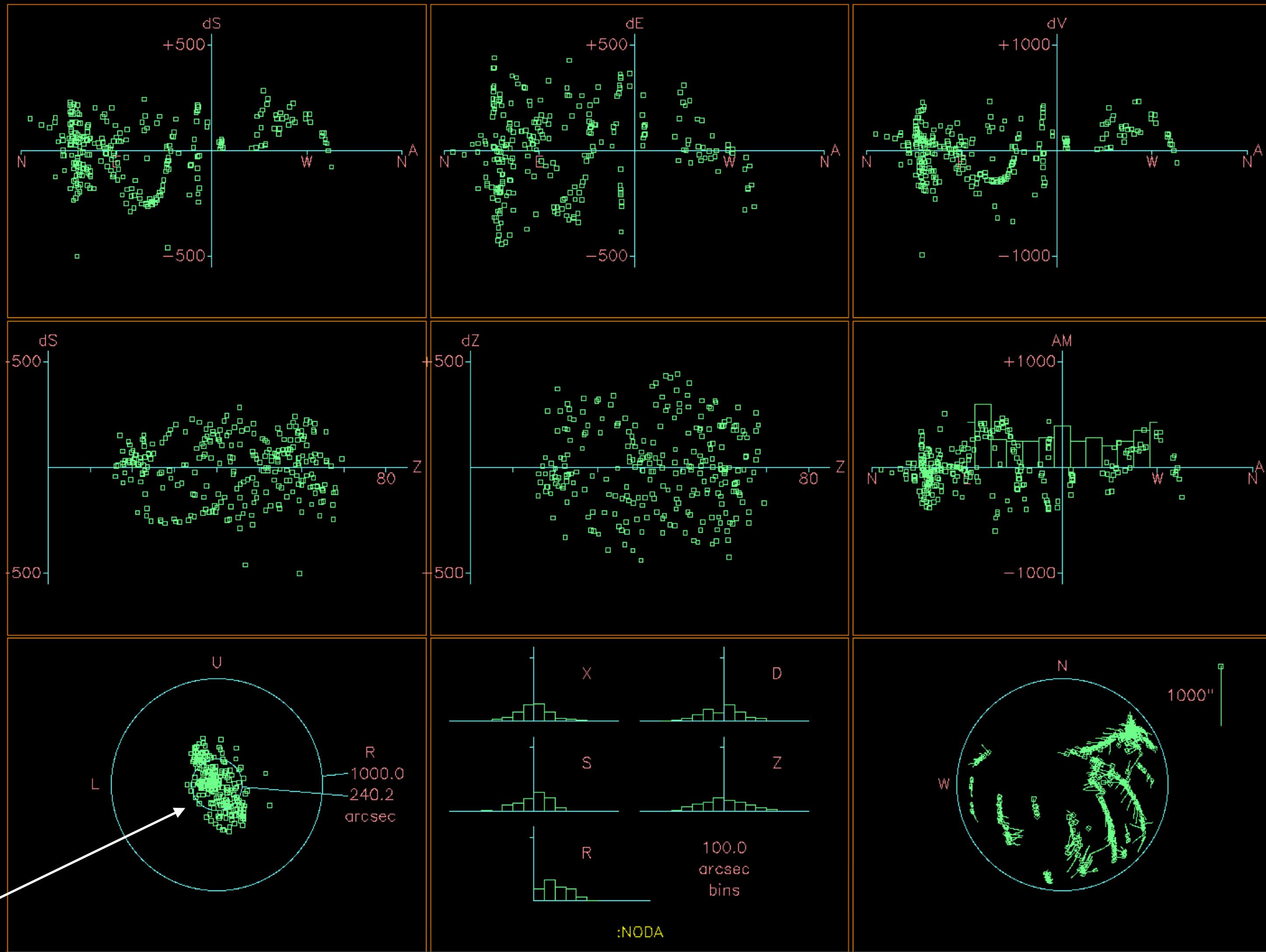
