



**Minutes of 4th EXPRoS Board meeting 21 January, 2009
Observatorio Astronomical, Madrid (Spain)**

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Distribution list

Participants	For information
<p>Present:</p> <ul style="list-style-type: none"> - Bachiller, Rafael (CHIG-IGN) - Colomer, Paco (CNIG-IGN) - Hase, Hayo (BKG-TIGO) - Langevelde van, Huib (JIVE) - Marecki, Andrzej (CfA) - Mujunen, Ari, (MRO) - Smelds, Ivars (VIRAC) - Spencer, Ralph (JBO) - Szomoru, Arpad (JIVE) - Tzioumis, Tasso, chair (CSIRO) - Vos de, Marco (ASTRON) - Yun, Charles (JIVE) - Zensus, Anton (MPiFR) <p>Visitors:</p> <ul style="list-style-type: none"> - Rottmann, Izabela (MPiFR) - Stoklosa, Dominik (PSNC) <p>Remarks:</p> <p>Anton Zensus and Izabela Rottmann arrived late due to travel delays.</p>	<p>Apologies for absence:</p> <ul style="list-style-type: none"> - Benvenuti, Piero (INAF) - Booth, Roy (HARTRAO) - Campbell, Don (NAIC/CORNELL) - Conway, John (OSO) - Davies, Dai (DANTE) - Hancock, Chris (AARNet) - Hong, Xiaoyu (SHAO) - Kus, Andrzej (NCU/UMK) - Meyer, Norbert (PSNC) - Neggers, Kees (SURFnet) - Zagars, Juris (VIRAC) <p>Represented:</p> <ul style="list-style-type: none"> - AARNet (By Tasso Tzioumis, CSIRO) - DANTE (By Ralph Spencer, JBO) - NCU-UMK (By Andrzej Marecki, CfA) - PSNC (By Dominik Stoklosa, PSNC) - SHAO (By Paco Colomer, CHIG-IGN) - SURFnet (By Huib van Langevelde, JIVE) - VIRAC (By Ivars Smelds, VIRAC) <p>Minutes: Yvonne Kool</p>

Agenda

start	description	speaker
11:30h	Coffee, host's welcome, logistics - agenda, quorum, proxies, introduction of chair	Bachiller Tzioumis
12:00h	Session 1 30 mins- coordinator view 60 mins- updates from all partners - TIGO - CNIG - JBO - CSIRO & AARNet - PSNC - ASTRON - MPIfR	Van Langevelde Hase Colomer Spencer Tzioumis Stoklosa De Vos Zensus
13:30h	LUNCH	
15:00h	Session 2 20 mins- NA1/2/3/4 20 mins- SA1 20 mins- SA2 20 mins- JRA1 10 mins- q/a	Yun Szomoru Colomer Spencer all
16:30h	Coffee break	
17:00h	session 3 30 mins- finance overview 30 mins- p3/p4 reporting 15 mins- Sci/Tech workshop update 15 mins- quick update from IYA 60 mins- open period discussion	Yun Yun Colomer Szomoru
19:30h	End	
20:30h	Joint EXPReS/SKADS dinner	all

Presentations given at the 4th EXPReS Board meeting can be found on the following web-page:
http://www.jive.nl/dokuwiki/doku.php/EXPReS:fourth_board_meeting

Minutes

Welcome / introduction / administrivia

- Rafael Bachiller started the meeting by welcoming everybody to Madrid and he gave a short update of the current situation at their observatory. Rafael Bachiller also covered the agenda.
- Huib van Langevelde thanked Rafael Bachiller for the welcome and introduced the Board's chair Tasso Tzioumis.
- Tasso Tzioumis offered his welcome and covered some logistics and administrivia. Tasso Tzioumis mentioned specifically that Yvonne Kool will take minutes and that items explicitly to be included should be signaled during the discussion. Tasso Tzioumis asked about minutes and actions from the previous Board meeting and was told that the minutes and completion of actions were accepted via email by the Board.

Agenda:

- Tasso Tzioumis received no additions for the agenda. The version shown above differs only in additional detail for the update section.

Quorum:

- 2/3 of the Board is required for quorum. Charles Yun explained the proxy list in the presentation. Tasso Tzioumis confirmed that the minimum of 13 Board members are represented, so the quorum is achieved.

