

MSSS Update

George Heald (MSSS Project Leader)

on behalf of the MSSS Army

8 February 2012

LOFAR Status Meeting

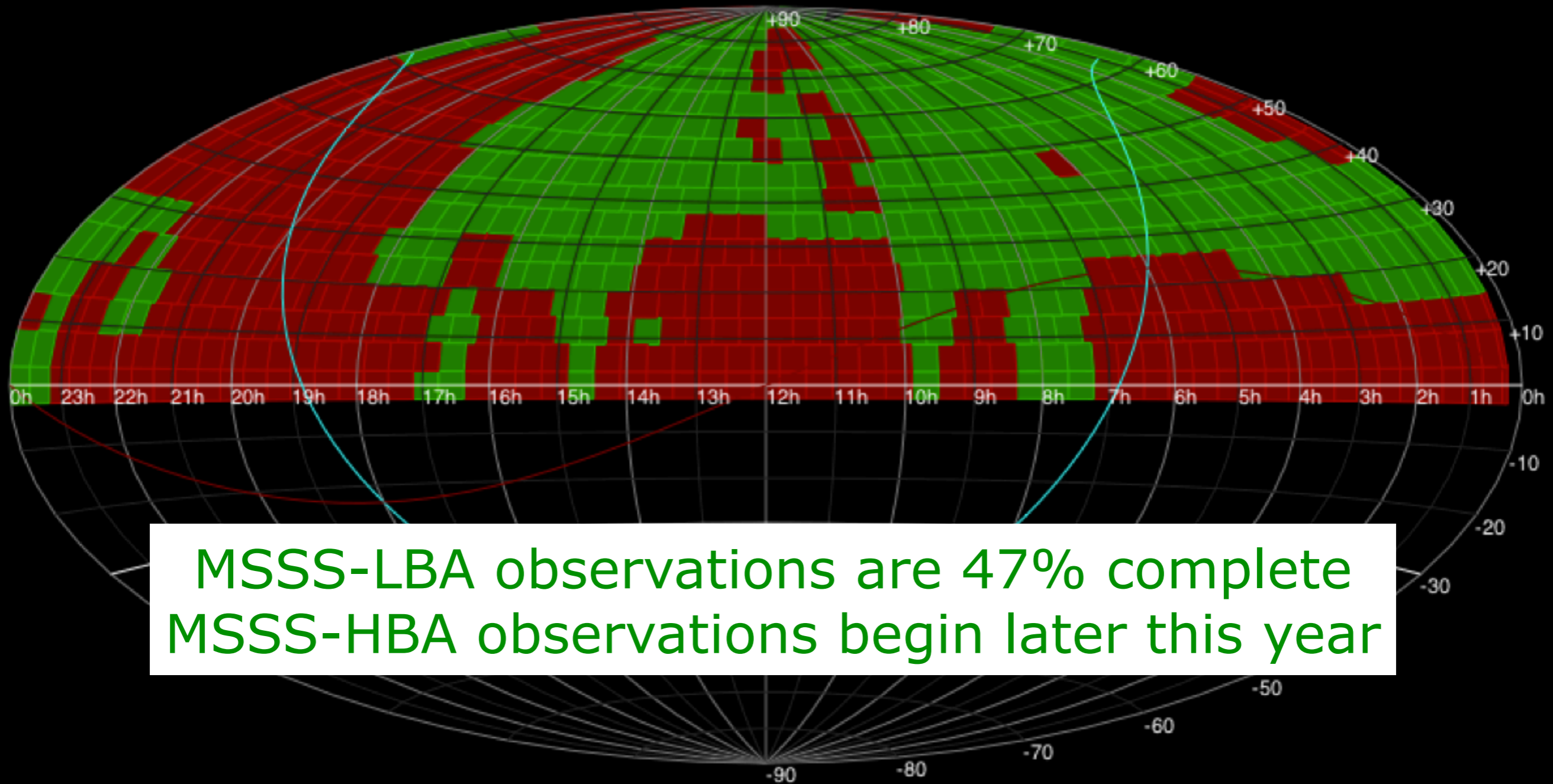


MSSS observations are underway



LOFAR **ASTRON**

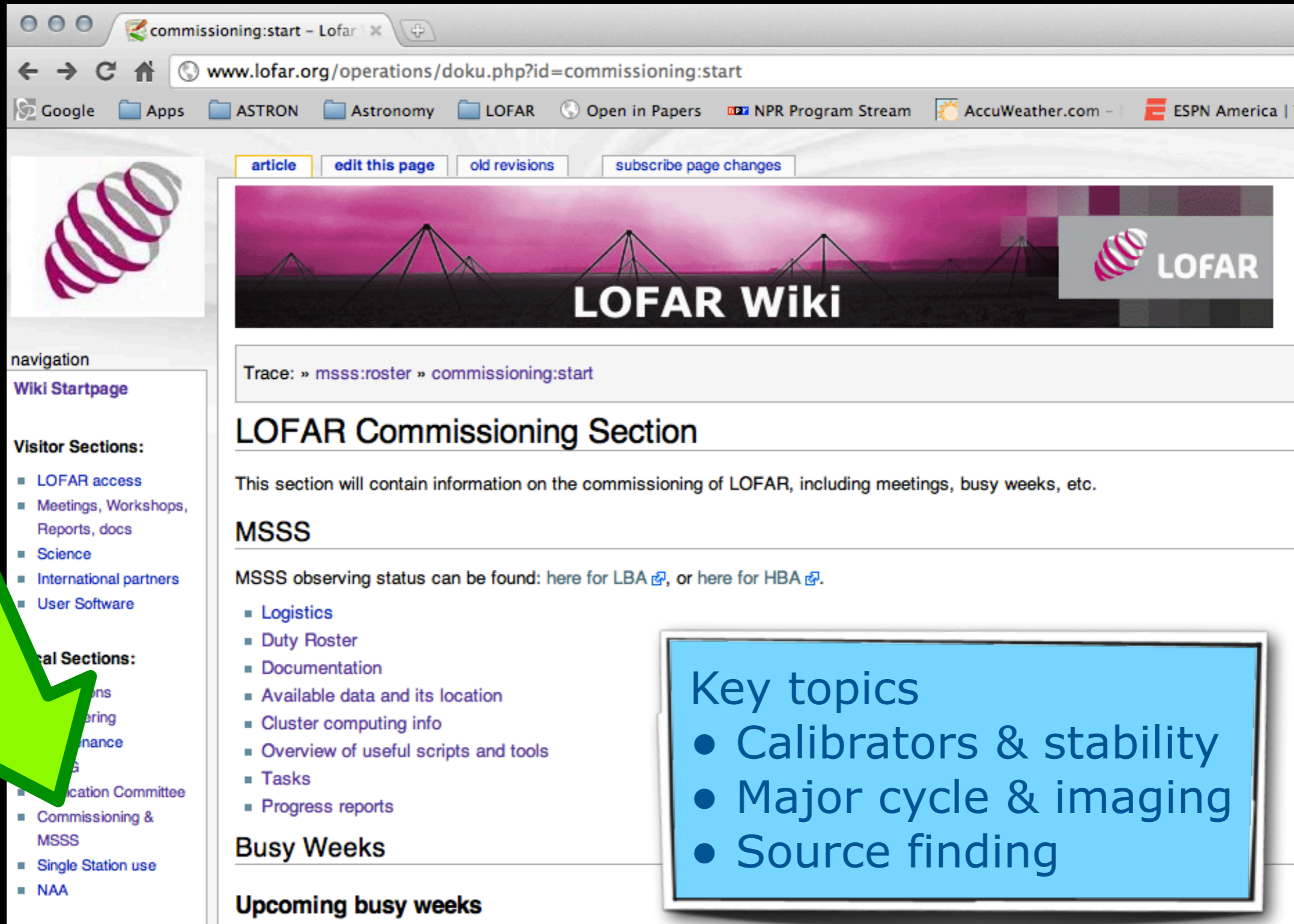
See http://www.astron.nl/~heald/msss/msssmap_lba_obs.html



MSSS-LBA observations are 47% complete
MSSS-HBA observations begin later this year

Note that observations of low-dec ($< \sim 20$ deg) fields have begun

- MSSS army pushing forward with data analysis & processing



The screenshot shows a web browser window with the URL www.lofar.org/operations/doku.php?id=commissioning:start. The page features a header with the LOFAR logo and the text "LOFAR Wiki". Below the header, there is a navigation bar with links for "article", "edit this page", "old revisions", and "subscribe page changes". The main content area is titled "LOFAR Commissioning Section" and contains the following text: "This section will contain information on the commissioning of LOFAR, including meetings, busy weeks, etc." Below this, there is a section titled "MSSS" with the text: "MSSS observing status can be found: here for LBA [↗](#), or here for HBA [↗](#)." A list of key topics is provided: Logistics, Duty Roster, Documentation, Available data and its location, Cluster computing info, Overview of useful scripts and tools, Tasks, and Progress reports. Below the list, there are sections for "Busy Weeks" and "Upcoming busy weeks". A large green arrow points to the "MSSS" section.