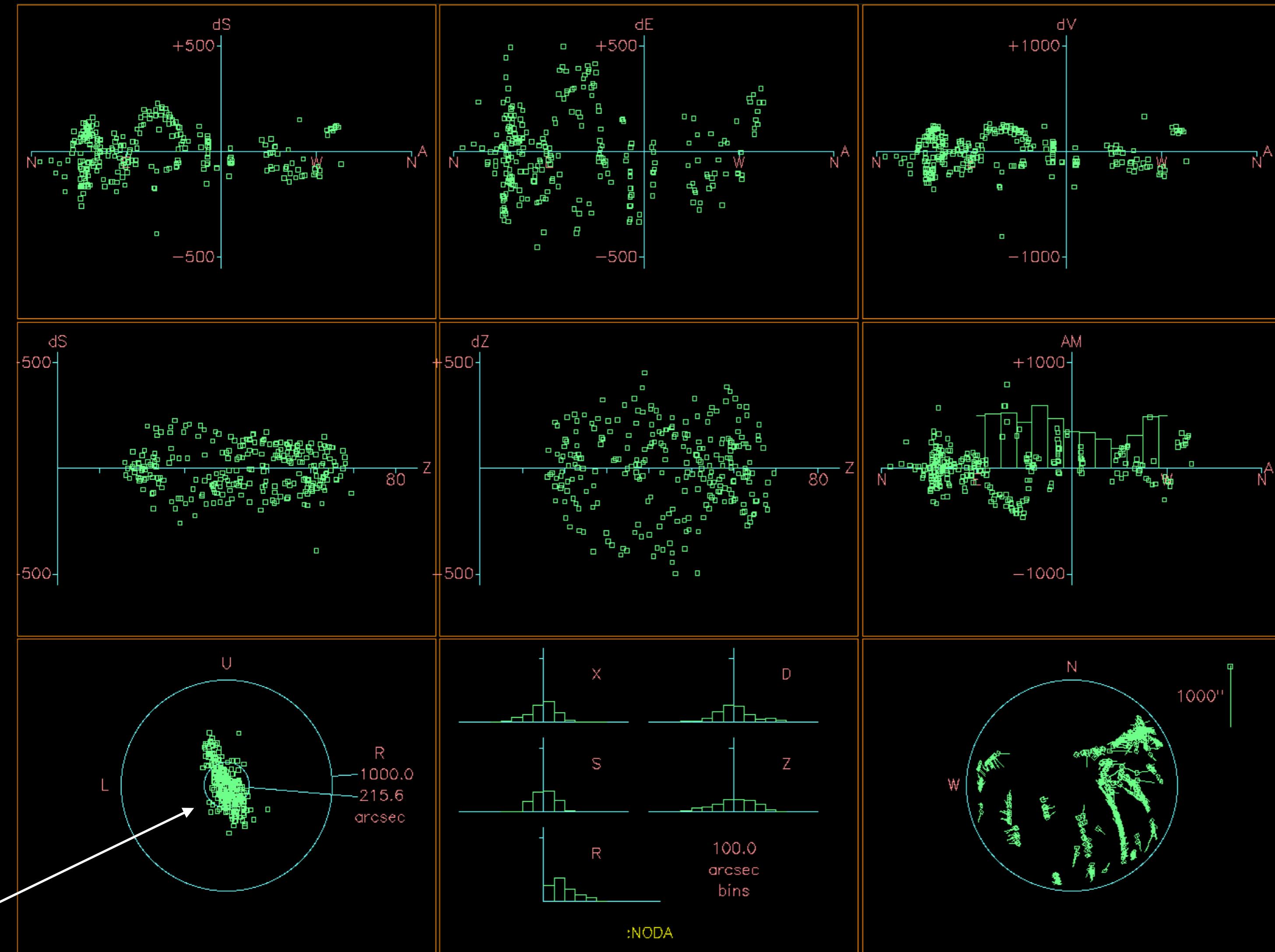


