EVN Performance and Reliability

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EVN TOG Meeting, Madrid, 2016 Feb 9

JIVE
Joint Institute for VLBI ERIC

EUROPEAN
NETWORK

Changes and highlights

- From 2015/S1, ON → O8 & O6
  - Perhaps we could consider this for JB1 & JB2?
- From 2015/2, only one antenna (W1) available on WSRT due to the Apertif upgrade
  - Perhaps also think about nomenclature for WSRT…
- In 2015/3, Ir participated in user experiments for the first time!
- Since 2015/3, all stations intending to use DBBC back-ends are doing so

2015 Session 3 NMEs Fringe Test Results

- N15L3
  - UR no data due to antenna shaft angle encoder fault (from Experiment Feedback)
  - SR no data due to DBBC configuration problems
- N15M2
  - WB no data due to warm receiver
  - IR RCP stronger than LCP
- N15X2
  - UR no fringes… sampler stats had no mag data…
  - KM scheduled but did not participate.
  - IR RCP stronger than LCP
- N15C3
  - IR RCP stronger than LCP

2015 Session 3 NMEs Post-Correlation Results

- General
  - IR disk packs last Thursday (4 Feb) so some projects – mainly NMEs – have been correlated without IR…
- N15L3
  - SH, T6, ZC, SV, BD, JB didn't sent antabfs files
- N15M2
  - JB, SR didn't send antabfs files
- N15X2
  - SH didn't send antabfs file
  - NT's antabfs had a shonky 'INDEX' line
- N15C3
  - EF, JB, SH, UR did not send antabfs files.
  - Not yet pipelined …

Network Monitoring Report: **X-band** N15X1

Source: 4C39.25, 0738+313, 0814+425, 0007+171, 0054+161,0202+149
Reference antenna: Effelsberg
Experiment code: N15X1

Length: 180 min.
Date of observations: 28/05/15
Date of report: 14/01/16

Observing mode: Mk V,
Reference date: 28/05/15
by: Minnie Y Mao

⊗ According to expectation, no special remarks
■ Problem occured - see enclosed footnote(s)
⬚ Station did not observe (not scheduled)
○ Entry not applicable/investigated

	Ef	Ex	Wb	Wd	O6	Ox	Mc	Nt	Sh	Sv	Zc
Station has observed	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗
Station produced fringes (ftp)	⊗	⊗	⊗	?	⊗	?	⊗	⊗	⊗	⊗	⊗
Station produced fringes (disk)	⊗	○	⊗	○	⊗	○	⊗	⊗	■	⊗	⊗
Filled in TRACK	⊗	○	⊗	○	⊗	○	⊗	⊗	⊗	⊗	⊗
Logs are available (within 72 hours)	⊗	○	⊗	○	⊗	○	⊗	⊗	⊗	⊗	⊗
GPS data available (within 7 days)	⊗	○	⊗	○	⊗	○	⊗	⊗	⊗	⊗	⊗
Disks are available (within 7 days)	⊗	○	⊗	○	⊗	○	⊗	⊗	⊗	⊗	⊗
Feedback on www (within 7 days)	⊗	○	⊗	○	⊗	○	⊗	■	⊗	⊗	⊗
GPS clock estimate gives fringes	⊗	○	⊗	○	⊗	○	⊗	⊗	⊗	○	○
Clock offset in μsec	-25.783	-25.846	4.907	-4.998	6.823	6.745	-1.645	-3.137	41.971	215.558	213.12
Clock rate in psec/sec	-0.0694	-0.0694	0.176	0.176	0.0636	0.0636	0.144	0.479	0.757	0	0
Recording okay	⊗	○	⊗	○	⊗	○	⊗	⊗	■	⊗	⊗
Polarization setup okay	⊗	○	⊗	○	⊗	○	⊗	⊗	⊗	⊗	⊗
Strong signal amplitude	⊗	○	⊗	○	⊗	○	⊗	⊗	■	⊗	⊗
Phase cal aligns phases	⊗	○	⊗	○	⊗	○	⊗	⊗	⊗	⊗	⊗
Sampler statistics okay	⊗	○	⊗	○	⊗	○	⊗	⊗	⊗	⊗	⊗
Please check VC number(s):											
Previous reported problem(s) corrected											
Problem(s) first reported											
See enclosed footnote(s):	a		b				c		d		