Trace: » [msss:roster](#) » [commissioning:start](#)

LOFAR Commissioning Section

This section will contain information on the commissioning of LOFAR, including meetings, busy weeks, etc.

MSSS

MSSS observing status can be found: here for LBA [↗](#), or here for HBA [↗](#).

- Logistics
- Duty Roster
- Documentation
- Available data and its location
- Cluster computing info
- Overview of useful scripts and tools
- Tasks
- Progress reports

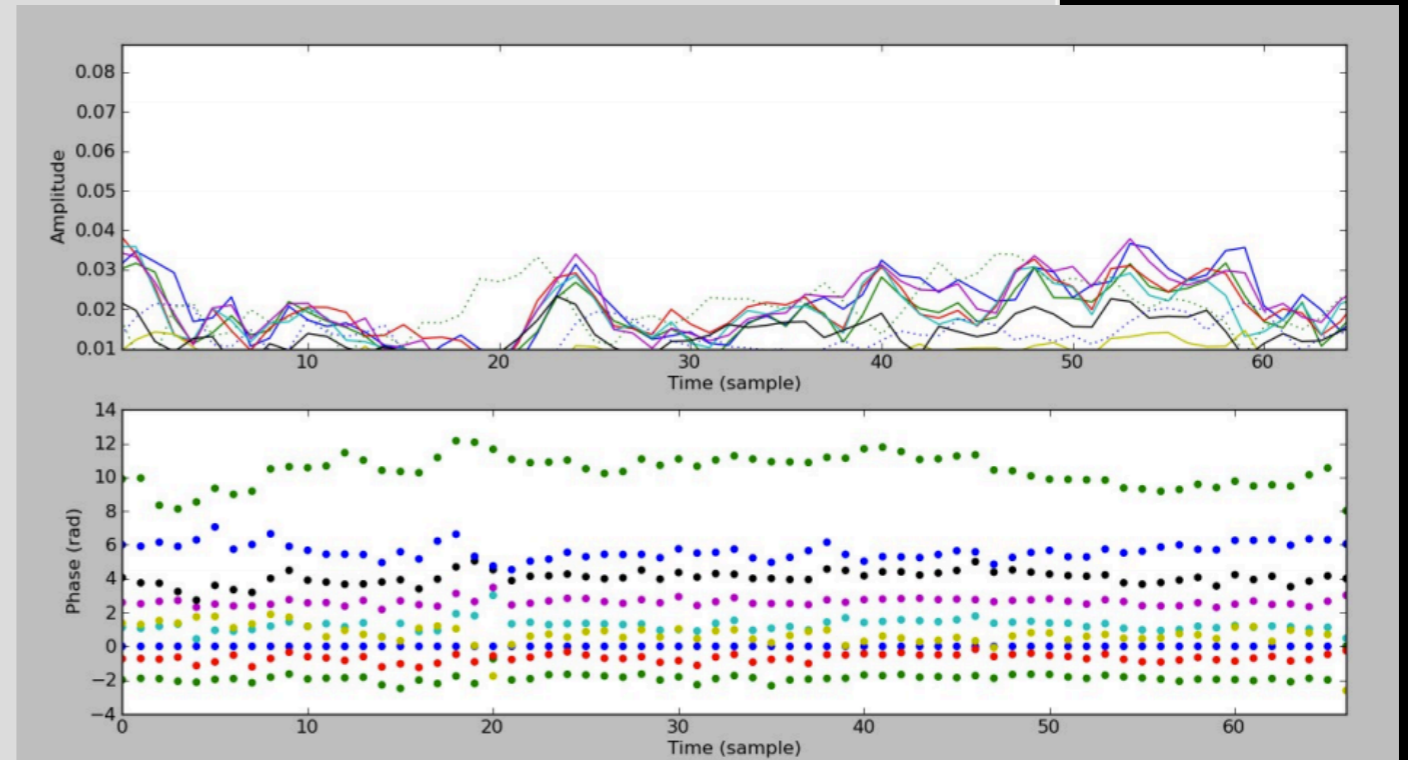
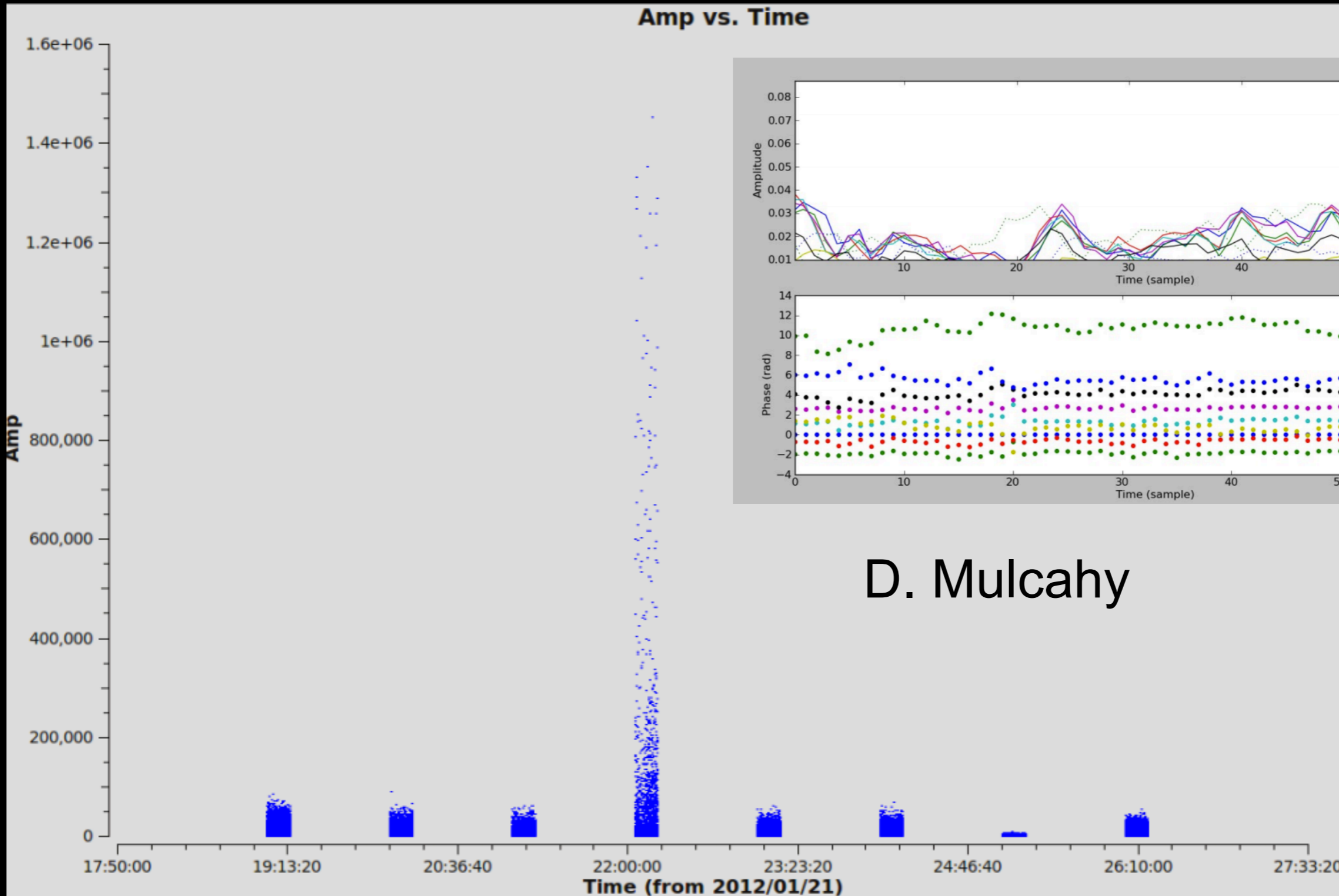
Busy Weeks

