

EXPREs - Express Production Real-Time e-VLBI Service

Project Update: 2006 October

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Update: NA1- Management

Project Progress:

The past month has seen more regular communications between the project manager and the project participants. We are learning to work with one another and are making progress with internal and external project requirements. Several useful meetings occurred in the past month providing participants with opportunities to meet face to face.

During several of the face to face conversations, the project manager was able to inquire about the status of deliverables and milestones. There is a concern on both sides of the conversation that the project is not adhering to the schedule. Inability to hire personnel is still cited as the major reason for schedule slip; however, there have been several important hires and it remains to be seen how quickly the project can return to schedule.

The Management Team has discussed the milestone and deliverable issue. In spite of current problems, a considerable amount of progress is being made on activities that are not constrained by current hires. The expectation is that the schedule will look more balanced in a few months once all hires are integrated. and activities begin at fully staffed levels.

The project manager is providing the Management Team with templates for the quarterly financial reports. We are still working to collect this data for the previous month's report, but expect that the templates and experience from the first report will make following reports much easier to obtain. Next month, a tracking sheet will be introduced for the milestones and deliverables.

The project manager is also beginning to use the EXPREs wiki as a publication point for documents. The wiki can be found at:

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

Once we are positive that editing controls are in place, we will ask that the majority of project input happen directly via the wiki.

Lastly, there continues to be resistance to the frequency of reporting requested of project members. Several of the participants have indicated that the monthly frequency is contrary to their memory of the project's creation. The project participants have requested that the project manager approach the science officer to request modifications to the monthly reports.

Current activities of note:

- Final preparations for Kickoff and Board meeting, 31 Oct to 1 Nov in Zaandam, the Netherlands.
- EVN-NREN meeting is added to the morning of the Kickoff meeting.
- Signed Consortium agreements received from half of the project participants

Project Management Notes:

We are entering month 8 of the project. Comparing against the deliverable table in the Description of Work, we should be at D25.

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Update: NA2- EVN-NREN

A significant collaboration between research networks and radio observatories took place in August/September 2006. A requirement was highlighted to connect the TIGO radio observatory in Chile to the JIVE correlator in the Netherlands. From a networking perspective this presented a significant challenge, being not only an untested route, but one involving multiple domains and high bandwidth-delay product transfers. The effort was coordinated by DANTE and the GÉANT2 PERT and involved input from GÉANT2, RedCLARA, REUNA, SURFnet, TIGO and JIVE engineers. Despite very significant effort from all parties, the issue was not fully resolved by the date of the VLBI tracking of the SMART-1 spacecraft. The PERT case remains open, however and significant progress has been made into determining the causes of the low transfer rates. A list of the actions taken, conclusions and recommendations is being compiled.

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Update: NA3- e-VLBI Science

On September 28th the eVSAG chairman issued via email to the radio astronomy community a call for proposals for the next eVLBI run on October 26th (proposal deadline October 12th). This call advertised six antennas operating at a minimum data rate of 128Mbits/s. The call highlighted the use of these observations for new or transient sources or for fast turnaround exploratory observations in order to prepare for future large proposals.

In September there was further communication with participating institutions to finalise membership of the eVSAG (eVLBI Science Advisory Group). In order to maximise attendance at the first Face-to-Face meetings it has been decided to attach this to another meeting. There is a significant overlap of membership with the EVN Consortium directors and Radionet meetings - the next meeting of which will be in November in Dwingeloo. The need to coordinate with this meeting, plus the difficulty in obtaining a finalised list of eVSAG members, are the primary reasons that the first meeting of the group has been delayed beyond the milestone of project month 4.

In the meantime there has been email discussion amongst the core members of the eVSAG on a draft document 'EXPREs Science Applications'. This document should be further discussed at the face-to-face meeting and made available to the whole project soon after.