Minutes - introduction

- This is an open meeting. However, the Board may choose to ask non-members to leave if sensitive discussions are required. As there are SKADS people around, it may be possible to have some visitors during the meeting.

Minutes – Session 1

Coordinator's overview (Huib van Langevelde)

- Huib van Langevelde gave a presentation with slides. A majority of the presentation was on the continuity of EXPReS, touching upon a possible follow-up project to EXPReS. The following is a brief summary of the presentation; full details are available via the slides.
- EXPReS is moving forward and making good progress. Fundamentally, the goals of the project have been achieved. A recent survey of activity reinforces this sentiment: TERENA demo, International Year of Astronomy Demo, inclusion in the EVN AstroNet Roadmap. The goal will be to change all future VLBI to e-VLBI.

As we look to the future, the need for an EXPReS follow on is evident, particularly from an astronomical view. The timing for a follow on project leaves a gap of approximately 9 months (minimum) between the end of EXPReS and the next potential EC project cycle. Current thinking is that the follow on project will be similar in size, length, funding as EXPReS to planned for sometime in 2010.

Huib van Langevelde has been in several meetings with the EC regarding next steps. Neither the Commission nor Huib van Langevelde can promise an outcome, but both sides are hopeful, particularly as the Research and Infrastructure groups seem to agree in principle that e-VLBI is important and should have a chance to propose a follow-up project.

The materials presented are personal hopes, goals and preparations. Huib van Langevelde encouraged individuals to provide input to help guide the process.

- During the presentation, several questions and issues were discussed.
- Ralph Spencer stated that DANTE thinks a continuation of EXPReS is very important, and they are very keen to continue activities with a follow on.
- Tasso Tzioumis asked how 4 Gbps observations fit with NRAO plans. Huib van Langevelde indicates that the global VLBI community is working together, as it has always done, to ensure that systems are interoperable and that cooperation is encouraged. NRAO is not part of the project, so it is inappropriate to speak for them; however, the general desire is for NRAO to continue participating in VLBI as system speeds increase.
- The potential for all future observation to be e-VLBI initiated a discussion. Consideration should be taken for sites with slower connections. Further, the relationship with other existing antenna projects (SKA precursors, eLOFAR, ALMA) as well as spacecraft related activities, constantly available VLBI network was discussed. Cooperation and co-existence (current e-VLBI activities being in the middle of the frequency space) were stressed.
- Marco de Vos mentioned that “sustainability” is a word we want to use with potential project partners as well as with the commission to stress both the operational nature of our efforts as well as the continued research that is necessary to progress with e-VLBI.
- Hayo Hase indicated that EXPReS triggered activity and funding in South America. Charles Yun asked Hayo Hase how EXPReS has been able to trigger additional funding for TIGO in South America, and asked him to write a (short) report on this (**ACTION Hayo Hase**).
- A discussion covering the nature of the network covered multiple issues, both current and future. Most fundamentally, when will there be optical switching and how will it be usable by the project? The current state of static lightpaths and near-term developments in dynamic

lightpath allocation were discussed. The desire for user-programmable, real-time, international lightpaths was cited as the understood goal. Close work with the networking community will be crucial, both to understand how to use the upcoming networks as well as to hopefully provide input during the design stages. The continued problem of the last mile (and implications for the infrastructure design/implementation of dynamic lightpaths) was also discussed.

- Tasso Tzioumis indicated that e-VLBI with the option for storage was an interesting path for a variety of reasons. However, upgrades in the VLBI network must keep pace. Buffering data or modified disk storage was considered interesting during the discussion.