Another hint about 2k's behavior



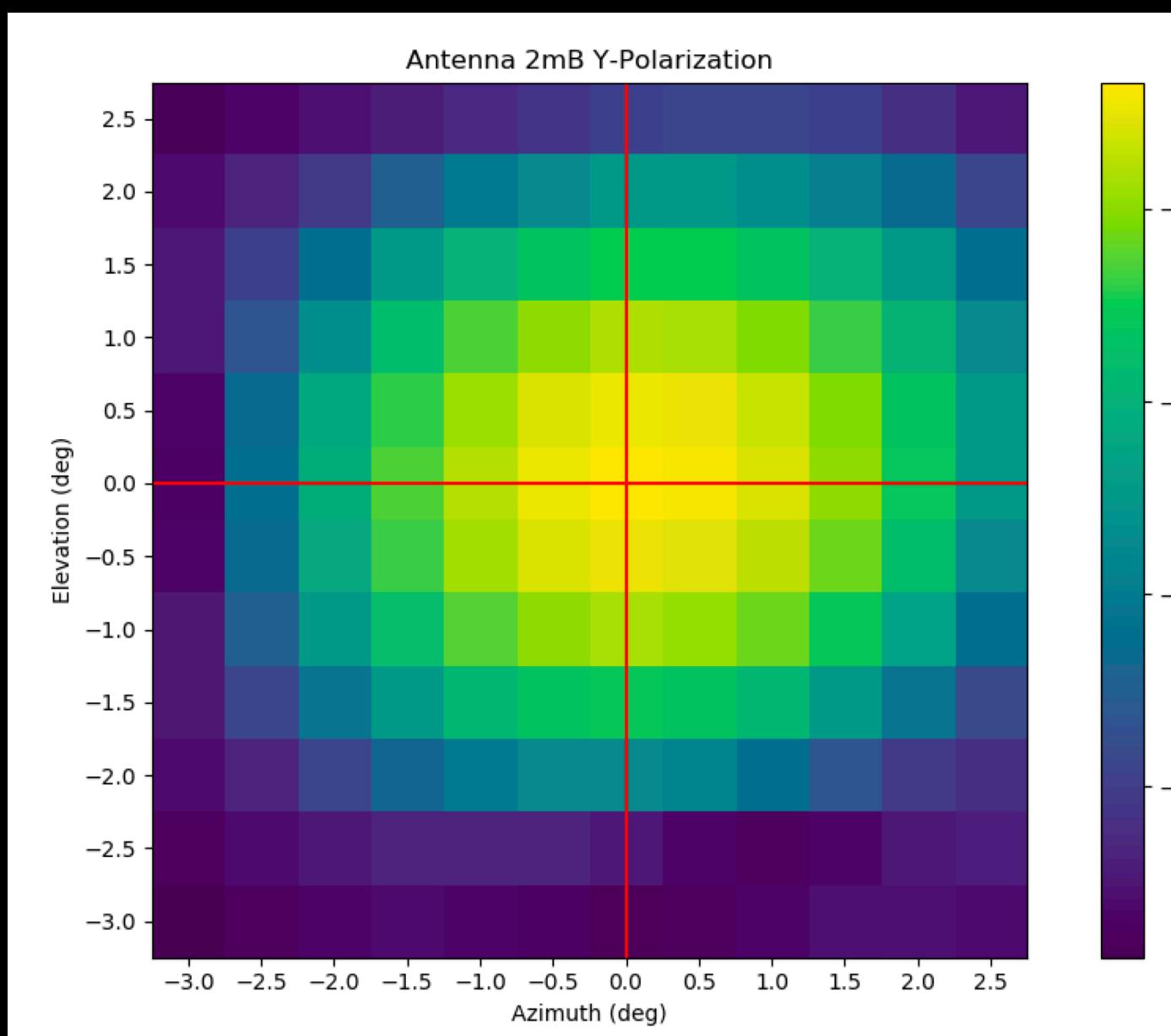
