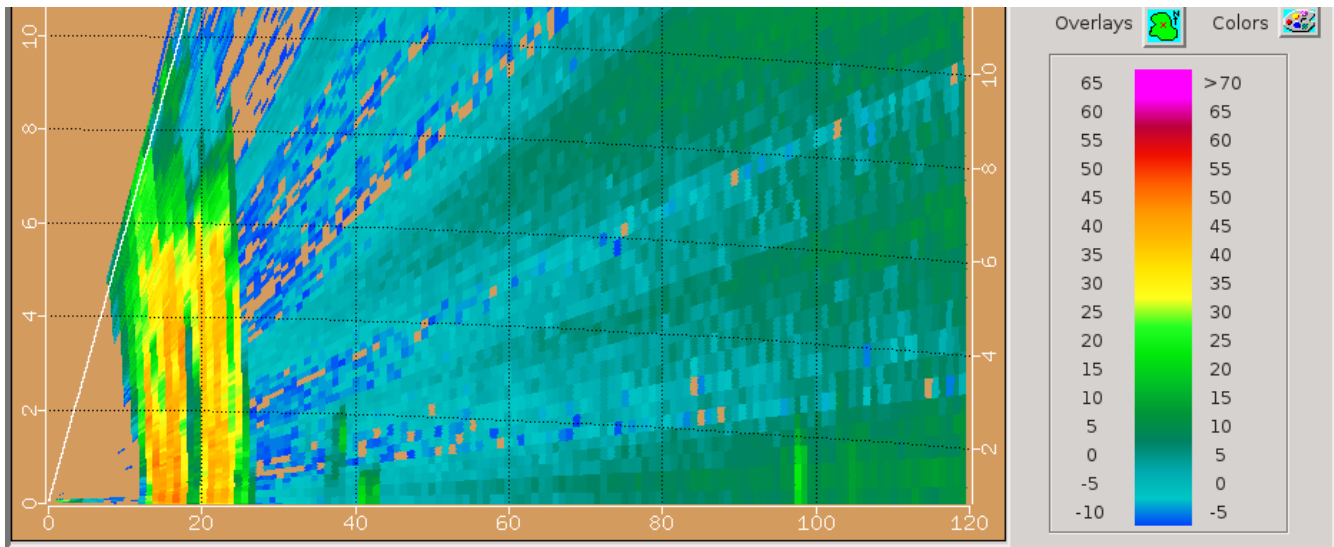


20180831
Day Shift (4a-4p L)
Timothy Lang

0001 – RHIs to 34-56 and cutting sweeps to 12 so I can go up to 30 deg elev.

0010 – Convection topping out near 8 km. Pretty typical for anything organized this morning. May be some cells reaching up to 10 km in this storm, but even 30-deg elev not enough to top that within 15 km range.



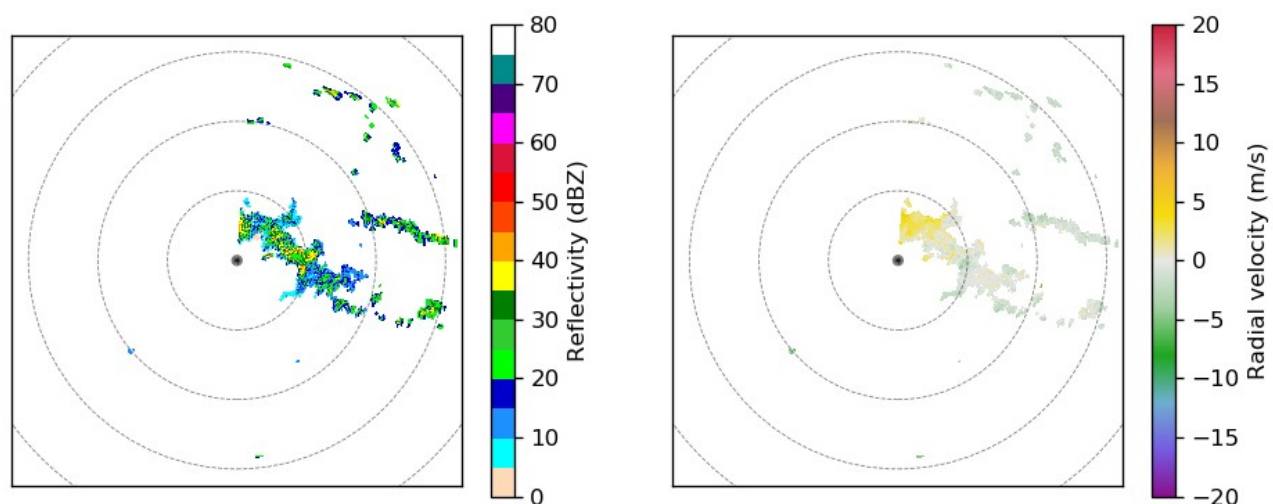
0016 – RHIs 14-36 az to account for westward motion of storm. About to move off scope soon. The ship is actually rotated toward 120, and has been for a while, so we can't really see beyond true north.

0031 – RHIs to 78-100 to cover eastern portion of line.

0047 – RHIs rotated to 72-94.

0101 – Slight adjustment counterclockwise on RHIs. Storm is still arranged as a NW-SE line. The convection continues to the NW, out of our FOV, and almost reaches max range to our SE.

SEAPOL 2018-08-31 00:45:06 PPI 0.8°



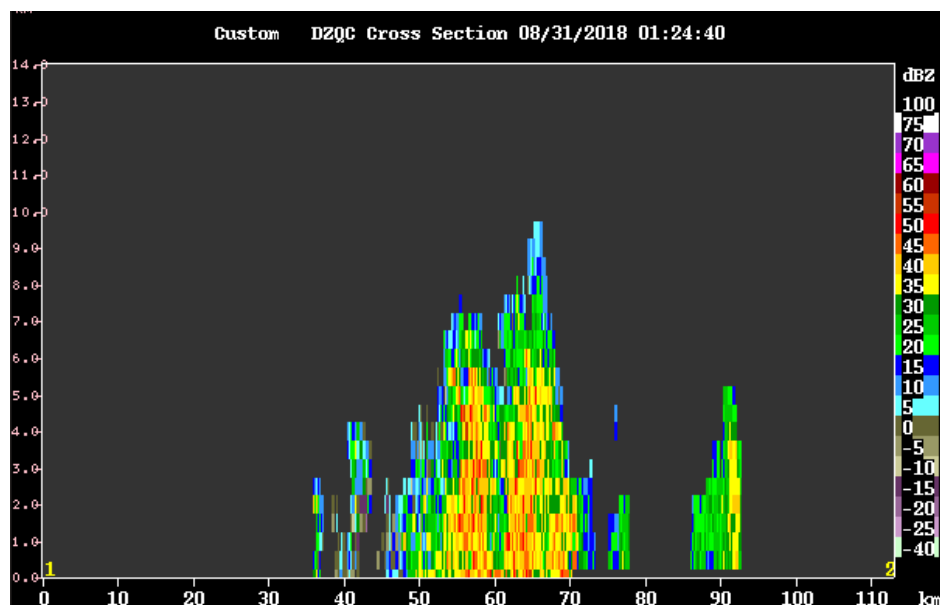
0108 – Switching to FAR next round as the tallest near portion of the storm has moved off scope.

