Correlation Status

Project Code	Block Code	Sources	DOYS	UT	Freq	Stations	Status	PI	Comment
	f221a		90	12:00-16:50	86	European			fringe test
	c221a		90-91	17:00 - 23:52 +1d	43, 86	Global			v1 released to PIs, Mopra not PolConverted
	c221b		91-92	15:45 - 23:52 +1d	43, 86	Global			v1 released to PIs
	c221c		92-93	19:00 - 23:55 +1d	43, 86	Global			v1 packaged (*), Mopra not PolConverted
	c221d		93-94	22:00 - 23:39 +1d	43, 86	Global			v1 packaged (*)
	c221e		94-95	22:20 - 18:30 +1d	86	Global			3mm correlation running, Mopra not PolConverted

*) release currently not possible due MPIfR FTP server outage since 06jan2023

General comments

Scan to project splitting file C221-split.v1.txt

ALMA cancelled the post-EHT GMVA observing run as major issues turned up with the ALMA H-maser.

LMT cancelled their post-EHT GMVA observation after shortage in staffing.

In DiFX, wide clock search done with find_RadioAstron_Fringe and 163840 channels over 64 MHz.

Station feedback https://www3.mpifr-bonn.mpg.de/div/vlbi/globalmm/sessions/apr22/feedback_apr22.asc

EVN H-maser logs

For maser drift cf. gps logs on vlbeer, mar22, apr22 - most are offsets vs MJD. Automatic download and drift rate fitting with the evnGPS.py script.

Haystack Hs

In track C221C station Hs is to be correlated at Haystack. Bonn extracted data of
scans 093-0015 093-0030 093-0045 093-0100 093-0115 and 093-0600 from stations EF, YS, OV, PT, KP, and e-transferred them 03may2022 to Haystack for processing there.

Pico Veleta

Krichbaum gathered Tsys and Log information into ftp://vlbeer.ira.inaf.it/vlb_arc/ftp/vlbi_arch/apr22/c221-pv-Logs.tgz

f221a: Lost completely due to bad weather (Snow, Wind)

c221a: A large fraction lost due to weather (Snow, Wind). Storm then passes and sky becomes clear, with low opacity tau225~0.15. Start recording at 12:00UTC. Done 11.3% of the schedule.

c221b: Done 100% under excellent weather

c221c: Done 100% with some fog and thin clouds, not affecting much the quality of the data.

c221d: Done first part with cloudy sky. Have to stop in scan no 0177 due to snow and wind. Done 66.3% of the schedule.

c221e: Bad weather keeps antenna stowed except for a window of ~1.5 hr when we can record with fog and some clouds. Done 23.7% of the schedule.

ATCA 86 GHz

Info from Cormac R. The ATCA data for Bonn are tracks A, C, E.

ATCA recordings are dual datastream 2-ch 2-bit with c221?_DAS1_*.lba files containing the first 64 MHz band (dual pol), and c221?_DAS1_*.lba the second 64 MHz band. Requires v2d format=LBASTD.

Filelists produced via DiFX chk_vlbi.py, e.g.,

```
ls -1 /data/c221a/atca/*.lba > atca_c221a.datafiles
chk_vlbi.py atca_c221a.datafiles > x
grep DAS1 x > at_das1.flist
grep DAS2 x > at_das2.flist
```

Reference antenna was on pad W45 (track A), W45 (track C), W45 (track E) according to DiFX Espresso atcapos.py for the VEX time ranges that AT was scheduled under tracks A/C/E. Using Espresso updatepos.py, and the env var STADB pointing to Sched 11.6 locations.dat,

```
$ atcapos.py 2022y091d09h33m51s  # c221a No0200
$ atcapos.py 2022y091d17h34m31s  #  -"-  No0323
$ atcapos.py 2022y093d09h30m02s  # c221c No0110
$ atcapos.py 2022y093d17h05m02s  #  -"-  No0240
$ atcapos.py 2022y095d09h24m40s  # c221e No0260
$ atcapos.py 2022y095d18h20m00s  #  -"-  No0320
$ export STADB=~/jwagner/sched/sched_11.6/catalogs/locations.dat
$ updatepos.py ATCA AT_W45 <vexfile>
```

the corresponding VEX site coordinates are:

```
* W45 Track E
site_position =  -4752098.19972 m: 2790922.2537 m: -3200491.11339 m;
site_velocity =  -0.03099 m/yr: -0.00458 m/yr: 0.04203 m/yr;
site_position_epoch = 50449;
```

Maser data for AT are clockRate = -6.31E-08 clockEpoch = 59669.704

Clock data are at:
- https://www.atnf.csiro.au/vlbi/dokuwiki/doku.php/lbaops/lbamar2022/c221a
- https://www.atnf.csiro.au/vlbi/dokuwiki/doku.php/lbaops/lbaapr2022/c221c
- https://www.atnf.csiro.au/vlbi/dokuwiki/doku.php/lbaops/lbaapr2022/c221e

Mopra

Interlaced 2-thread VDIF but "clumpy", leading to very poor DiFX data weights. Need to split out threads.