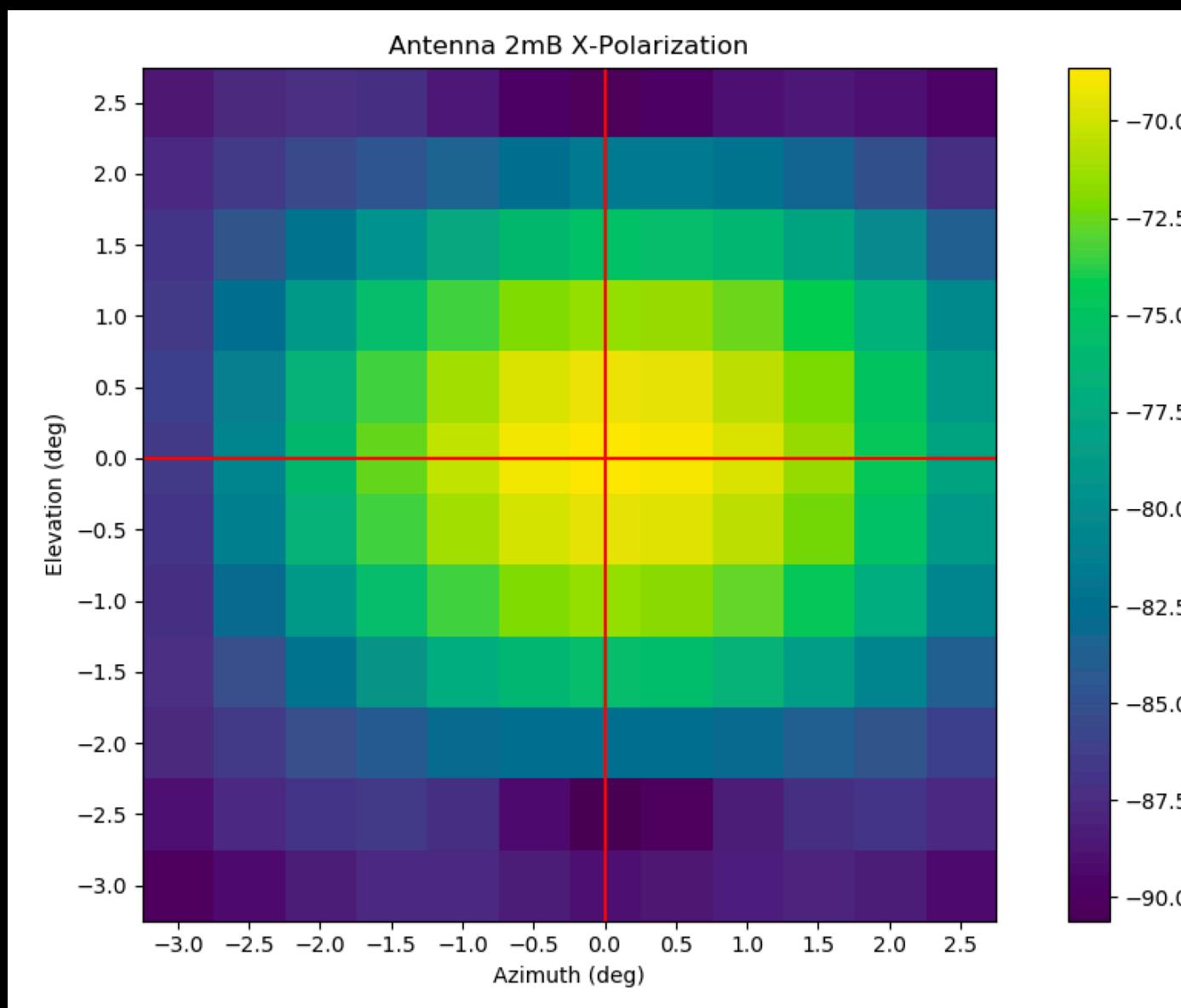
Errors seem to
be along a
diagonal on sky

