

PISTON 2019 Daily Science Summary

11 September Daily Summary: Fluctuating levels of organization PISTON 2, R/V Sally Ride

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The Sally Ride meandered around 18N 126W today, remaining on the edge of influence from the broad 95L. Now officially classified as a “monsoon depression”, 95L still lacks any well defined center or low level circulation, and is really more of just a broad region of moisture and convection (Fig 1). Soundings show that winds have become easterly throughout the atmosphere now, with low level winds strengthening to 30 kts at 925mb (Fig 2,3). A pronounced mid-level drying was noted after the 12Z sounding. This may be associated with the large dry air mass north of the ship (Fig. 1) beginning to exert an influence.

LearJet and P3 flights were originally scheduled to take place this morning, however both ended up being scrubbed.

Convection remained more or less of the “popcorn” variety, although with varying levels of organization/aggregation (Fig. 4). From 00-07Z, the precipitation in SEAPOL’s range gradually became more aggregated as new storms moved in from the NW. Several showers moved over the ship at during the 06-08 hours. A time-series of meteorological measurements from the ship’s mast shows a couple possible cold pools from these storms (Fig. 5). After that, radar coverage decreased somewhat, but scatter showers remained. Many of the storms overnight took on the shape of a small line with a slight bow in them, in contrast with the mainly circular storms from days prior. The strong low-level winds may have something to do with this.

The morning brought rough seas (we saw some rolls to 6 deg) and some high winds (gusts up to 25 knts), as well as some rain at the ship.

