

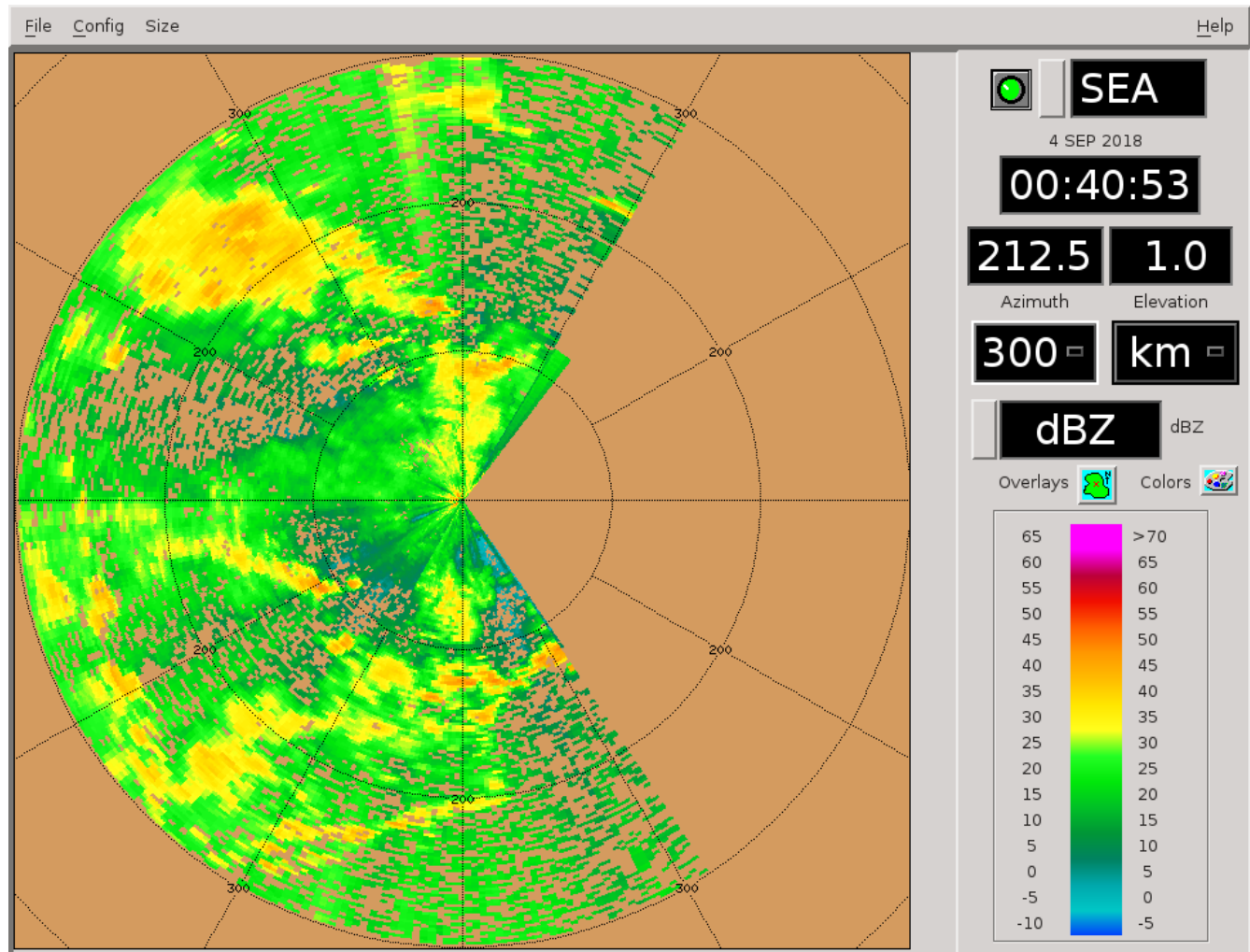
20180904  
Day Shift (4a-4p L)  
Timothy Lang

0001 – RHIs to 180-210 az.

0002 – Heading 261. RFI bad again.

0028 – Terminating RHIs and adding SUR after this round. Not enough convection, and the RFI is chewing up the stratiform again.

0041 – Long-range view. Not much convection to our west that I would trust to make it close to the radar.



0044 – Talked with Moum about possibly rotating the heading by 10-20 deg if possible. He will talk to the captain, although the winds and swell right now does not give us a lot of flexibility.

0101 – Ship tried 280 heading, RFI only got worse. I suspect we would need to be headed even further NW to start to improve.

0103 – Ship will now try 250, but this will be axed if Chameleon and/or Surf Otter have placement

issues.

0106 – Adding a low-level set of tilts in PISTON\_SECTO to keep ops going without time gaps during this heading experiment.

0108 – Heading changing toward 250, this appears to be reducing issues with RFI. Not as good as it could be (I suspect we'd need to be ~240 or less), but better.

0123 – Trying LOW next round. Not much around the ship anymore.

0126 – RHIs to 210-240 next round. Killing SECTO and SUR then.

