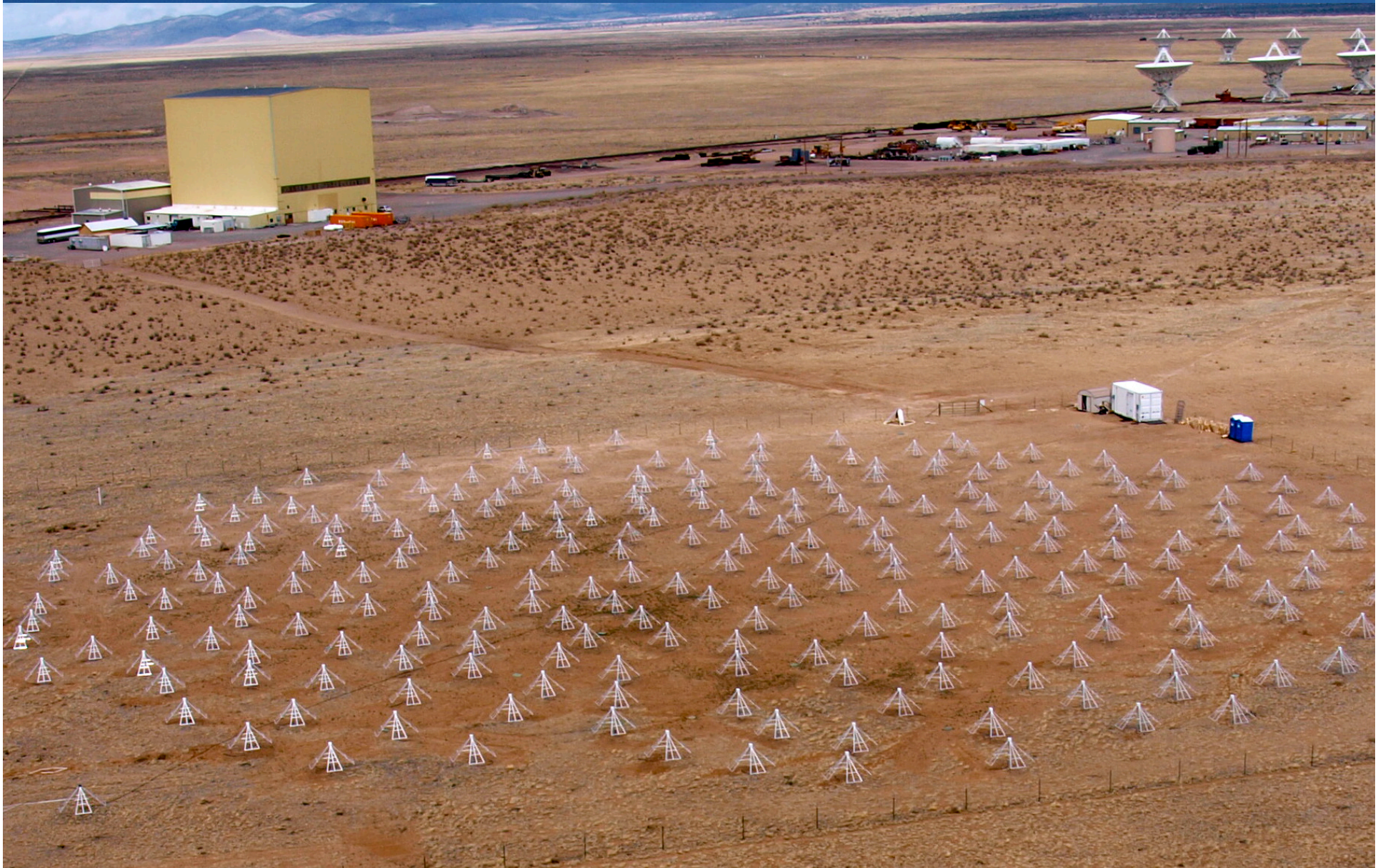




LWA1 Technical Review

Jayce Dowell (UNM)



Fixes and New Features

- Fix for the eight-character project IDs in custom beam forming observations
- New SDF validation tool
 - <http://fornax.phys.unm.edu/lwa/validator/index.html>
- New “beam-dipole” observing mode
- Ability to “un-submit” SDFs at the station

