

**Westerbork VLBI station report for the EVN TOG Meeting,  
Shanghai Astronomical Observatory,  
March 19, 2018**

**Overview:**

The Westerbork is contributing to VLBI projects with a single dish, equipped with a modified MFFE providing circular polarization and a DBBC backend. Two radio telescopes are available for VLBI operations, one equipped with the MFFE receiver, and the other with the 5cm receiver, currently sharing the DBBC/Mark5B/FlexBuff backend.

In 2017 ASTRON bought a FlexBuff (installed at JIVE, since summer 2017) and upgraded the DBBC (see below).

The remaining 12 radio telescopes of the WSRT are now equipped with the APERTIF receivers and backends. Commissioning is in progress.

**DBBC upgrade:**

Our DBBC (used operationally since Session 2015-3), has been upgraded with two additional Core2 boards and an internal Fila10G card (ordered in Feb 2017 and installed in January 2018; the DBBC used to have 8 BBC's, 2 Core2 boards and a VSI input).

The WSRT DBBC is now capable of delivering 2Gbps setups to a FlexBuff (though the relatively narrow MFFE IF, limits the data rate to >~1Gbps). The upgraded DBBC has been used in Session 2018-1 with the Mark5B system. The connection to the FlexBuff is expected before Session 2018-2.

**FlexBuff and Disk purchases:**

WSRT's FlexBuff server is equipped with 36 8TB disks (nominal capacity 244TB - delivered on May 4th, 2017). Due to the availability of a dedicated broadband fiber link between WSRT and Dwingeloo the Flexbuff is installed at JIVE, and data will be streamed directly to it through the fiber. Upgrade of the switch equipment is expected after Session 2018-2.

Following the action from the November 2017 EVN CBD meeting, ASTRON bought 12 10TB disks in December 2017 and delivered them to JIVE to upgrade existing FlexBuffers. An additional 24 10TB disks were ordered in March 2018 (for a total of nominal 360TB, netto 252MB in FlexBuff RAID capacity).

**Session Participation:**

Westerbork participated in the X, M, C and L-band experiments of sessions 2017-2, 2017-3 (424.25 hrs with marginal loss of data) and in the ongoing 2018-1 session. Furthermore the WSRT participated successfully in e-VLBI, ToO, OoS and Radio Astron projects.

**Operational Problems:**

In Session 2017-3 some problems with the new telescope steering system caused a loss of 15 minutes at the start of project EG099A. The telescope steering for VLBI switched to a different computer and alarm procedures were implemented.

During the first months of 2018, we experienced multiple problems with the legacy MFFE receivers, resulting in the loss of eVLBI and some of the Session 1/2018 observations. We currently use 2 legacy MFFE receivers modified for circular polarisation; one of these developed a big difference between RCP and LCP and is currently being repaired. The replacement receiver also developed problems: during the eVLBI observations one the feed revolver was stuck at the UHF high feed and could not change to L band. There was also a broken power supply of one of the LNA's in the 6cm receiver, during Session 2018-1.

Finally, an incompatibility of our legacy Mark5B, does not allow recording at 2Gbps modes.

**Field System:**

FS 9.11.8

**Mark5B:**

SDK9.4  
jive5ab 2.8.0

**Personnel:**

Geert Kuper, has officially retired in September 2017. Richard Blaauw is now the sole Technical VLBI Friend and A. Polatidis is the astronomy VLBI Friend.

Richard Blaauw  
Antonis Polatidis