Another hint about 2k's behavior

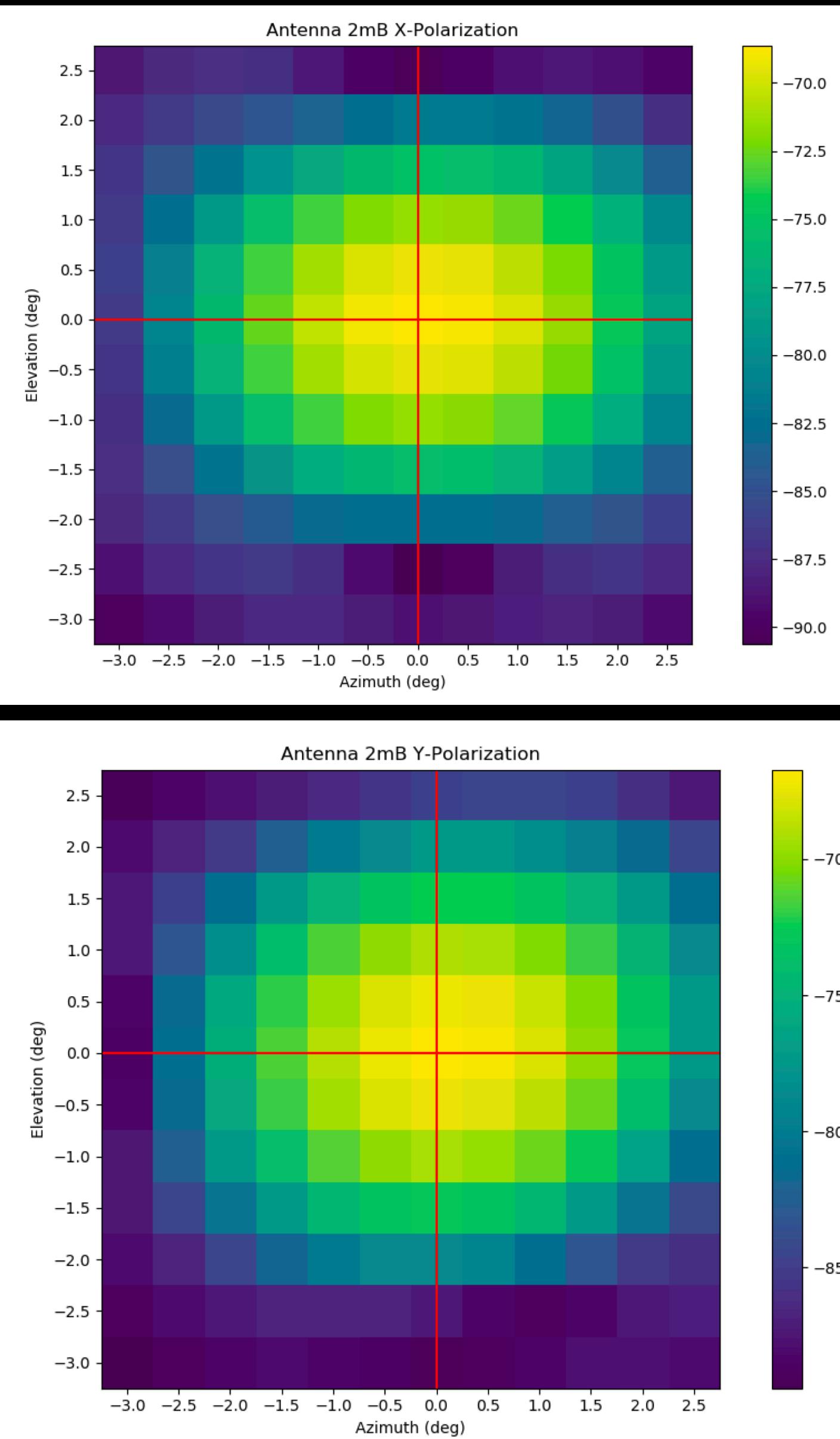


Errors seem to
be along a
diagonal on sky

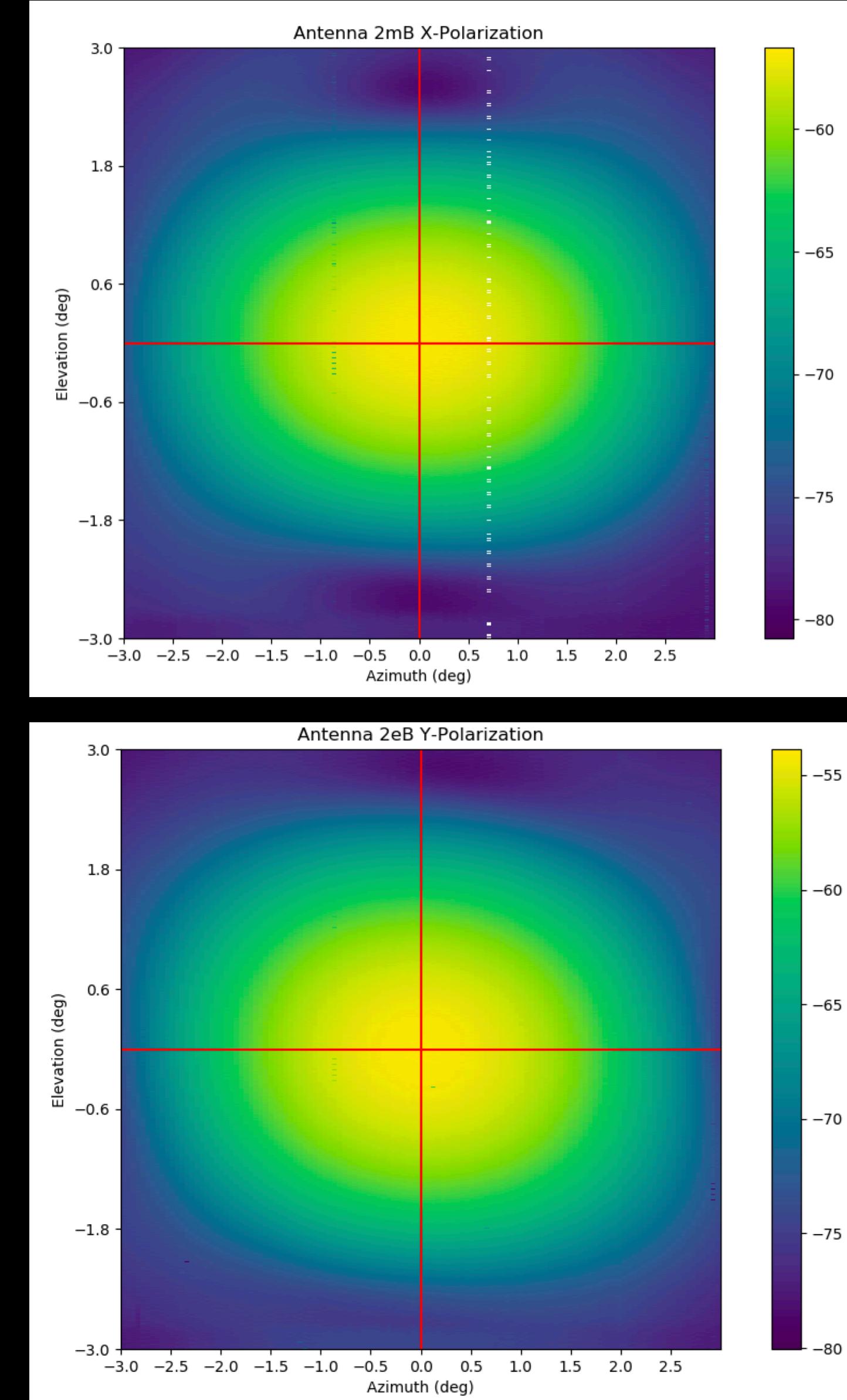
Raster scan + ephemeris file generation



