lE-613 status

ILT-TO meeting, Schipol, 2019

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Antennas

- The station test scripts are not being run regularly???
- Last one we have is from 15th Oct.
- Currently 4 tiles showing errors:
  - Tile 10 – element 2 (Y RF fail)
  - Tile 19 – element 8 (X,Y RF fail)
  - Tile 68 – element 6 (X,Y RF fail)
  - Tile 72 – element 15 (Y RF fail)
- Latest results available seem to show more ‘failures’ than previously.

- Looks like the new station monitor tool will be a better system.

Animals

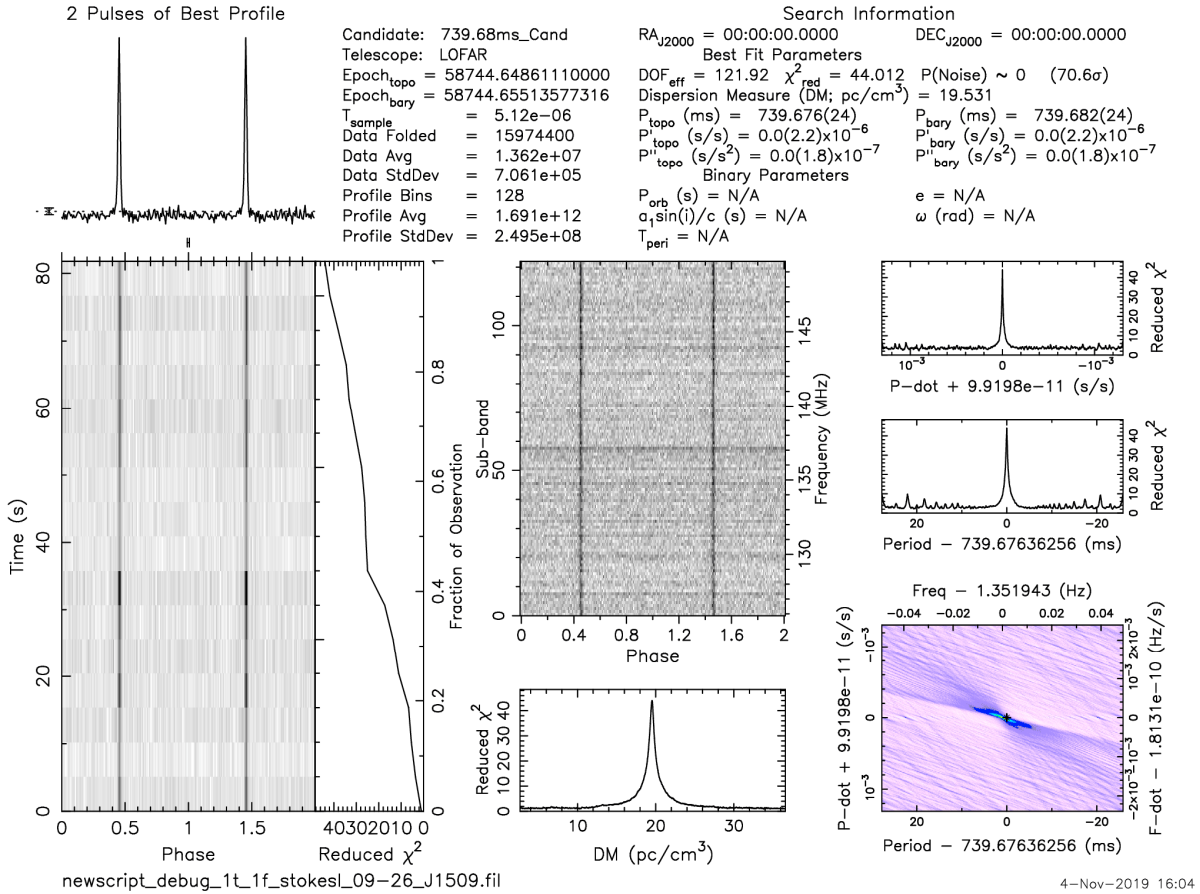
- On going battle with deer.
- During last year's maintenance visit, Luther identified exactly where/how they were entering.
- We applied a 'quick fix' in October 2018.
- No deer since, quick fix remains.

New computer cluster - REALTA

- Was built in Summer/Autumn 2018.
- First pulsar observation in time for last TO meeting.
- Many more observations since.
- Now taking part in offline VLBI pulsar observations (PSRB1508+55 and PSRB0655+64)
- Script development ongoing to make this easier.

