

Behrend, Dirk (GSFC-698.0)[NVI]

From: Oleg.Titov@ga.gov.au
Sent: Thursday, February 21, 2008 11:45 PM
To: Simon.Ellingsen@utas.edu.au; Behrend, Dirk (GSFC-698.0)[NVI]; aen@haystack.mit.edu; Bill.Petrachenko@nrc-cnrc.gc.ca
Cc: Gary.Johnston@ga.gov.au; Jim.Lovell@utas.edu.au; John.Dickey@utas.edu.au; sergei.gulyaev@aut.ac.nz
Subject: RE: AuScope operations questions [SEC=UNCLASSIFIED]

Dear colleagues

Generally, scheduling of IVS experiments through the whole year is rather logistic problem. The procedure is based on those VLBI telescopes currently available. Four new dishes would change the procedure somehow. Therefore, is not possible to answer all these questions unless actual scheduling started. So, right now we could draw some general concept only. Let me give some vision. Of course, all the plans should be considered within the budget and all other issues.

1. Let's assume that ~100 24-hour sessions can be done by each VLBI site since 2010;
2. Presumably, almost all of them will be used for existing programs - R1, R4, etc.
3. However, it would be nice to establish a new network included all Southern hemisphere VLBI sites - Hartrao, Tigo, Fortaleza, Ohiggins (may be Kokee?) focusing on the southern hemisphere radio sources positioning. This network should run, say, 12 to 20 experiments every year (up to 20% of time). The 64-meter Parkes telescope can be engaged for some sessions to increase sensitivity of the whole network. The main reason of this new network is to improve astrometry positions of the radio sources in the southern hemisphere, especially, under declination -40.
4. Once four new VLBI sites in Australia and New Zealand are available it would be important to have at least two of them for each 24-hour session for existing programs. For instance, a pair "Katherine - Auckland" will participate in R1 network and a pair "Yarragadee - Hobart" - in R4 network. If it is feasible, these pairs (or stations) can swap from one network to another.
5. I am not sure about running operations in blocks. Scientifically, some continuous sessions might be useful for monitoring purposes. Practically, it is not easily to realise due to logistic issues. Probably, Dirk could comment this idea?
6. It might be interesting idea to use both Hobart antennas in the same session to observe two different radio sources simultaneously.

Sincerely yours

Oleg

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> -----Original Message-----
> From: Simon Ellingsen [mailto:Simon.Ellingsen@utas.edu.au]
> Sent: Friday, 22 February 2008 2:51 PM
> To: Dirk Behrend; Arthur Niell; Titov Oleg; Bill Petrachenko
> Subject: AuScope operations questions
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> Dear Dirk, Oleg, Arthur & Bill
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> I was wondering if you may have some time during the upcoming IVS
> meeting in St Petersburg to discuss some issues relevant to AuScope
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> operations? We want to maximise the geodetic science gain from the
> new AuScope antennas, however, there are a number of issues which will
> have a major impact on the operations which we would like some
> science/geodesy input on. Basically the number and frequency of
> experiments where AuScope antennas form the core of the array
> determines the required size of the disk pool. In particular :
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> - The three AuScope antennas will be available approximately 180 days
> per year for IVS observations. What percentage of those are likely
> to be existing programs such as R1, R4, CRF, OHIG etc? Currently
> Hobart participates in 60 days of observations each year, it wasn't
> clear
> to me how much further scope there is for southern antennas to
> participate
> in these existing experiments?
>
> - The remainder of the time will presumably be experiments where the
> AuScope antennas form the core of the array, is it likely that other
> stations (e.g. Hart, Forteleza, etc) will be available to
> participate? These experiments are the ones where it would seem to
> make most sense to correlate them at Curtin, however, at the moment
> the budget has a correlator with 3 MkV playback units (possibly 4 if
> the NZ consortium fund one) and 10 LBAHDR playback units (I'm pretty
> sure that the LBAHDR units aren't being funded through AuScope, but
> will connect to the same correlator). It will be possible to add
> additional MkV playback units, so that experiments with more than 3
> (or 4) IVS antennas can be correlated, however, additional funds
> would need to be found for this.
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> - It may be more efficient (and hence cheaper) to run the AuScope IVS
> operations in blocks (e.g. 3x24 hour experiments one after the other
> and then 4 days with no IVS, or week on - week off), as opposed to
> approximately 1 x 24 hour experiment every two days. Would this
> sort of blocked mode of operation have an adverse impact on the
> geodesy (e.g. Earth rotation parameters)?
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> Its not critical to have final answers on any of these questions,
> however, some guidance would be very useful and provide us with a
> starting point for the operations discussions.
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> Regards
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> Simon
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> Simon Ellingsen : Senior Lecturer Physics & Astronomy, University of
> Tasmania
> email : Simon.Ellingsen@utas.edu.au
> WWW : <http://www-ra.phys.utas.edu.au/~sellings>
> Phone : 6226 7588 ; Area Code : +61 3
> (International)
> 6278 8636 (Home), 6226 2410 (Fax) 03 (Australia)
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