Stop and stare



Record and slew

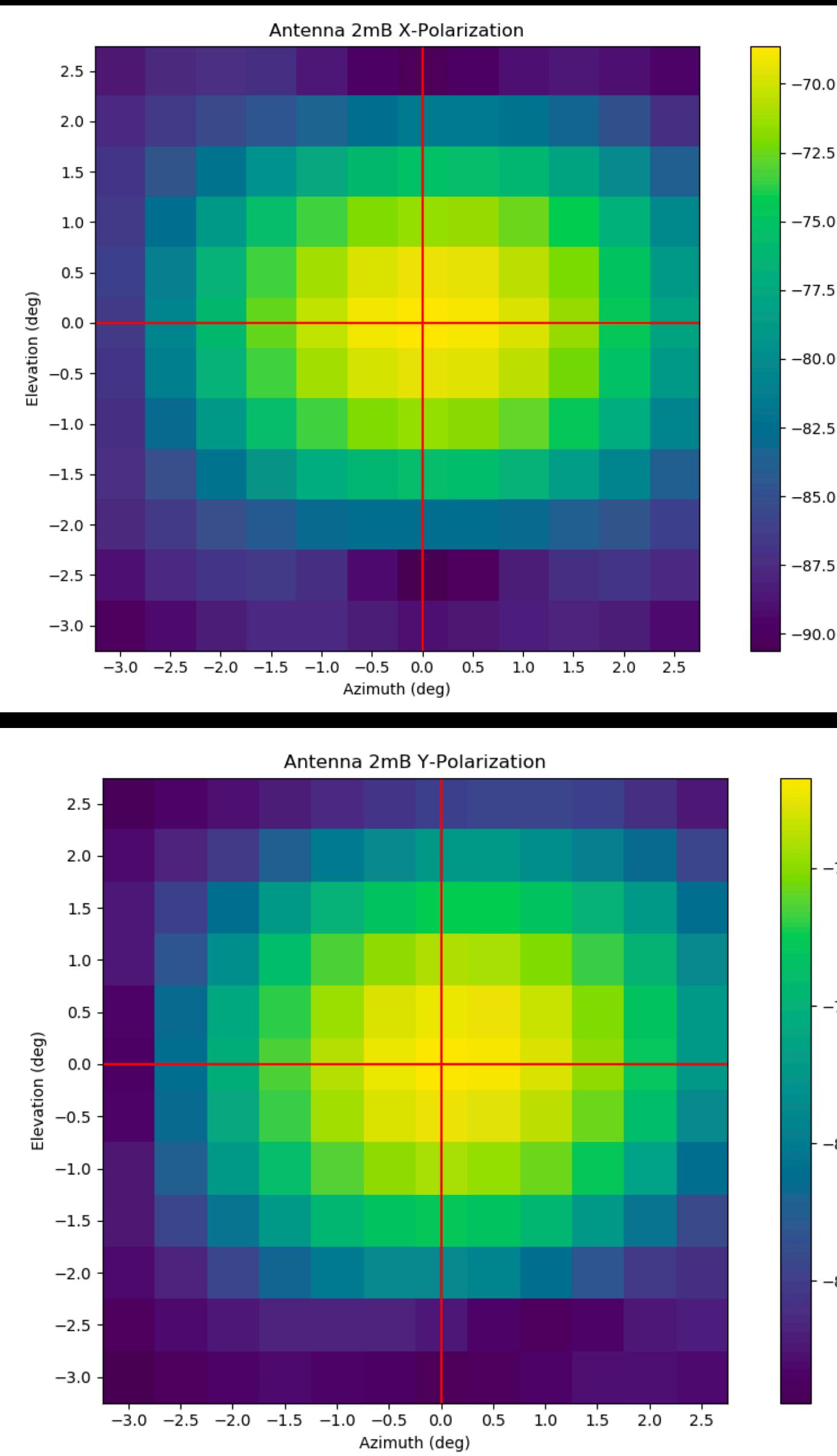


6x6 degree
raster

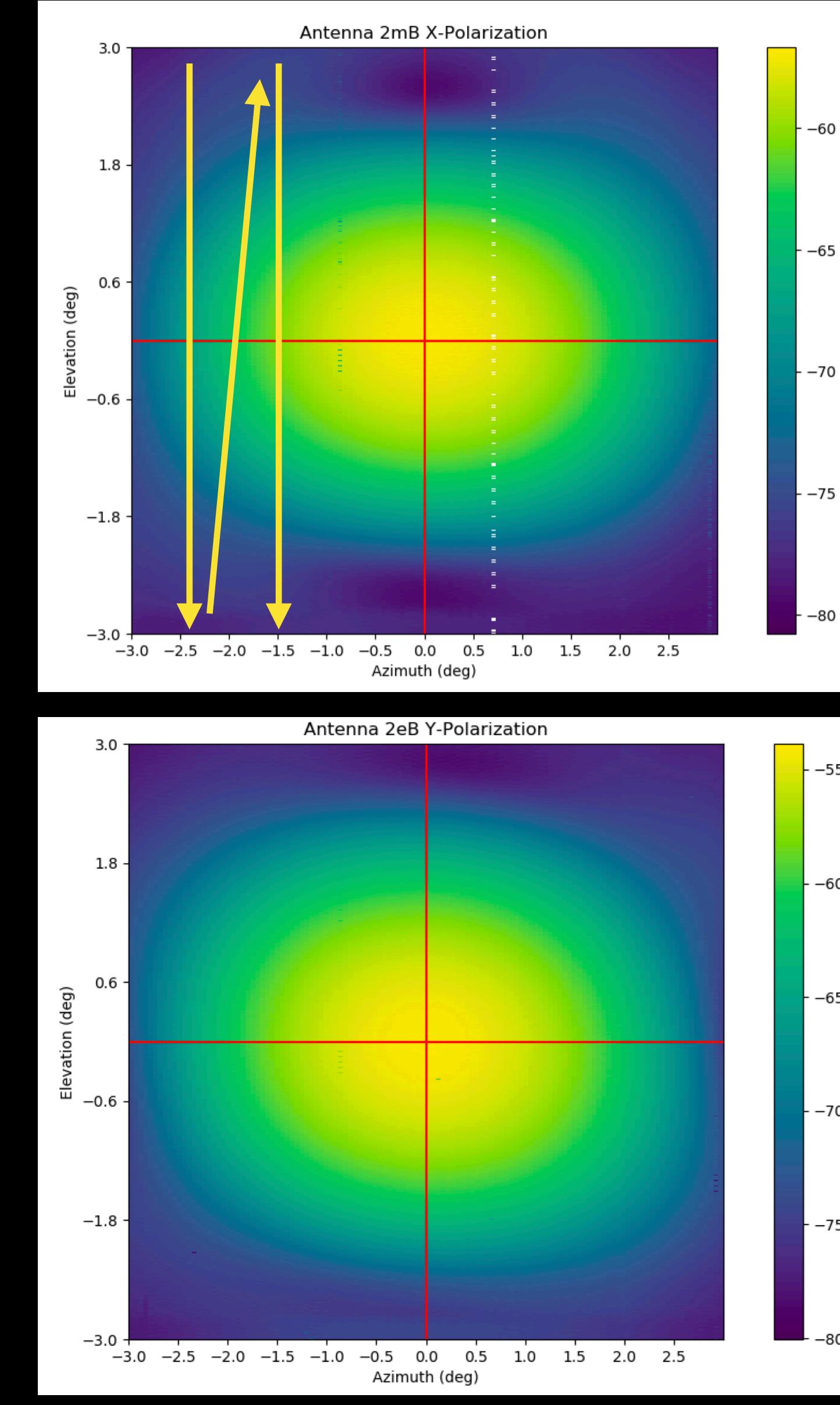


~1.5h hours
to execute

Stop and stare



Record and slew



6x6 degree
raster

~1.5h hours
to execute

Merging of ATA RFSoC software into main GitHub repository

Screenshot of the GitHub repository page for SETlatHCRO / ATA-Utils (Public). The repository has 6 stars, 3 forks, and 4 issues.

