of the 14 December 2006 e-VLBI observations. Note that one of the PIs was able to obtain analyzed data hours after the experiment ended. This type of responsiveness is at the core of e-VLBI's power and attractiveness.

> The 14 December 2006 e-VLBI run went extremely smoothly with three science projects incorporated. Participating stations were Westerbork, Jodrell Bank, Cambridge, Medicina, Onsala and Torun, with a 256 Mbps data rate easily achieved from all stations. During a short period we experienced problems with connections to Torun and Medicina, but these were resolved without losing significant amounts of data. Problems at the correlator were few and quickly corrected, again without losing much time or data.

> During the observations we demonstrated the real power of e-VLBI: the initial data processing started while the experiment was running. One of the PIs (Andreas Brunthaler, MPIfR, Bonn) started analysing his data while the telescopes were still observing (another project). He got his rough images (without the final amplitude calibration applied) just a couple of hours after the experiment ended. All of his target sources were successfully detected. In the following tests we will work on procedures to make this process even faster.

Appendix - e-VLBI and the EVN: Improvements in proposal evaluation

Dr. Robert Campbell provided a summary of the e-VLBI proposal evaluation process. He points out that the e-VLBI activities are proceduralized and provide better response times than traditional VLBI.

> e-VLBI introduces change not only to the technology used for observation, but also changes to organizational procedures. The European VLBI Network (EVN) organizes a selection panel called the EVN Program Committee (EVN PC) with the responsibility to select the proposals that will be given observation time. For traditional recorded VLBI, the process required multiple weeks to complete. e-VLBI's inherent agility requires changes to the selection process.

> Traditionally, the EVN PC meets 4-6 weeks after the the deadline for proposals.

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Reviewers provide two rounds of input: an initial assessment of the proposals which is shared with all reviewers and then the committee as a whole determines a final grade during a face to face meeting. The EVN Scheduler then places projects into the next feasible session. This may not be the next session for a variety of technical reasons. Overall, the time from proposal to observation is minimally 4 months and can be much longer.

The initiation of monthly e-VLBI observations has introduced changes into the EVN PC project-review procedures. These changes relate to the greatly reduced turn-around time between proposing and observing inherent in the urgenct/target-of-opportunity nature of e-VLBI. Proposals are due two weeks before the observations, and the PC has one week to finish its review process. The increased frequency and short review time-scale render face-to-face meetings impractical. PC members individually assign pre-grades and make comments as usual and send these to the PC Chairman, who makes the decision for the final grade personally. Because JIVE schedules the actual e-VLBI observations, group leaders are required to confer with JIVE staff prior to submitting their proposals to ensure that there is sufficient information to allow this "in absentia" scheduling. Overall, the time from proposal to observation is 2 weeks.

e-VLBI integration into the operational procedures of the EVN is proof that e-VLBI has gained acceptance. As e-VLBI continues to mature, we hope to see improvements not only through optimized procedures, but also through the adoption of the techniques in other areas of the EVN.

Note, a detailed overview of the EVN PC's selection process authored by Dr. Robert Campbell is available in the RadioNet 2006 Annual Report.

Appendix - Submarine cable status

Zhang Xiuzhong send the following update regarding submarine cable status in China.

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Date: Thu, 01 Feb 2007 14:49:08 +0800
From: Zhang Xiuzhong <xzhang@shao.ac.cn>
Subject: connectivity

Hi, Arpad,

As you know, The wire optical cable under the seabed was destroyed on
December 26 occurs Taiwan's earthquake, some of these fiber have been
repaired. but the cable which the CSTNET used is still not ok. The CSTNET
has problem to connect Beijing ->Hong Kong->America->Europe now.
please wait a moment, till this fiber has been repaired, CSTNET
will connect with you and to talk the data rate test.

