

Westerbork VLBI station report for the EVN TOG meeting,
NASA/Robledo, Madrid, Spain, June 26th, 2015

Regular Session Participation:

Westerbork participated in the M, C, X, P and L-band experiments of sessions 2014-3, 2015-1 and 2015-2.

We also participated in most of the out of session projects

Due to the fact that more and more radio telescopes are in the process of being equipped with APERTIF front-ends, the number of RT's for the tied array decreased. In Session 2014-3, 8 dishes

contributed

to the WSRT tied-array, for session 2015-1 7 RT's and session 2015-2

5
RT's

Observing was successful.

In 2014-3, 45 minutes out of 187 hours were missed due to a bad diskpack.

In 2015-1, 2 hours and 35 minutes out of 226 hours were missed due to

IVC backend problems.

In 2015-2, 3 hours and 57 minutes out of 275 hours were missed. (104 minutes due to network problems; 54 minutes due to heavy thunderstorm

and 68 minutes due to IVC backend problems.

FTP fringe files were produced by the system, and fringes were found on all occasions.

The WSRT also participated in all scheduled RadioAstron Space VLBI observations mainly with success. (a few projects were missed due to

backend related problems)

Data were recorded on disk packs and subsequently sent to the FTP server in Moscow.

Furthermore the WSRT participated in e-VLBI observations. We missed 2

of them. (7/8 October due to maser locking problems; 2/3 December due

to activities of other parties.)

Field System:

For session 2014-3 we used FSL8 (Lenny)+ FS-9.11.5

For session 2015-1 and 2015-2 we upgraded to FS-9.11.7

For the DBBC a new Field System computer was used.

We installed FSL9 on this computer + FS-9.11.6

Mark5B:

For all tied array sessions we used SDK8.2 + Firmware version 12.13
All sessions worked ok with this firmware. Both PATA and SATA disks
were used. (packs ranging from 2TB - 16TB)
Wb participated in tests for new jive5ab software.

Current versions:

DIMINO : Mark5B DIM : 2007y222d04h : 1 : mark5-XX : 1 : 1 : 2.7x :
0x1b :
0x5bdb
Linux : Etch 2.6.18-6-686:(Debian 2.6.18.dfsg.1-26etch2)
Firmware : 12.13

Current JIVE software : jive5ab-2.5.1-ETCH-SDK82-i386

We used dimino for session 2014-3 and jive5ab for both session
2015-1 and 2015-2.

Diskpack purchase:

In Dec 2014, following action item B0L-08 from the Nov 2015 EVN CBD,
we bought 30 new 4TB disks (a total of 120TB for ~ €7000), These
were
used to reconfigure some of our existing twelve 8TB (with 4x2TB)
diskpacks that we purchased in previous years. We now have a mixture
32TB, 16TB and 8TB diskpacks. An investment in diskpacks of similar
value is planned for 2015.

DBBC:

We ordered a DBBC last year and it was delivered in Januari 2015. (8
BBC's, 2Cores and VSI input).

For the DBBC a new fieldsystem computer was used. We installed FSL9
on
this computer + FS-9.11.6

A Mark5B (on loan from JIVE) was connected to the DBBC (VSI).

One telescope equipped with a MFFE was connected
to the IF1 inputs of the DBBC. Note that this MFFE still needs to be
modified to convert linear polarizition into circular.

During session 2015-1 we joined the NME projects. Recording was
successful and also the ftp files were uploaded without problems,
but
no fringes were detected, and the statistics were bad. One reason
for
the lack of fringes, was a mixing scheme that was not correct, and
another reason was an issue with a DBBC PCI control card and an
oscillating AGC of the Unica board.

Michael Wunderlich repaired our DBBC in May 2015. Also an extra
mixer

with an LO of 503 MHz was installed, to reverse the MFFE IF output.
After that we joined the 2015-2 C and L-band NME's. Wb sent DBBC-
data

designated as Wd. Fringes to Wd were found on all occasions. The sampler statistics were ok, and the bandpasses of the autocorrelation plots were ok.

However, the SNR and the amplitude of the correlated signal were too low, and not stable. JIVE will do more investigations when they have the diskpacks. Furthermore, the MFFE still needs to be modified to supply circular polarization output, and also the noise source steering circuit needs to be adapted for the DBBC continuous calibration.

Future Participation:

As of session 2015-3, the WSRT will aim to contribute with a single dish, equipped with the current (modified) MFFE at all frequencies. Tied array capability at L-band, using the Apertif frontends, will be added at a later stage.

Antonis Polatidis
Geert Kuper