

# Torun (Tr) Station Report

(TOG Meeting, Helsinki, June 21<sup>st</sup>, 2010)

## Brief Report of Recent EVN Session Problems

A number of problems emerged since the last TOG Meeting, especially in **the March 210 EVN observing session**. Most importantly, however, it seems we have finally pinpointed the reason for lack of fringes to Tr in a few experiments of previous sessions and one ToO experiment. Apparently it was due to improper treatment of the FS **LO=** command in our local installation. In effect sometimes the LO frequency was offset by 1 MHz. In May 2010 Roman Feiler prepared a software workaround that should allow smooth circumventing this problem in the future.

During the session much too often there were problems with recording on our Mk5A unit requiring a reboot of the operating system that led to a late start. The Mk5 unit behaviour suggest it may have developed some hidden damage yet before the session when during the conditioning of newly assembled 8-packs a smell of burning could be clearly felt inside the unit, although further investigation didn't show anything damaged.

In the course of the EO007 experiment our antenna elevation drive control suffered a breakdown requiring replacement of a modem.

To sum up, although all experiments of the March session were observed, about a third of them were affected by the problems resulting in partial (minutes to hours long) loss of data.

Later, we have learned from reports from correlators (US and JIVE) that our C-band receiver gave very weak fringes in RCP channels in some experiments of the session. Reason is yet unknown (but note that shortly before the session the receiver was repaired). Fortunately towards the end of that session the receiver seemingly returned to its normal working (confirmed during post-session e-VLBI experiments).

For the March 2010 sessions we have posted some of our calibration data in the internet in the form of graphs of the noise diode equivalent temperature ( $T_{cal}$ ) and system equivalent temperature ( $T_{sys}$ ) for each experiment. See this link:

<http://www.astro.uni.torun.pl/~kb/Reports/Cal2010-1/Sesja10-1.html>

The **May-June 2010 session** was much less troublesome. Only in one experiment we had problems with recording on a disk-pack that was already partly recorded (both times in bank B) which led to some loss of data. However in the very beginning, during N10C2, we experienced an outage. After recovery of observations the fringe amplitude (as seen on the online ftp plots from JIVE) dropped to unacceptable level. This apparently lowered sensitivity continued till the next morning (thus two more experiments were affected, EF022A and EP064M). We suspect that the reason was wrong antenna offset due to feed placement which probably was not set properly during the recovery process.

Two more cases when we had problems with the start of recording happened in the C-band part of the session. The M and L parts went without significant problems.

Post-session calibration results are presented under this link

<http://www.astro.uni.torun.pl/~kb/Reports/Cal2010-2/Sesja10-2.html>

One may note there that virtually all user experiments at L-band were very seriously affected by strong RFI in many channels. The edited *antabs* have temperatures limited to about 500 K, but for illustration we included an example at

<http://www.astro.uni.torun.pl/~kb/Reports/Cal2010-2/rsd02b-Tsys.html>

where data of one of the channels is presented also before they were edited. The situation similar to that shown in the second and third figure on this www page is typical of practically all experiments (although not of all channels).

## **Personnel Changes**

No changes in this category.

## **Changes/Upgrades Made to Hardware/Software**

There were no changes related to the VLBI terminal. Current software versions are as follows:

- Mark5A OS is Debian "Etch" version 4.0 with the package mark5a\_1.0.2-i386.deb
- Mark5A application code is Mark5A2007y.225d
- FS 9.9.2 version has been used in both the sessions.

## **e-VLBI**

We completely failed in two e-VLBI experiments due to problems with the C-band receiver. Otherwise, our station has participated in all other regular and testing experiments organized by JIVE.

## **Other Matters**

In February 2010 we added 64 TB of disk-pack capacity (8 SATA packs, 8 TB each) to the EVN pool, so that now Torun with its total of 153 TB fulfills the EVN agreed contribution expected of an active station.

News reach us from JIVE that some of these large-capacity disk-packs do not perform as expected of a new hardware.

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