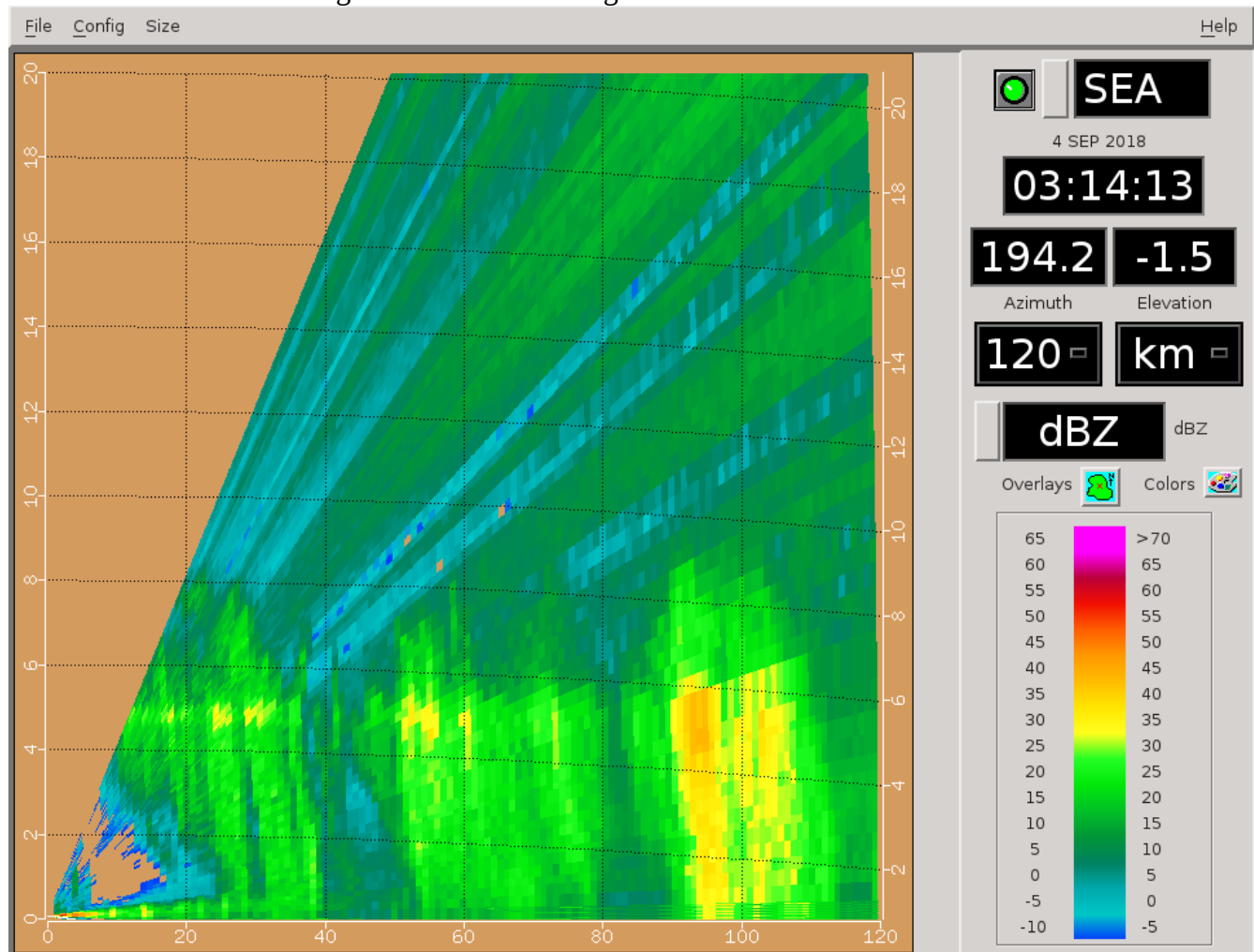
0148 – RHIs to 224-254 az.

0202 – RHIs to 210-240. This convection appears to be decaying, however.

0220 – RHIs to 180-210 az.

0301 – RHIs to 164-194. Still mostly stratiform, occasional sweeps hit on shallow convection.

0314 – RHIs reveal that bright bands are occurring in some of the weak convective cells as well.



0316 – RHIs 160-190 az.

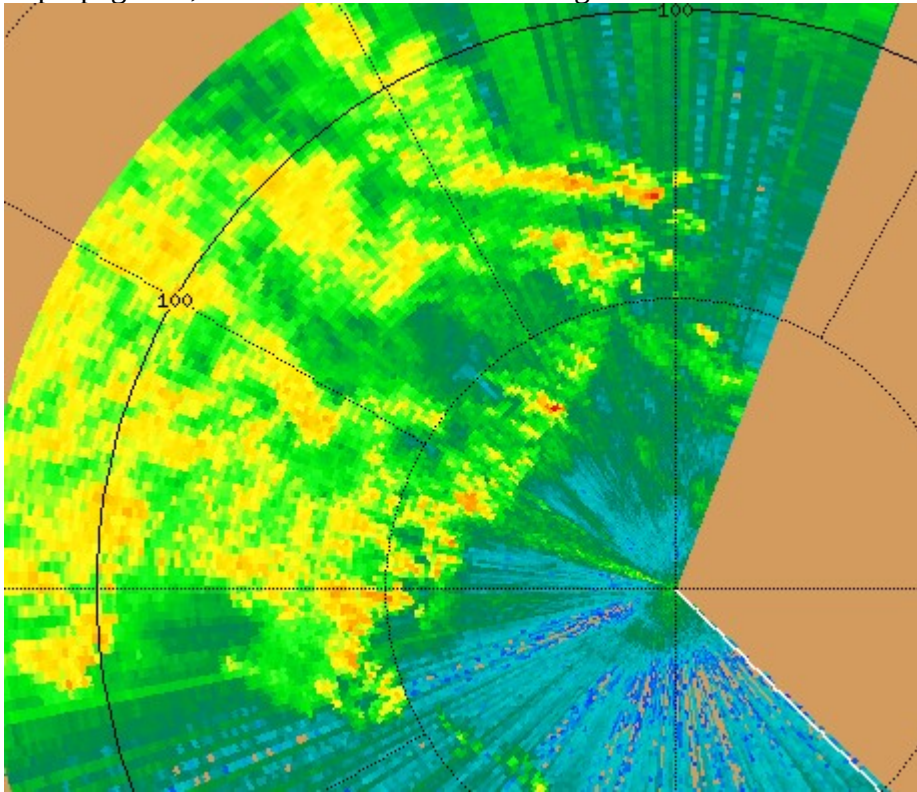
0332 – RHIs to 286-316. There is convection moving in from off scope there.