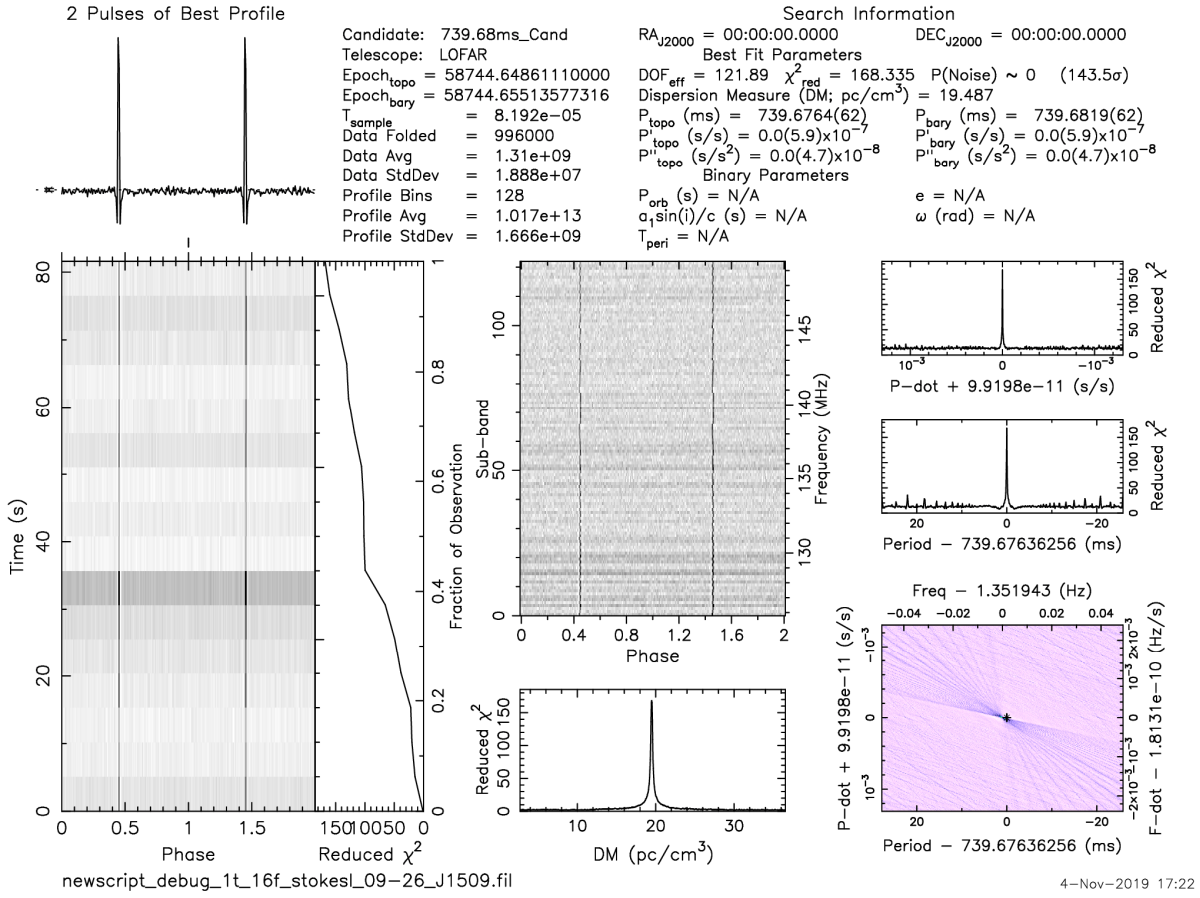
New computer cluster - REALTA

- Raw data fold



New computer cluster - REALTA

- FFT tradeoff to convert time resolution into frequency resolution



New computer cluster - REALTA

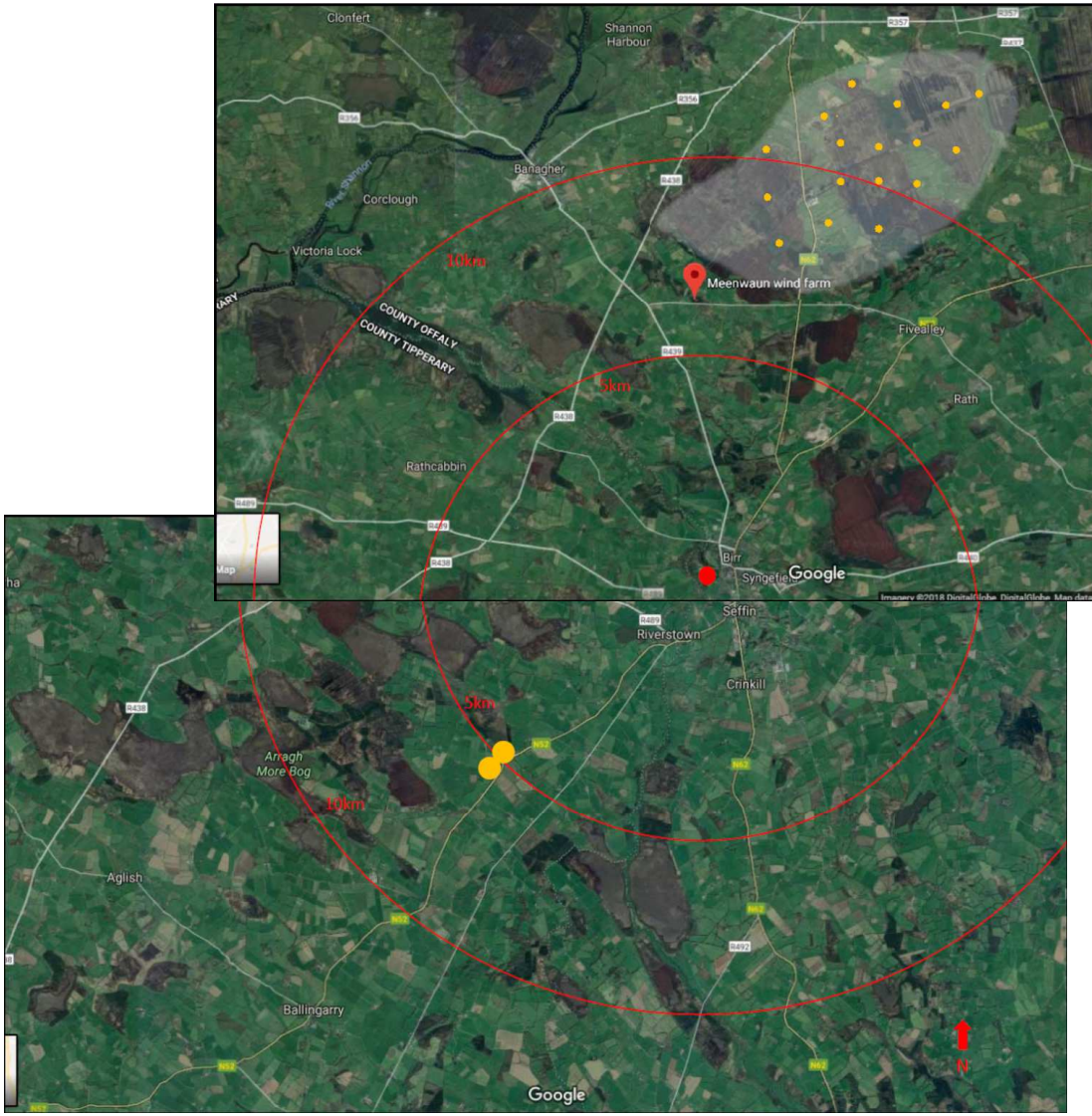
- Cluster overheating problems during the past summer.
- Quick fix applied – leave doors open during day.
  - Not exactly a viable long term solution!
- Aircon system in observatory is being installed this winter.

Power issues

- We have suffered a few ‘brownouts’ this year.
- Most serious outage was yesterday.
  - A ‘planned outage’ – We were not notified! Notification was sent to the billing address rather than to us directly.
  - Lasted ~5 hours.
  - All seems to have come back on OK though.