Upcoming busy weeks

Key topics

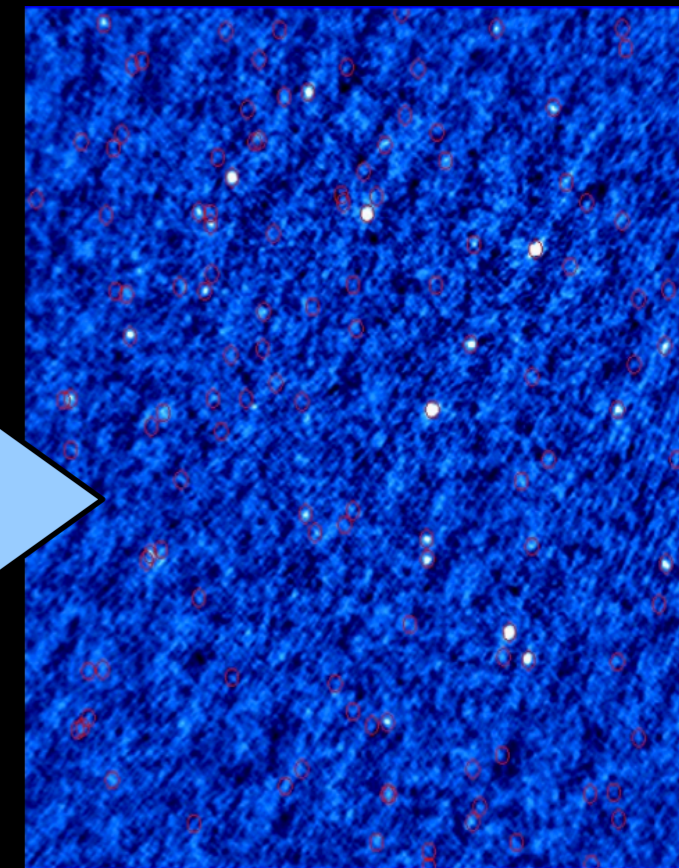
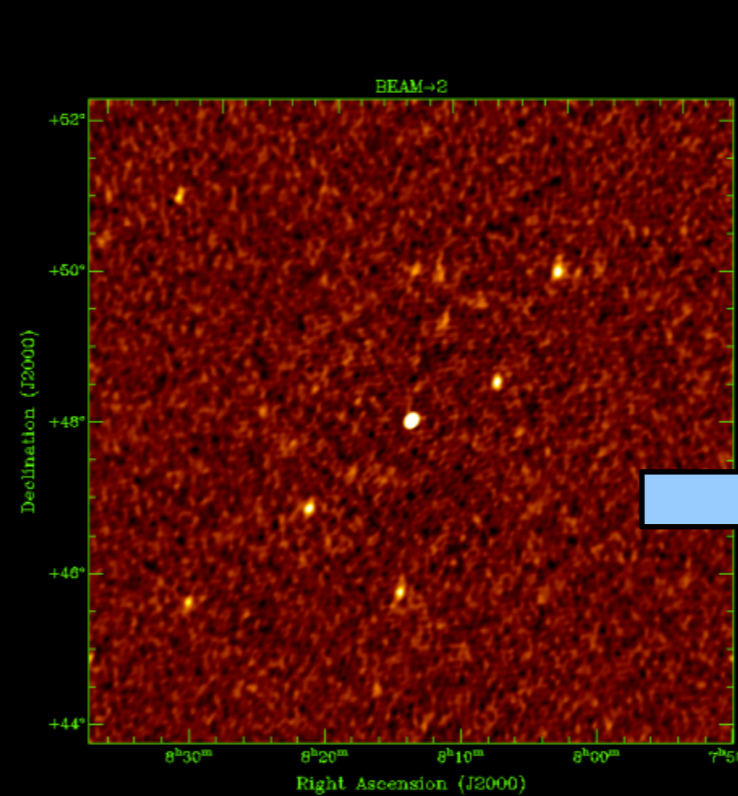
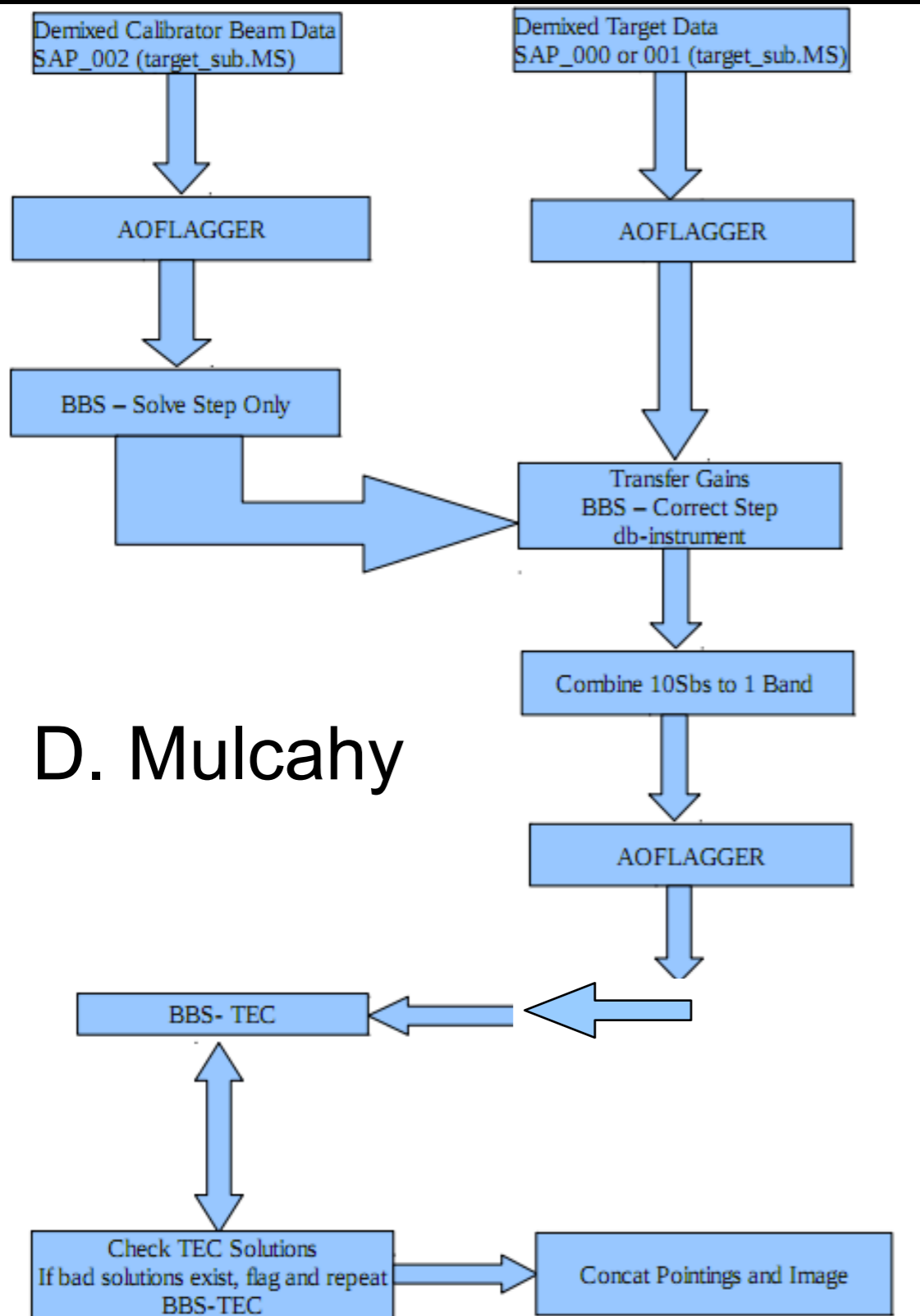
- Calibrators & stability
- Major cycle & imaging
- Source finding