Enclosure: Footnotes X-band N15X1

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Station produced fringes (disk)	⊗	○	⊗	○	⊗	○	⊗	⊗	■	⊗	⊗
Filled in TRACK	⊗	○	⊗	○	⊗	○	⊗	⊗	⊗	⊗	⊗
Logs are available (within 72 hours)	⊗	○	⊗	○	⊗	○	⊗	⊗	⊗	⊗	⊗
GPS data available (within 7 days)	⊗	○	⊗	○	⊗	○	⊗	⊗	⊗	⊗	⊗
~~Disks are available (within 7 days)~~	⊗	○	⊗	○	⊗	○	⊗	⊗	⊗	⊗	⊗
Feedback on www (within 7 days)	⊗	○	⊗	○	⊗	○	⊗	■	⊗	⊗	⊗
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~~Clock offset in μsec~~	-25.783	-25.846	4.907	-4.998	6.823	6.745	-1.645	-3.137	41.971	215.558	213.12
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Strong signal amplitude	⊗	○	⊗	○	⊗	○	⊗	⊗	■	⊗	⊗
Phase cal aligns phases	⊗	○	⊗	○	⊗	○	⊗	⊗	⊗	⊗	⊗
Sampler statistics okay	⊗	○	⊗	○	⊗	○	⊗	⊗	⊗	⊗	⊗
Please check VC number(s):											
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?

antabfs?

