

# PISTON 2019 Daily Science Summary

## 12 September Daily Summary: Intrusion of dry air PISTON 2, R/V Sally Ride

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A large area of dry air, as seen on water vapor satellite imagery from Himawari, slowly pushed south into the operation region today (Fig. 1). The intrusion of dry air is also once again noted in the radiosonde launches (Fig. 2), with precipitable water values dropping down to 38 mm. Low-level winds remained northeasterly and moderately strong. Upper level winds went through an interesting evolution throughout the day, with 250-150mb winds rotating from easterly to northerly, and upper-troposphere winds above 150mb becoming weak and variable. The 21 Z sounding indicated two distinct airmass layers separated at 8 km, both very dry, but with a wind shift.

On the radar, small, isolated weak showers continued to stream in from the NE, with coverage and intensity more or less decreasing throughout the day. Rough seas precluded RHI scans for most of the night, but there was not much of interest to scan out there to scan anyway.

Although dry air is pushing south, it is competing with the moist air moving westward out of 95W. This is also evident on the satellite imagery in Figure 1. The ship's location is essentially right on the boundary between these air masses. Hopefully, moisture will win out and the coming days will be more active.

On an operations note, at around 1000Z, the ship began to head westward to escape from 95W. This was done on advice from the Navy, which the captain was obliged to follow despite the questionable forecast (95W does not look like it will be very strong at all, and is already north of us anyway). The plan was to head west into the EEZ of the Philippines, which would require a pause on scientific measurements. The OSU crew recovered their instruments

from the water, and we planned on halting our radar and radiosonde operations around 1200Z. However, after further discussion between the captain and Jim Moum, a decision was made to head as far west as possible without actually entering the EEZ of the Philippines. So radar and radiosonde operations could continue. Tomorrow we will likely head back east, barring a dramatic change in the forecast of 95W.

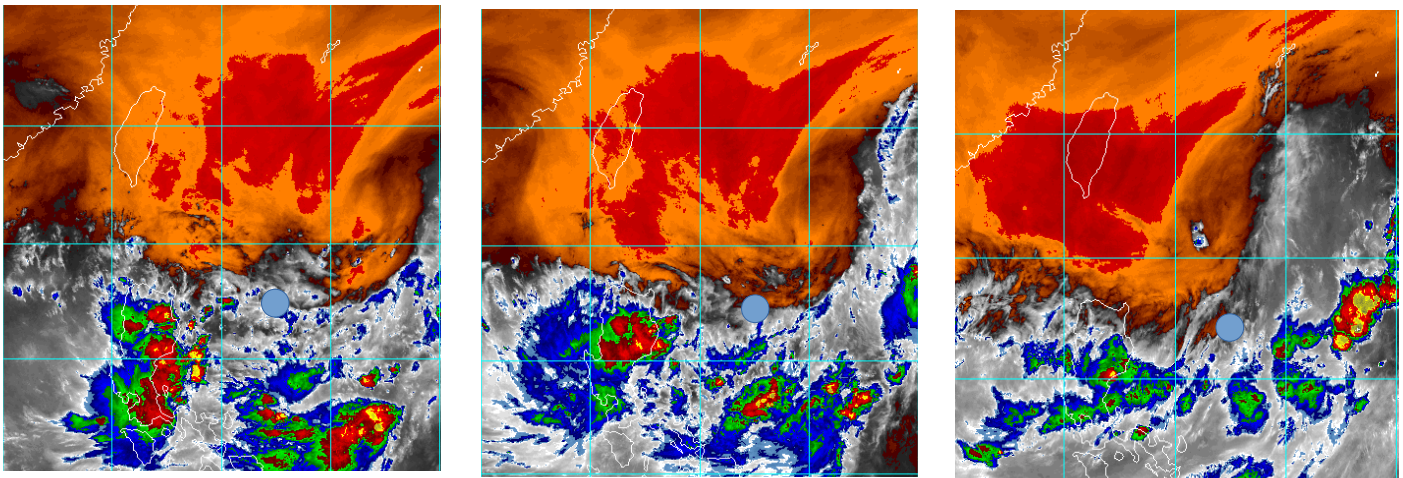


Fig. 1: Himawari water vapor imagery at 0130, 0630, and 1800Z. Ship's location approximated with a blue circle.

