

Mopra Observing

Overview

Mopra antenna control and IF setup is all run from a terminal based program called vlobs. This is similar *but not the same* as caobs at Narrabri. Some antenna control is done via the simple GUI “attest” (focus, stow, changing attenuation). The VLBI backend consists of two “LBA DAS” which sample and filter the IF and the LBADR recorder which captures the sampled data, formats it in software and writes to local or remote disk (or streams for eVLBI). The DAS setup is controlled via the “DAS GUI” and the recorder via “cdisko2”. These are the same for ATCA, Parkes and Mopra and some documentation is available at: [ATNF observing notes](#)

Antenna control

The antenna is controlled via a terminal based program called vlobs on bigrock. If it is not running just type “vlobs” on a terminal on bigrock. Sometimes vlobs fails to start (usually spews gibberish all over the screen). If it doesn't start, just try again (and again - very occasionally up to 10 times).

To start a schedule type:

```
> file <SCHEDULENAME>
> start
```

The schedule name will generally be the name of the experiment. When you type “file” check carefully it really loaded the schedule - if you have a typo in the schedule name or the schedule does not exist there is not an obvious error issued. There is no need to “unstow” the antenna.

The useful vlobs commands are:

file <SCHEDULE>	Load schedule called SCHEDULE.sch
stop	Stop the current schedule running
start	Starting running the loaded UT schedule
lo_disable	Stop vlobs adjusting the frequency (use with caution)
lo_enable	Allow vlobs to adjust frequency based on the running schedule
set att servo off	Disable vlobs adjusting the IF attenuation. This is the default

To stow the antenna, stop the running schedule and stow from attest (see below).

attest

Use attest to focus the antenna, stow the antenna and adjust attenuation

Stowing

Click the “stow” tab on the attest gui. Press “Go”

Attenuation

Click the “atten” tab in attest. Generally you will not have to adjust the coarse attenuation. There are 4 “fine atten” values corresponding to 2 pols and 2 IFs (A1, B1, A2, B2 where A and B are the two polarisations). Note that the value shown in attest are not necessarily the current values. The attest fine value are in steps of 2dB, while the values seen in MoniCA are the actual attenuation in dB. E.g. a fine atten of 3 is actually 6 dB.

Generally automatic attenuation is disabled as it causes various problems. As the observer you need to monitor the power levels and adjust attenuation as necessary. Note the power levels can be a little off nominal so the attenuation does not usually need to be adjusted more that occasionally if at all.

- The GTP values should be roughly between 1.0 and 5.0 and the SDO values something similar. If these values are way off, the Tsys measurement will fail.
- The DAS “IF level” should be roughly centred. The DAS will cope as long as the IF level is not at the extreme high or low end.

If either GTP/SDO or DAS levels are too high, add some fine attenuation to the appropriate IF. Similarly if the power levels are too low, remove attenuation. Once you have changed the attenuation, click “Go”.

Note it is sometime impossible to get a “good” power level for the GTP/SDO and DAS simultaneously.

Monitoring

You should regularly monitor the following every 10-15 minutes

- ATDRIVEMON shows antenna is tracking
- vlobs is running
- vlobs Tsys values are sensible (particularly non-zero - see troubleshooting)
- GTP/SDO values are within range
- DAS IF level within range
- Recorder still running
- cdisko has not frozen

Troubleshooting

- **atdrivemon says drive error:** Is it very windy? May be a hardware windstow. If so just wait it out (~20 min).
- **vlobs Tsys shows 0 for one or more IF.** Check SDO/GTP values and adjust attenuation.
- **Frog complains about Focus:** Adjust focus in attest

- **vlobs does not start - random characters on terminal.** Try again (and again, and again and again).
- **cdisko freezes** Try killing the GUI (via windo manager or ^C fro starting terminal) and restarting. Killing the GUI should not interrupt the recording

From:

<https://www.atnf.csiro.au/vlbi/dokuwiki/> - **ATNF VLBI Wiki**

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<https://www.atnf.csiro.au/vlbi/dokuwiki/doku.php/lbaops/mopraobservingsummary?rev=1498090356>

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