0117 – RHIs to 62-88, 14 sweeps to 25 deg elev.

0119 – Kind of regretting switching to FAR. Convection is getting really close to the radar now. Going back to NEAR next round.

0130 – Cutting a couple RHI sweeps to provide coverage to 30 deg elev.

0132 – Vertical cross-section along the line. Tops close to 10 km.



0146 – RHIs to 48-70 az, accounting for westward movement of main cell in the line, which has grown in size and altitude, up to 12 km tall in places.

0151 – Surface winds have been becoming more westerly the last bit. Unclear whether this is related to inflow into the nearby storm or the distant effects of Typhoon Jebi.

0158 – Visually outside, the rain shaft off the port side was pretty close to the ship, and then retreated away the last few minutes. Wonder if this was a response to the change in sfc winds.

0200 – RHIs to 18-40, following the NE storm. Next round I suspect the storm will be substantially off scope.

0214 – RHIs not topping the main cell anymore, due to proximity.

0216 – RHIs 10-43 (12 sweeps, 3-deg spacing), about the most I can rotate it without risking losing sweeps if the ship adjusts its heading by a few deg.

0231 – No changes to RHIs. Really only looking at half the storm on scope at this point.

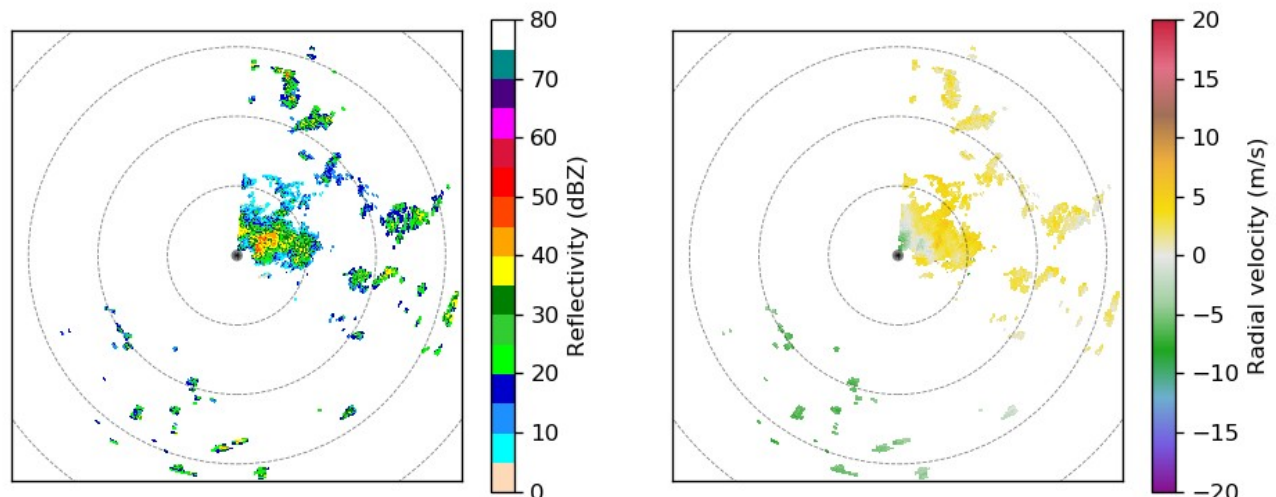
0246 – Trying RHIs 62-84 to cover the eastern portion of the storm better.

0300 – RHIs to 70-92.

0336 – A lot of backbuilding to east, so I have been able to maintain the RHIs without changes.

0359 – This storm seems to be on some sort of wind boundary. To our NE, the storms continue to move to the NW. But to our south the storms are moving to the NNE. That flow interaction appears to be sustaining this convection of our port side.