Partner updates

- Hayo Hase/TIGO: besides the normal observation activities there have been demos and an upcoming test. TIGO's PhD student Sergio Sobarzo completed his dissertation on multi-path routing. He proposed to test this newly developed protocol at different routes in order to overcome the bottleneck of 90 Mbps between Reuna and RedClara. Three routes seem to be available: Chile-Brazil-GEANT (new 155Mbps), Chile-Argentina-Brazil-GEANT (current 90Mbps) and Chile-Internet2-GEANT (unknown bandwidth). TIGO suggests to test multipath routing within the next months with JIVE. The new multi-path protocol might be able to double or triple outbound bandwidth.
- Paco Colomer/CNIG: the big progress is what we were expecting. A big problem was the link between Yebes and the telephone company network in Spain. It will be a 1 Gbit connection. The telephone company has laid a new fiber for them, they are renting their network. They are still testing and the aim is to have it available at the end of February.
- Ralph Spencer/JBO: provided a presentation with slides. JBO has some personnel hires upcoming as part of EXPReS. Work on e-MERLIN Output has progressed. Their correlator is about to pass the Critical Design Review while components are arriving in the UK. Continued work on FABRIC protocols, specifically with multicast as shown during a demo. The 10 Gbps link is also up and in testing. Andrzej Marecki asked about funding and Ralph Spencer confirmed the e-MERLIN has secured another 3 years worth.
- Tasso Tzioumis/CSIRO and AARNet: provided a presentation with slides. (Note: Tasso Tzioumis is presenting both for his institute as well as AARNet.) For CSIRO, EXPReS was a catalyst for funding as well as incentive to complete work to synchronize with activities in EXPReS. Tasso Tzioumis noted that AARNet's cooperation has been critical and that CSIRO would not have been able to participate without their cooperation. Continued involvement of NRENs is critically important for them as well as for the project as a whole (the sentiment is agreed by all).
- Ivars Smelds/VIRAC: Their 1 Gbps connection is in place, but is still in the process of testing. Current hurdle is an older motherboard in one of the system PCs. Awaiting upgrade and next round of tests.
- Ari Mujunen/Metsähovi: 10 Gbps connection still in place. 4G EXPReS data recorder system was highlighted (with reference to further information in talks later in the day). Ari Mujunen also identified some personnel issues, but they will be addressed internally.
- Andrzej Marecki/Torun: They have a 10 Gbps connection ready and in testing.
- Dominik Stoklosa /PSNC: provided a presentation with slides. PSNC has completed first version of several portions of the distributed correlation project that is part of JRA1. VLBI Broker, Workflow Manager, Correlator Job Submission module, and the Network module were covered. Additional details in the slides.
- Marco de Vos/ASTRON: Marco de Vos provided a few remarks on the connectivity's on the e-LOFAR status.

- Anton Zensus/MPIfR: The opening party in Effelsberg was an useful exercise but they were disappointed with the low level of representation from the EC. Zensus also reported on the cracks in the Effelsberg track. The cracks were caused by the unusually cold weather over the past month. The damaged section will be repaired by mid-February. Work with Metsähovi continues and will benefit from the project extension.

Minutes – Session 2

Announcement

- Dominik Stoklosa invited participation for the INGRID meeting in Sardinia. A handout with information was distributed. More information via www.ingrid.cnit.it

NA1/2/3/4 (Charles Yun)

- NA 1 Management: The financial distribution for period 1 and period 2 were completed and partners should have received emails indicating the transferred amounts last year. Also during this time, we have learned of a necessary change to our contract with the EC due to a new interpretation of the status of one of our partners. Charles Yun invited Paco Colomer to read the prepared document on CNIG-IGN's proposed change of status (see project wiki for copy of document).

Paco Colomer summarized that for EXPReS, the joint entity called CNIG-IGN was listed as partner. This has been deemed inappropriate or wrong. The joint entity will be removed from the contract to be replaced by CNIG with IGN acting as a third party to CNIG. This is a change in legal documentation, but for the day to day activity of the project, we should see no difference. The board unanimously approved this decision. **(DECISION)**

Reporting will be discussed separately later in the agenda. However there was a short discussion about current status. Brussels suggested moving the months 36 report 42, and we will do so. However, we will proceed to complete the month 36 report so that we have insight both into finances as well as a sense of the project's status.

This means that we again encourage all partners to obtain audited financial reports for period 3 as well as for the final 6 month period.

- NA2 EVN-NREN Forum: The EVN-NREN Forum has been quiet as their input was biased heavily to the start of the project. Most of the network discussions and activity are completed with only a few items requiring continued discussion. The group is determining if there should be a face to face meeting of the EVN-NREN in conjunction with the Sci/Tech workshop in June.
- NA3 eVSAG: the primary activity for the eVSAG is the coordination and organization of the Sci/Tech workshop. See the discussion later regarding the workshop. More information available via: <http://www.oan.es/expres09/>
- NA4 Outreach: the past year has seen an increase in e-VLBI demonstrations and a related upswing in related outreach activity and press coverage. The slides detail this information. Charles noted that Kristine Yun will be unavailable from May to August 2009 and that plans for support during that period are being developed.