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Update: NA4- Public Outreach, Dissemination and Communications

The majority of September's public outreach work has been in preparation for the JIVE/ASTRON Open Day on 22 October, namely locating existing graphic resources, drafting materials for a handout and poster and assisting in general preparation. The Open Day is typically attended by several hundred local residents including many children, and is a good opportunity to introduce the general public to VLBI, new opportunities afforded by e-VLBI and the advances being made by EXPRoS.

Information provided to the Open Day audience, however, is not particularly well-suited to more technical audiences at astronomy and networking meetings, so planning is also underway for a separate EXPRoS brochure to be used for that purpose.

Additionally, updates have been made to the EXPRoS Web site to include printer-friendly versions of press releases and to prepare the EXPRoS Wiki for access controls for better document sharing by project members and management.

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Update: SA1- Production e-VLBI Correlation

At this time, three of the four SA1 positions at JIVE have been filled (two software engineers, one e-VLBI postdoc). A job offer for the fourth position (network engineer/linux specialist) was accepted this month. The new employee will start on the first of December. An electronic engineer, who will work on the e-Merlin telescope interfaces, has been hired at Jodrell Bank, UK, and will start on 1 December as well.

Currently both software engineers are working on projects specifically aimed at familiarizing them with the highly complex correlator system, consisting of nearly 0.5×10^6 lines of control code, various post-processing software modules and both off-the-shelf and custom-made hardware.

Because of the late start of the actual work (the software engineers only started on the first of May and half of June), efforts from regular JIVE employees were diverted towards EXPRoS goals as well. As a result, SA1 is practically on track regarding deliverables, although they are not necessarily reached in the order listed in the project plan.

Early morning on Sunday, 3 September 2006, EXPRoS participants tracked the European spacecraft SMART-1's final mission, a controlled impact to the surface of the Moon. Radio astronomers monitored radio transmissions from SMART-1 using a network of radio telescopes located in South America and Australia. The observation allowed radio astronomers to pinpoint the exact time and location of the impact and investigate radio-physical effects of wave propagation in close vicinity to the Lunar surface. During the project, valuable lessons were learned that will help move EXPRoS closer to its goal of an operational e-VLBI service. Currently, an international team is working to better understand network characteristics observed during the observation.

An important event this month was the annual e-VLBI workshop, hosted this year by Haystack Observatory. During these workshops e-VLBI practitioners from around the world come together to exchange information and discuss future developments. Arpad Szomoru, the SA1 manager, was part of the organizing committee, and he as well as several other JIVE staff members gave presentations at this workshop.

In the context of EXPRoS he also visited the UCLP (user controlled lightpaths) workshop in Edinburgh at the end of August, the Bits & Bytes meeting in Manchester dealing with the e-VLBI

effort funded by the ESLEA project, the JRA1 FABRIC meeting in Poznan and the 8th EVN symposium in Torun, where he presented the future of e-EVN to the astronomical community.

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Update: SA2- Telescope Network Connections

Table outlining current connection data for participating sites.

Telescope	Current BW	Expected BW	Year	Notes
JIVE correlator	4x1 Gbps	16x1 Gbps		connected
WSRT (14x25m)	1 Gbps			connected
Onsala (20+25m)	1 Gbps	10 Gbps	2007	connected
Jodrell Bank (76m)	1 Gbps	10 Gbps		connected
Cambridge (32m)	1 Gbps			connected
Torun (32m)	1 Gbps			connected
Metsahovi (14m)	1 Gbps	10 Gbps	2007	
Effelsberg (100m)	2 Mbps	1 Gbps	2007	
Medicina (32m)	1 Gbps			connected
Noto (32m)		unknown		
Sardinia (64m)		2.5/10 Gbps	2009	
Shanghai (25m) 100 Mbps	1 Gbps		2007	
Urumqi (25m)		1 Gbps	2007	
Miyun (20m)		1 Gbps	2007	
Yunnan (10m)		1 Gbps	2007	
VIRAC (32m)		1 Gbps	in progress	
Hartebeesthoek (26m)		1 Gbps	unknown	
Tigo (6m)	1-7 Mbps	64 Mbps		
Arecibo (305 m)	<32 Mbps	1 Gbps	2007	
AARNET			unknown	
ATNF (Parkes, Mopra, ATCA)	1 Gbps (local)	2 Gbps (to JIVE)		