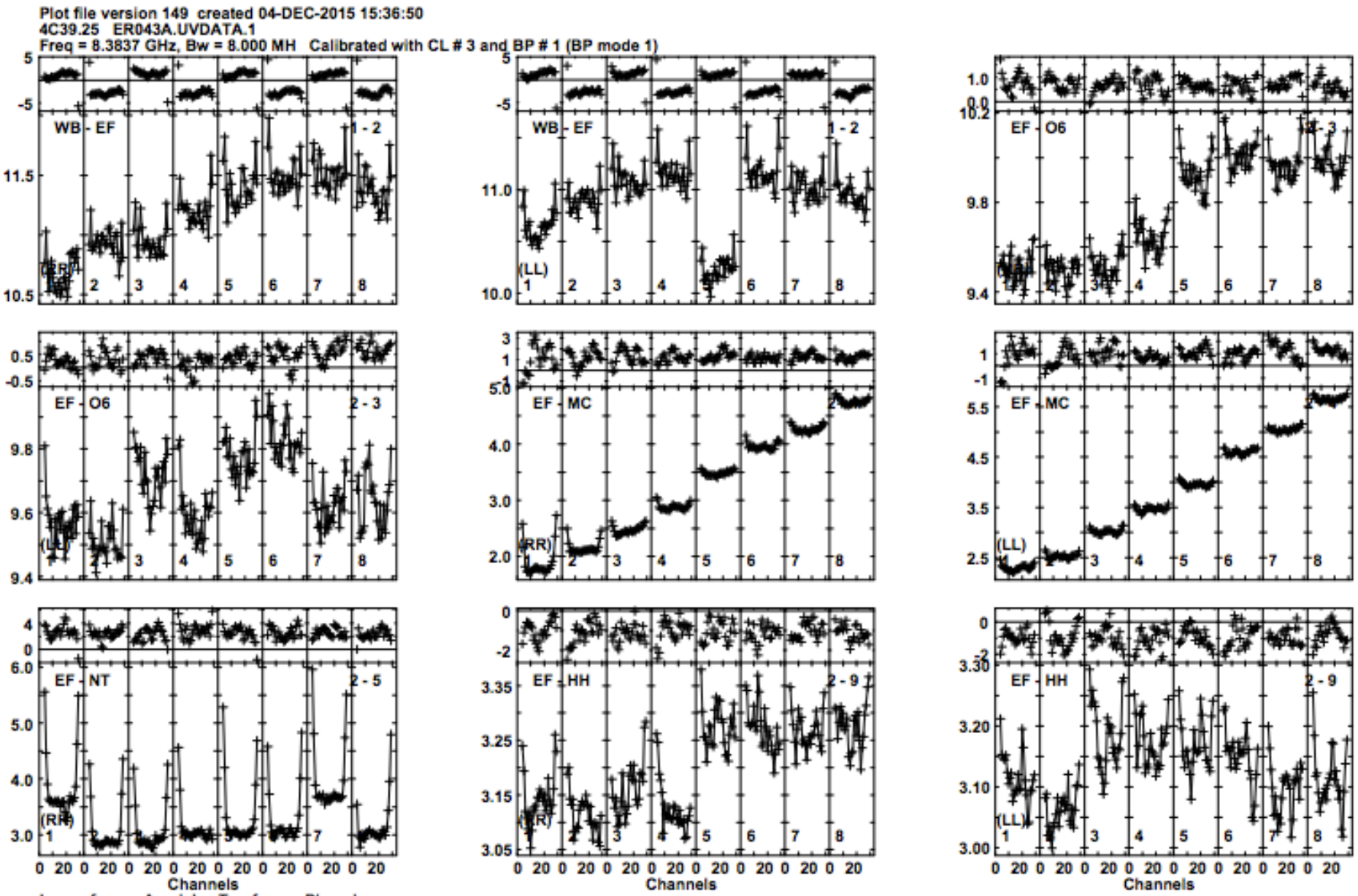
Enclosure: Footnotes X-band N15X1

2015 Session 1 Issues

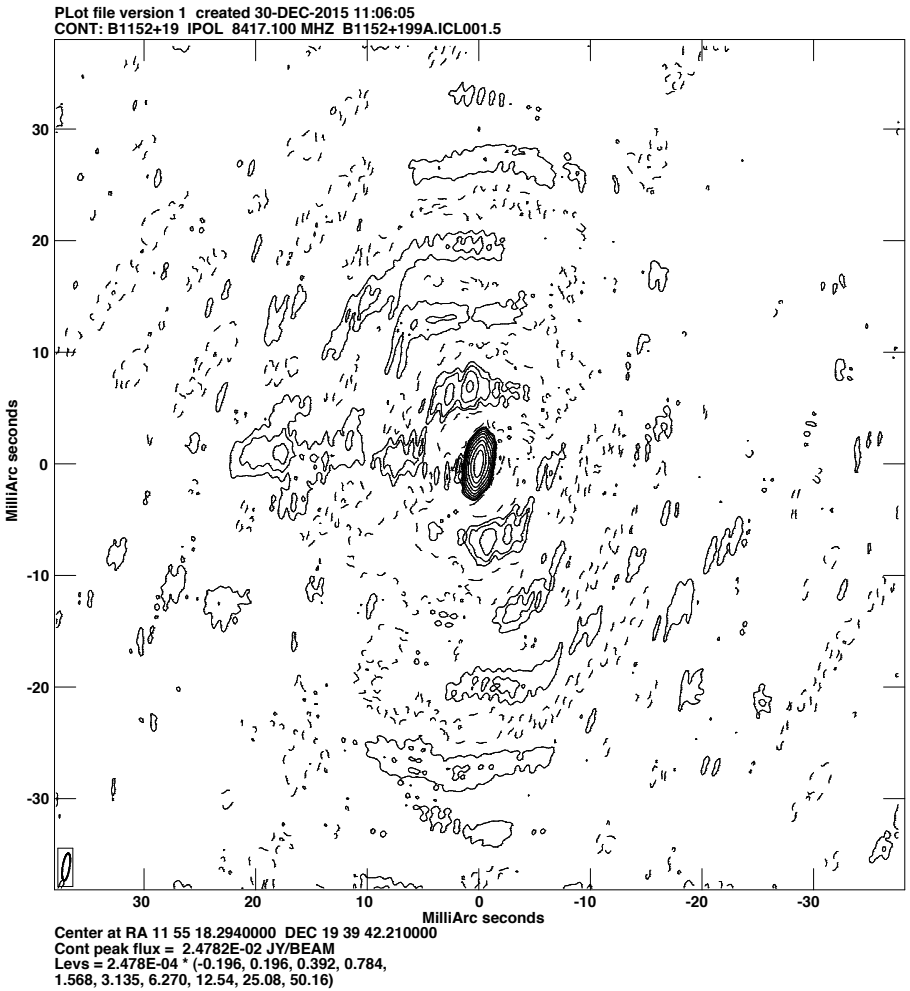
- Many 5cm experiments may need to be re-pipelined due to an incorrect gain curve from SR… more later
- ES071C had copious amounts of data for WB flagged out in the uvflg file.