SA1 (Arpad Szomoru)

- Arpad Szomoru provided an overview of e-VLBI activities from the SA1 Operational point of view. Science runs, test runs and e-VLBI results were highlighted. A long list of operational improvements were listed, including: Mark5B based e-VLBI, multi-cast (Merlin-cast), on-the-fly fringe fitting, increase of operational speed to 512 Mbps from 256 Mbps for all regular EVN observations, some 1024 Mbps observations. Effelsberg's addition was happily noted. Some of the goals for the final period were: the addition of several telescopes that were slow to be connected, additional automation (of various systems), adaptive observing.

SA2 (Paco Colomer)

- Paco Colomer provided updates on the status of connectivity to each of the participating telescope locations. In terms of deliverables, most of the sites are connected and participating in observations (or participating in testing). Notable is the recent connection of Yebes (connection in testing now). The "wish list" from last year has been mostly completed; still "to do" items include showing astronomical performance at VIRAC and 10 Gbps connectivity for Medicina. However, HartRAO remains unconnected, and due to a variety of reasons, its connectivity is no longer expected within the duration of the project. This is disappointing as a great deal of progress was made.

Paco Colomer also noted the continuing decline in costs for all of the SA2 partners. This decline will be one of the core discussion points during the Finance discussion later in the agenda.

JRA1 (Ralph Spencer)

- Ralph Spencer agreed to give the FABRIC update for Charles Yun. Ralph Spencer covered each of the partners in turn, providing highlights from each from the past year. Full details are available in the slides, highlights follow.
- JIVE has made progress on the software correlator in spite of some difficulties with personnel changes. There are significant improvements in speed, but some discrepancies to exist in the results. Integration with grid services (in cooperation with PSNC) has moved forward along with improvements in post processing.
- PSNC's work was briefly covered earlier during the partner updates. Some additional detail was provided in discussion relating to the status of the VLBI broker.
- Metsähovi's update was notable for the discussion surrounding the 4 Gbps EXPReS Data Acquisition System. The system details are available in slides. A potential point of attention for an EXPReS follow on is to investigate disk packs for data buffering. There was some additional discussion on UDP/Tsunami development by their team.
- Jodrell Bank reported that the report on protocol work is almost complete. The 4x1 Gbps JBO/Onsala link is in place and working. This is all in time for the nearly ready station boards and iBOBs. Station boards are being tested.
- Andrzej Marecki asked what the timetable was to possible move to Mark 5C in the EVN. Huib van Langevelde answered that this is actually a discussion for the TOG or EVN Board. Mark5B transition is currently under way. It is more important that we have flexible data formats available and digital converters both developed and in use.

Minutes – Session 3

P3/P4 Reporting (Charles Yun)

- The review in Brussels will be at month 42, so at the end of the extension. As with the previous end of period reviews, the EXPReS management will go to Brussels in person and give presentations for the month 42 report.

We will start the annual report as usual. The goal will be to write a period 3 report and have it ready by the end of April. At the end of the extension we will complete a shorter 6 month review documents, and merge the 2 together.

- Financial documents: Audit reports are still needed. We are encouraging partners to complete a month 36 (12 month previous) and month 42 (6 month previous) audit. Providing month 36 financials helps the project better understand the financial situation of entire project.

(DECISION)

Finance Overview (Charles Yun)

- Charles Yun presented slides that were distributed to the Board Members prior to the meeting. He explained the summaries of the project's finances. Eligible Costs for P1 and P2 were shown along with estimates for P3/P4 based on information shared with the project office. A follow up table compared the original Expected Budget, Requested EC Contribution and the amount of funding distributed to each of the partners. This slide also highlighted the amount of matching that was expected from each partner.
- The slide entitled "Budget- Original, P1/2/3 adjustments" initiated a lengthy discussion. Paco Colomer indicated that some partners had provided information to him directly that was more up-to-date than the information made available to the Project Office. Paco Colomer and Charles Yun will discuss in further detail budget tables and discuss how funds can be reallocated.