- Calibrator gain instabilities lead to bad corrected amplitudes



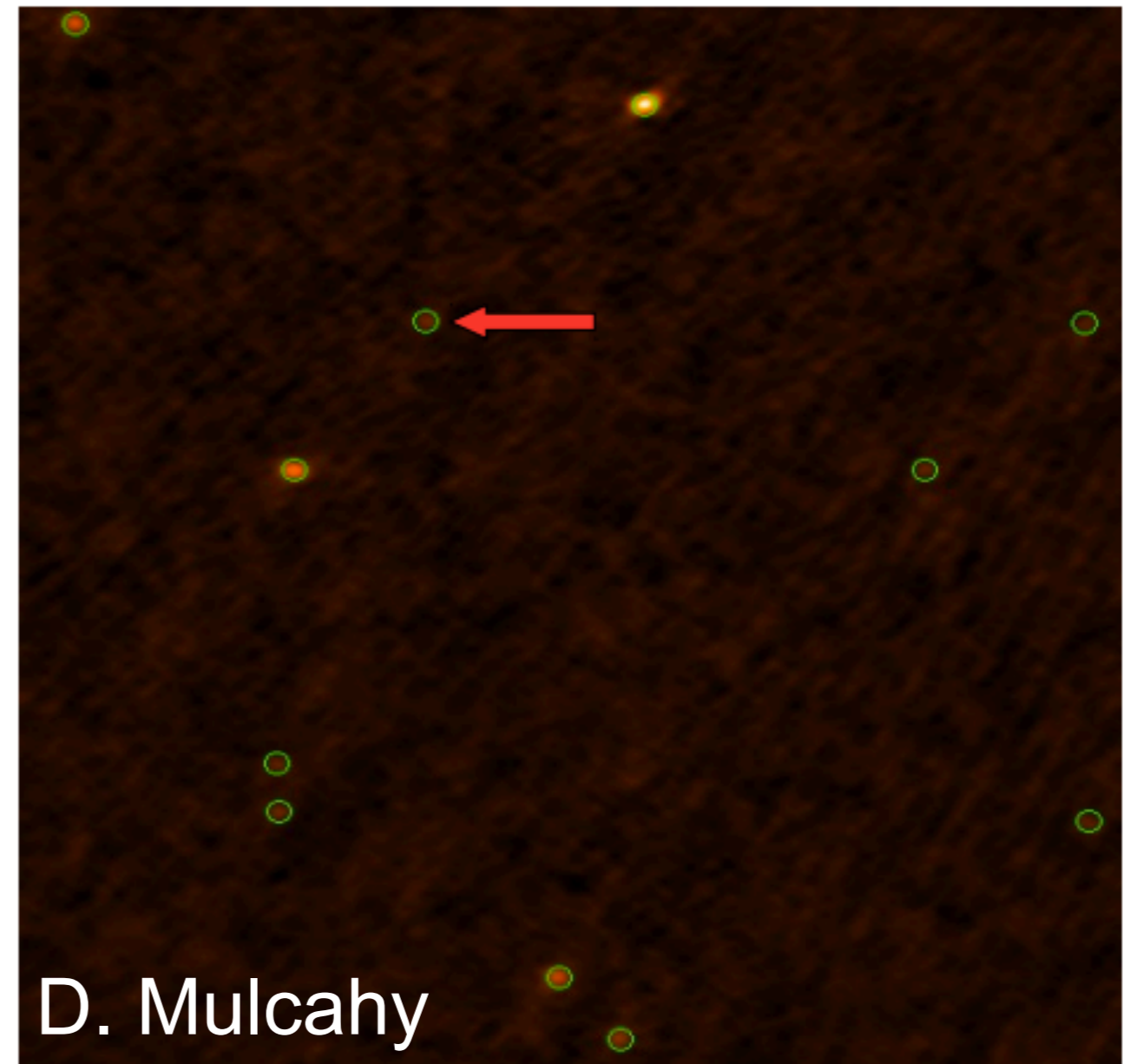
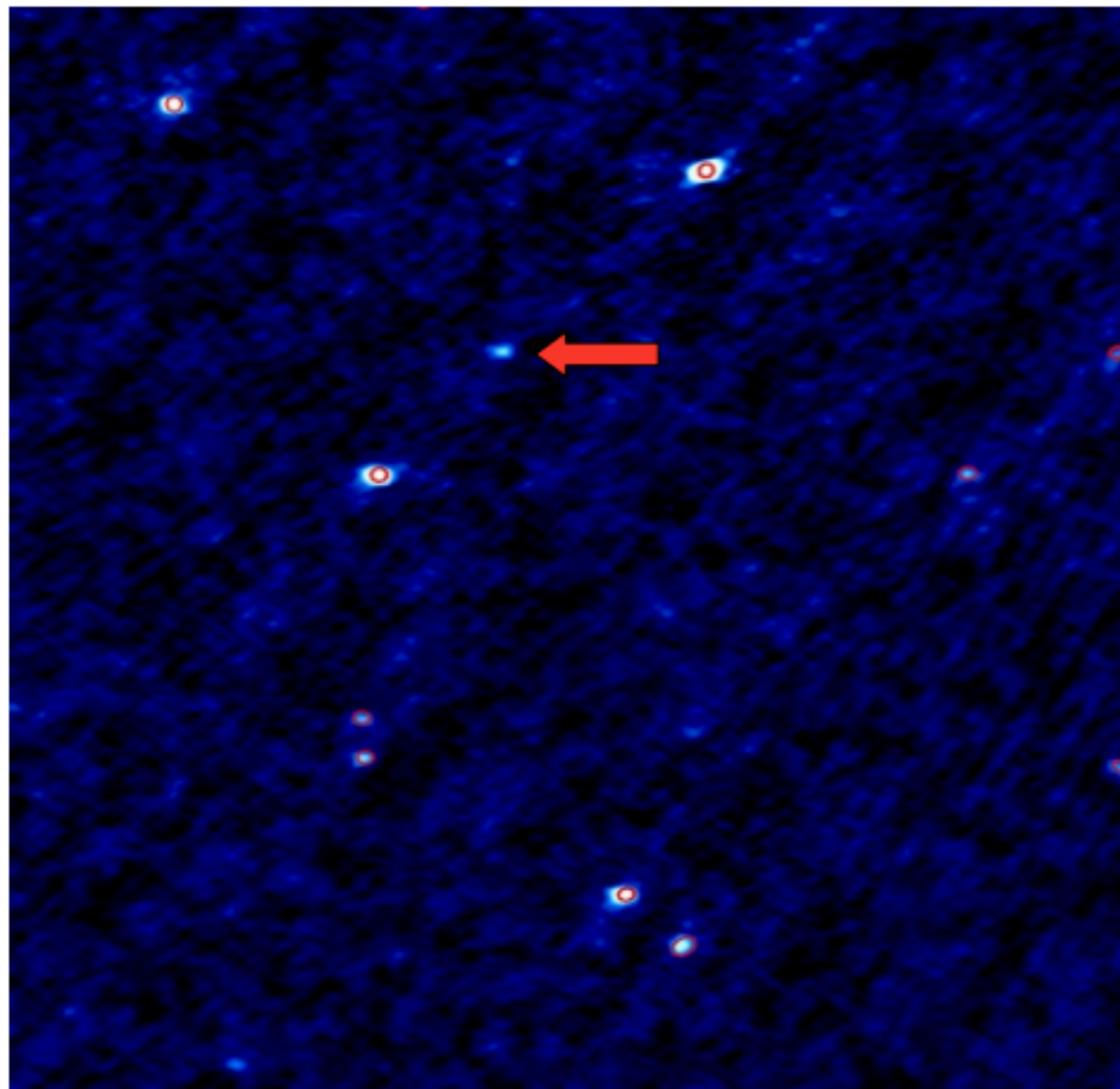
D. Mulcahy