Windmills

- We are also under threat from wind farms.
- Currently the nearest installations are at 5km.
- Developers have asked for permission to increase the height of some turbines (~165-180m).
- We have made submissions to the local council regarding the vulnerability of radio astronomy to RFI. We await the outcome of this.
- Developments with permission to build will surely go ahead



Education centre opened officially in May

The Earl and Countess of Rosse

request the pleasure of your company

at Home

for a reception in

Birr Castle

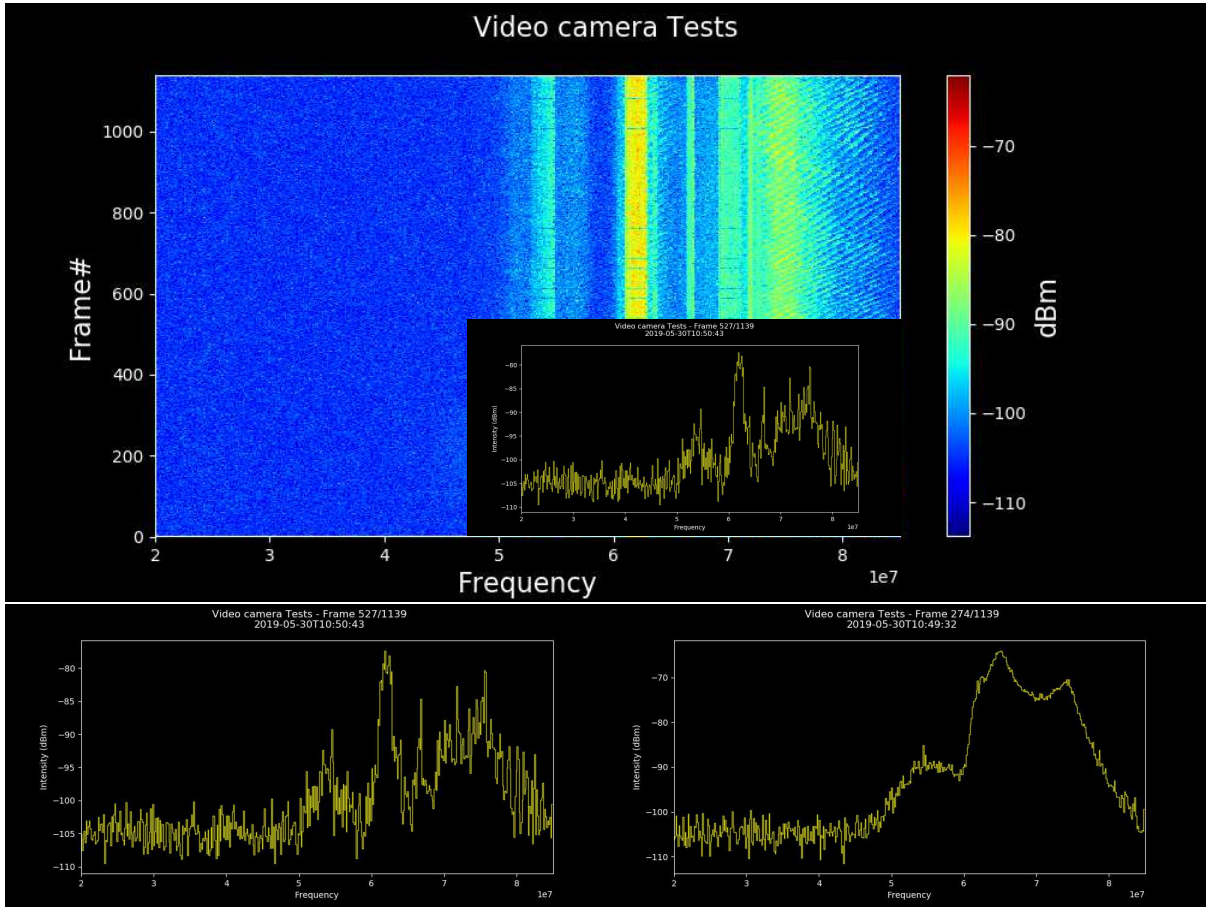
following the I-LOFAR Education Centre Launch
on Thursday 30 May 2019
13:30 - 15.00

Education centre

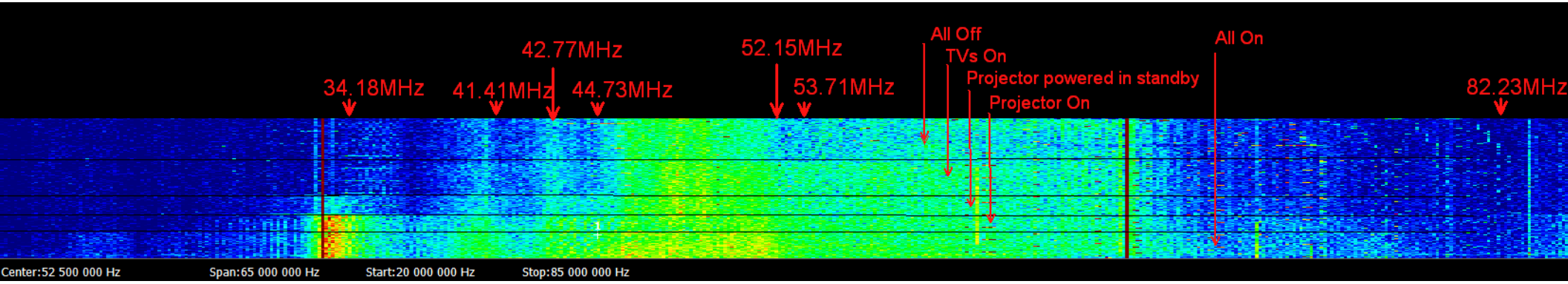
- Currently very heavily used, groups in every week
- Employs 1 full time education officer as well as 2 interns during summer
- Brings RFI though!

Education centre, opening day & media guys....