After the discussion, the Board agreed on the principle that the project should use all EC funding made available to it. **(DECISION)** Further, the Board understood that some partners were in danger of underspending and that other partners could identify additional eligible costs.

Izabela Rottmann asked a question about a specific section of the DOW.

The specific section is on page 109:

...It must be emphasized that although the EC contribution is only 10% of the total, this is considered by many of the radio astronomy institutes to be a very important catalyst to release significant funds from other regional and national sources...

The Project Office indicated that the text is interpreted to describe the activities for the SA2 activity as a whole. This discussion led to another set of questions that is summarized by the contract agreement Annex 3.14 (page 6):

...provision and upgrading of the required connectivity services as specified in Annex I, the maximum reimbursement rate shall be 50% of eligible costs, irrespective of which of the cost reporting models is used.

This reiterates the understanding that connectivity will be reimbursed at 50%.

The Board agreed that funding that has to be reallocated should be used in ways that contribute to the continuity of the project. To address this situation, the Board agreed on the following steps:

- The Project Manager will in consultation with Paco Colomer re-examine costs per institute. **(ACTION Charles Yun)**
- The Board Chair will send a revised proposal to members of the Board by 23 January. **(ACTION Tasso Tzioumis)**
- The Board members need to reply per e-mail to this proposal by 29 January. **(ACTION all)**
- Charles Yun will send a consolidated version per e-mail to the board on 30 January. **(ACTION Charles Yun)**
- The Board members need to approve the consolidated version per e-mail before 4 February. **(ACTION all)**

The schedule and mandatory reply dates are necessary because the information needs to be presented to the Commission quickly.

Sci/Tech Workshop update (Paco Colomer)

- Paco Colomer gave an update on the Workshop, which will be held 22-26 June in Madrid. Paco Colomer is chairman of the LOC; Ralph Spencer is chair of the SOC. The poster already has been distributed to most institutes; please contact the Project Office if you would like an additional copy. Additional information can be found on www.oan.es/expres09/.

Quick update on IYA (Arpad Szomoru)

- Arpad Szomoru gave a quick update from the opening of the International Year of Astronomy 2009 held in Paris the previous week. A group from JIVE was on hand to give a live

demonstration of e-VLBI to those who were at the kickoff. Huib van Langevelde also provided a talk to the general session on e-VLBI.

- There was a discussion about the network links used for the demo. Specifically, why the TIEN2/Orient link was not used. The Board acknowledges the complexities and sensitivities associated with long-distance, international networking. To that end, they hope that increased communication both within the project and with our international friends can help ease the utilization of any and all network connections. The Board has been made aware of the issue and encourages the use of an EC sponsored networks in future.

Open Period/Discussion

- Discussions were held in conjunction with the above talks. A separate period was not deemed necessary.

Any other business

- Anton Zensus wanted to congratulate the management team for the work done so far.

Wrap up/Closing (Tasso Tzioumis)

- Tasso Tzioumis thanked everybody present for their input, and declared the meeting closed.

Decisions / Action Items EXPReS Board Meeting 21 January, 2009

Nr.	Decision	Actions	By	Term
1		Charles Yun asked Hayo Hase to write a (short) report on how EXPReS has been able to trigger additional funding for TIGO in South America	Hayo Hase	Optional
2	The Board approved the 3 separate points mentioned below unanimously: 1. Partner CNIG- IGN will be removed 2. CNIG stays partner 3. IGN will be a new 3 rd party partner to CNIG as from the beginning of the project			
3	The Board agreed that all partners need audited financial reports for period 3 as well as for the final 6 month period.			
4	The Board agreed on the principle that the project should use all EC funding made available to it.			
5		Project manager Charles Yun will in consult with Paco Colomer put in a new proposal.	Charles Yun	23 January
6		Send new proposal to the Board	Tasso Tzioumis	23 January
7		The Board members need to reply per e-mail to this proposal by 29 January	Board members	29 January
8		Charles Yun will send a consolidated version per e-mail to the board on 30 January	Charles Yun	30 January
9		The Board members need to approve the consolidated version per e-mail before 4 February	Board members	4 February