0345 – No changes to RHIs.

0355 – The convection to the NW is about 6-8 km tall.

0401 – RHIs to 272-302 az. The line fills about 80-90 deg of azimuth.

0431 – Still no RHI changes. The systems continues to move toward us. There is evident gust-front driven convective propagation, but not a well-defined leading line.



0447 – RHIs to 241-271 az, to capture the southern portion of the incoming line.

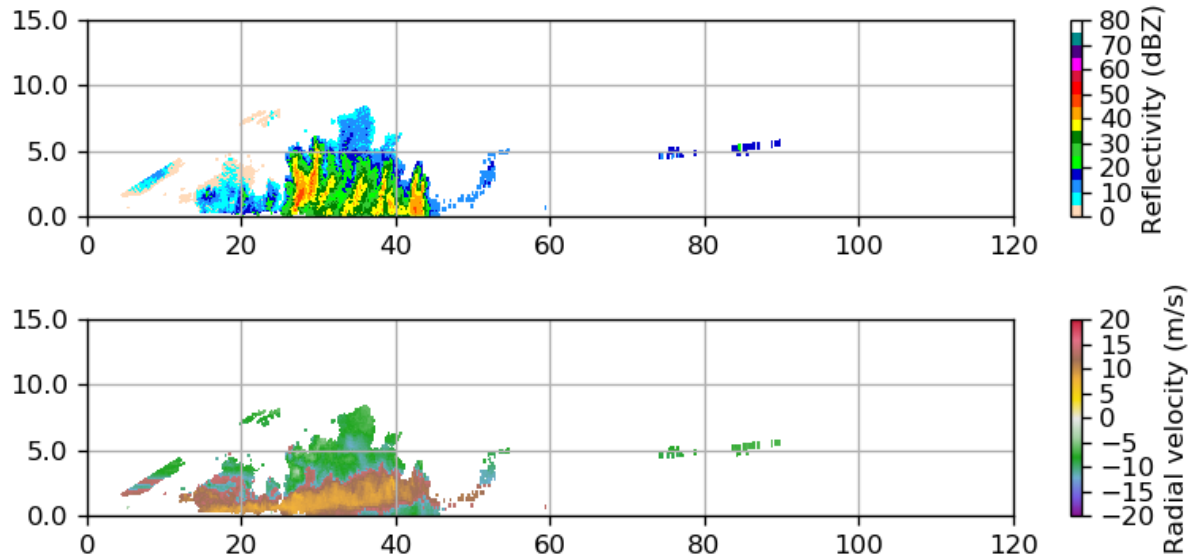
0458 – Fairly narrow, shallow cores in this young portion of the storm.

0501 – RHIs 211-241 az, following the storm as it moves SE.

0503 – 45-kt gust just hit the ship. Ship has turned west more, increasing RFI. Probably due to the incoming squall.

0509 – Doppler definitely seems to suggest downward sloping of the rear inflow. (Note: Velocities are aliased.)

## SEAPOL 2018-09-04 04:54:41 RHI 251.0°



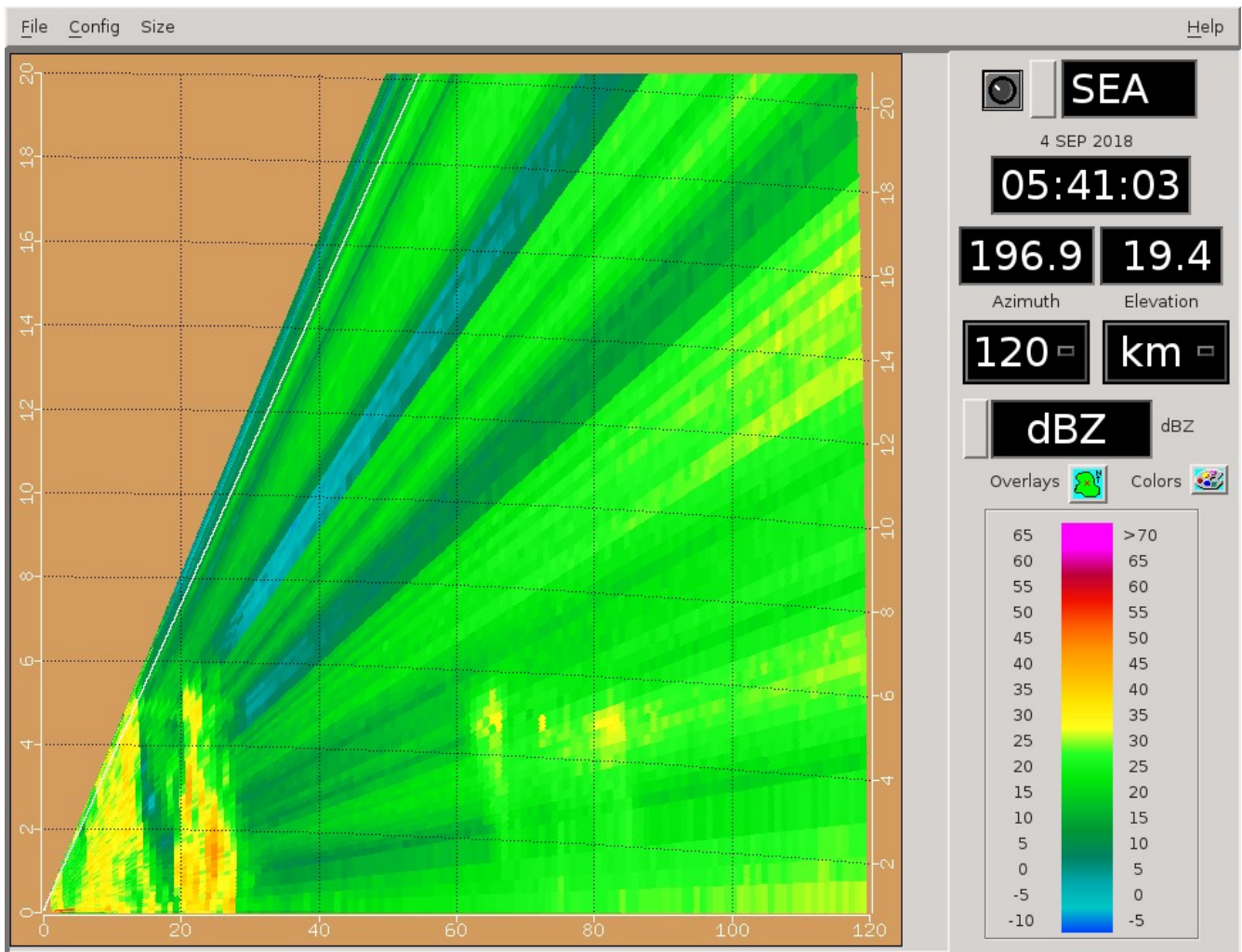
0511 – Switching to PISTON\_FAR next round, due to storm proximity. Convection still shallow but RHIs aren't topping the closest cells.