The Code tab is selected. The master branch is currently checked.

Commits on Nov 18, 2021:

- Merge pull request #23 from SETlatHCRO/rfsoc (Verified) - bf8808e by wfarah committed 5 hours ago
- Merge pull request #22 from MydonSolutions/rfsoc_radonn_retry (Verified) - fa5e877 by wfarah committed 6 hours ago
- Merge pull request #21 from SETlatHCRO/rfsoc (Verified) - 3651abb by wfarah committed 6 hours ago
- Merge branch 'rfsoc' into rfsoc (Verified) - f3b216a by RocketRoss committed 13 hours ago
- *^ SNAPObs/snap_hpguppi/meta_marshall (Verified) - 41b88cd by RocketRoss committed 13 hours ago

Commits on Nov 17, 2021:

- Merge branch 'master' into rfsoc (Verified) - 90420dd by RocketRoss committed 15 hours ago
- Merge pull request #20 from MydonSolutions/rfsoc_radonn_retry (Verified) - 74cb156 by wfarah committed yesterday
- Ephemeris Swivel Raster Plot (Verified) - b5f54eb by pranavp25 committed yesterday
- +^ snap_hpguppi from rfsoc_radonn_rebased (Verified) - 41f8216 by RocketRoss committed yesterday
- ~ SNAPObs.hpguppi.scripts.record in unused import (Verified) - d43c120 by RocketRoss committed yesterday

A yellow box highlights the four merge commits from Nov 18, 2021.

Updates on delay engine / beam former

- Delay-Engine-interface with RFSoC boards currently under development.
- i.e. antenna book keeping ant <-> rfsoc mapping, etc...

Ant names

```
['1A' '1F' '1C' '1K' '1H' '1E' '1G' '2A' '2B' '2C' '2H' '2E' '2J' '2K'  
'2L' '2M' '3C' '3D' '3L' '4G' '4J' '5B' '5C']
```

Delay [ns]

```
[4111.83150493 3909.14736758 4000.          4070.61888494 3936.02142983  
3960.42159757 3948.32186657 4315.18569625 4333.31589307 4270.57894305  
4097.26664986 4330.15716061 4147.88304218 4175.72402666 4219.14871629  
4269.10670011 4502.67350241 4468.43335254 4511.66252284 4557.27620796  
4652.26083741 4753.36038232 4730.26016055]
```

Delay rate [ns/s]

```
[-6.16824217e-03 5.97452357e-05 0.00000000e+00 -5.70724944e-03  
-2.30798325e-03 -6.23113129e-04 -1.59118813e-03 -1.31492440e-02  
-1.27484512e-02 -1.04375495e-02 -8.76197321e-03 -1.00384187e-02  
-1.02120061e-02 -1.08602939e-02 -1.14102551e-02 -1.19032940e-02  
-1.72175329e-02 -1.81333083e-02 -2.10850582e-02 -2.18204682e-02  
-2.42549907e-02 -2.33977335e-02 -2.21309855e-02]
```

Phase [rad]

```
[-36169.55901632 -34386.65622504 -35185.83772021 -35807.03387658  
-34623.05282327 -34837.68790892 -34731.25311603 -37958.3559102  
-38117.83745101 -37565.97441541 -36041.43985958 -38090.0517891  
-36486.68490109 -36731.58699157 -37113.57051221 -37553.02389008  
-39607.58479072 -39306.39270154 -39686.65634422 -40087.89527487  
-40923.4237143 -41812.74175949 -41609.54159584]
```

Phase rate [rad/s]

```
[ 0.05425869 -0.00052555 -0.          0.05020359 0.02030208 0.00548119  
0.01399682 0.11566679 0.11214123 0.09181348 0.07707434 0.08830254  
0.0898295 0.09553213 0.10036985 0.10470684 0.15145333 0.15950891  
0.18547386 0.19194286 0.21335804 0.20581721 0.19467432]
```

Timeline

- 8-bit mode with all antennas (no delay engine) - October 15th
- Network ingest test + write-to-disk tests - October 22nd
- Interface with GPU-beamforming library - October 31st.
- 8-bit mode + delay firmware - November 7th
- Calibration runs, phase stability, beam forming efficiency - November 22nd
- Real-time beam forming operations - December 15th