Crab project

January 15, 2018

1 Data acquistion

2 Antenna control

2.1 Find the pulsar position

step i Find a pulsar you like from pulsar catalog:
http://www.atnf.csiro.au/people/pulsar/psrcat/
Some parameter to choose: JName: Pulsar has 2 kinds name: B and J
p0 : period
p1: derivation of period. As the period is chaning slightly.
S400, S1400, S2000 : As a wide band signal, pulsars flux is different at different frequency bands.
Name, DM , Ra, Dec.

step ii Find out the observers latitude and longitude from : http://www.geoastro.de/welcomeEnglish.htm
As leuschners latitude is around 38

step iii Then using following website to calculate the objects altitude and azimuth for the place you stay.We can also calculate this from astropy.
http://www.convertalot.com/celestial_horizon_co-ordinates_calculator.html

2.2 Ra ,dec inputs

2.3 Antenna response

2.4 Real time Camera of Antenna

We can view the status of Antenna from browser :
http://leuschner.berkeley.edu:8080

3 Data View and process by useful tools

Presto and sigproc(sigpyproc) are useful tools to view band pass data or dedispersion.They are already installed on Crab server.

3.1 Band pass

3.2 ADC data view

3.3 De-disperse by sigproc

3.4 De-disperse plot

4 Analysis

4.1 Detection ability of this system

Our Crab system has a temperature 150K.

4.2 DM smearing