- Best strategy so far: use 3rd beam on calibrator source



V. Jelic	D. Mulcahy
CS only	BL < 6km
2MHz BW	2MHz BW
88 min	88 min
350 mJy/beam	377 mJy/beam

- Best strategy so far: use 3rd beam on calibrator source

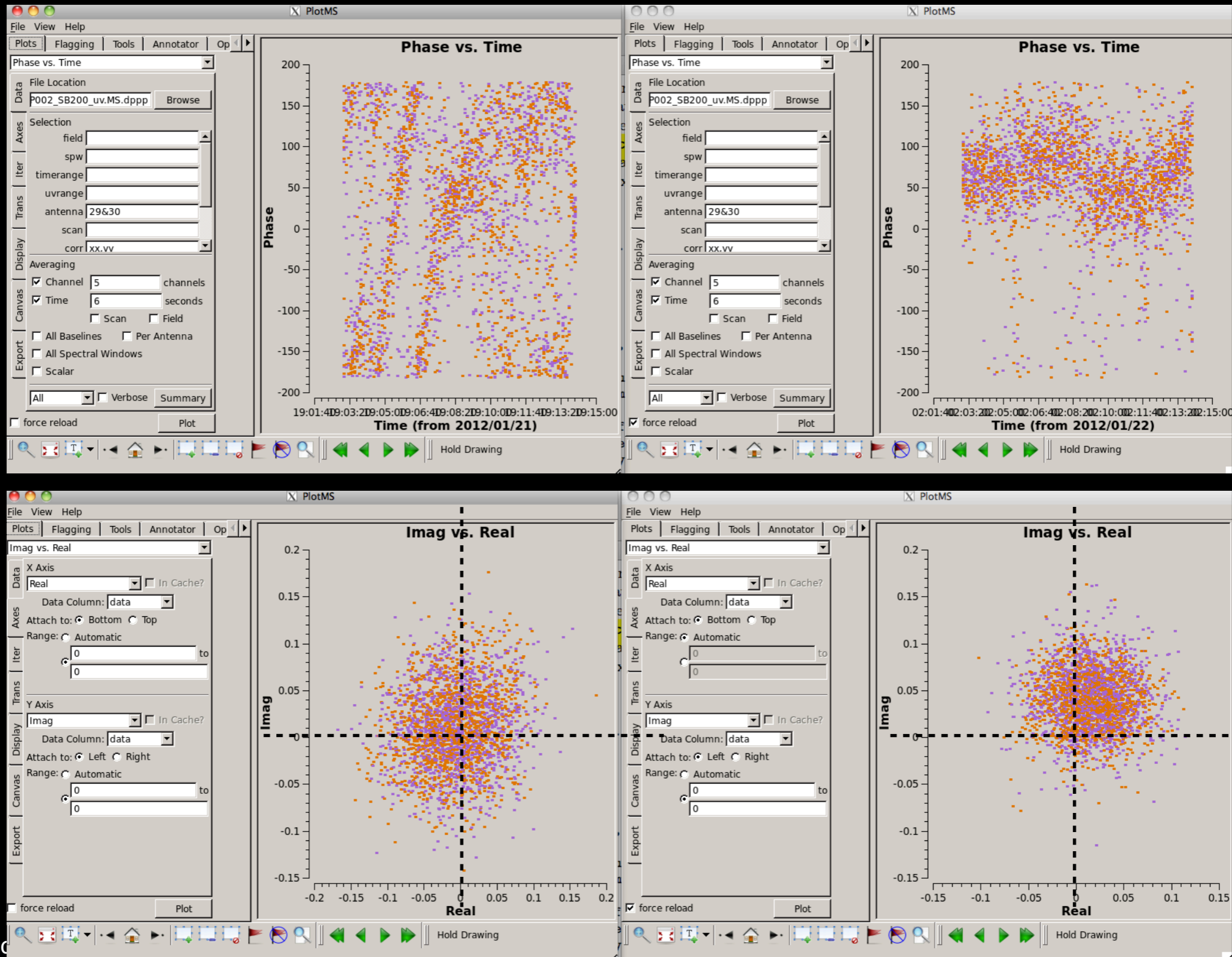


D. Mulcahy

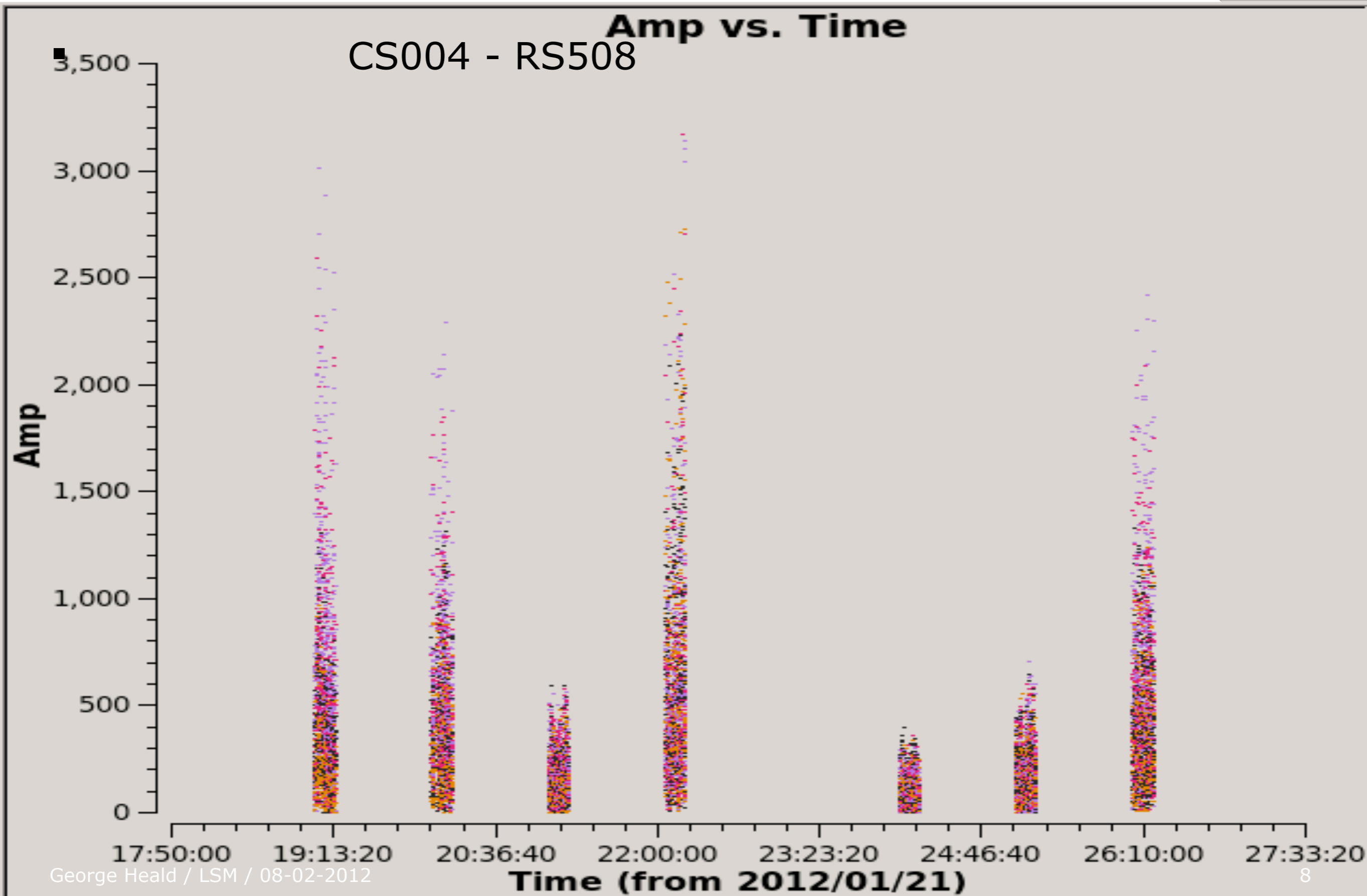
Fig 4 ; Left figure shows a region of the image with the red circles showing the skymodel used for the BBS TEC calibration (used `bbs2ann.py` found in `/home/heald/bin`) . Right figure shows the same area with the green circles showing VLSS sources. The red arrow shows a source that is detected by LOFAR that was not in skymodel but is indeed a real source as shown in the figure to the right. This is not the only case with several more real sources appearing than were not included in the skymodel.

Open questions remain

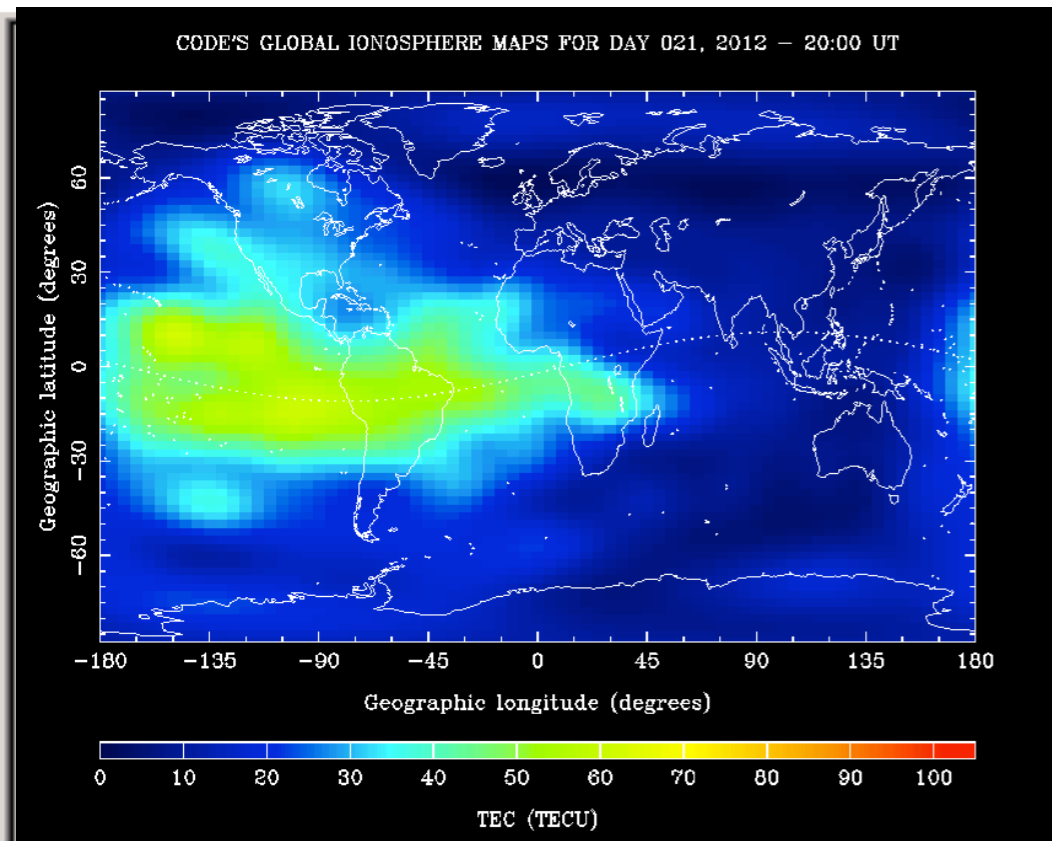
- Why are 3C196 solutions so unstable? Decorrelation??