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Update: JRA1- FABRIC

Activities in September pivoted around the second FABRIC face to face meeting in Poznan on September 25. The meeting triggered the preparation of decisions on various items. The preparation of the 7 month demo was discussed and is taking shape for execution on October 20. In the area of the next generation data acquisition systems the consensus is that these will be developed on iBOBs. For the distributed correlator project the design cycle has almost been completed. However, some

direct attention is needed to understand the interface to the current hardware. In addition progress was reported in various other areas. It was a very pleasant and productive meeting and the project was impressed by the facilities at PSNC. The minutes and presentations are available at <http://www.jive.nl/dokuwiki/doku.php/fabric:poznan>

The meeting was also the occasion to collect management info over the first 6 months of the project. The discussion focused on how to homogenize this information in the future. Overall it could be seen that in some places the project is underspent because the acquisition of personnel is delaying the project. In the areas where this is not the case the progress is according to plan. At JIVE and JBO new hires are expect to strengthen the teams very soon.

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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.

#	Description	PI	contact
PC	Project Coordinator	Michael Garrett	garrett // jive nl
NA1	Management of I3	T. Charles Yun	tcyun // jive nl
NA2	EVN-NREN Forum	John Chevers	john.chevers // dante org uk
NA3	eVLBI 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

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Appendix: EXPReS Deliverables Table

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

Table: Current Deliverables List

Deliverable #	Activity #	Description	Lead Participant	Delivery month
D1	NA4	Creation of Public EXPReS web-site	JIVE	2
D2	JRA1	Data acquisition requirements document	MRO	2
D3	JRA1	Protocols strategic document	JBO	2
D4	NA2	EVN-NREN meeting No. 1 (under auspices of EXPReS)	DANTE	3
D5	SA1	Central data link control	JIVE	3
D6	NA3	First meeting of eVSAG under auspices of EXPReS	OSO	4

D7	NA4	Creation of EXPReS web-based management tools *	JIVE	4
D8	JRA1	Visualization software	JIVE	4
D9	JRA1	Correlator design specification	JIVE	5
D10	NA4	Generation of PR material (phase 1)		6
D11	SA1	Job preparation utilities	JIVE	6
D12	SA1	Fast/adaptive scheduling tools	JIVE	6
D13	SA2	Feasibility study of the last-mile connection to the nearest GÉANT node for participant CNIG-IGN	CNIG-IGN	6
D14	SA2	Feasibility study of the last-mile connection to the nearest GÉANT node for participant MPIfR	MPIfR	6
D15	SA2	Equipment of the last-mile infrastructure for participant INAF (telescope in Medicina)	INAF	6
D16	SA2	Feasibility study of the last-mile connections to the nearest GÉANT node for participant CAS (Shanghai, Urumqi, Miyun, Yunnan)	CAS	6
D17	SA2	Feasibility study of the last-mile connection to the nearest GÉANT node for participant VIRAC	VIRAC	6
D18	SA2	Feasibility study of the last-mile connection to the nearest GÉANT node for participant HRAO	HRAO	6
D19	SA2	Feasibility study of the last-mile connection to the nearest GÉANT node for participant NAIC (Arecibo)	NAIC	6
D20	SA2	Feasibility study of the last-mile connection to the nearest GÉANT node for participant TIGO	TIGO	6
D21	SA2	Feasibility study of the last-mile connection to AARNET for participant CSIRO	AARNET	6
D22	JRA1	Overall design document	ALL	6
D23	JRA1	eVLBI-Grid design document	PSNC	6
D24	JRA1	eVLBI fringes PC-EVN	OSO	7
D25	JRA1	LOFAR connection strategic document	ASTRON	7
D26	JRA1	Data acquisition design document	MRO	8

Notes:

* The online wiki, password protected

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