

ARCC Pulsar Observing Notes – Online Version

Revised Instructions as of Feb 8, 2009

Phone Numbers:

ARCC@UTB control room: 956-882-8810

Arecibo Operator: 1-787-878-2612 x211

1: Call Arecibo Telescope

Ask them to turn on the webcam and let them know you will be observing, and require the current password for dtusr.

Call Arecibo at 1 787 878 2612, follow audible instructions, x211 for the operator.

If using a UWM campus phone, dial “9” first to access an outside phone line.

2. Log into Arecibo

Open an Xterm window.

On localhost, type: “ssh arcc@remote.naic.edu”

Enter password “*****”

On remote, type: “ssh aolch”

Enter password “*****”

3. Start a VNC Server

On aolch, type: “vncserver –geometry 3610x1400”

This will give you a message “New ‘X’ desktop is aolch:N, or aolch:NN where the N’s are the server number needed for the next step. When NN is required, use a leading zero.

Let other observing participants (UTB) know the N or NN number so they may view the server.

Open a new Xterm window.

On localhost, type: “ssh –f –L 59NN:aolch:59NN arcc@remote.naic.edu sleep 14400”

Enter password “*****”

Start Chicken of the VNC

Select: New Connection

Host = localhost

Display = N or NN

Password = “*****”

This will open a window with an xterm on aolch

4. Check WAPP disk space

New Way: On aolch, type “./wappspace” Ensure there is 58GB of space on all drives for each hour of observing.

Old way: on aolch type “df –h /share/wapp11” Make sure there is 58GB of space per hour of observing. Repeat the command for:

“df –h /share/wapp21”, “df –h /share/wapp31”, “df –h /share/wapp41”

5. Log onto observer2

On aolch, type: “ssh dtusr@observer2”

Enter password from step 1

6. Start the observation

On observer2, type “cima - -v old” for old version of cima.

The above command is “cima(space)(dash)(dash)v(space)old”

For new version of cima, type “cima” We are currently using the old version.

Then select normal (just hit enter) or type “old” to access old version

If “cima” was entered, and old version is required, type “old” when [normal] is presented.

This brings up a window. Enter:
Project Number: p2030 (use a lower case p)
Enter your names and a phone number
After the operator approves you, click Pulsar and then Accept

7:Observe

A: On the menu in old cima, click ALFA, disable quick tsys, select receiver now.

B: select a bright “test” pulsar:

Choose “Pointing Control” on the “Observer’s Interface” window. This will bring up the pointing control menu. Click the button with psr.cat. this will bring up a window with a list of files, choose the file psr_bright.cat. This will bring up a list of bright pulsars currently in Arecibo’s view. In the pointing control menu window, click a pulsar. Select one that will be available long enough for seven calibration scans (at least 15 minutes), choose one with the shortest slew time, unless you have a reason to choose a specific pulsar.

If possible, choose B1937+21 in psr.cat.
Click “point”

C: Monitor the telescope’s status:
In the xterm on observer2, type: “aostatus &”

D: Load the PALFA configuration:
Click “Load/Save State” from the “Observer’s Interface” window.
Click “Load a Saved State”
Select “alfa_psr_scan.1440.gui”, click “continue”, and then “dismiss”

E. Apply the PALFA configuration to the IF/LO system:
Click “Receiver IF/LO Control”
Choose “New Improved IFLO Setup” (blue text)
“Apply This Setup”, “Dismiss”, and then “Dismiss this window”.

F. Verify that we are using beam “0” for pointing:
Bring up “Pointing Control” from the “Observer’s Interface” window. ALFA Center should be “0” by default, but you can explicitly choose it.

G. Start ALFA Observer Window
On observer2, type “alfaobswin &” in the xterm window.

H: Balance the WAPPs and check the levels:
Click “Pulsar Observing” in the “Observer’s Interface” and leave it open.
Configure the WAPPs for “2 chan, 3-level auto”, “Copy WAPP 1 to all”, click “Sanity Check”.
See that it passes in “AO Observer Display”.
Click “Start Monitor”, and “Auto Attenuaton”.
The levels on the alfaobswin should be ~1 for both channels for all beams. The acceptable power values are between 0.8 and 1.2. If the levels are not in this range, select “Auto Attenuation” again.
Click “Stop Observation” in the “Pulsar Observing” window.

I: Take a “test” scan (or scans) on a bright pulsar:

In the WAPP window, change to “sums chans, 3-level auto”, “copy WAPP 1 to all”, “Sanity Check”.
Once the telescope is settled and tracking the pulsar, click “start observation”.

Once this observation has ended, click “1” in the “pointing control” window, this sets beam 1 as the ALFA center. Click “start observation”. When observation is finished, repeat previous steps for beams 2-6.