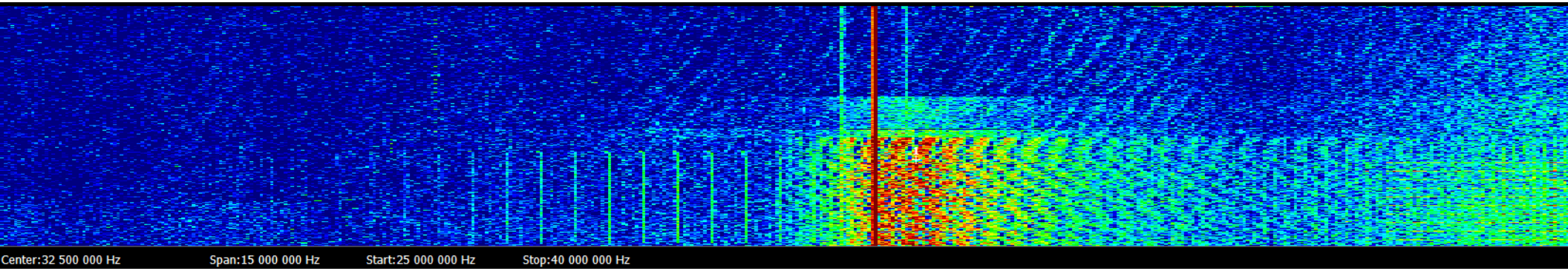
- Lots of media guys on site.
- Decided to test their gear on the day.
- Impromptu decision.
- All was OK with most things.
- Then this happened!
- Caused by an add on monitor on a TV camera.
- Extra electronics in the edu centre also possibly causing issues.



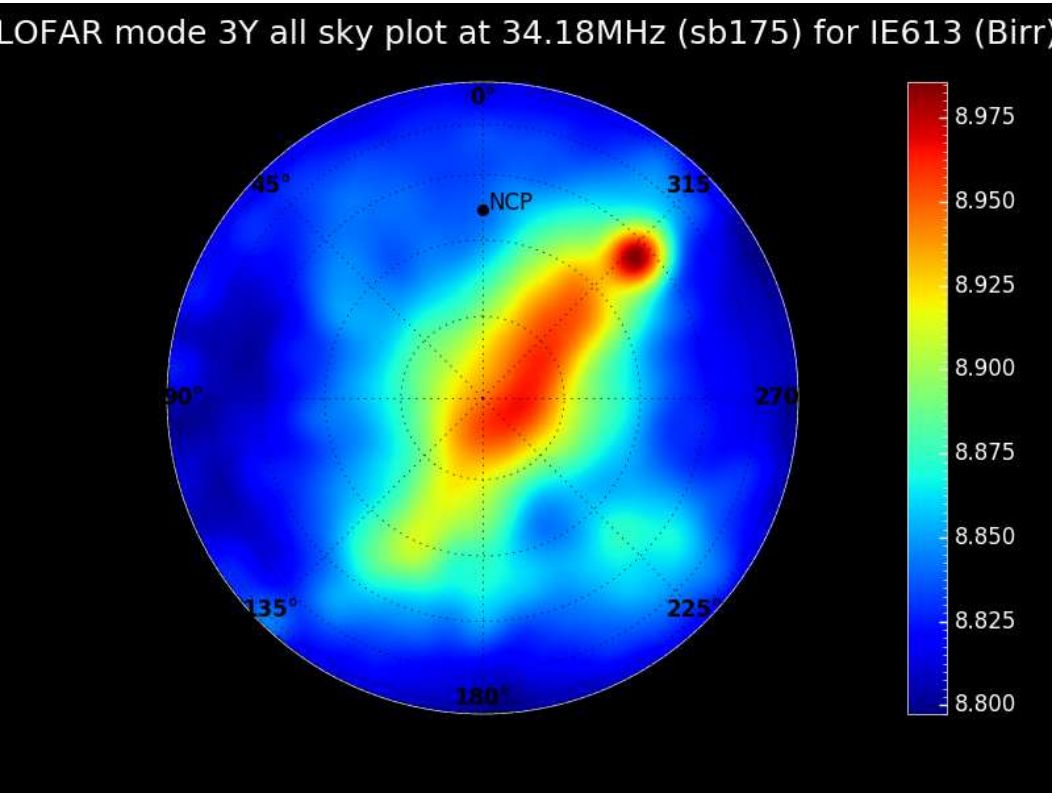
Test spectra from the room



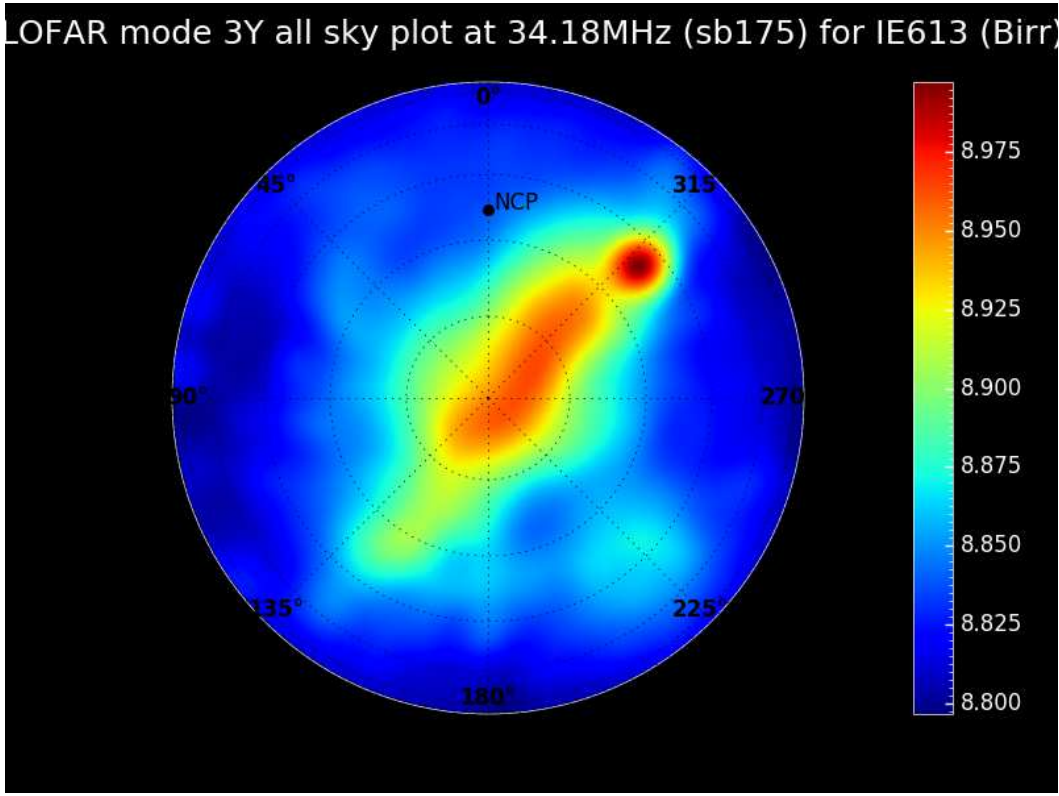
- The spot frequencies chosen for measurement with the station are shown above as well as the different states of the equipment & the effect on the spectrum. The effects noted were broadband.
- The turning on of the projector has the greatest effect. This is shown zoomed in below.