2015 Session 2 Issues

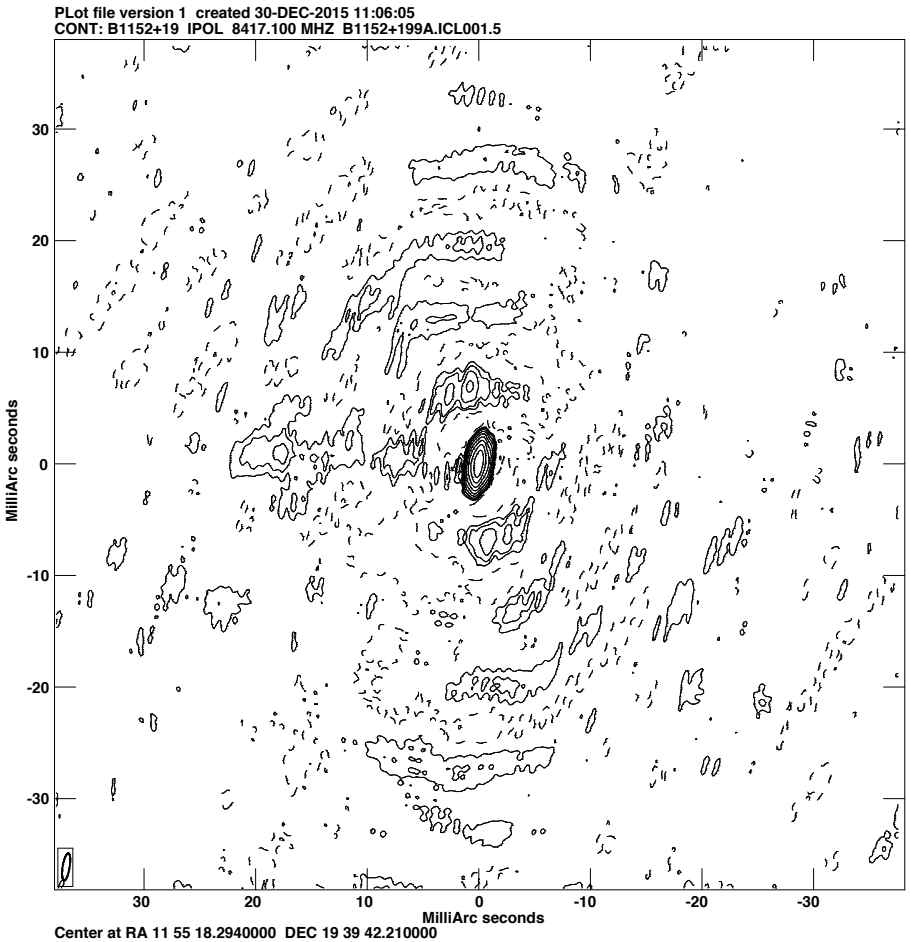
- EF had a synthesizer problem causing a ripple in phase vs time. Fixed by Session 3.
- MC bandpass had a very odd slope with data at the lower freq IFs being close to unusable. Seen at at least X- and C-band. Fixed by Session 3
- SV and ZC generally were stronger in RCP (X- and C-band) than LCP (RCP ~ 1.2 – 1.5 x LCP). Usually calibrated out in self-cal stage. Still present in Session 3
- UR IFL5 is bad?
- YS had some issues with noise diodes at X- and C-band but regenerated corrected antabfs files in a timely manner ☺
- Over-flagging occurring in uvflg files
  - EH030B had copious amounts of data for JB flagged out in the uvflg file.
  - EB056 had copious amounts of data for TR flagged out in the uvflg file.
    - Andy Biggs (PI) noticed that the uvflg script is searching for entries that include “antenna, acquired’, but TR often has “2015.159.18:16:30.00?ERROR fl -1 Previous source in this schedule not reached before new source was commanded”
- GA036 …
- Amplitude calibration issues have all been saved for the following presentation