IMPORTANT: WHEN YOU ARE FINISHED, MAKE SURE TO SET BEAM “0” IN THE “TELESCOPE POINTING CONTROL” WINDOW!!!!!!

J: Choose the pointing catalog for the day’s observing

On the “CIMA Observer’s Interface”, select “Command File Observing”

Click on the “Load” button.

Select the file for the observation period, autosched_YYMMDD_(anti for the 1st in the ~05:00:00 range, inner for 1st in the 19:00:00 range).cmd.

Click “open”

Click “run”

Observation Notes:

If you need to stop the observation (to change attenuation, etc) you can click “stop” or “abort”
The “Stop” command finishes the current task, and then stops. This should be used in most cases.

The “Abort” command immediately stops the current task, and should only be used in extreme cases.

While the observing is going on, you should monitor the beam power levels periodically in the WAPP window. Things are probably “bad” if they go below 0.8 or above 1.2. If this happens, follow the “Auto Attenuation” procedure, as outlined on the last page.

In order to use the quicklook feature, you need to start the processing by logging into alfa@aspmaster, then run bin/realtime. If realtime is not processing, click “start ftp” and “quick processing”. To look at the observations, you need to start a webbrowser and go to the address aspmaster.naic.edu/alfa/viewer.php

8. End observations

In the observation status window, click “stop”

In the “CIMA observer’s interface window” select “exit CIMA”

Hit “Quit monitor” button on the ASP nodestatus screen.

Close the VNC server window

Look for candidates in all quick look data, at least on inner galaxy scans. (On telecon of 19, Dec 2005, we decided that this should be the observer’s responsibility. It works ok over vnc.)

If there is anything important to report or in log file (/share/obs4/usr/pulsar/p2030/p2030.cimalog), place it in ~palfa/public_html/observing.notes/ (and make sure group and permissions are correct). [also update the link to this file on webpage: /home/palfa/public_html/observing_notes/index.html] There should be at least a session summary here for each session.

9. Shutdown the VNC server

In a terminal on localhost, type “ssh arcc@remote.naic.edu”

Enter the password “*****”

Type “ssh aolch”

Enter the password “*****”

Type “vncserver –kill :N” or “vncserver –kill :NN”

Turn off the webcam

Tell the operator we are done observing on the CIMA observing chat window

Routine Checks During Observations

1. If power levels change by ~20% or more away from 1.0 (0.8 and 1.2), it is necessary to auto attenuate the levels.
2. Check 'aostatus' once in a while: Close the zenith (<1 deg ZA), the azimuth arm can not swing fast enough to track. But even at somewhat larger ZAs, the ring of alfa feeds rotates more than half a beamwidth on the sky, thereby greatly diminishing the sensitivity of all but the central beam.
3. If ZAG approaches 5 degrees, skip ahead in the command line by 5-6 items. Return to the skipped items after observing ~5 items. This is caused by the platform above the telescope dish blocking the source.

From Phil Perillat's Fig 4 at www2.naic.edu/~phil/mbeam/mbeamrotation.html,

-An anticenter (~2.5 min duration) observation should not be done with $ZA < 3$ deg, if we wish to keep beam skidding on the sky $< _$ beamwidth.

-An inner (~4.5 min duration) observation should not be done with $ZA < 5$ deg.

(see red and green curves respectively on Phil's Fig 4 for details.) In these cases, you may choose to advance a few pointings in the schedule file.

Troubleshooting

-If there was a nearby radar run, ask to make sure ALFA cover is off and the filterbank has been reset to the standard setup.

-If there are a lot of 'overflow' warning errors, sometimes doing a "sanity check" when the WAPPs are idle and restarting the observations helps.

-When all else fails, restart the WAPPs: "more" on WAPP GUI, then "restart ALL WAPPs". Sometimes restarting the specific WAPP having problems works even better: To restart WAPPn, ssh `wapp@wappn` and type `start_wapp` (which stops and starts it).

Auto Attenuate Instructions

-When beam powers in ALFA observation monitor window fall below 0.8 or above 1.2, Auto Attenuation is needed.

1. In “CIMA command file observing window” click “stop” Observing will stop after current task

2. On WAPP window, switch to “2 chan, 3-level auto” (on WAPP 1).

Click “Copy WAPP 1 to all”

Click “sanity check”

Click “start monitor”

Click “Auto Attenuation”

3. If levels are good (~1.0):

Click “Stop Observation”

Switch back to “Sums chans, 3-level auto” on WAPP1

“Copy WAPP 1 to All”

“Sanity Check”

If levels are not good (~1.0):

Click “Auto Attenuation” again, so that levels will adjust again, and then follow above instructions on “if levels are good”

4. In “Command File Observing Window”

Click “Run”