Linear polarized receiver without hybrids. Need to relabel as X and Y in VEX file. Need to PolConvert.

GLT

Freq setup info from K. Asada, GLT matched the 2 GHz bw with ALMA again while ALMA didn't participate. C221 tuning is different from earlier C211 tuning. 1st LO: 81. 292 000 000 GHz, 2nd LO: 6. 000 000 000 GHz, hence VEX channel edge 87292.0 MHz LSB bw 2048 MHz.

For next years C231, GLT will likely again match ALMA tuning.

NB: Early 2022 via issues in EHT DR2023 it turned out that the 1st LO YIG can lock to an incorrect frequency. All receivers at GLT are based on the same YIG 1st LO design. Initial lack of fringes in C221B/C/D/E (and DR2023) turned out to be because of the incorrect lock.

Tuning was correct in C221A, but in the other tracks it was off by 63 MHz due to the YIG lock issue; effective sky freq of 87229.0 MHz LSB. Unfortunately at the time this was found out, most GMVA Spring 2022 Mark6 modules had already been recycled for GMVA Spring 2023.

The EHT 2022 wiki obslogs link to the GLT observing log which also has GMVA track infos.

NOEMA

Reference pad, info provided by M. Bremer

```
31-MAR-2022 11:24:05.500 phys_ref=10    NANT=9  REFERENCE=N13
31-MAR-2022 13:04:43.500 phys_ref=10    NANT=9  REFERENCE=N13
31-MAR-2022 13:29:55.500 phys_ref=5     NANT=10 REFERENCE=E10
05-APR-2022 06:56:11.000 phys_ref=5     NANT=10 REFERENCE=E10
ie
N13 from 31-MAR-2022 11:24:05.500 UT - 31-MAR-2022 13:04:43.500 UT, and
E10 from 31-MAR-2022 13:29:55.500 UT - 05-APR-2022 06:56:11.000 UT
ie
N13 4523926.095 468031.803 4460387.693  -0.000057  0.000936 5.906611
44.634693  2594.90290219896
E10 4524002.276 468122.784 4460301.456   0.000984 -0.000155 5.907653
44.633602  2594.9020534372
```

Frequency setup as in 2022 freq spreadsheet

Recording media

Station	Required [TB]	Media	Capacity	Status (May 2022)
NL	143	MPI%1200 MPI%8021	1x 128 1x 80	MPI%1200 in Bonn, has all tracks MPI%8021 not returned

Station	Required [TB]	Media	Capacity	Status (May 2022)
PT	143	MPI%1201 MPI%8026	1x 128 1x 80	MPI%1201 in Bonn, -"- MPI%8026 not returned
LA	143	MPI%1202 MPI%8028	1x 128 1x 80	MPI%1202 in Bonn, -"- MPI%8028 not returned
FD	143	MPI%1203 MPI%8029	1x 128 1x 80	MPI%1203 in Bonn -"- MPI%8029 not returned
BR	143	MPI%1204 MPI%8007	1x 128 1x 80	MPI%1204 in Bonn, -"- MPI%8007 not returned
MK	143	MPI%1205 MPI%8008	1x 128 1x 80	MPI%1205 in Bonn MPI%8008 not returned -- TODO mk6dir
OV	143	MPI%1206 MPI%8015	1x 128 1x 80	MPI%1206 in Bonn, has all tracks MPI%8015 not returned
KP	143	MPI%1207 MPI%8019	1x 128 1x 80	MPI%1207 in Bonn, -"- MPI%8019 not returned
HN	35	MPI%8027	1x 80	arrived in Bonn
SC	35	MPIH%027	1x 48	arrived in Bonn -- TODO mk6dir
NOEMA	2x 78	MPI%8048 MPI%8055	2x 80	shipped 14.06.2022
PV	78	MPI%1100 MPI%1101	2x 112	arrived instead: MPI%8003 (RCP) and MPI%8020 (LCP)
GB	55	MPI%8018	1x 80	arrived in Bonn
GLT	4x 68	GLT%0013 - GLT%0015	4x64	arrived 30.5.2022, shipping company error hance late
ALMA	4x 36	media on site already		(not observed: H-maser died)
Haystack	57	own media		Remains at Haystack, for their own fringe test correlation. Uploaded a few scans of some stations for them.
ATCA	16	own media		Destined for Bonn A:done C:done E:done - all finished 30.5.2022 Handled by Cormac Reynolds, pushed from 146.118.67.176

Station	Required [TB]	Media	Capacity	Status (May 2022)
MOPRA	25	own media		pending, Cormac will push from 150.229.194.15
EF	?	e-transfer		A: done B:done C:done D:running E:pending Handled by Uwe Bach
YS	99, actual:80	e-transfer		completed 20may2022, UDP 800 Mbps
MH	99, actual:75	e-transfer		completed 20may2022, TCP htcp ~1 Gbps
ON	99, actual:80	e-transfer		completed 16may2022, TCP htcp ~1 Gbps
KVN	99, actual:200?	e-transfer		transfer A:done B:done C:done D:done E:done