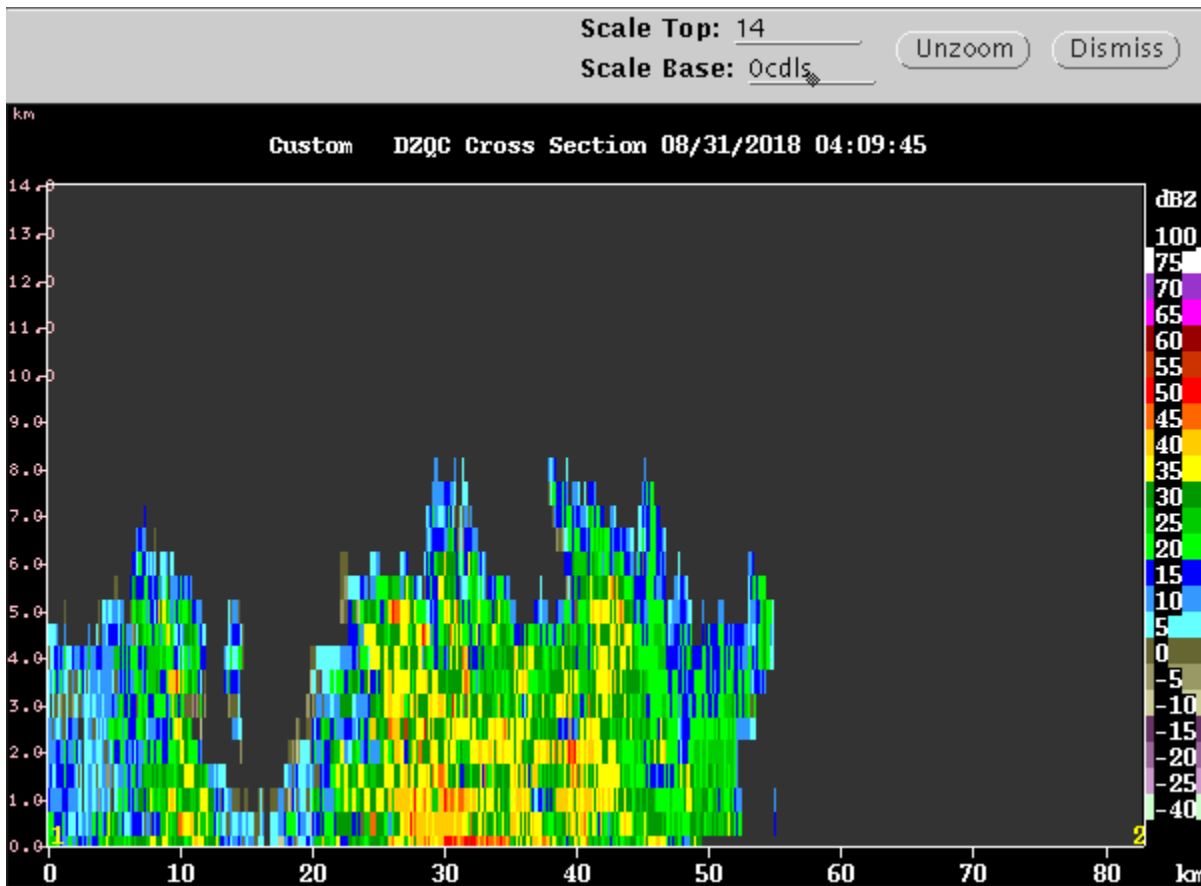
SEAPOL 2018-08-31 03:45:04 PPI 0.8°



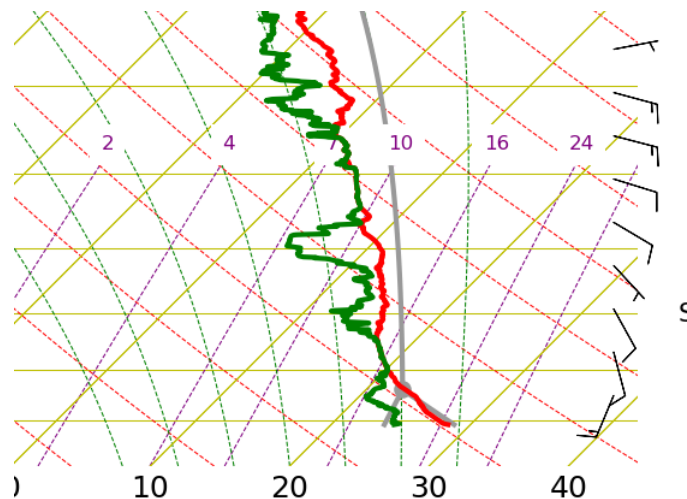
0405 – This boundary appears to be related to interaction between the low to our SW (no longer an Invest) and Typhoon Jebi.

0408 – CYGNSS expected this hour, at 0445, 0455, and 0506! Should be really interesting given this boundary. Shifted RHIs to 66-88, mostly to avoid the 90-deg Py-ART RHI plotting bug.

0419 – Convection has been topping out near 8 km or so in this storm.



0424 – Latest sounding (03 UTC) really showing boundary impacts now. Ship has rotated to ~90-deg heading.

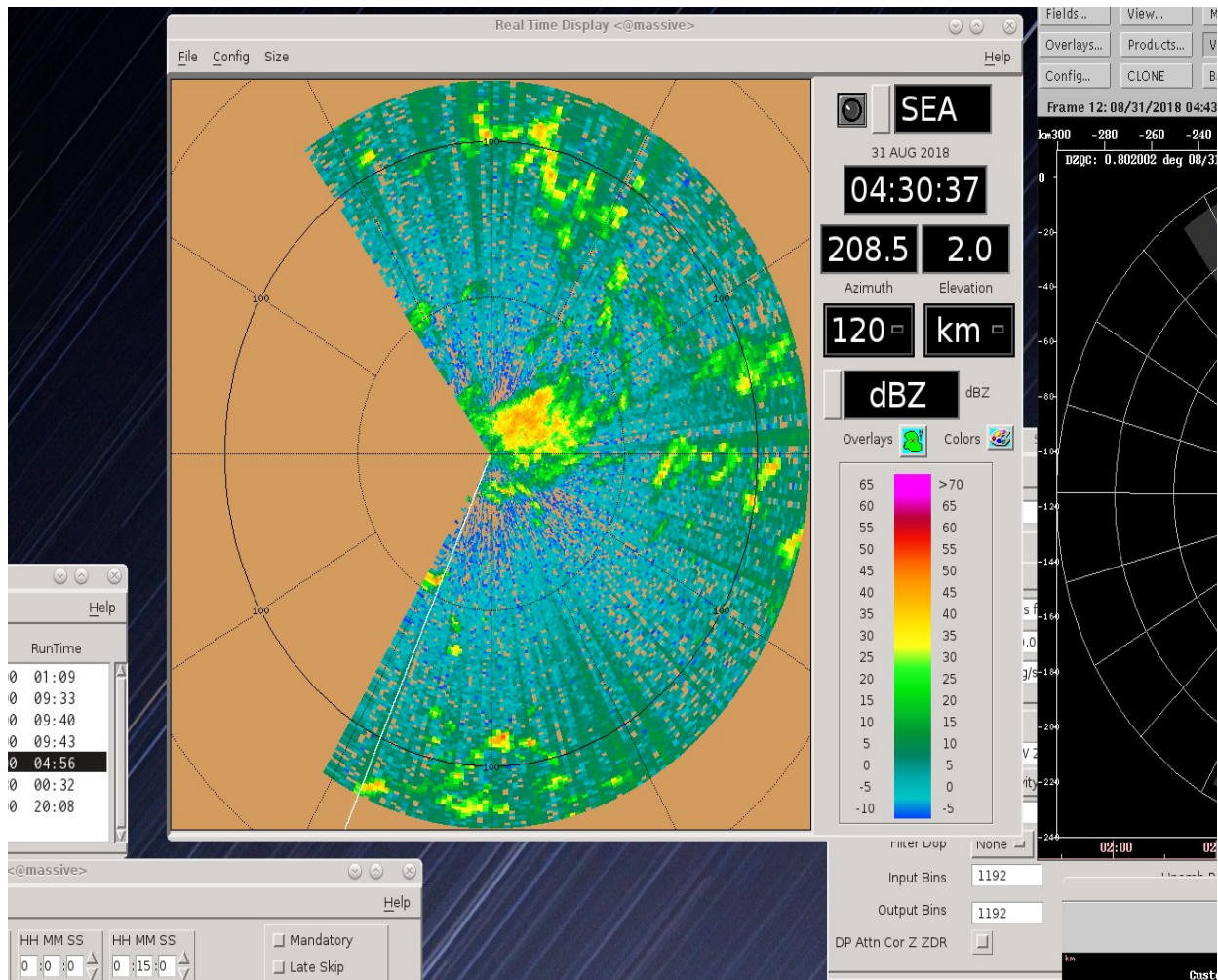


0429 – RHIs showing outbounds below changing over to inbound Doppler velocities around 4 km altitude.

0431 – RHIs 50-72 to support CYGNSS for the next 45 min or so. Will be coming along ~60-deg

radial. There is no view to 240-deg.