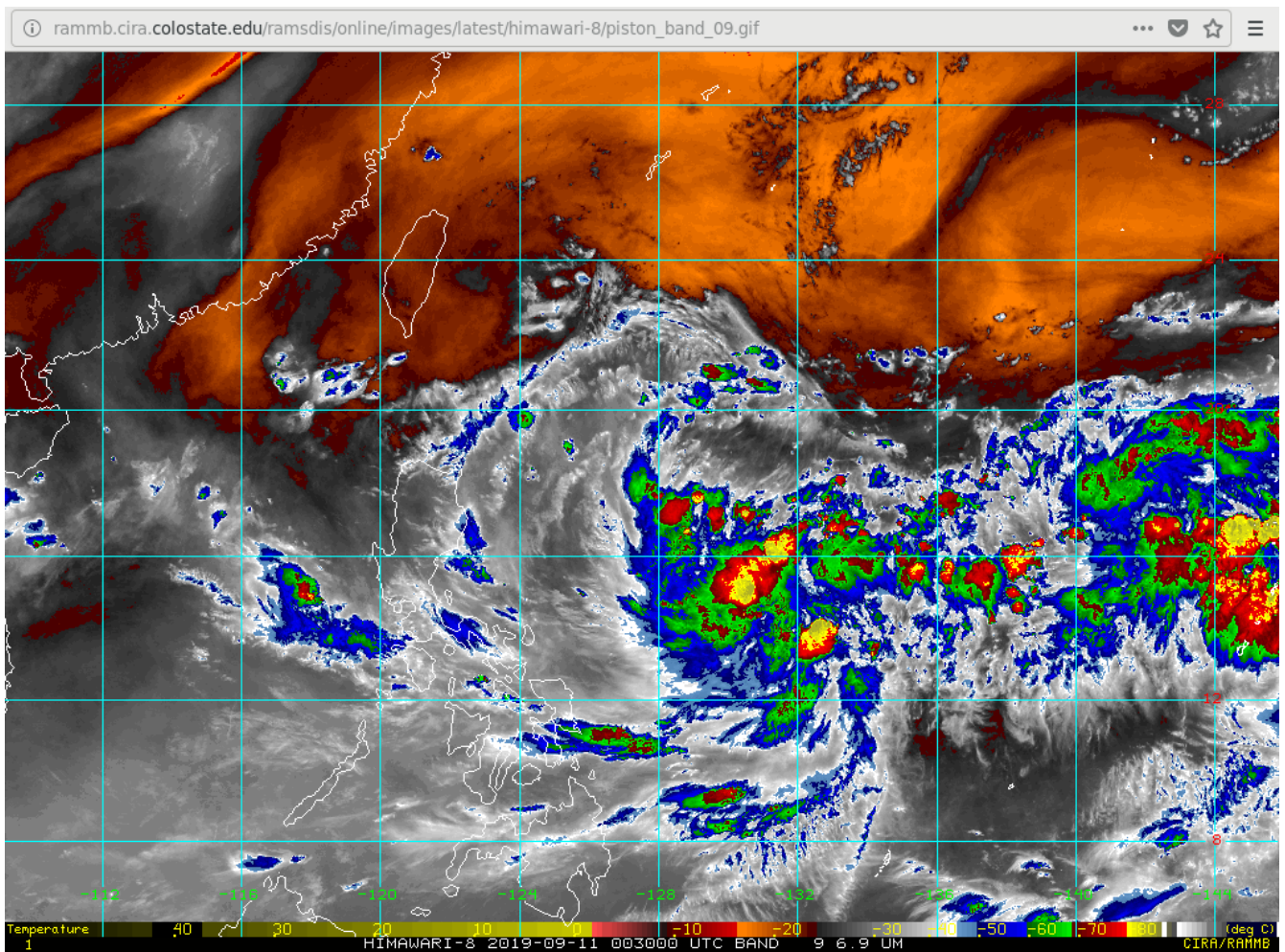


Fig. 1: Water vapor satellite imagery valid at 0030Z.