Mode 3y all-sky images with 30s integration

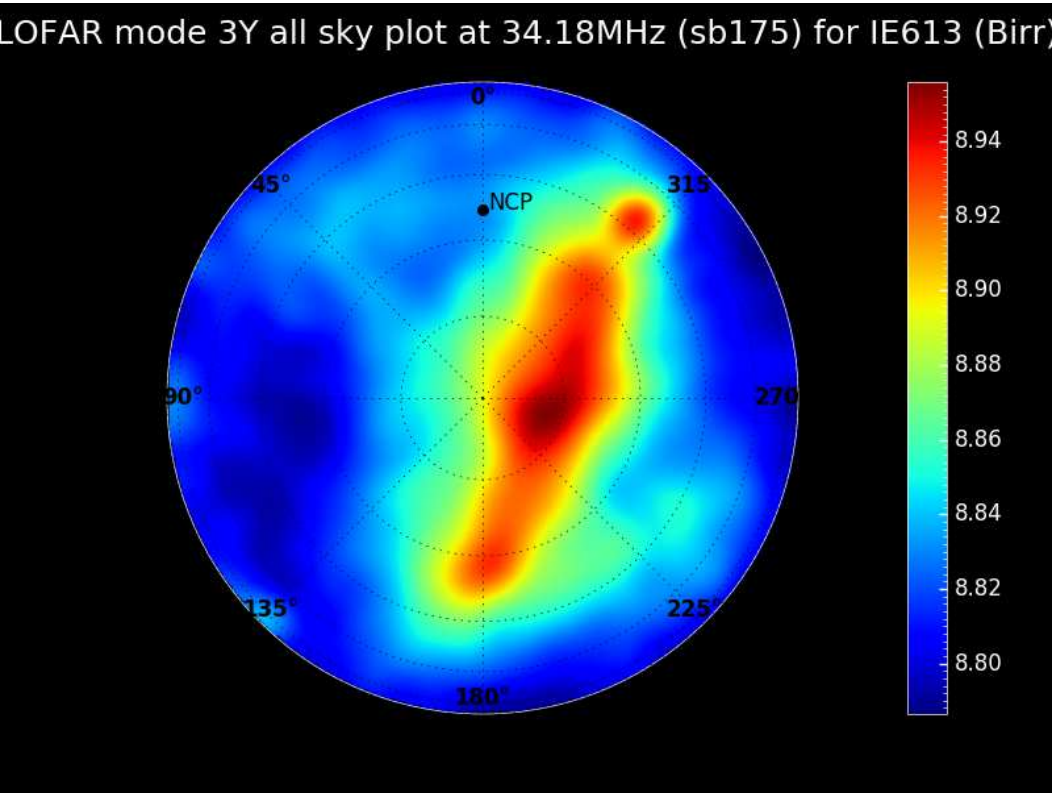


TVs on, projector on

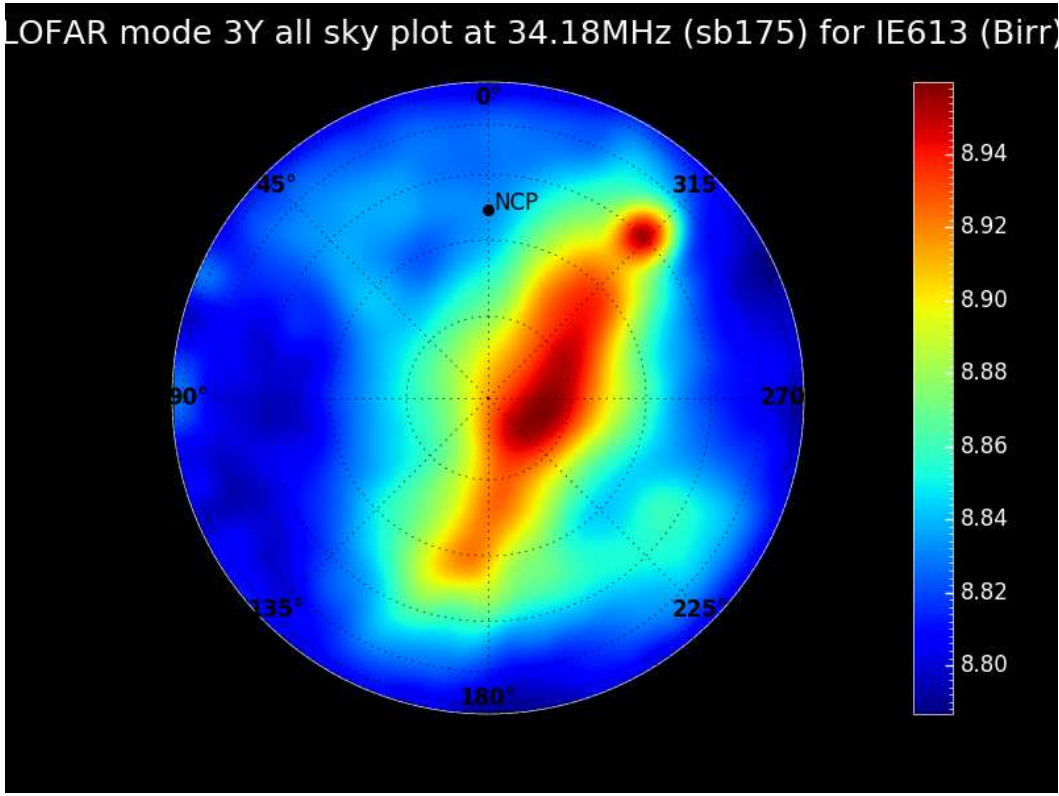


Off

Mode 3y all-sky images with 60s integration

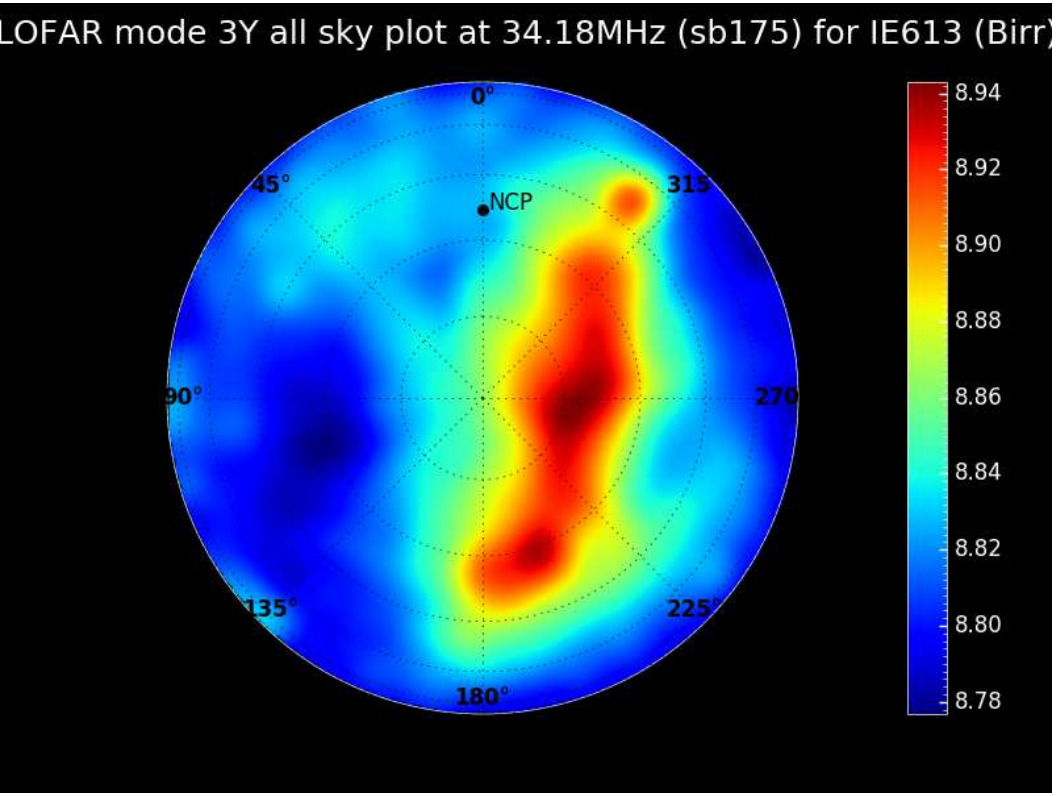


TVs on, projector on

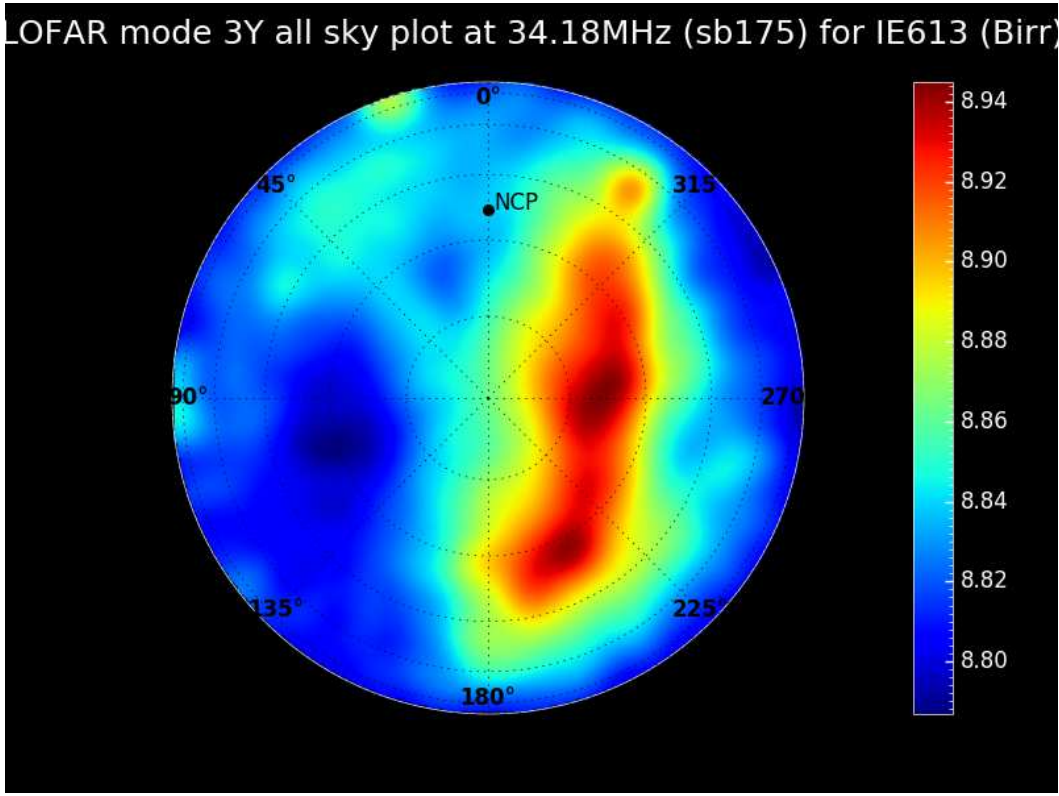


Off

