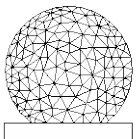


# MIT Haystack Correlator Workshop

Chet Ruszczyk



**MIT**  
**HAYSTACK**  
**OBSERVATORY**

# Correlation Workshop Goals

- How to perform end-to-end correlation of VGOS sessions
  - Begin increasing the frequency of VGOS observations
    - Now that the network appears to be stable
      - “Good data”
  - Requires more correlation centers to be active
- Provide operational lessons learned
  - Stations pushing their problems onto the correlation centers
    - Storage and data conversion
  - Observational anomalies
    - Equipment issues
- Requirements of the correlation centers (hardware)

# Correlation Workshop Goals

- Target of workshop
  - Correlators personnel that will be processing VGOS session
- What we will not cover
  - Debugging new stations coming on line
    - Too complex to handle all cases of what has been seen with new signal chains
    - May be subsequent sessions
- VGOS data processing users manual version 1.0
  - Main topic of workshop
- This will not be hands on – too many folks signed up (we apologize).



# Detailed Agenda

Topics	Who	Brief Description
Overview of signal chain	Neill	Linear polarization/ionosphere (high level should cover all systems)
Data processing overview	Barrett	Provide high-level description of the general steps (correlation, post-processing, database generation)
New correlation centers input	USNO / Bonn	Feedback from alpha testers - new eyes on cookbook
Getting data to correlators	Ruszczyk	Challenges / what to expect
Nominal correlation process in detail	Barrett	Describe vex/v2d, setup, and configuration, running difx and conversion to mk4 output. Followed by data quality check
Phase cal and sampler delays	Neill	Why it is needed
Clock model and station peculiar offsets	Himwich	S/X, VGOS operational impacts at the correlator
Post-processing in detail	Barrett	Assumption of 'good' data, what constitutes good data, steps required and other required information
Proxy cable-cal	Barrett	What is it and why is it required



# Agenda (cont)

Topics	Who	Brief Description
Database generation	Barrett	Howto
Occasional problems and work arounds	Neill/Barrett	Short list of common problems still experienced
What is required for end-to-end processing of VGOS data	Barrett	Software / Documentation / Versions
Show end-to-end processing	Barrett	Demonstration with 'good' data and examples of common failures
Wrap up	Ruszczuk	Summary, where to next, feedback