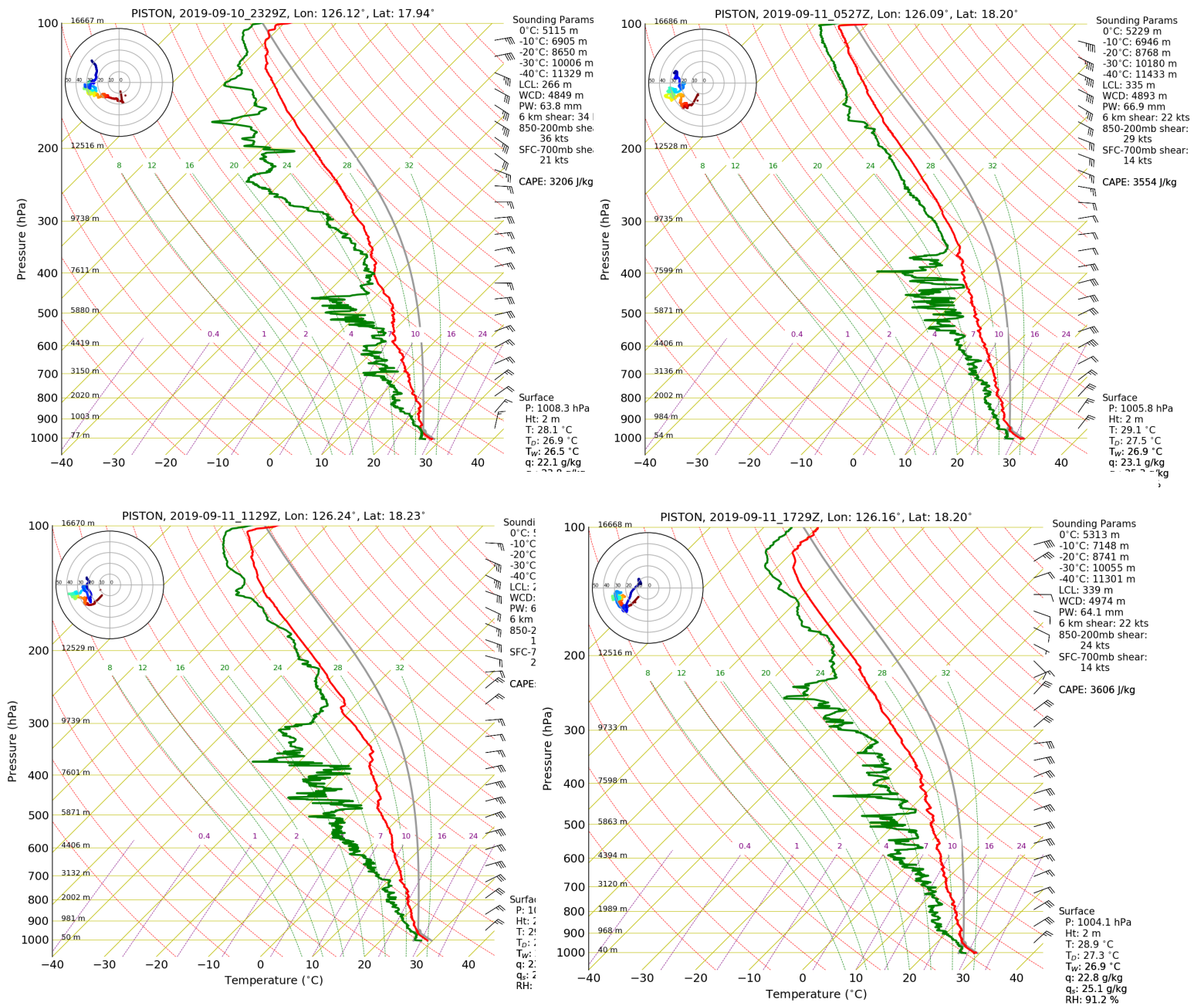


Fig. 2: 00,06,12,18Z Soundings

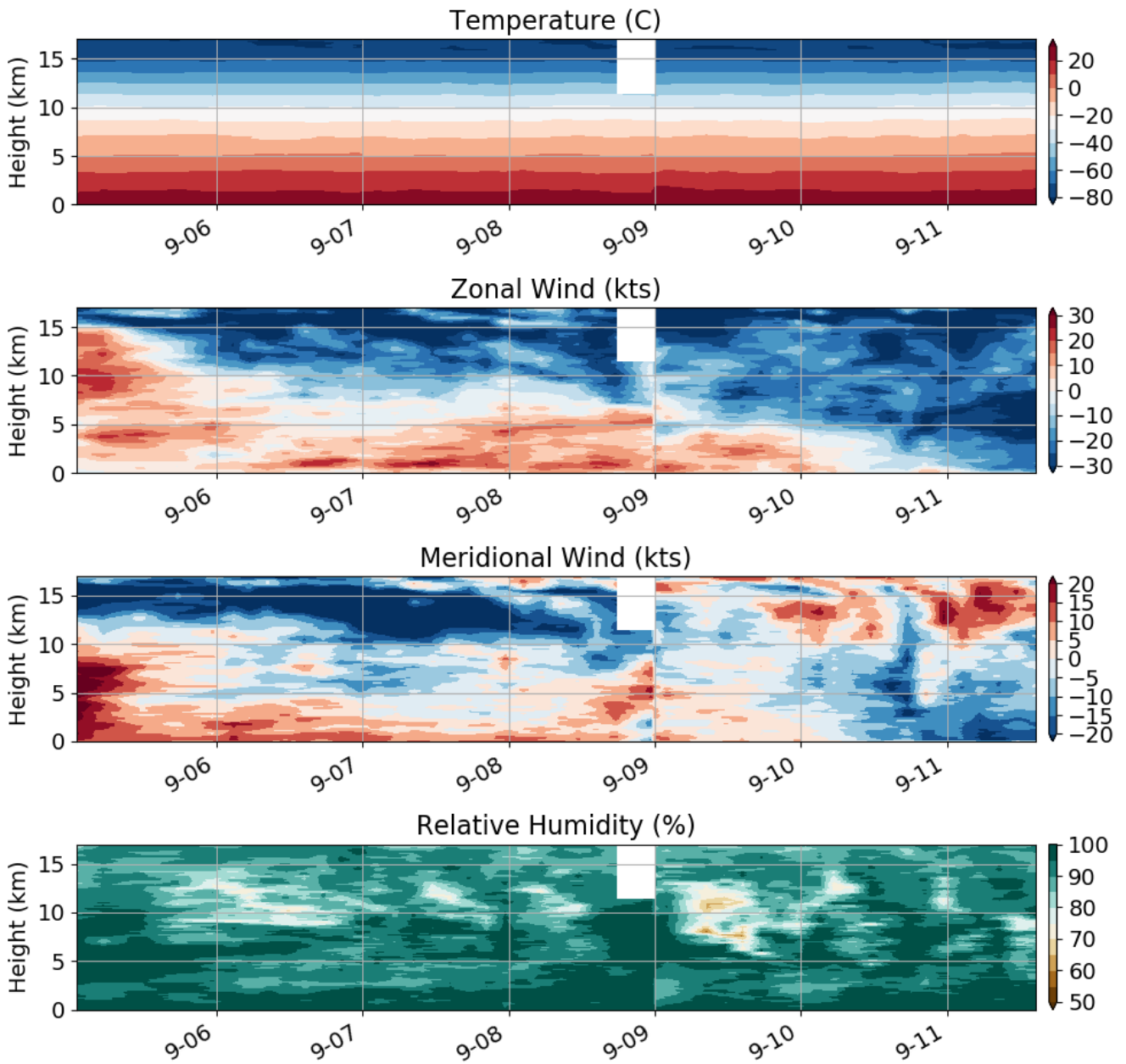
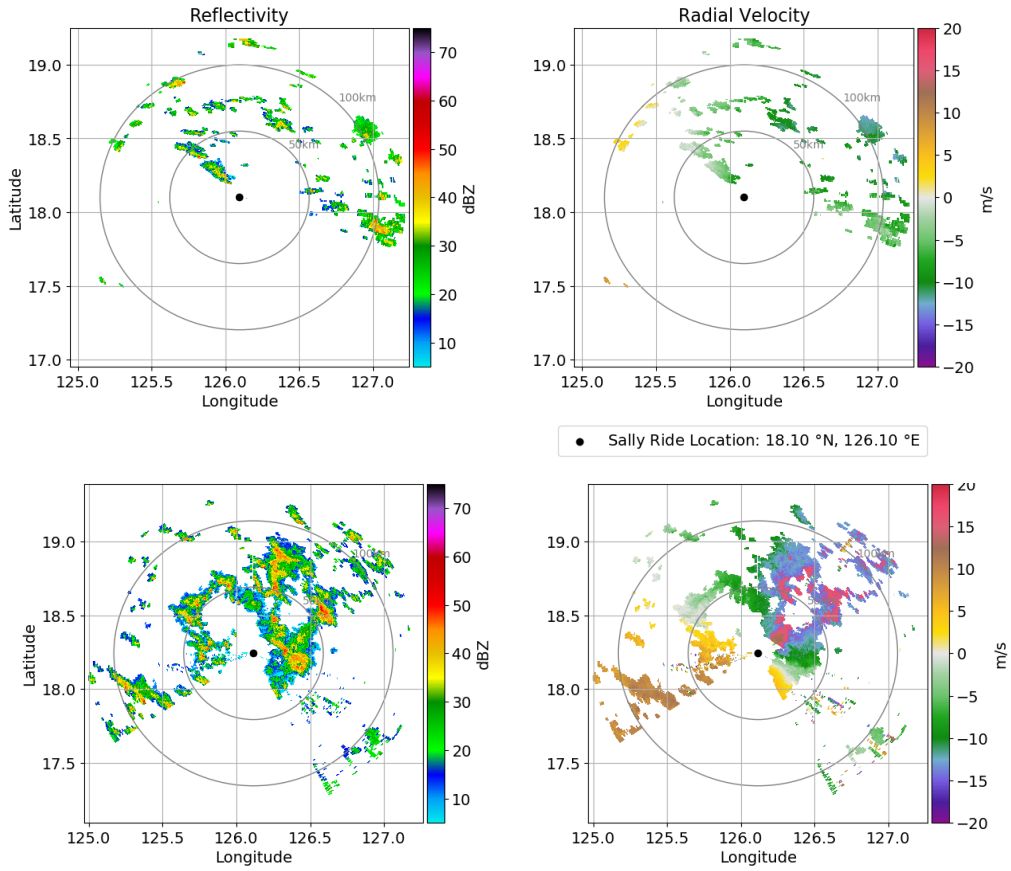