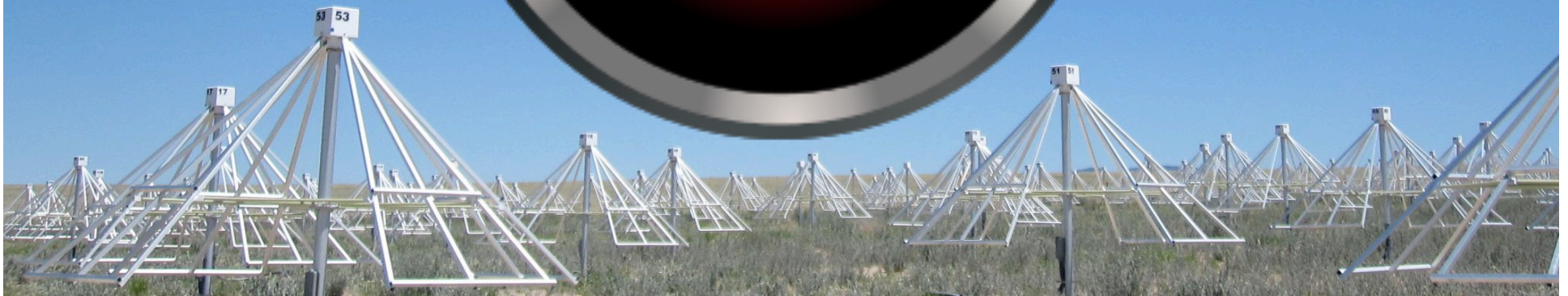


Fixes and New Features

- Updates to the Operator Screen webpage
 - Queue View – See your observations while they happen
- LWATV “appliance” with a Raspberry Pi
 - See one over at Physics & Astronomy
- Automated triggering system



HAL: Heuristic Automation for LWA1



HAL: A Watchful Eye

From mcsdr★

Subject Remote Trigger - HAL is taking control of the station 3:33 AM

To lwalops@phys.unm.edu★ Other Actions

HAL is taking control of LWA1 in order to observe the trigger 'Swift_BAT_GRB #603488' which occurred at 2014-07-05 09:32:48.570010. Observations will start at 2014-07-05 09:34:40 (0:01:51.429990 after the event) and continue until 2014-07-05 12:34:40 on beams #2, #3, #4, #1

The following entries the MCS/exec queue have been canceled:

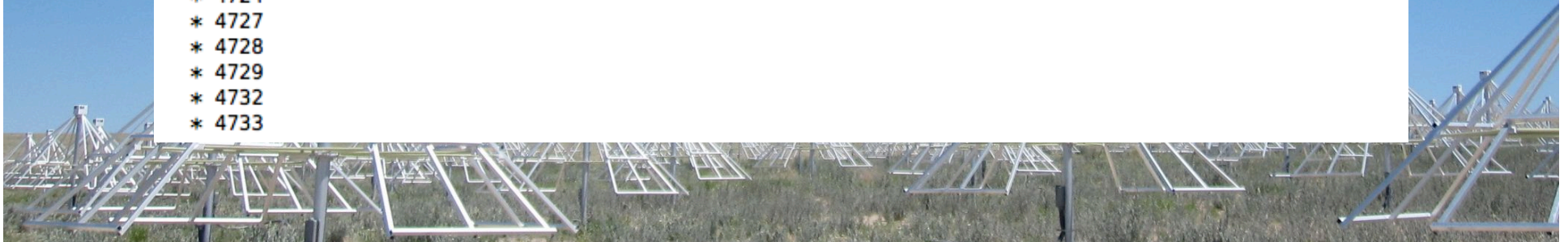
- * LS003001, session 1576
- * LS004, session 1394
- * LS003001, session 1577
- * LS004, session 1393
- * LS003001, session 1574
- * LS003001, session 1575
- * LS004, session 1396
- * LS004, session 1395

The following DR operations have been canceled:

- * 056843_000315926 on DR1
- * 056843_000315932 on DR2
- * 056843_000315943 on DR3
- * 056843_000315950 on DR4

The following 'at' commands have been canceled:

- * 4724
- * 4727
- * 4728
- * 4729
- * 4732
- * 4733



HAL: Triggering Projects

- One currently running:
 - GRB follow up observations
 - Interface between HAL and the GCN provided by the Burst Early Response Triggering system
- Other projects possible