Open questions remain



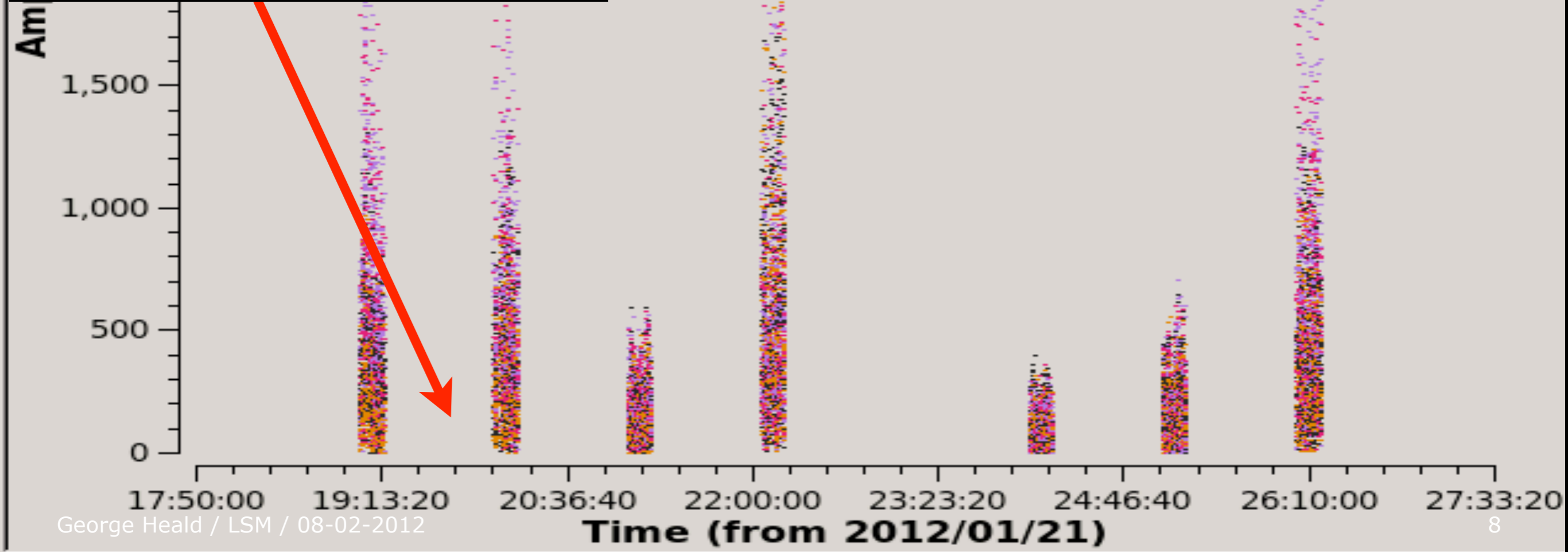
Open questions remain



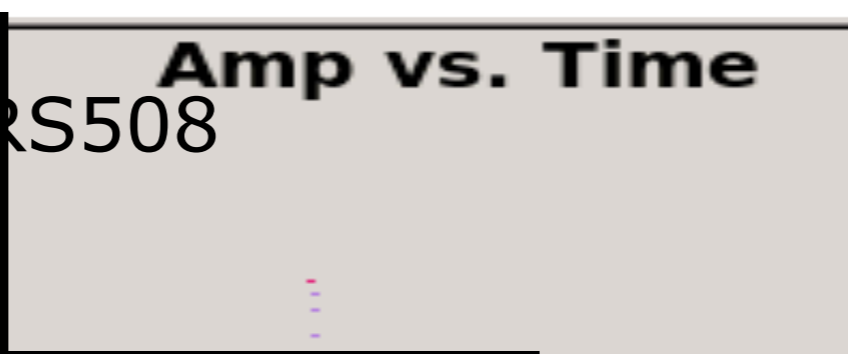
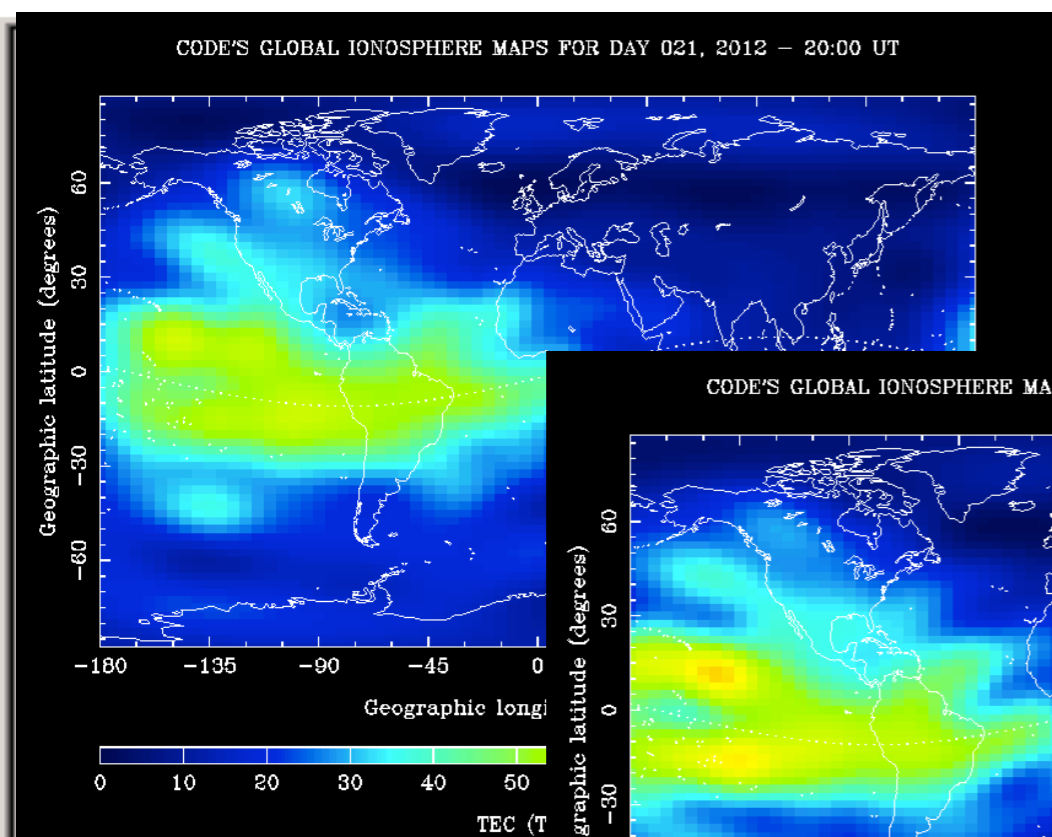
RS508