Fig. 3: Time-height plot of sounding measurements

SEAPOL 2019-09-11 02:50:04 PPI 0.80°



SEAPOL 2019-09-11 18:50:02 PPI 0.5°

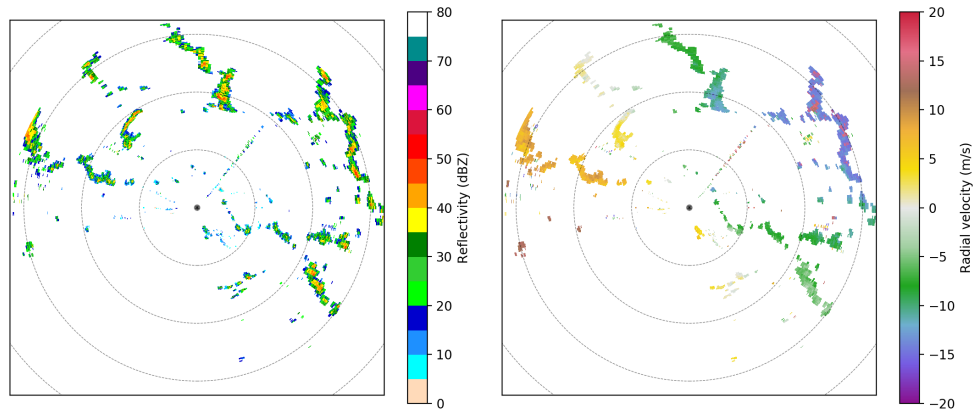


Fig. 4: Various levels of convective organization/aggregation throughout the day.