0516 – RHIs 175-205, we'll catch the back side of this convection, which is rapidly moving off scope.

0521 – Given the speed of propagation, any gridded analysis of this storm will require consideration of advection correction.

0531 – Ship headed toward WNW, RFI really bad now. RHIs 191-221 to cover a cell near 25 km out.

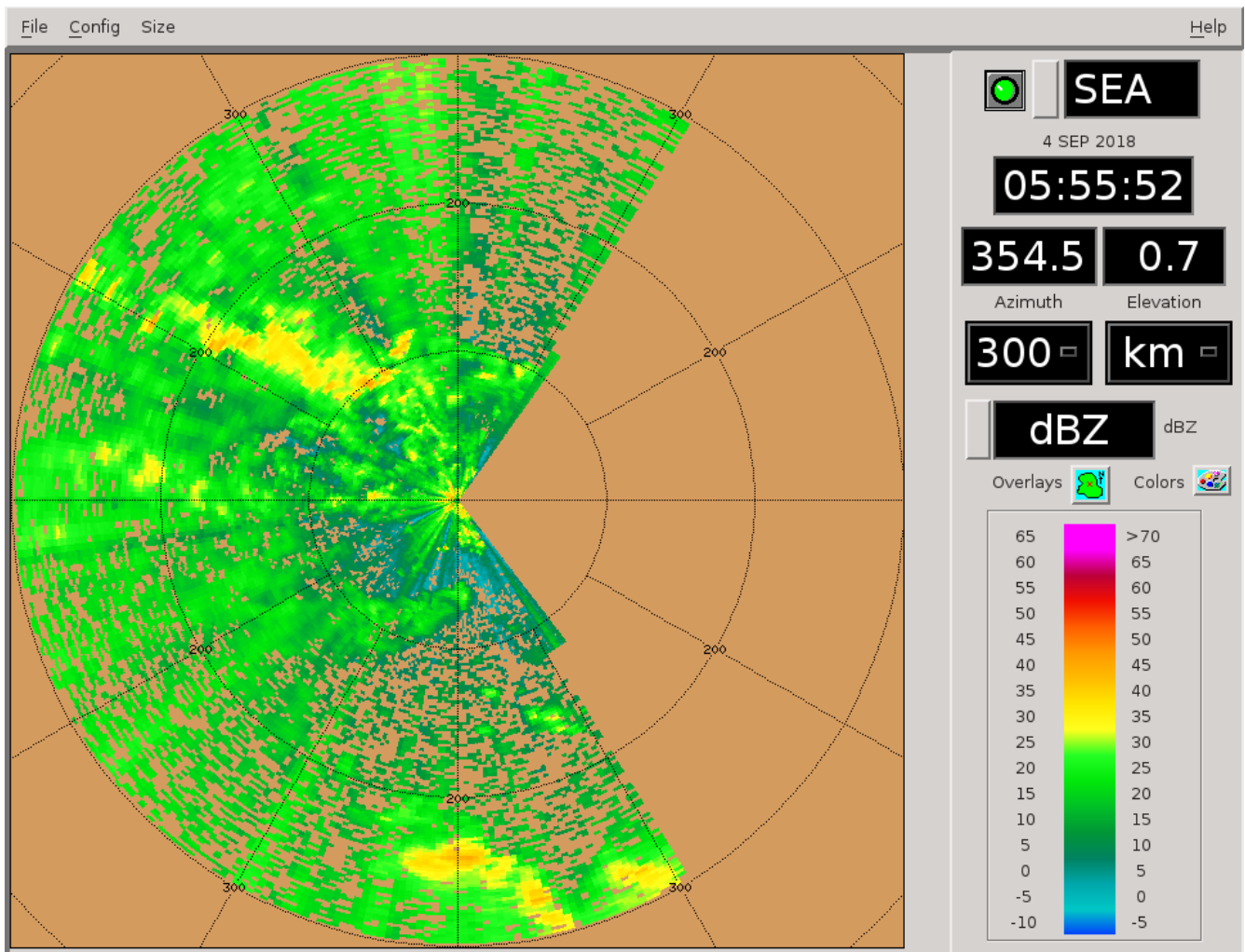
0541 – Look at how the storm near 70-80 km nearly disappears in this RFI.



0542 – Some rays have over 30 dBZ of RFI at range.

0545 – RHIs off for now, until we can get this RFI fixed. Turning on a SUR this round.