Plot file version 149 created 04-DEC-2015 15:36:50
4C39.25 ER043A.UVDATA.1
Freq = 8.3837 GHz, Bw = 8.000 MH Calibrated with CL # 3 and BP # 1 (BP mode 1)
WB - EF
1 - 2
(RR)
(LL)
EF - O6
2 - 3
EF - MC
EF - NT
2 - 5
EF - HH
2 - 9
Channels
Lower frame: Ampl Jy Top frame: Phas deg
Vector averaged cross-power spectrum Baseline: WB (01) - EF (02)
Timerange: 00/15:25:43 to 00/15:32:29

GA036


PLot file version 1 created 30-DEC-2015 11:06:05
CONT: B1152+19 IPOL 8417.100 MHZ B1152+199A.ICL001.5
30
20
10
0
-10
-20
-30
MilliArc seconds
30
20
10
0
-10
-20
-30
MilliArc seconds
Center at RA 11 55 18.2940000 DEC 19 39 42.210000
Cont peak flux = 2.4782E-02 JY/BEAM
Levs = 2.478E-04 * (-0.196, 0.196, 0.392, 0.784,
1.568, 3.135, 6.270, 12.54, 25.08, 50.16)

GA036



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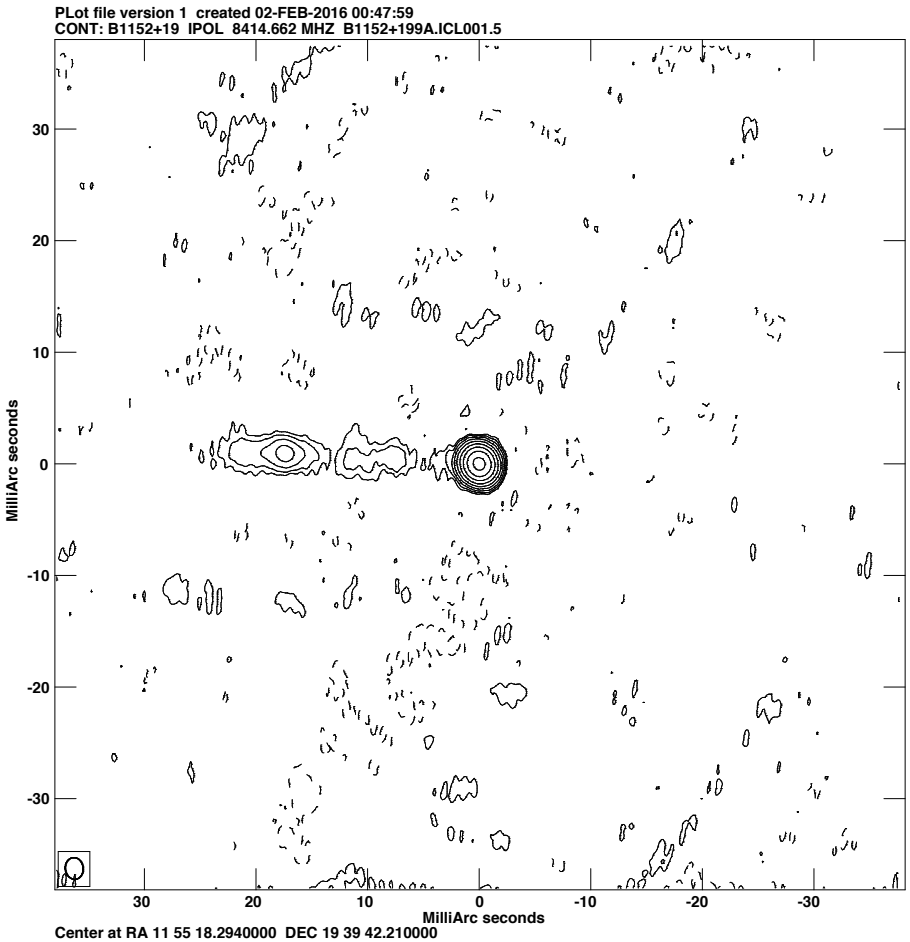

Center at RA 11 55 18.2940000 DEC 19 39 42.210000
Cont peak flux = 2.8874E-02 JY/BEAM
Levs = 2.887E-04 * (-0.310, 0.310, 0.620, 1.240,
2.480, 4.960, 9.919, 19.84, 39.68, 79.35)