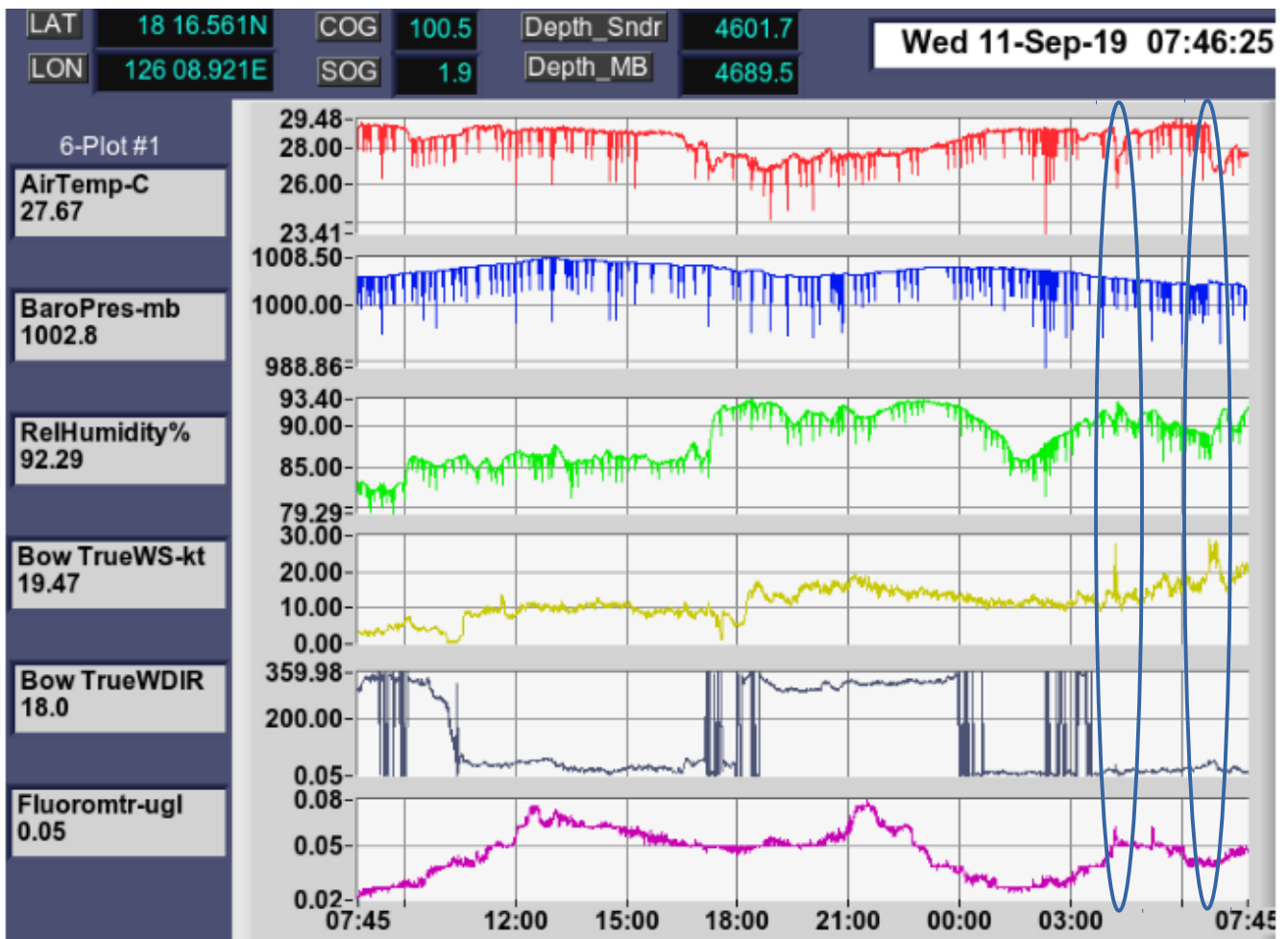


Fig. 5: METAR of data from the ship's mast, with possible times of cold pools/storm outflows noted.