

**Tianlai Analysis Center/BAORadio Hack Session #12**  
**Monday, July 1, 2019 @ Fermilab**

Attendees: Albert, John, Greg (remote), Reza (remote), Santanu, Anh,  
Trevor, Calvin, Peter

# Review of new NCP data

Data overview web table - Trevor

- [http://tianlai.bao.ac.cn/wiki/index.php/Fermilab\\_Data\\_Overview](http://tianlai.bao.ac.cn/wiki/index.php/Fermilab_Data_Overview)

Checkerboard movies for new data – Trevor

What processing is going to be done?

- copy data to pnfs (define sensible directory structure)
  - dish vs cylinder directories
  - directory naming - keep prefixes
  - combine directories that are split into parts p1 and p2
- running out of space on Tianlai01
- slice data into smaller files (on Mac or pnfs) - Anh
  - Anh needs pnfs permission
  - can't cross-mount Tianlai01 and 03 disks so best to slice by frequencies, 700-800 MHz, trim off beginning/end of run, one sidereal day, 1s sampling, start each file at 0 sidereal time (fractional days at beginning and end), put on pnfs: 400MB files
  - mask/flagging for RFI, noise source gets included in data file, no data excised (or interpolated)
  - raw time stream format
  - start with CygnusANP 2017 data, ask people to inspect, then proceed, try multiprocessor at UW, read/write to pnfs

# Review of new NCP data (cont'd)

How / who is going to process ALL the new data?

- calibration - Santanu
  - CasA data - check stability of calibration of amp and phase
    - use Galactic plane crossings too
    - compare CasA calibration with noise source calibration
- mapmaking?
- RFI - Albert sees some data 'drops'-do the RFI finders look for drops?

Aspirational timeline?

# Other Analysis

## Sun removal/eigenvalue analysis - Anh & Santanu

Looks promising. Try parallelizing with UW cluster to run all frequencies

## Maps – Anh

m-mode - where do the rings at the NCP come from?

- Plot the tianlai dish beam simulation in Healpix for comparison

Traditional mapmaking approach for NCP - Reza's SOPHYA codes

## Calibration - John

How useful is the calibration noise source for calibration? – Albert

Discussion of specifics of how it might be best used

- let's compare it with the repeated sky-based calibrations in CasA data

## Delay/delay rate analysis – Trevor

Try this out for Sun; Include HI map - how much signal is lost using this filter

## Simulated waterfall plots of NCP including CasA, CygA in sidelobes -Trevor

Try out JSkyMap

Beam simulations - Calvin - 512 freq channels in about a week

Next meeting - Thurs July 25