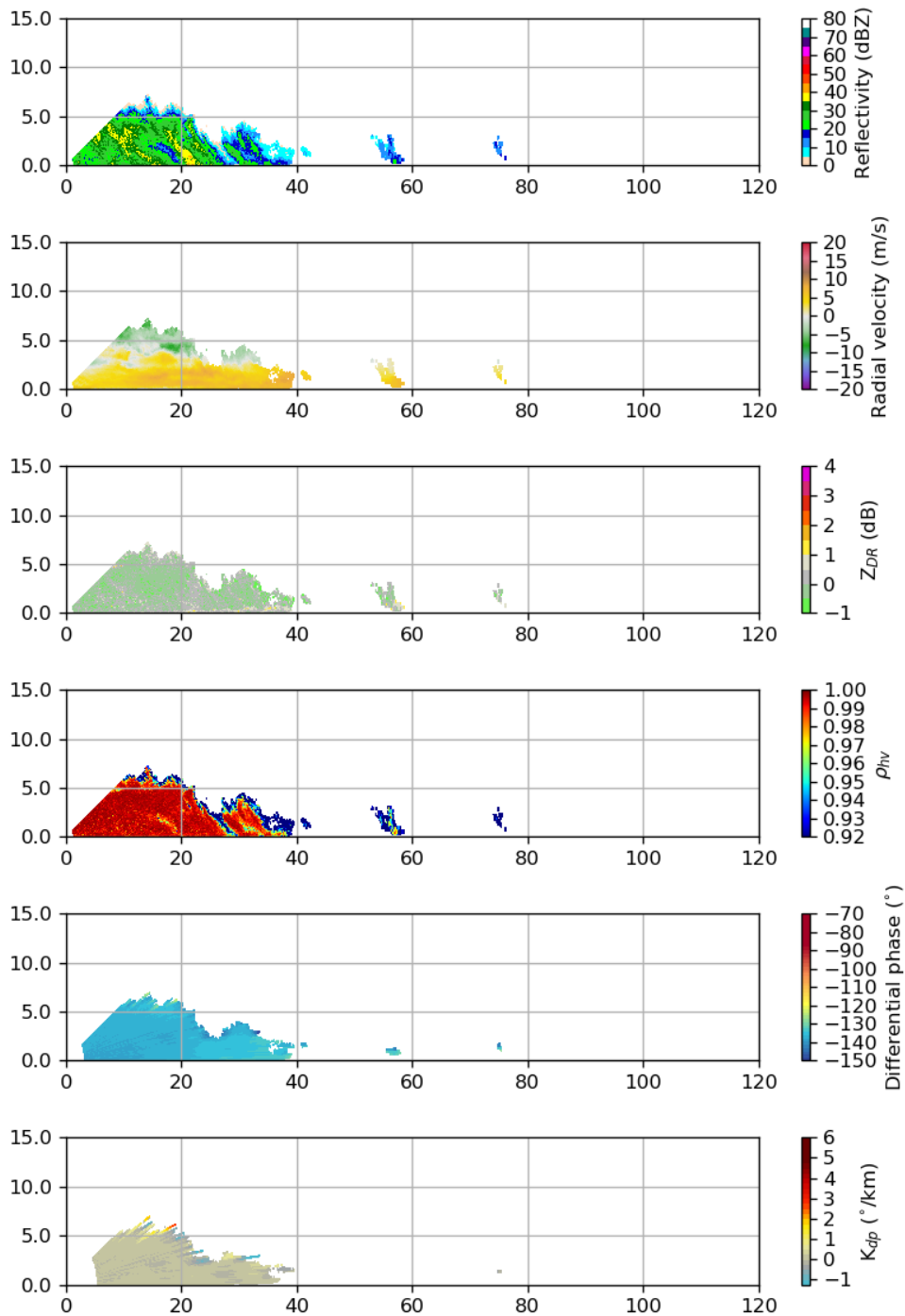
0433- Here is the plan context for CYGNSS. Big convective mass near ship, with boundary between SW flow and SE flow right in our area.



0446 – Successful CYGNSS overpass 1 scanning complete. #2 coming up this round. Minor adjustment, 48-70 az RHIs, is more intense to north. System finally showing evidence of decay, which is good. Will this be reflected in following CYGNSS overpasses? There is new development south of the big blob, however.

0454 – Last RHI near 60 deg. Outbound below, inbound aloft. Definite decaying convection signal in reflectivity. Polarimetric data relatively featureless.

SEAPOL 2018-08-31 04:39:47 RHI 60.0°



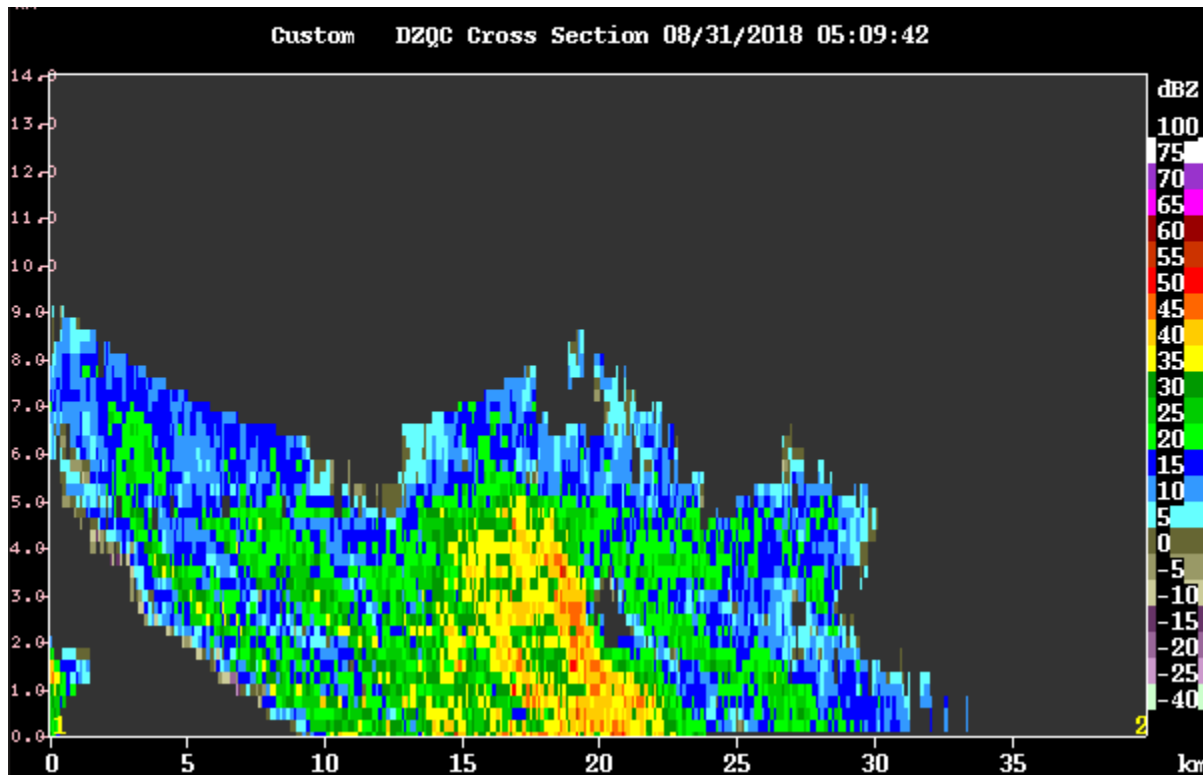
0500 - NE storm really falling apart now, while convection to its south strengthens; maybe choking off the moist inflow? CYGNSS #2 done, now into the third and final overpass this sequence. No RHI changes.

0514 – Comparison on 60-deg RHIs from 0439 and 0454 vols suggest weakening near-surface flow.

0517 – OK, CYGNSS done for now, switching to SE storm, 108-130 az RHIs.

