

CORRELATOR OPERATIONS REPORT, JIVE
 EVN TOG MEETING, January 2014, Wettzell

17 January 2014 (statistics cover 3 Apr 2013 - 16 Jan 2014)
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SCIENCE OPERATIONS

Sessions and their Experiments

The table below summarizes projects correlated, distributed, and released from 3 April 2013 to 16 January 2014. The table lists the number of experiments as well as the network hours and correlator hours for both user and test/NME experiments. Here, correlator hours are the network hours multiplied by the number of multiple correlation passes required. This definition carries over to the EVN software correlator at JIVE (SFXC), even though it may run faster or slower than real time. Because of its enhanced capabilities, SFXC encounters multiple correlator passes essentially only for phase-referenced spectral-line observations in which the PI wants a smaller "continuum" pass having all subbands with low spectral resolution, in addition to the "line" pass with high spectral resolution.

	User Experiments			Test & Network Monitoring		
	N	Ntwk_hr	Corr_hr	N	Ntwk_hr	Corr_hr
Correlated	85	632	745	24	61	63
Distributed	81	609	722	20	65	65
Released	91	678	793	18	59	59

The following table summarizes by session the user experiments with activity since the previous report (entries = remaining to do / total). The "(e)" and "(d)" refer to e-VLBI or disk experiments within a traditional EVN session.

	N_to.corr	Corr.hrs	N_to.dist	
session 1/2013 (e)	0/2	0/18.5 hr	0/2	e-VLBI in disk session
session 1/2013 (d)	0/24	0/233 hr	0/24	incl. 1 ToO after session
Mar-May e-VLBI	0/9	0/64 hr	0/9	1 ToO
session 2/2013 (e)	0/2	0/25 hr	0/2	incl. inserted ToO
session 2/2013 (d)	0/24	0/236 hr	3/24	
Jun-Oct e-VLBI	0/12	0/66.5 hr	1/12	2 ToO's
session 3/2013 (e)	0/1	0/6 hr	0/1	
session 3/2013 (d)	10/17	88/151 hr	14/17	
Nov-Jan e-VLBI	0/7	0/68 hr	0/7	3 ToO's
session 1/2014 (e)	2/2	estim. 17hr		
session 1/2014 (d)	20/20	estim. 158hr		

Some landmarks since the previous TOG report:

From session 1/2013:

Torun participates as a "regular" K-band station
 A disk-based target of opportunity observation (RL005) added just after the session -- first use of pulsar gating/binning to excise the pulses (emission in the Crab nebula after an outburst)

From session 2/2013:

Tests of global Gbps observations at L-, C-, and K-band, using the RDBE/digital down converter personality at the VLBA's/GBT, the WIDAR correlator to phase the JVLA, and the standard back-ends

at EVN stations.

From session 3/2013:

Tests with the DVP digital backend at Robledo in a couple L-band experiments.

From e-EVN days:

SFXC continues to process all e-EVN observations

Noto now provides full Gbps e-VLBI data

Arecibo can now provide 512 Mbps e-VLBI data regardless of local time, given the monthly "footprint" of e-EVN observations.

Shanghai provided full 1024 Mbps e-VLBI data in the January e-EVN day.

USER SUPPORT

There were five EVN TNA-supported data-reduction visits to JIVE in this period, four of which were by first-time visitors to JIVE or first-time EVN PIs.

JIVE support-group staff continue to contact all PIs once the block schedule is made public, and to check over schedules posted to VLBEER prior to stations downloading them, helping to prevent avoidable errors in the observations themselves. Now that EVN stations are transitioning to DBBC back-ends on separate time-scales, this scheduling help also provides PIs with experiment-specific template "setini" blocks and station catalogs, which can change from session to session. Session 3/2013 was the first to use the more "native" 2-letter IFname codes; so far no station has complained, which holds promise for being able to incorporate this information into the sched freq.dat catalog. The most recent sched release (11.1 beta) can support DBBCs; recent testing with the newest field-system (9.11.4; not available in time the scheduling of session 3/2013) also shows that it can handle output vex-files from that version of sched. EVN/global+RadioAstron out-of-sessions observations began in September. These also received station set-up help; handling the global nature of these benefited from the experience gained in the global Gbps tests during the summer (although at 256 Mb/s, these do not require mixed subband-bandwidth set-ups).

NETWORK SUPPORT

In the boundary between User & Network support lies the interplay between schedules including NRAO stations with RDBE backends and drudg. Stations are strongly encouraged to upgrade to 9.11.4; otherwise we will have to continue making two (slightly) different vex-files for each observation containing both NRAO and FS-based antennas. At the moment, RadioAstron observations bear the brunt of this, but global observations will probably return in session 2/2014.

By session 3/2013, there were five stations using the DBBC as their primary back-end: Effelsberg, Onsala, Hartebeesthoek, Noto, and Metsahovi. Torun and Medicina made parallel DBBC recordings in NMEs. Medicina is the first EVN station to make this transition using a Mark5C as the recorder, which highlighted a problem with applying the decimation and bit-masking in this DBBC/5C combination. Meanwhile, the data-throttling problem in Medicina's mark4 formatter at Gbps remains. This is overcome by scheduling them as a 1-bit sampling station in Gbps observations, but it stresses the importance of the shift to the DBBC.

Following the experience in session 1/2013, individual shipments of disk-packs to the KVAZAR stations were limited to 6 boxes at a time. Even so, a different problem for some of these "sub-shipments" arose in session 2/2013, leading to some loss of experiments (but rather less than suffered in session 1):

Svetloe: 4 user, 3 NME

Zelenukhskaia: 0 user, 0 NME

Badary: 2 user, 0 NME

For session 3/2013, we shifted from parcel companies to a freight company recommended by IAA, keeping to the 6-box per shipment rule.