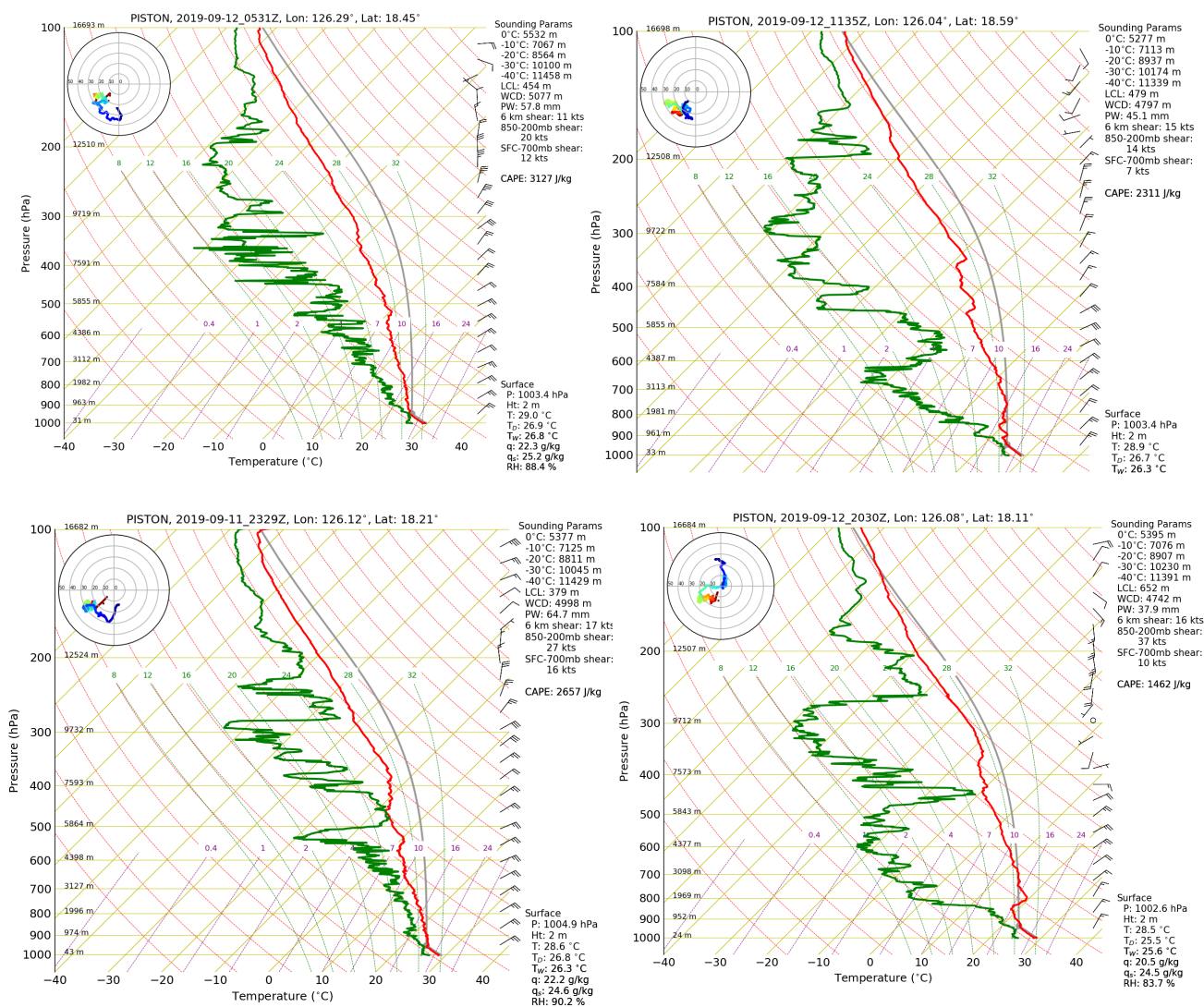


Fig. 2: 00,06,12, and 18Z Soundings