0519 – Winds northerly now at ship.

0520 – SE storm vertical cross-section, tops near 8-9 km.



0531 – SE storm collapsed now to. RHIs to incoming line around 80 km out, 69-91 az.

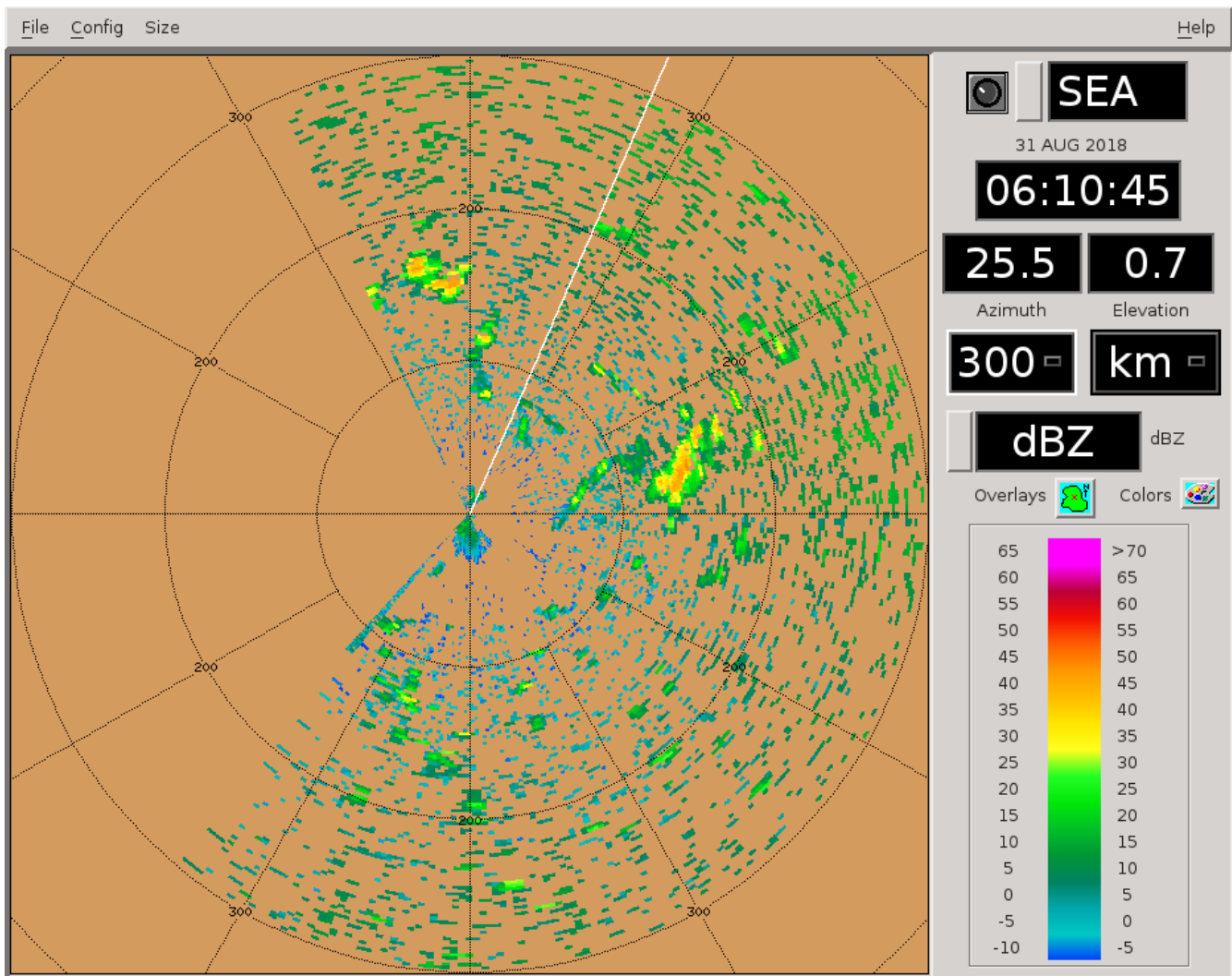
0538 – Switching to PISTON_FAR next round, due to only stratiform echo being near the ship.

0543 – Tops to 6 km in this convection.

0601 – Keeping RHIs close to the same azimuths but reducing the top elev to 20 deg so we can also run SUR again.

0602 – Movie loops still show a bifurcation in echo motion. The SE and E portions of domain, storms move SW to NE. Up north, they still move toward the NW. So the boundary appears to have moved NE.

0610 – Long-range view. There is a bigger storm just out of range to our east, but with shift in echo movement direction it probably won't make it our way.



0616 – Running out of RHI targets as eastern line collapses. Trying just a few tilts on some distant northern convection.

0631 – Trying RHIs centered near 30 deg. Short radially aligned line there. All echoes on scope are really marginal right now, however.

0640 – Heights 4-6 km, and weak reflectivities; max Z ~30 dBZ. Meh.

0643 – Killing RHIs for a while, letting the atmosphere cook and make something better.

Shift Summary

Scattered shallow convection early coalesced into a long NW-SE line that remained quasi-stationary relative to the ship for a few hours. The convection was evidently aligned on a boundary between two near-surface flow patterns, one southwesterly that was south of the ship, and one southeasterly to our north. This boundary may be related to the nearby presence of Typhoon Jebi to our east, which has been expected to turn the dominant low-level winds in the area to westerly. During the late stages of this convective system, multiple CYGNSS overpasses were supported with RHIs through the decaying storm. This will be an interesting event to understand how CYGNSS, and possibly other scatterometers, can characterize mesoscale boundaries and convective wind variability in the vicinity of

heavy rain. Late in the shift, the southwesterly flow began to dominate near the ship, and most convection in range weakened over time.

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

0715: Going to PISTON_LOW.

0721: GPM overpass to the southeast. Very few shallow echoes detected. Long-range surveillance scan also shows only a few scattered isolated echoes in all directions visible to SEAPOL.

0900: SEAPOL off for a little bit for NOAA Doppler lidar maintenance.

0943: Going to PISTON NEAR for this close cell since there's basically nothing else.

1037: Back to LOW for next cycle.

1415: Nothing to see for the CYGNSS overpass.