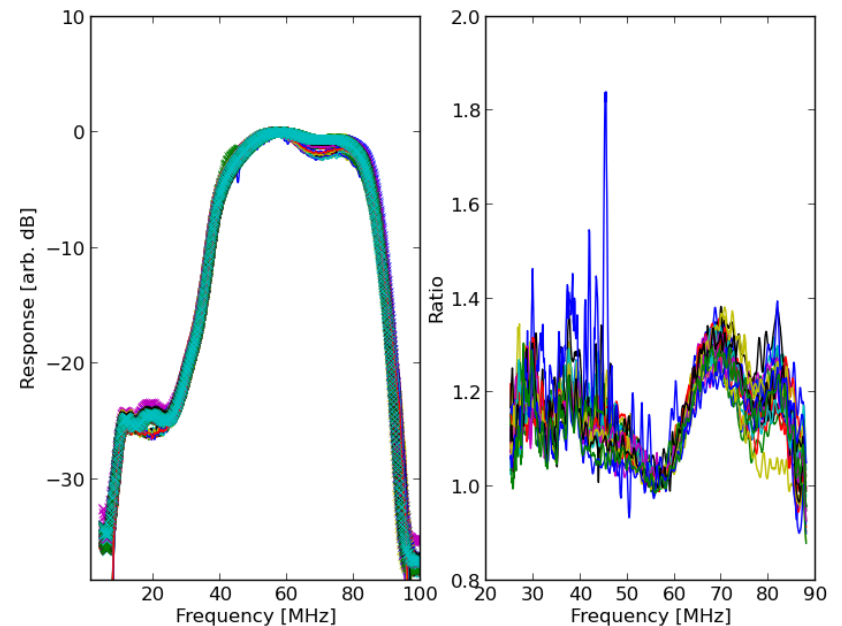
HAL: More than Just Triggering

- Monitoring of station health and environmental conditions
 - Takes action to protect the station
- Scheduling of observations
 - SDFs and ongoing projects, e.g., LO001
 - ASP filter changes
 - TBW health checks



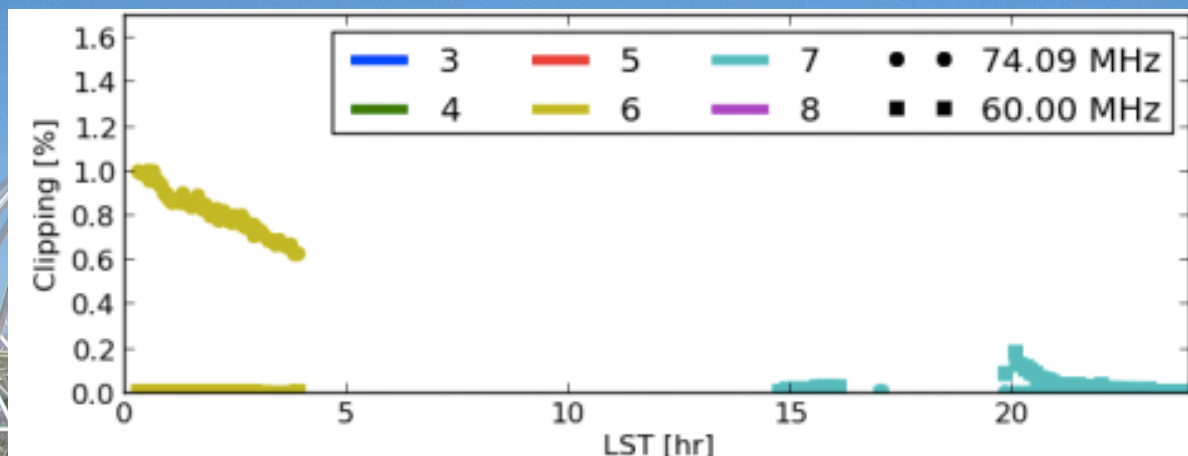
Characterization of the Station

- Bandpass Characterization
 - Important component of calibration
- Beam Flux Calibration
 - See Frank's talk later today