Mode 3y all-sky images with 120s integration



TVs on, projector on



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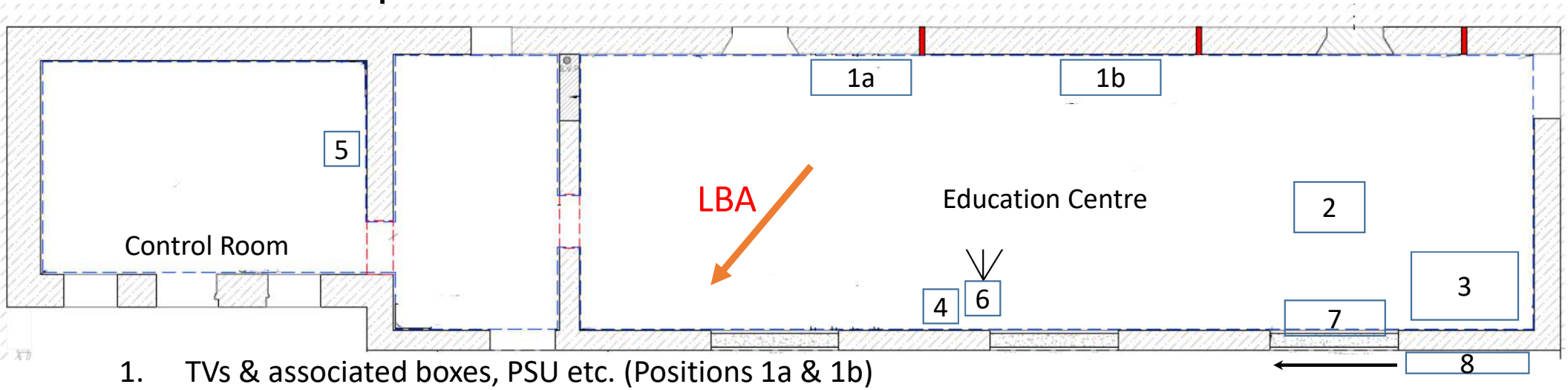
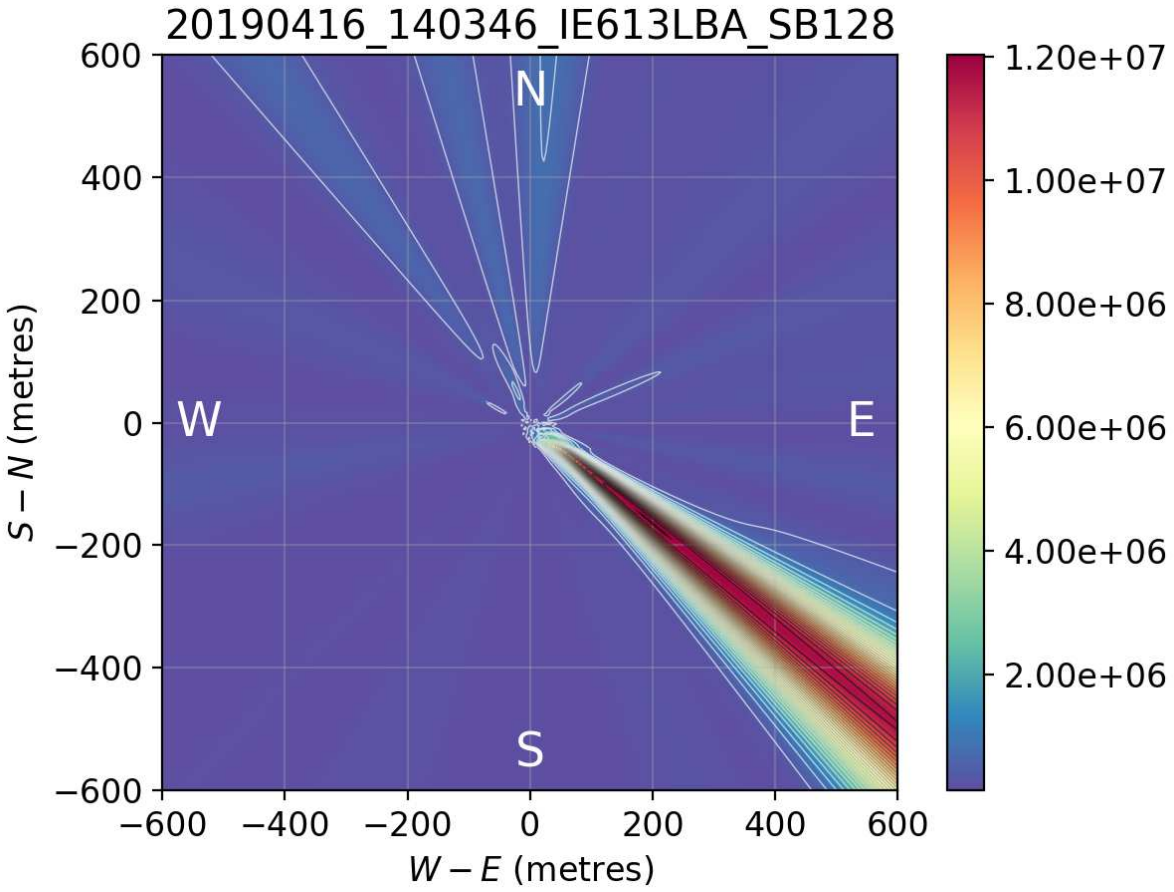
Test setup



1. TVs & associated boxes, PSU etc. (Positions 1a & 1b)
2. Projector & associated boxes, PSU etc.
3. Switching, Kramer, HDMI scaler & associated boxes, PSU etc.
4. 38MHz test TX
5. 25MHz test TX
6. Room antenna for acquiring the spectra shown in slide #7
7. HBA tile with wire mesh (in the position indicated except where noted below)
8. Sliding metal door (in the position indicated except where noted below)