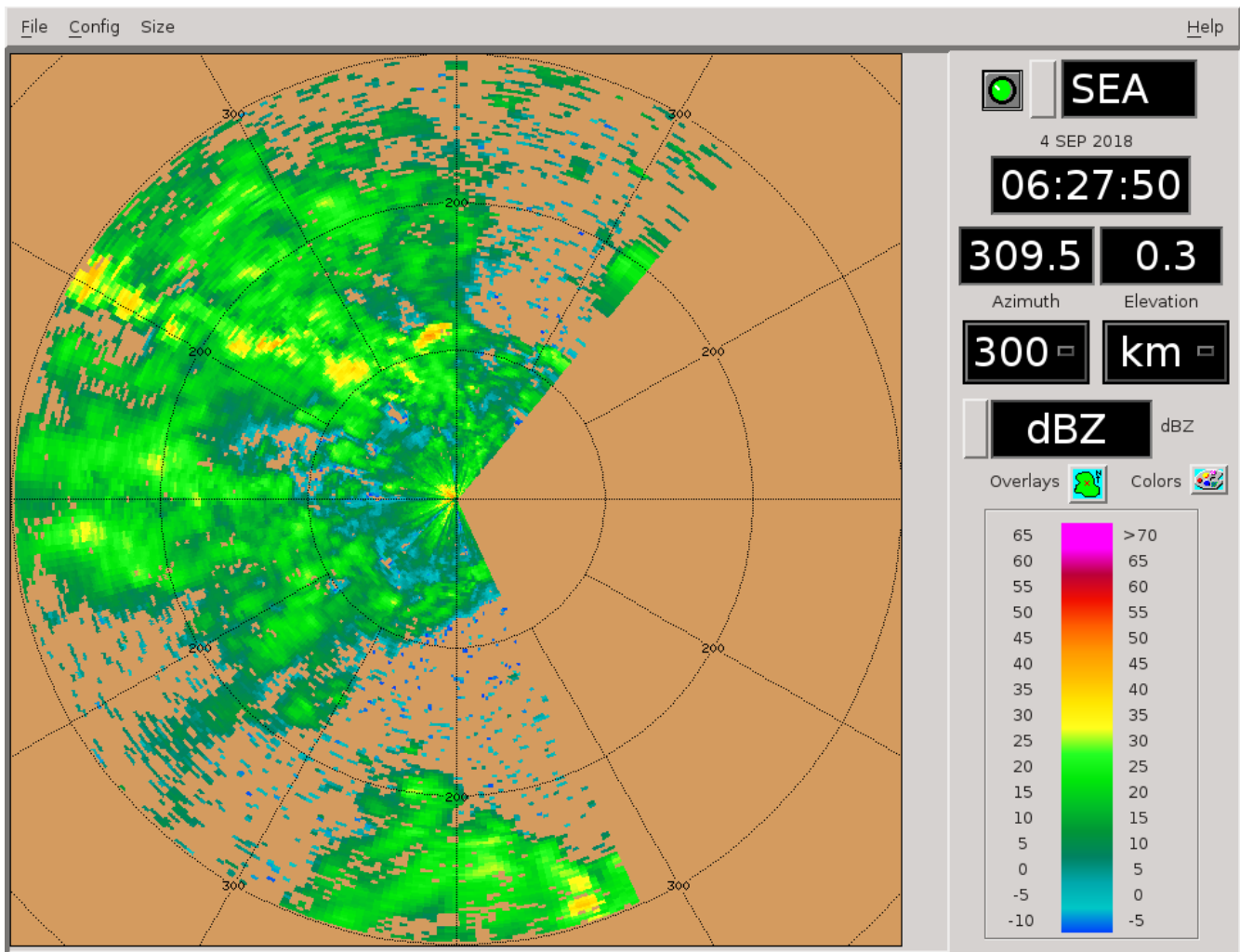
0556 – Long range. Still substantial precip off scope to W and NW.



0612 – Trying satcomm off, doesn't seem to help.

0616 – Turning the satcomm antenna did work, however! RFI significantly reduced. We suspect this is because the transmitter for the antenna is still on, though not sending any signal. So turning it away from the ship reduces RFI by pointing the transmitter away.

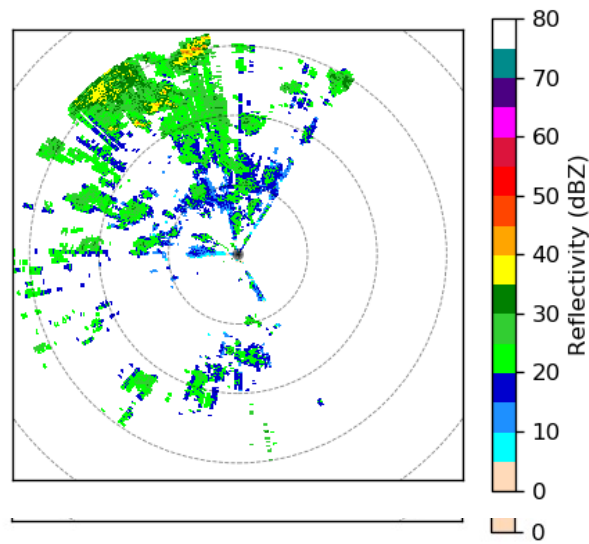
0627 – Running a surveillance to fill the dead time, since no RHIs were set. Look at the difference in echo quality now that the RFI has been significantly reduced:



0632 – RHIs 326-348 az, and keeping SUR for now. There is some embedded convection in stratiform near max range.

0634 – Two successive vols (0612 & 0615 Z), one with RFI, one without, after QC has been applied. This shows how much the worst RFI destroys data.