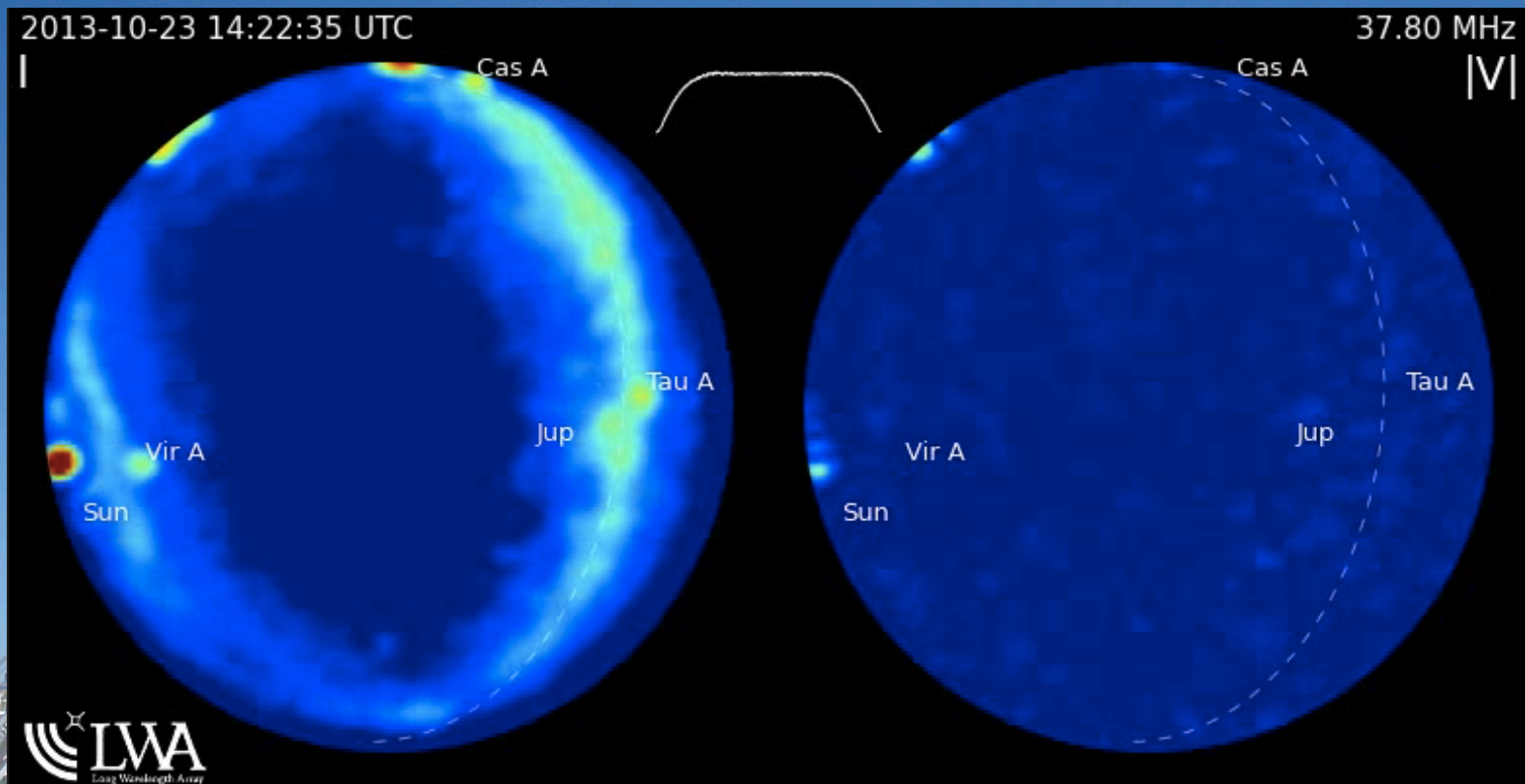
Characterization of the Station

- New Memos:
 - #199: LWA1 DRX Gain Setting Test
 - #200: DC Component Analysis at LWA1
 - #201: In-situ Testing of Frequency Labeling and Aliasing of DP and Measurement of Signal Cross-Coupling at LWA1