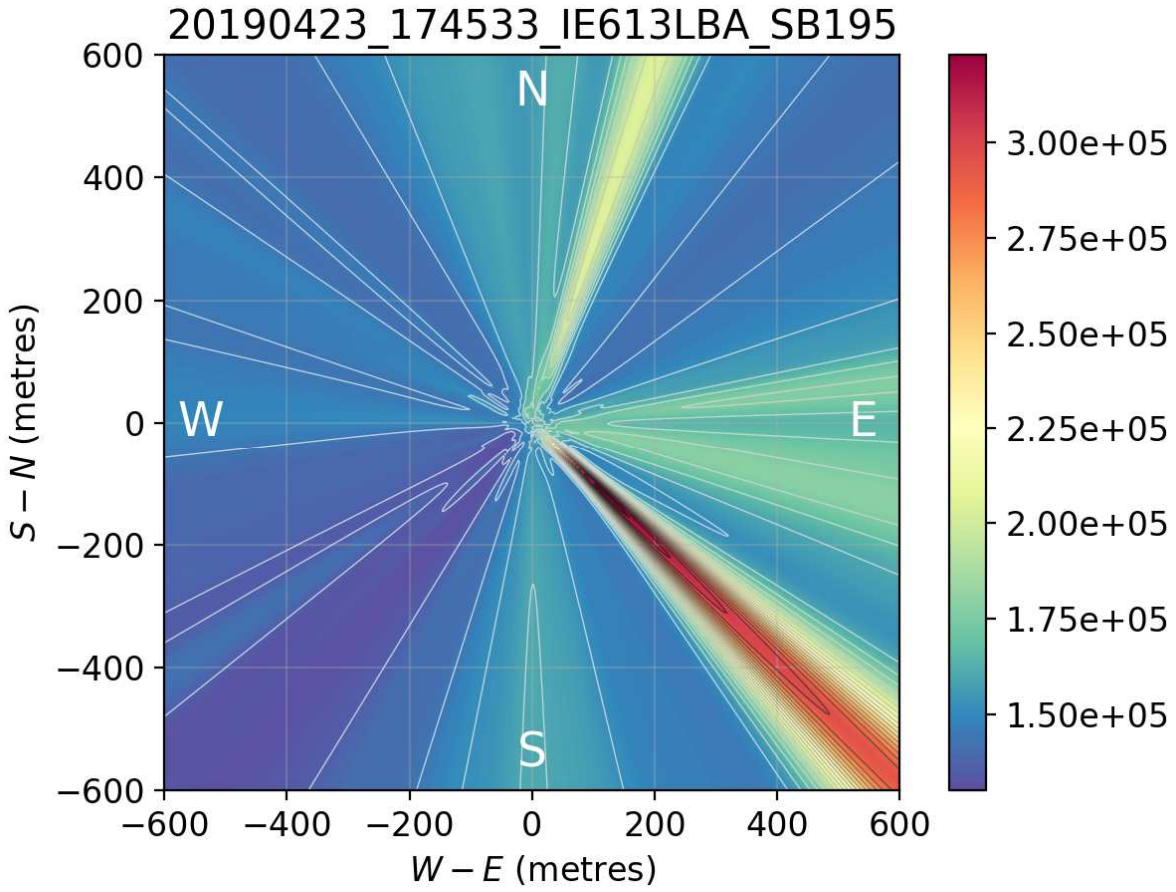
Stokes I near field image with an RF source in control room @ 25MHz

- Constrains the distance of the source at ~129 degrees to ~255-267m from LBA centre. On the face of things, this places it beyond the control room! However with the source turned off, this one disappears. The transmission was made using a large dipole antenna.



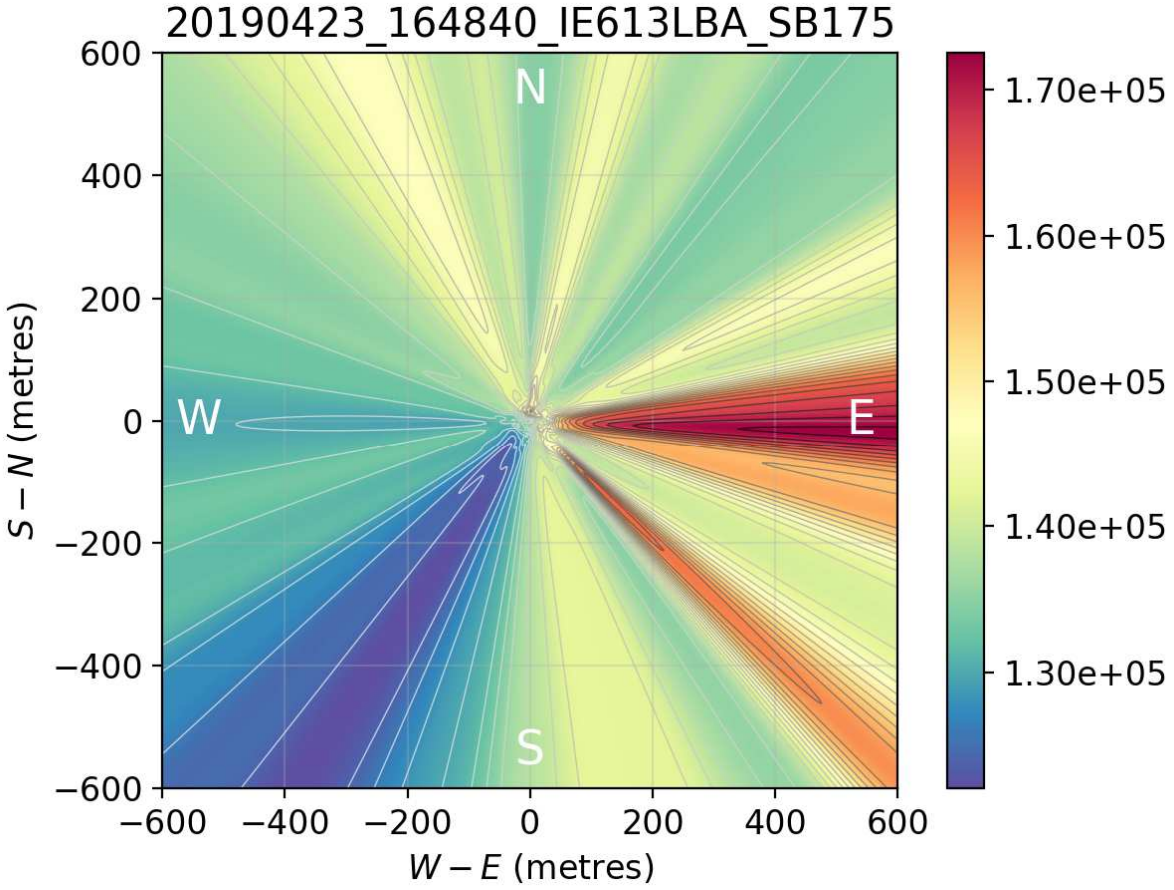
Stokes I near field image with an RF source in education centre @ 38MHz

- Constrains the distance of the source at ~135 degrees to ~147-212m from LBA centre. The transmission was made using a short monopole antenna.



Stokes I near field image with projector on (120s integration)

- Constrains the distance of the source at ~135 degrees to ~120-300m from LBA centre (RFI is not as intense as the RF sources used previously).



End