## SEAPOL 2018-09-(



0646 – RHIs 326-359, 3-deg spacing.

### Shift Summary

Once again, we scanned multiple mesoscale storms moving from west to east across the domain. Many of these organized systems developed gust fronts and moved toward the SE. These gust fronts packed punch, with winds in the 35-45 kt range. However, storm structure was not as organized as yesterday, nor were they as tall. Eight km was a typical max height for cells today. The ship spent a substantial amount of time near 270 heading, maximizing RFI. During the worst times RHIs were canceled. For much of this shift, only medium to strong convective cells should have their data trusted. Stratiform echo was heavily affected by the worst RFI. A temporary fix for the RFI is to turn off the satcomm antenna transmit and turn it away from the ship. This is recommended when the ship is in at least the 260-280 heading range and expected to remain so for many hours, and there is significant radar echo.

Night Shift (4p-4a L)  
Scott Powell

0752: Doing occasional RHIs.

1136: Nothing to see. In lieu of turning the radar off, I'll continue 15-minute cycles, but only with a few tilts with FAR\_S scan. Surveillance continues.

1313: RHIs near and along 300 for convection entering domain. Happens to fall along CYGNSS overpass

1605: That ring/line of convection has passed through to the north, and now another area of isolated convection, which appears to be growing together, is moving eastward toward the ship. The SATCOM is back on because we went to 245 deg, and things looked OK, but now we're oscillating between 245 and 275 a bit. RFI occasionally worse, but we're just looking at convection right now anyway. Still on LOW scan. Some convection is deep, which will require FAR scan as convection gets closer.

1706: Going to FAR for next cycle.

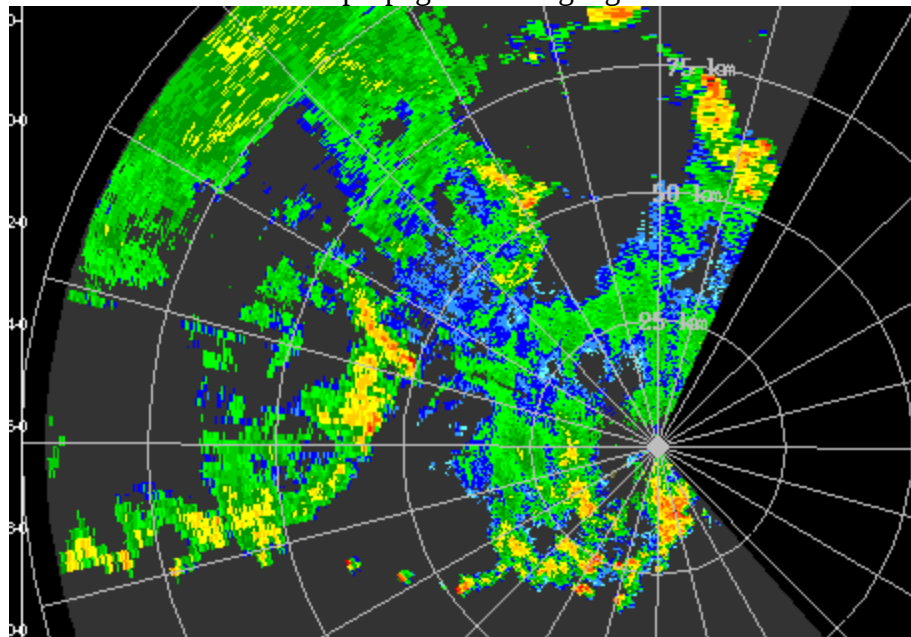


1742: Convection is both near and far, so staying with FAR. NEAR won't top the stuff close to the ship anyway.

Day Shift (4a-4p L)

Timothy Lang and Zane Martin

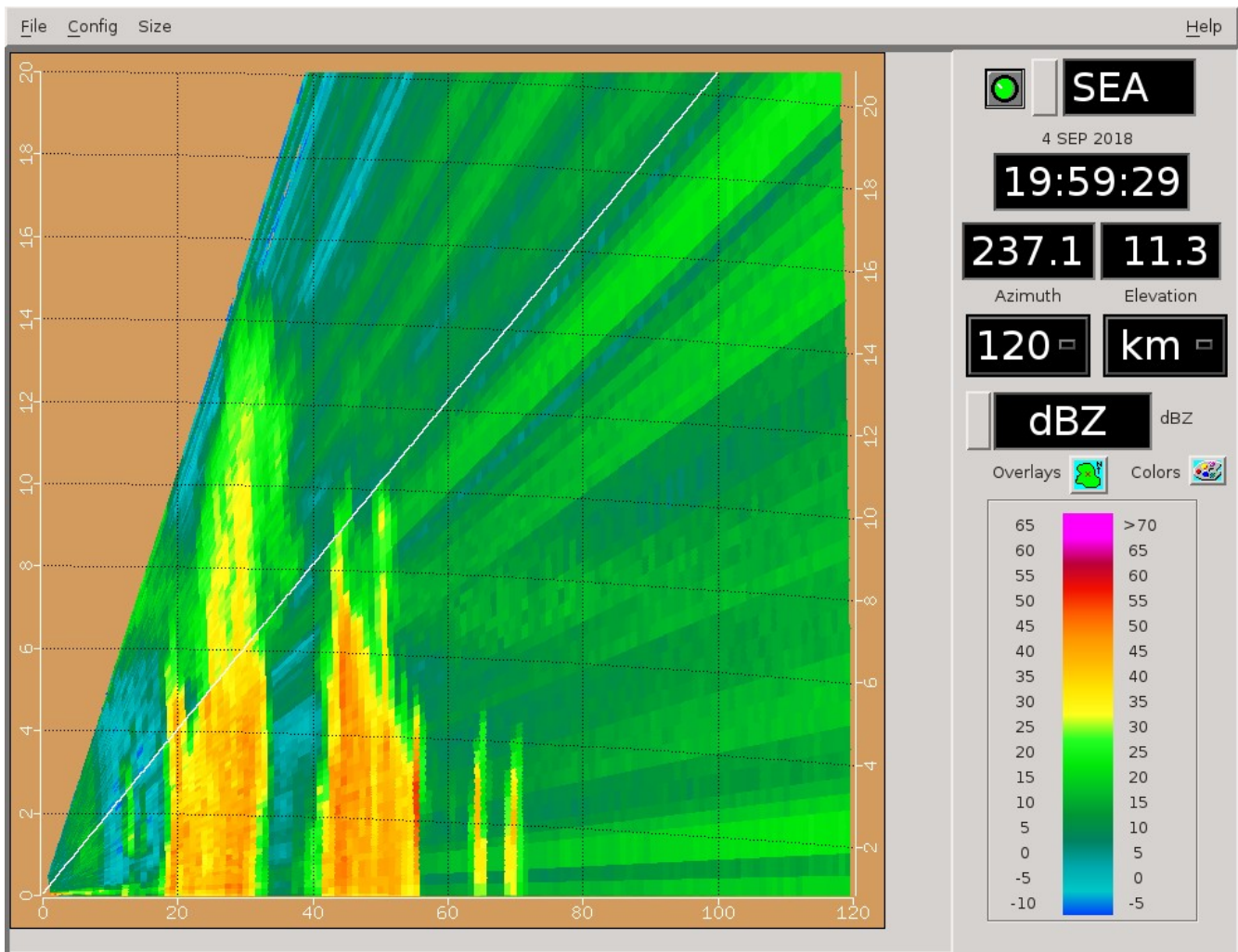
1904 – RHIs to 251-281. There is a W-E line of cells popping up to our west, SE of a curved SW-NE line. It appears to have some southeastern propagation along a gust front.