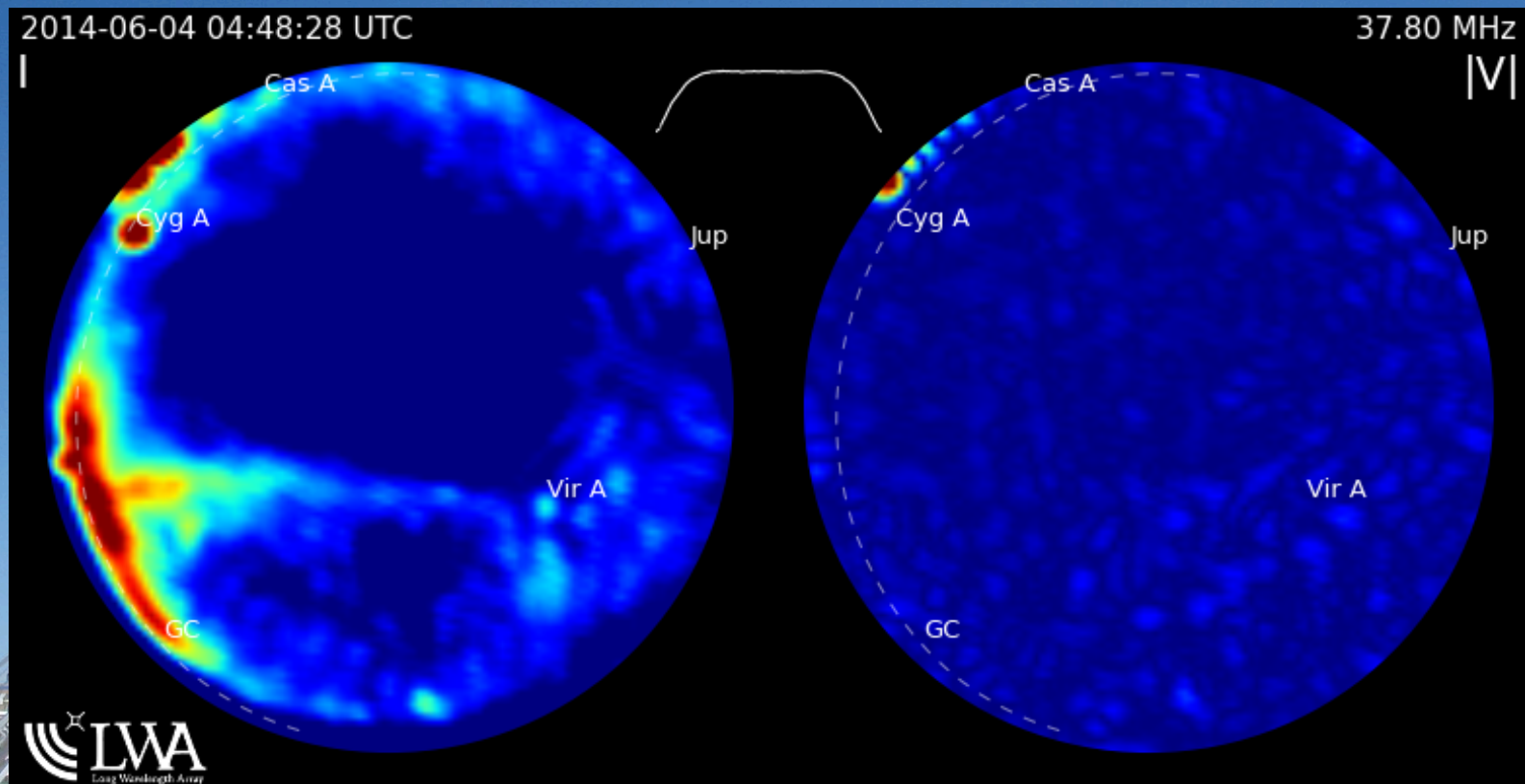
RFI Environment

- Two major sources during the last year



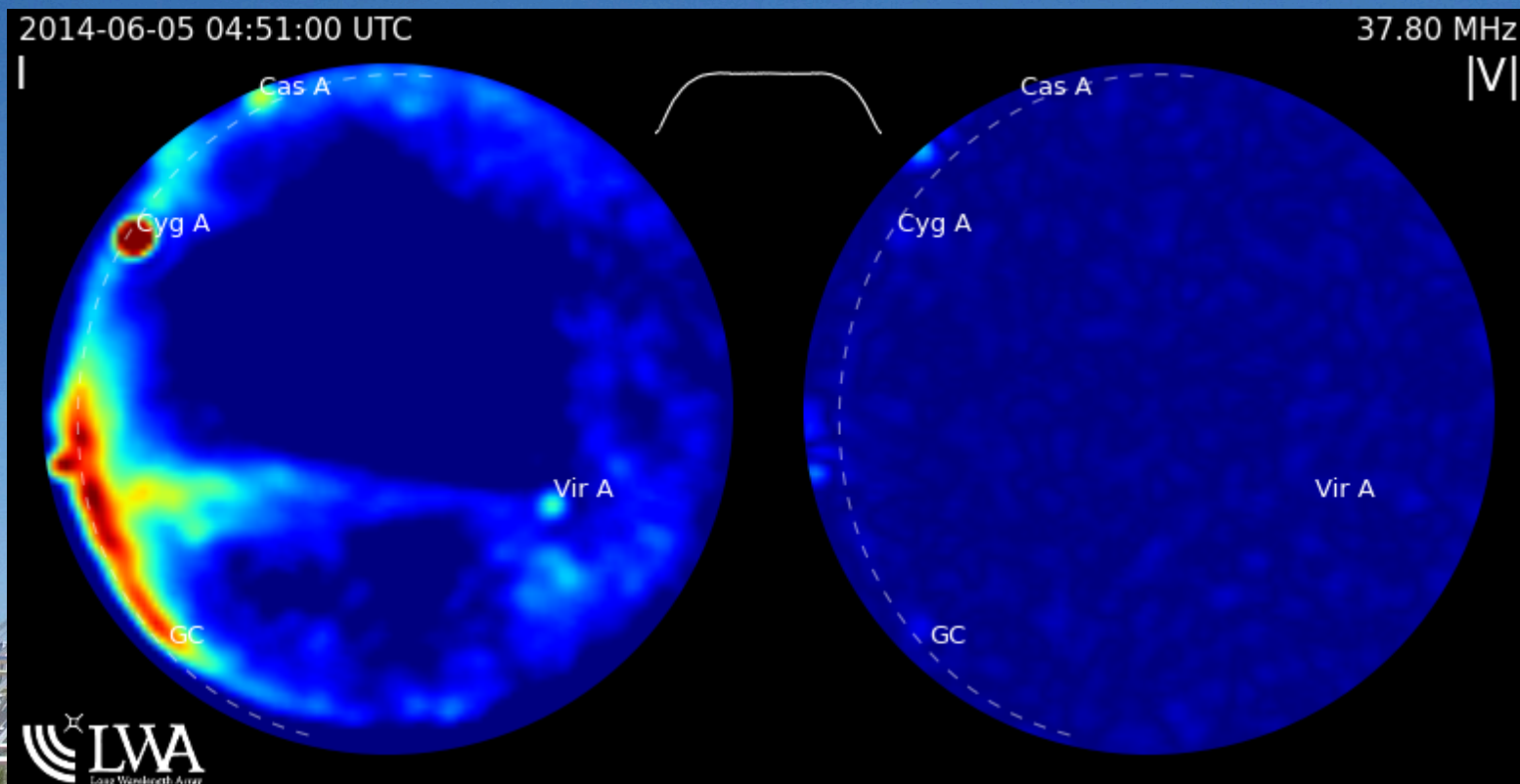
RFI Environment

- Two major cleanups over the last year
 - November 2013 – AAB lights



RFI Environment

- Two major cleanups over the last year
 - June 2014 – Powerlines near the VLA Visitor Center



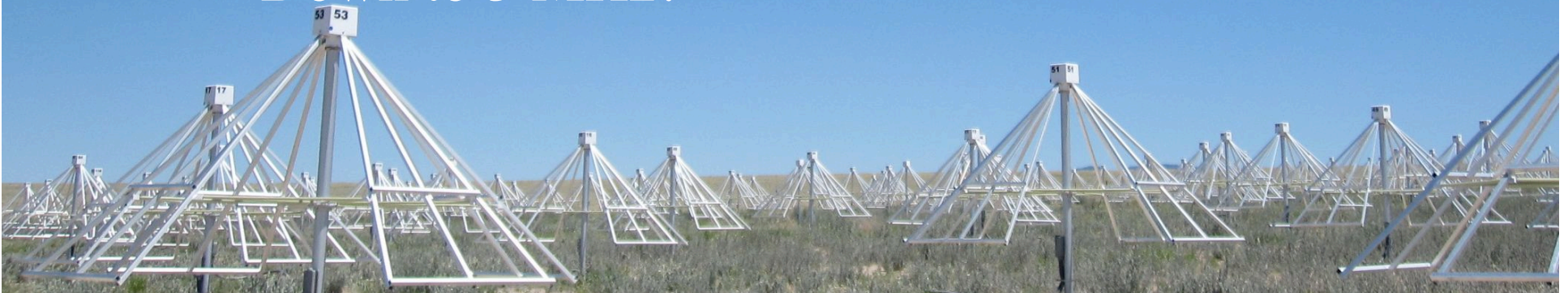
Current Issues

- Standard monsoon season woes
- Upcoming release of new DR software
- Standard DP Issues:
 - Beam tracking degrades TBN
 - Fixed beams OK
 - TBN seems to promote beam former underflow



Beyond LWA1

- Future station: LWA-SV located on the Sevilleta NWR
- LWA-SV electronics shelter and cable vault delivered
- Possibility for new, lower frequency capabilities
 - Down to 3 MHz?



Beyond LWA1

- Frequency response down to 5 MHz