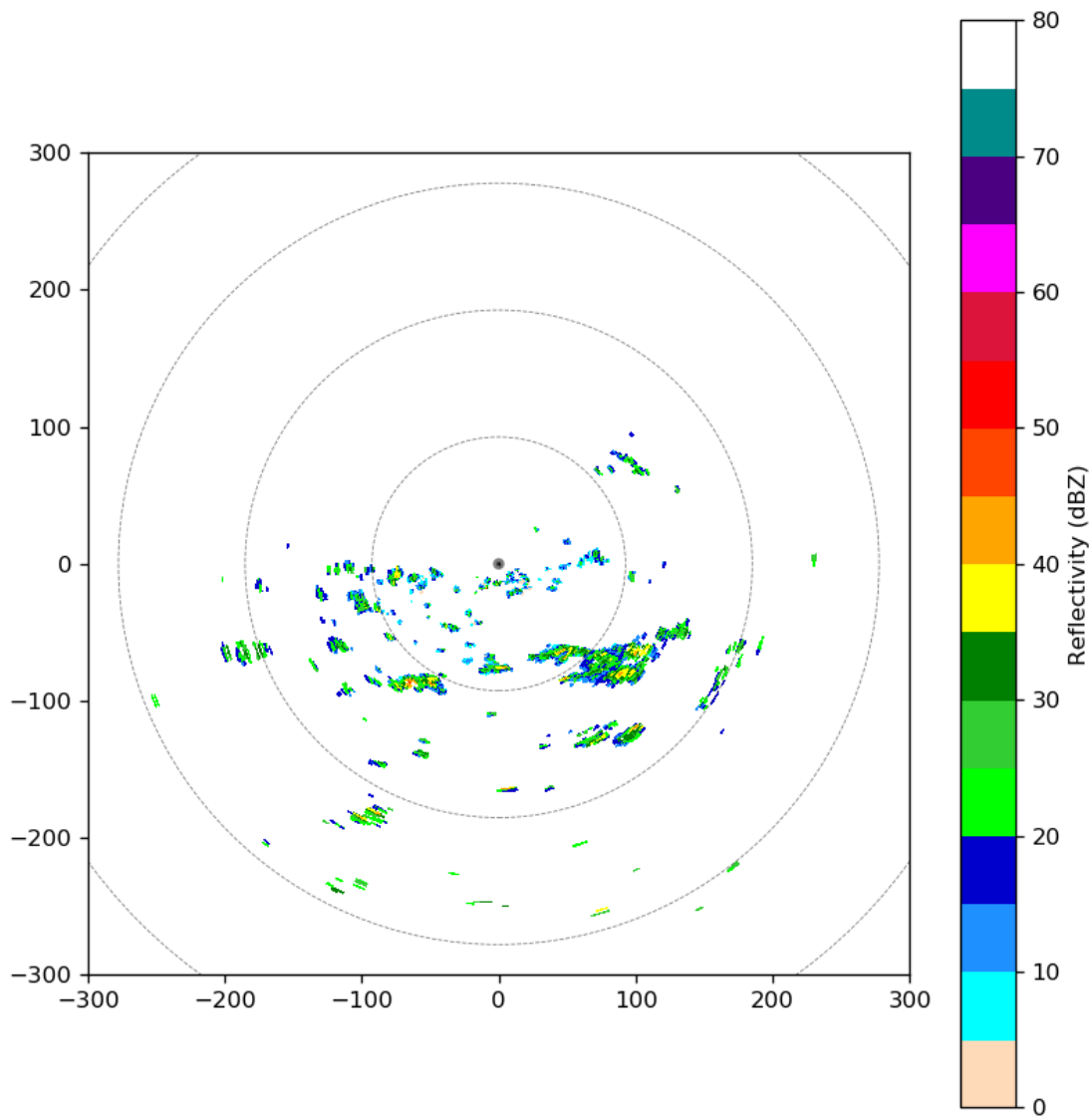
1726: A few more echoes popping up. Ran some RHIs and found they are all no more than 4-5 km deep and pretty narrow.

1755: Some of the echo far to the southeast is getting a little taller

1848: The convection in the horizontal convective rolls, if that's what they are, might be more effectively visualized by looking at a tilt around 2-3 deg instead of the lowest tilt, where there is a bunch of really shallow echo showing up.

1850: GPM overpass for pretty much all of radar domain at 12N, 134.75E. Pointed at 160 deg.. We are near 12.1N, 135.2E. Scattered isolated echoes close to radar, with more expansive convection building 100+ km in all directions to south. Below is the 1839 long-range scan. We can update this with the 1854 if we want.

SEAPOL 2018-08-31 18:39:44 SUR 0.8°



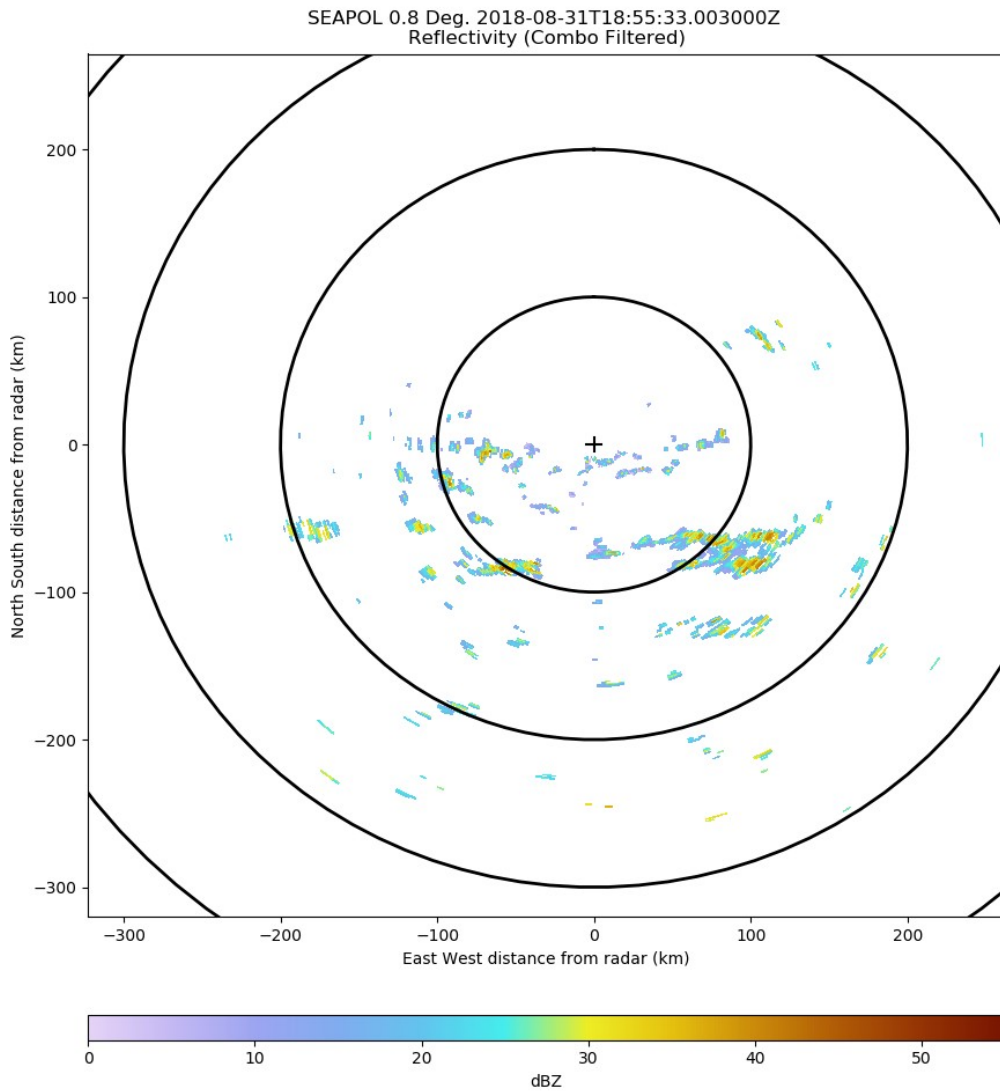
Day Shift (4a-4p L)

Timothy Lang and Kyle Chudler

1903 – RHIs to 124-146, covering near shallow convection and a larger storm at range.