1917 – RHIs to 239-269 az.

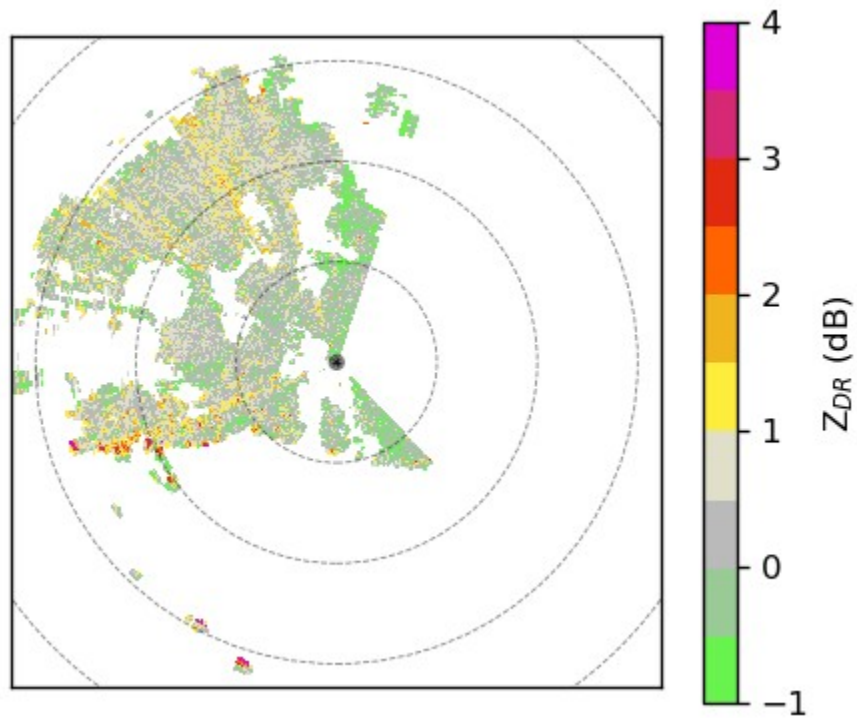
1931 – RHIs to 231-261 az.

2000 – RHIs were set to 211-241 last round. Wow, some of these cells are up to 14 km tall.



2001 – For some reason next PPI scan didn't start, RHIs were overrunning their appointed time, due to too high of a top angle for the number of sweeps. Now restarted in NEAR, as storms are tall/close. Will cut down RHIs this round, and focus on the sector to our south (keeping up with the storm).

2012 – RFI definitely impacting ZDR in the stratiform rain (1945 UTC). Note the radial streaks of more positive ZDR to the NW. These are also associated with reduced RHO. Note that ship has been pointed toward ~250 heading. This is about the limit of data viability, I'd say (tho note we are not without impacts). More clockwise from this and the satcomm antenna needs to turn off.



2018 – RHIs 171-204 az, 12 sweeps to 30 deg elev.

