Introduction to the SRT

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What should I learn?

First off: nhn.ou.edu/srt and github.com/OUsrt
Overarching goals

- Learn how to conduct observations, manually
- Learn a bit about pros and cos to radio
- Maybe more coding experience

Immediate goals

- Learn how SRT works
- How to get science from SRT
- How to reduce the science
- What to do when something goes wrong

Available:
Single Dish and Basic Interferometry

First let’s go to the roof and get a look

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Explain basic system source > antenna > receiver > computer > FFT > DATA
Show how to control manually (how to kill power if needed or restore!)
Show how to calibrate manually (vane)
Show how to calibrate remotely (noise diode)
Show how to pointing manually and focus

Remote control

Connecting and control

- Connect via ssh if you need to get data
- We use vnc for security (uses ssh protocol)
- Can only connect via known computers (ssh-keys needed)
- Don’t everyone try to use at once.
- Demonstrate

Limitations

- High wind speeds!!
- Lightning
- Az el mounts
- FWHM 4.92deg
- possibly slanted mount
- RFI
- Not that sensitive

Projects

nhn.ou.edu/srt/instruction.html

Modes of observations:

- Single Point (STD)
- Mosaic or mapping (STD)
- Beam switching (NSTD)

Projects:

- Galactic Plane Mapping (STD)
- Solar Monitoring (STD)
- Faint Source Detection (STD/NSTD)
- Beam characterization (STD)
- Noise Diode Characterization (NSTD)
- Efficiency Characterization (NSTD)
- Sensitivity Characterization (NSTD)
- Map sky visibility (NSTD)
- Accurate pointing/focus model (STD)

Reduction

Outline:
Single Point Obs:
data file > parse to spectra > remove RFI > flatten baseline > compare to standards
Mosaic:
Do single point obs x number of pointings
Beamswitch:
Similar to single point obs, instead you subtract off from on after parsing, then finish steps from above.

Reduction

Programs I built to help:
Mostly for reducing single pointings (can mosaic these) (labeled STD)
If you want to do anything else from above let me know or John (labeled NSTD)

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FIN