best regards,


Zhang Xiuzhong
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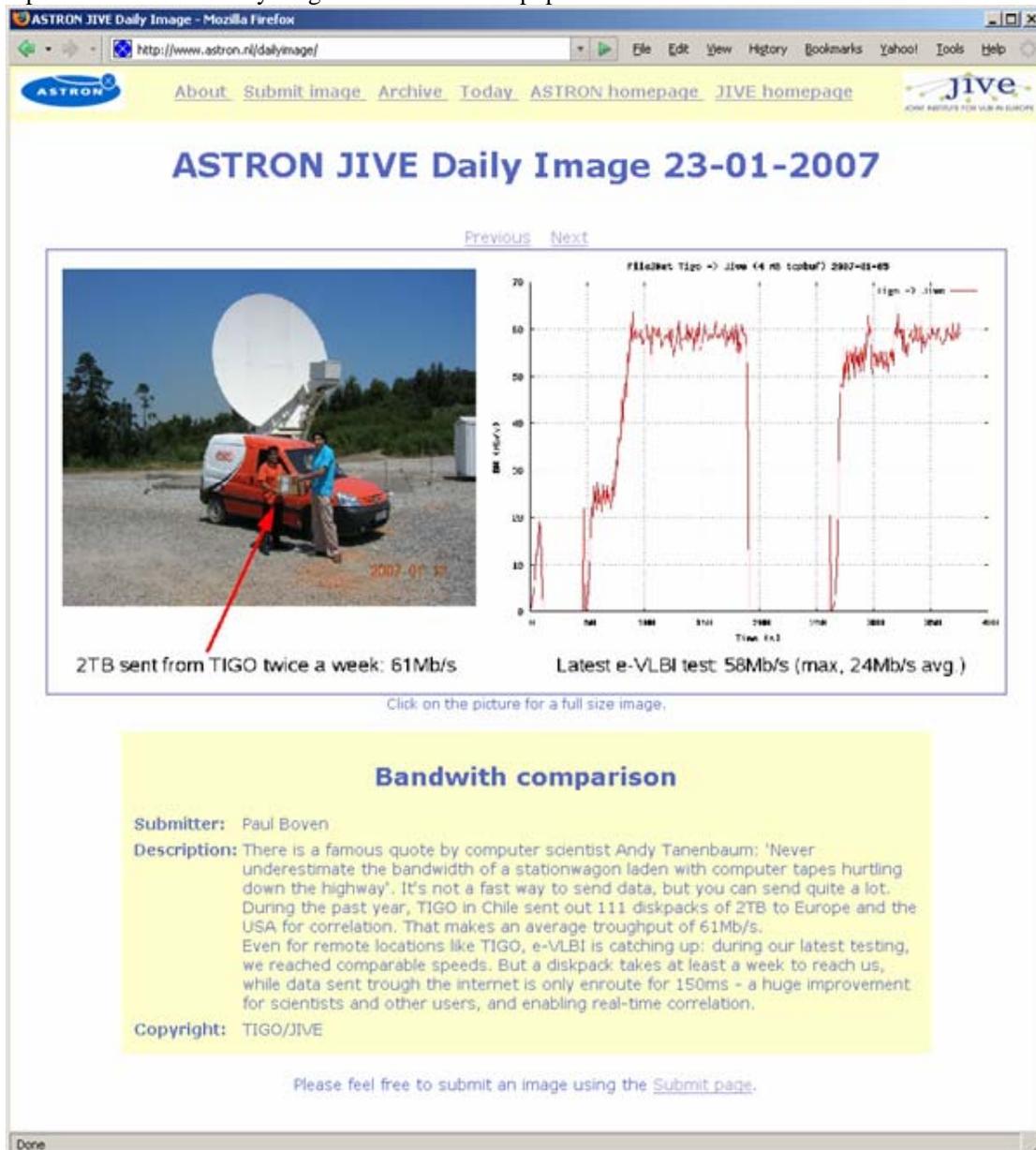
Appendix - ASTRON / JIVE Picture of the Day

The ASTRON JIVE Daily Image website <http://www.astron.nl/dailyimage/> is part of the ongoing effort for both organizations informally to share tidbits of information with the public at large. The

website displays a picture accompanied by a small amount of descriptive text. As the name suggests, a new image is updated daily based on submissions from the local community.

On 23 Jan 2007, Paul Boven's submission comparing the bandwidth of the current network connection to a station wagon was highlighted. The direct URI for the page is: http://www.astron.nl/dailyimage/index.html?main.php?date=20070123