1904 – Switching to FAR next round due to proximity of near convection.

1912 – View at 1856 UTC for 1850Z GPM overpass. Not terribly different than 15 min earlier.

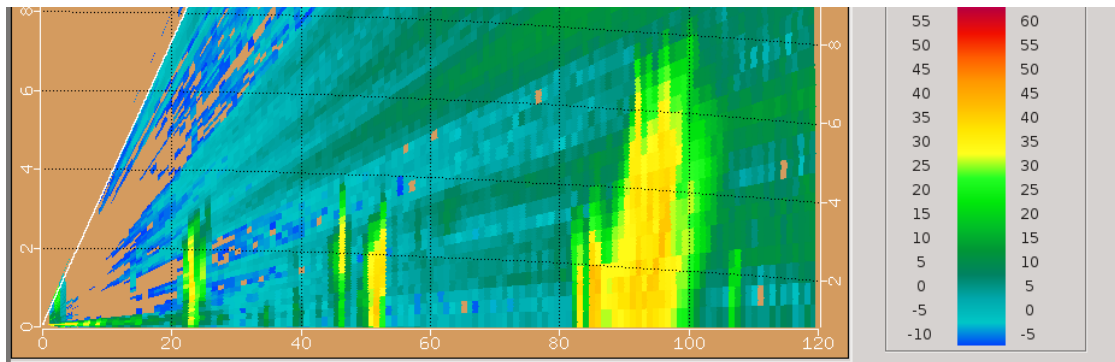


1916 – Slight adjustment of RHIs but again aiming for same convection as before. Note: Ship is facing SSE now. Ship rolling has increased and seeming more SeaPath-related BITE faults than usual.

1922 – Convection now moving WSW to ENE. Surface winds westerly at about 15 kts.

1931 – RHIs to convection within 251-273. These storms are moving toward us so a better option for scanning.

1957 – 8-km core at long range.



2004 – Trying RHIs in 183-205 az, small cell there within 50 km. Casting a big net to ensure some hits.

2015 – This cell was about 4 km tall.

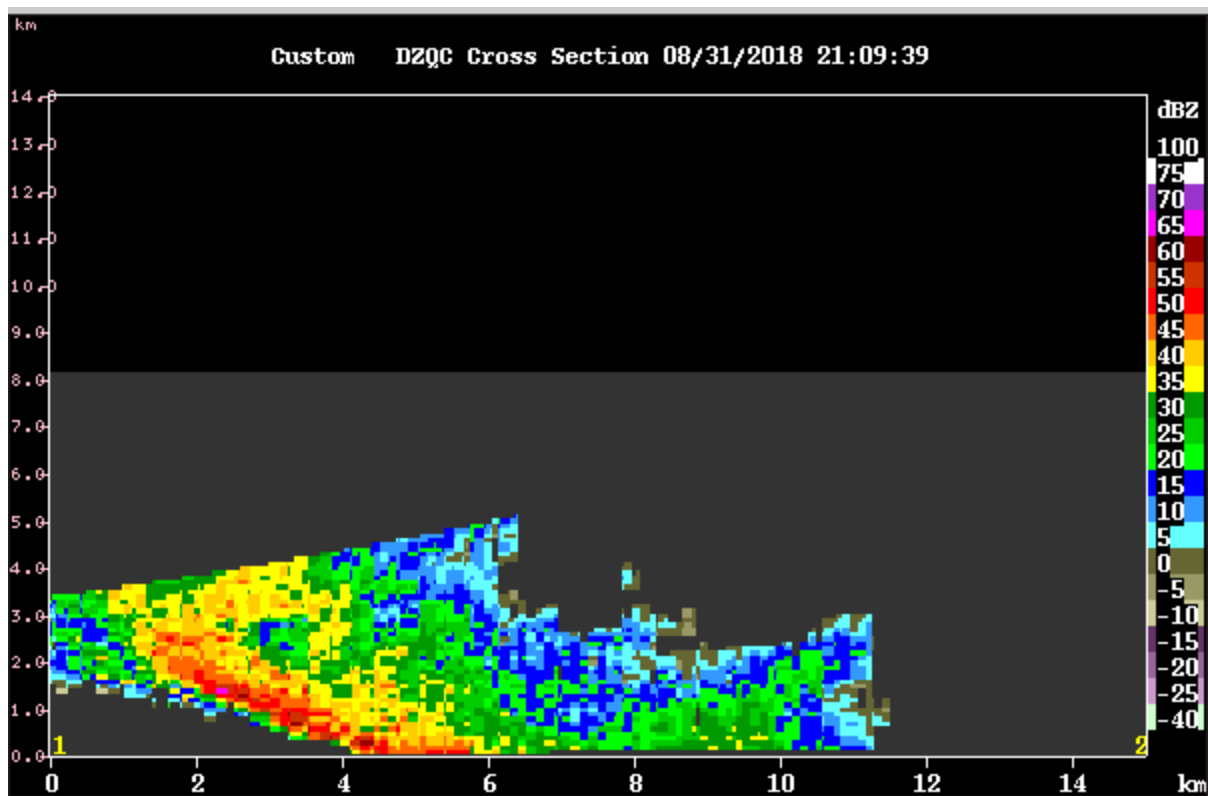
2016 – Trying RHIs back near 249-271 az. Multiple small incoming cells in that swath. Cells are moving pretty fast and are dynamic.

2047 – RHIs adjusted to 229-259, with SUR dropped and 16 sweeps @ 2-deg spacing. W-E short line within about 50 km of the radar in that swath. Checking FAR tilts to make sure we top, if not will switch to NEAR soon.