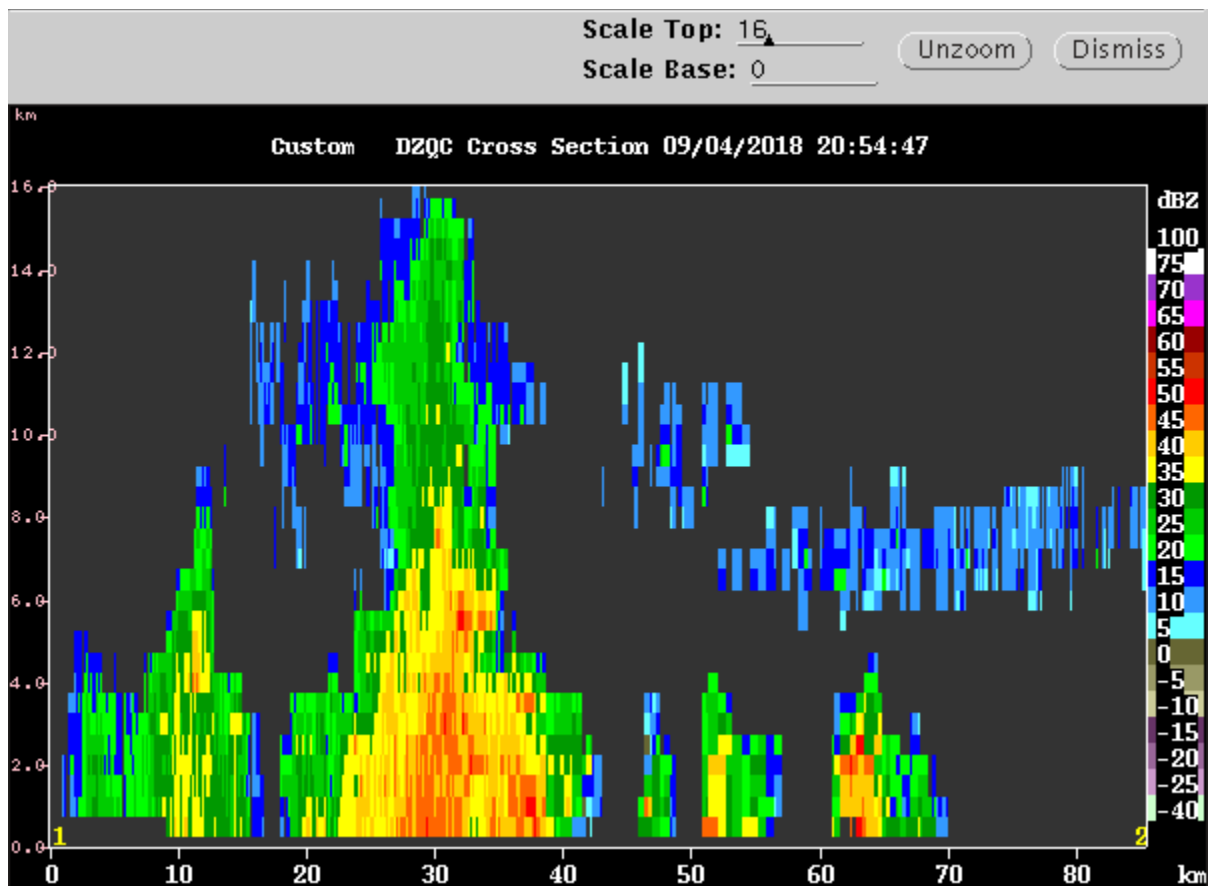
2031 – RHIs to 150-183 az.

2045 – Maintaining RHIs this round, will watch the eastward-moving convection stream thru this swath.

2054 – Lightning off stern side to our south; single flash

2103 – Switched to PISTON FAR PPI and adjusted RHI to top at 20 with 180-224 az

2107 – Region where RHIs will scan, some cells up to 16km:



2117 – Switched back to PISTON near for next PPI and changed RHI from 180 to 213 azi and up to 30 in elevation (thanks Tim...

2125 – According to Eric Maloney, current convection near us is the best in our area based on satellite data

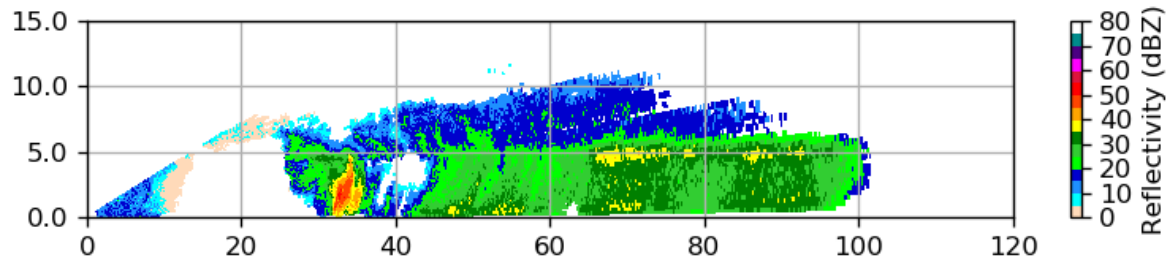
2132 – Minor adjustment to RHIs to continue following above system

2149 – Switched to PISTON FAR. Switched RHIs to monitor new system to our west; scanning from 236 to 261 az up to 30 deg. Elevation

2216 – Minor adjustment to RHI in same region to the west, increased step size to 4 azi. to capture more of system

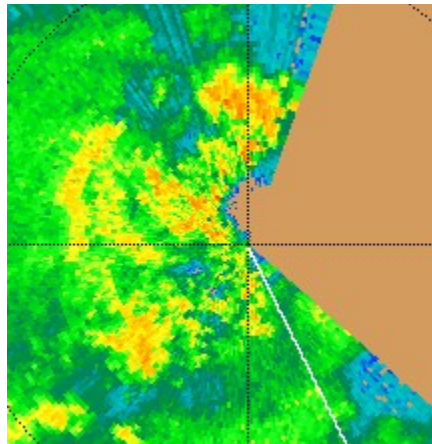
2231 – RHIs 212-272 az, 4-deg spacing. Western storm continues to approach radar, with leading convection and extensive rearward stratiform region.

SEAPOL 2018-09-04 22:09:49 RHI 281.0°



2235 – Switching to NEAR next round due to proximity of storms.

2247 – Collision with storm imminent. RHIs to 30 deg elev, with azimuth range 180-235 deg (5-deg spacing).



2318 – RHIs 170-225 az.

2332 – RHIs 150-205 az.

2336 – Switching to FAR next round.

2346 – RHIs to 180-210 az, 20-deg elev.