Amp vs. Time

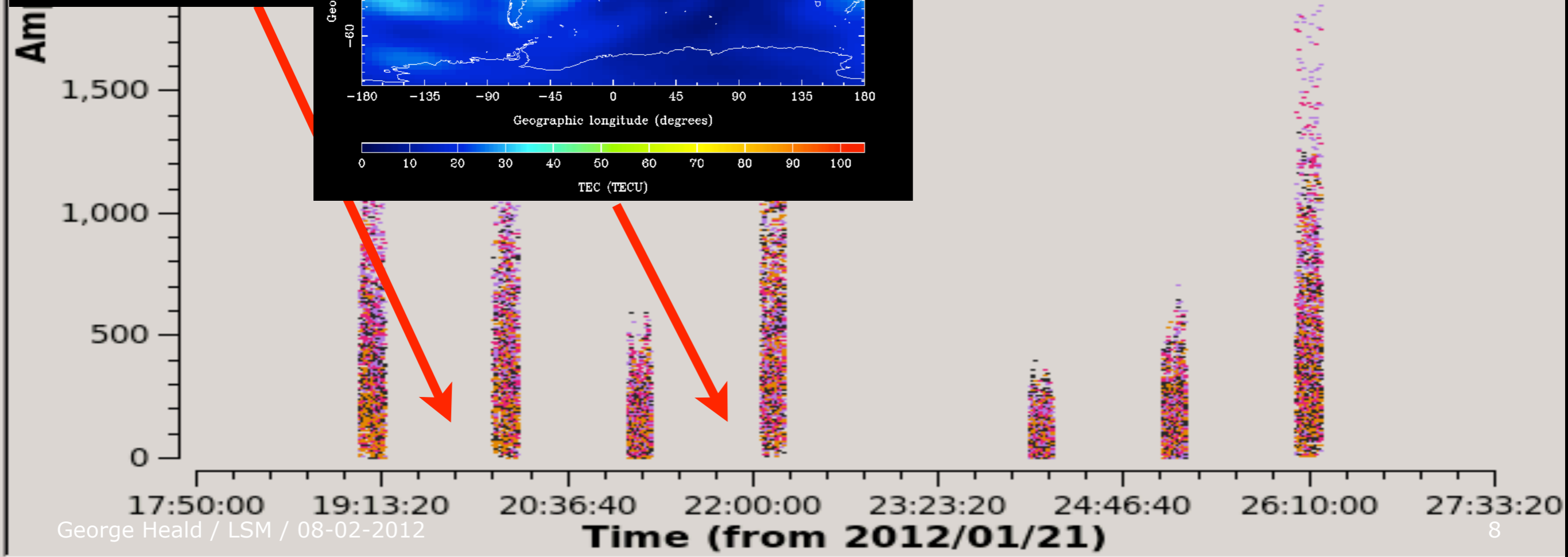
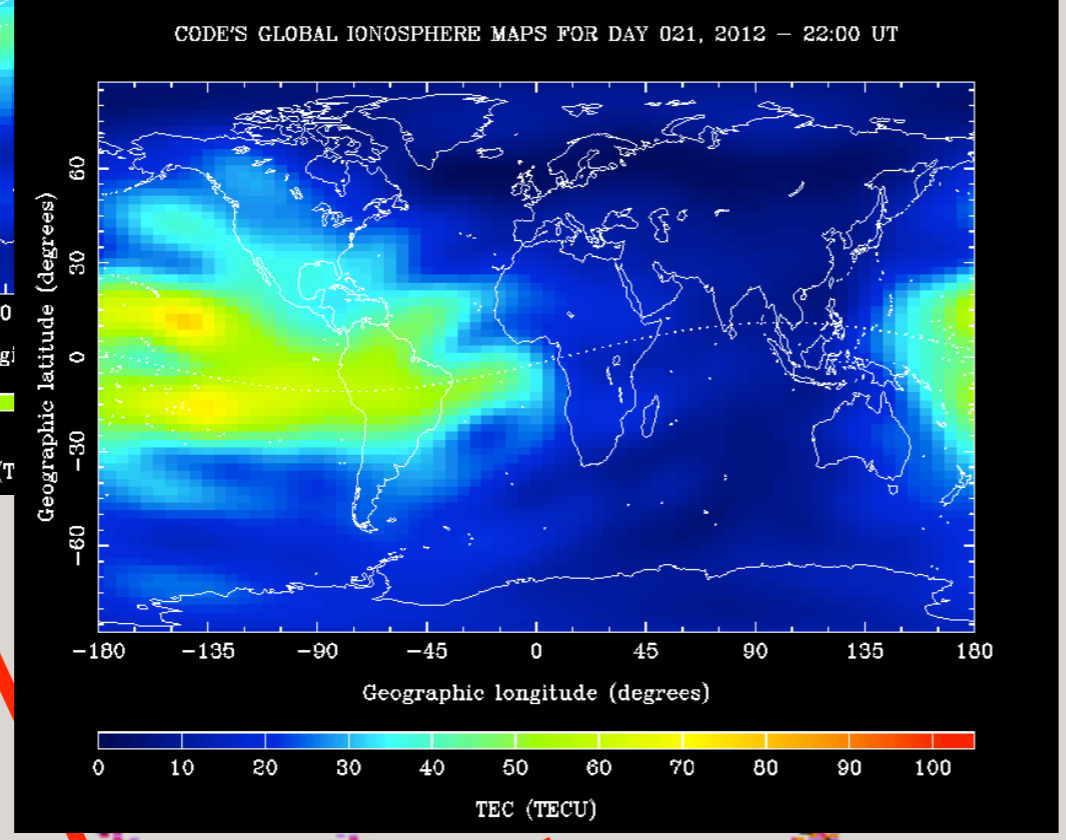
TEC maps
c/o CODE
(Bern)



Open questions remain

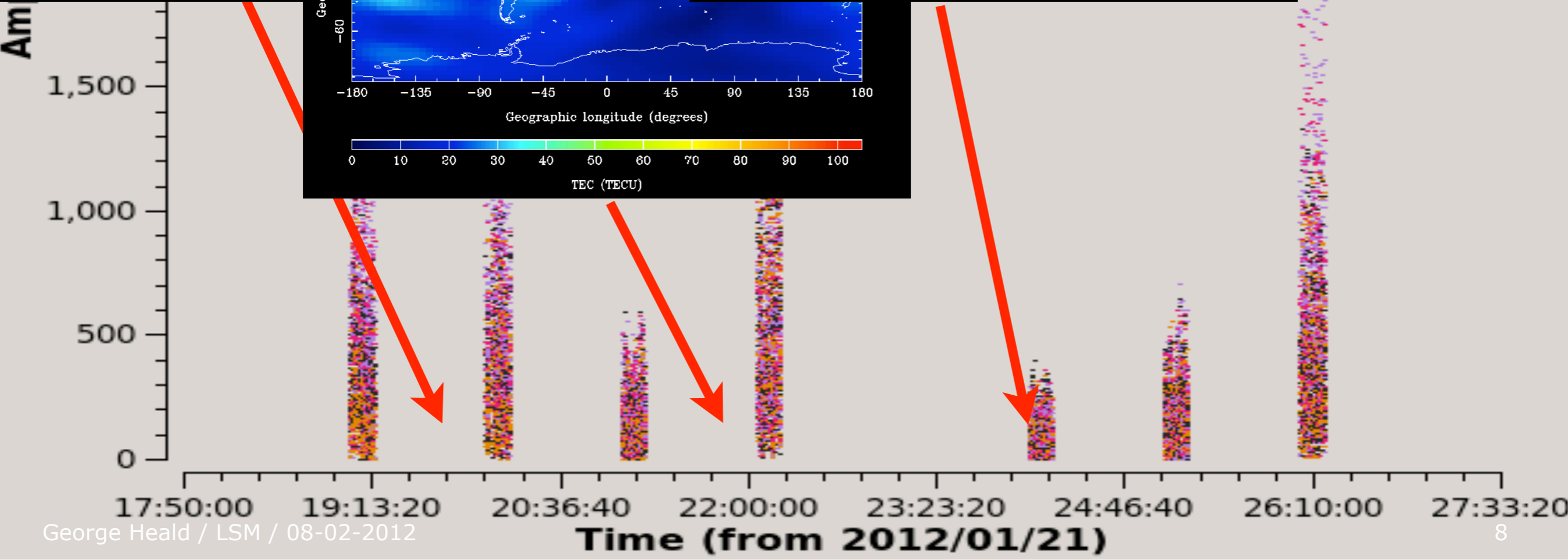
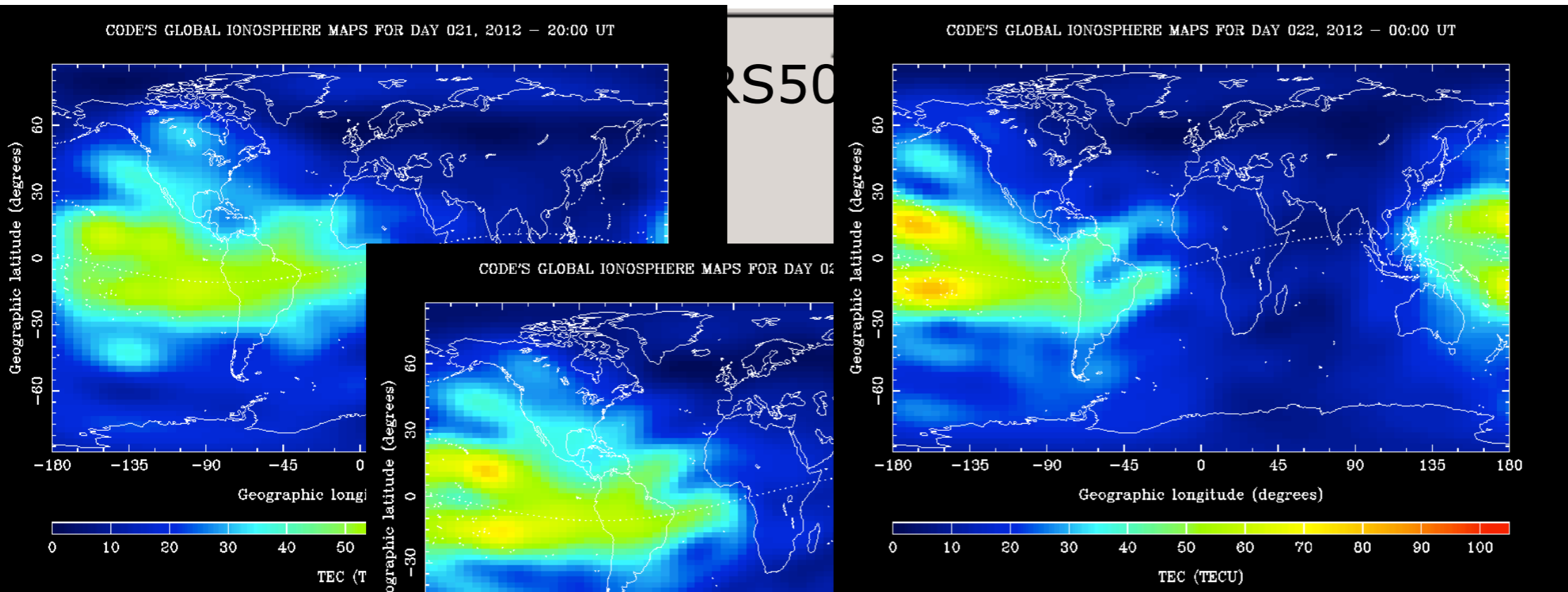