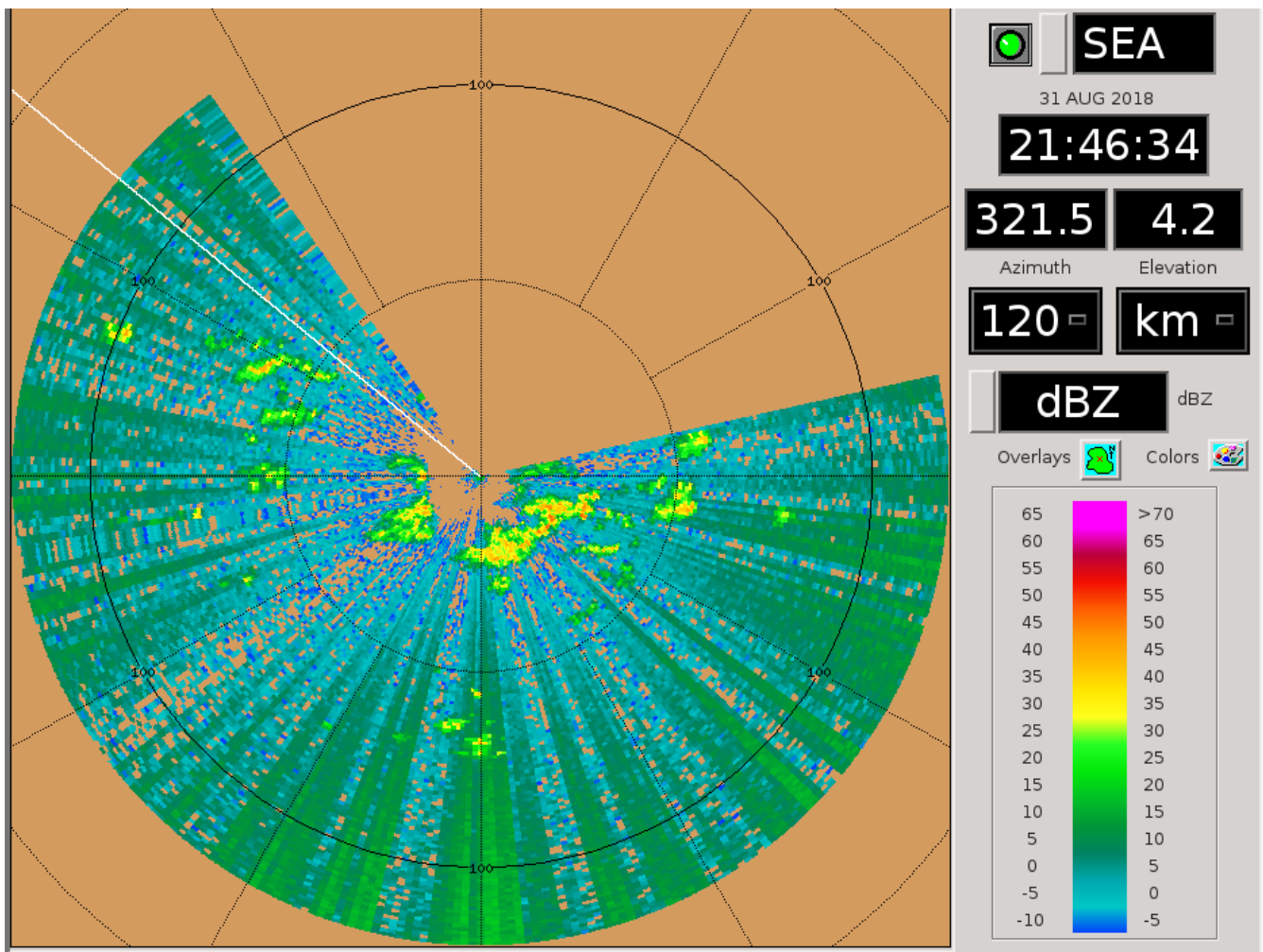
2118 – Switching RHIs to 240-270 to get more potential targets in swath and assure topping the further-out convection

21:20 – Not topping cells with FAR PPI, switching to NEAR

21:24 – Cell in close range to the radar appears to be very sheared



21:48 – Switching RHIs to 140-170 to capture line with some organization SE of radar. Will watch if we need more elevation tilts on these to top storm

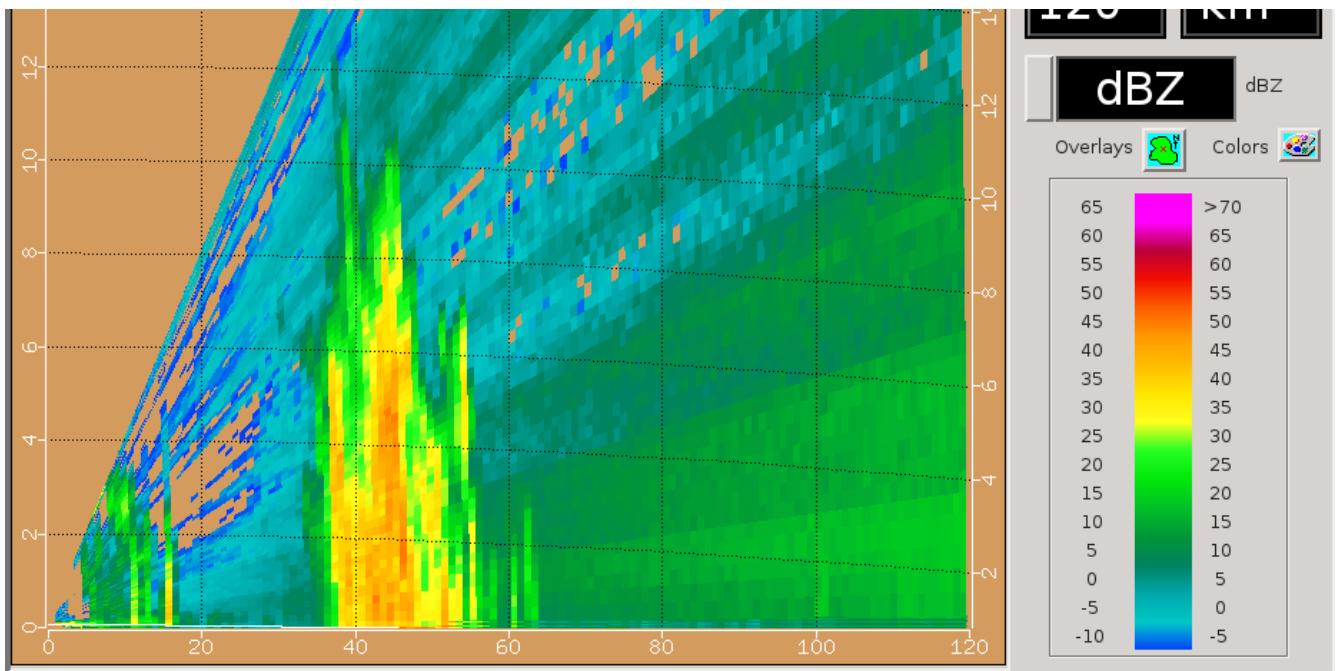


22:50 – Following line to WNW with RHIs.

There will be no CYGNSS overpasses over the ship today. There may be some over Jebi.

22:10 – Light to moderate rain at the ship

22:27 – Tops surpassing 10km on convection SW of radar



22:50 – Switching back to FAR PPI

2317 – RHIs to 232-247 az to sample incoming storm near 90 km range.

2321 – Raining at ship. Small cell right on top of us. Given rapid motion of storms, going to stay in FAR for the time being, even if it means cutting off the occasional nearby cell. I don't think frequent changing of scan angles will benefit the sampling enough to justify the cost.

2329 – That was a good RHI sector that essentially contained the entire storm. Tops to 8 km.

2331 – RHIs 226-241 to keep up with storm.

2345 – RHIs 225-240 (1-deg spacing). Storm is about 8 km tall.