TEC maps
c/o CODE
(Bern)



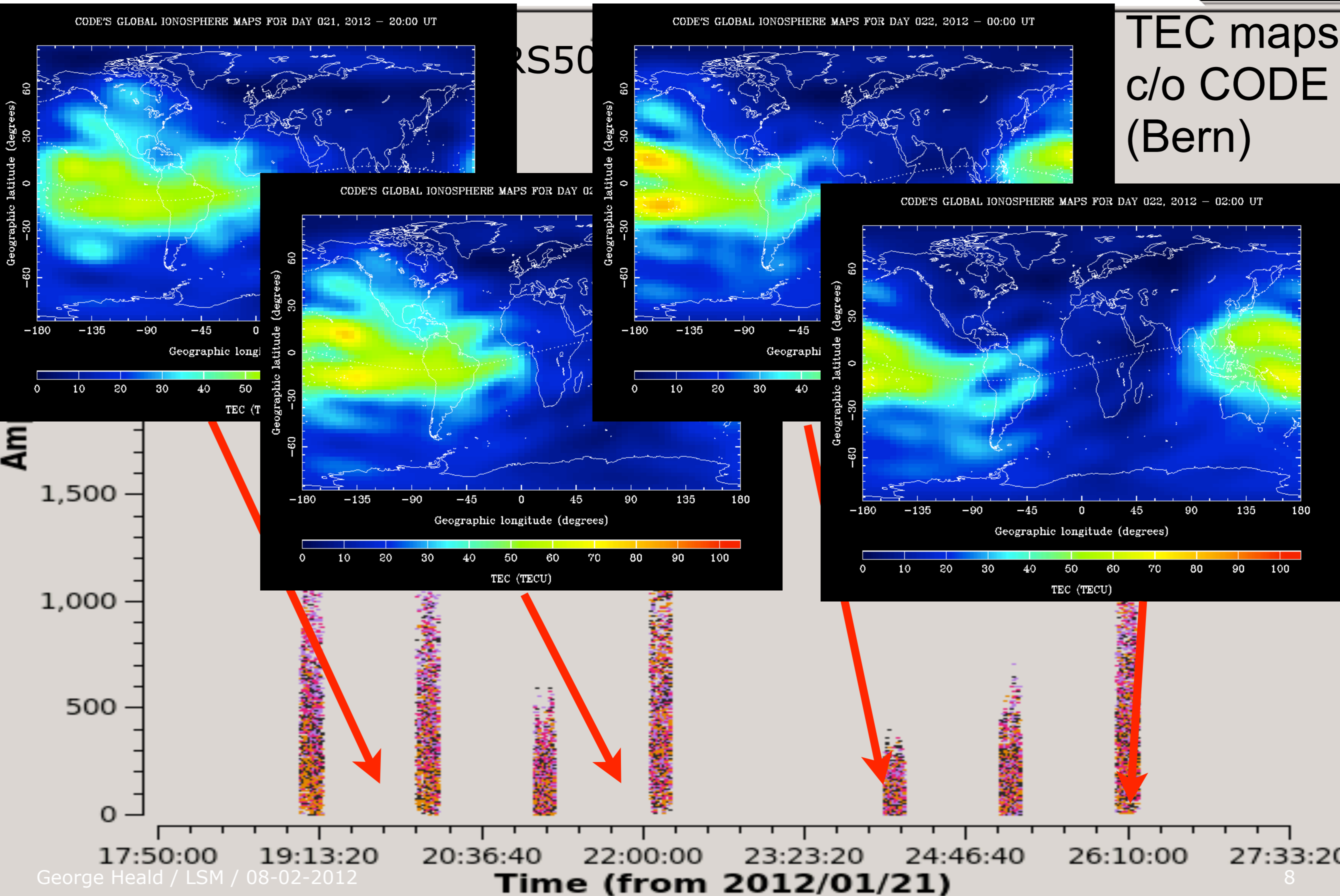
Open questions remain

TEC maps
c/o CODE
(Bern)

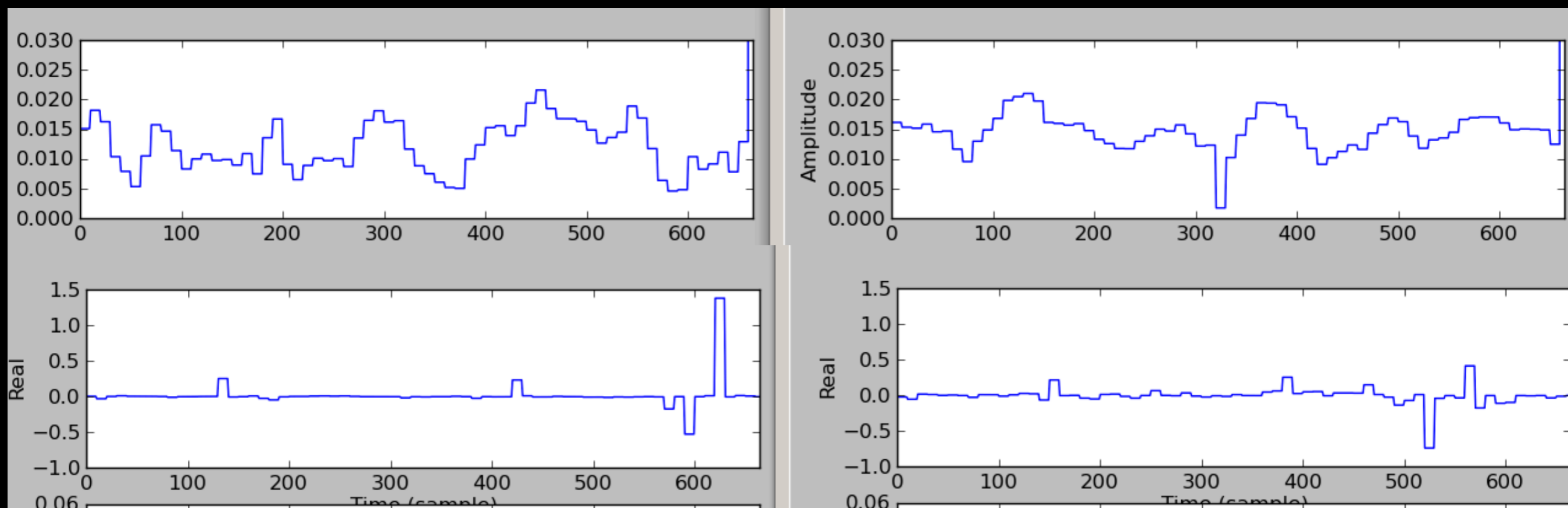


Open questions remain

TEC maps
c/o CODE
(Bern)



- Attempted solution for TEC together with gain amplitude
 - used only mid-long ($10\text{km} < \text{BL} < 100\text{km}$) baselines
 - 10sec solution interval
 - 60 channels (raw data with BP ends removed & flagging)
 - Note BBS implementation time dominated by trial & error



- Further pursuit of quality solutions on the calibrators - attempt to gain confidence in calibrator amplitude stability
 - How does calibrator stability track with GPS TEC data? (If at all!) - is it scintillation? Must we redo some scans?
 - Effect of other sources in the field ...
 - Effect of pulse sync? (need updates from RO!)
 - Finalize calibration strategy
- Major cycle tests on calibrated MSSS data
 - Deconvolution and source finding tests
 - Tests of awimager on MSSS data
 - Self-calibration cycles to expand to longer baselines
 - Initial setup of imaging pipeline loop