Meteorological measurements on the D/V Chikyu

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(1) Objectives

The objective of this measurements is to measure meteorological data from the radar mast to the derrick top of the D/V Chikyu on the drilling site C0002 and C0024 during the IODP Expedition 358. Main purpose is to investigate the altitude profile of meteorological data in the ocean and relationship between wind on the sea surface and current stream of Kuroshio.

(2) Instruments and methods

We set up three meteorological sensors (CVS-WXT520 made by Climatec Inc.) at (i) radar mast, (ii) middle part of the derrick, and (iii) top of the derrick. We observe wind speed & direction, temperature, moisture, atmospheric pressure, precipitation intensity every 10 minutes from December 20th in 2018 to April 4th in 2019.

(3) Results

We observe the dependency of atmospheric pressure and temperature clearly (Figure 1). Note that direction of the meteorological sensor at the top was rotated about 209.5 degree (Figure 2). For wind direction, we have to consider the effect of drill pipe and derrick blocking the wind passage, which is our future study.
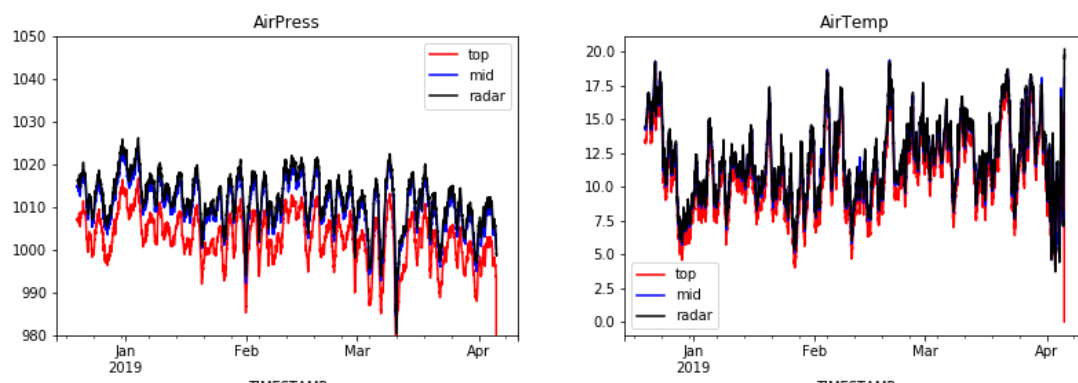

Figure 1. Time history of atmospheric pressure (right) and temperature (left) at the top of the derrick (red), the middle of the derrick (blue), and radar mast (black).
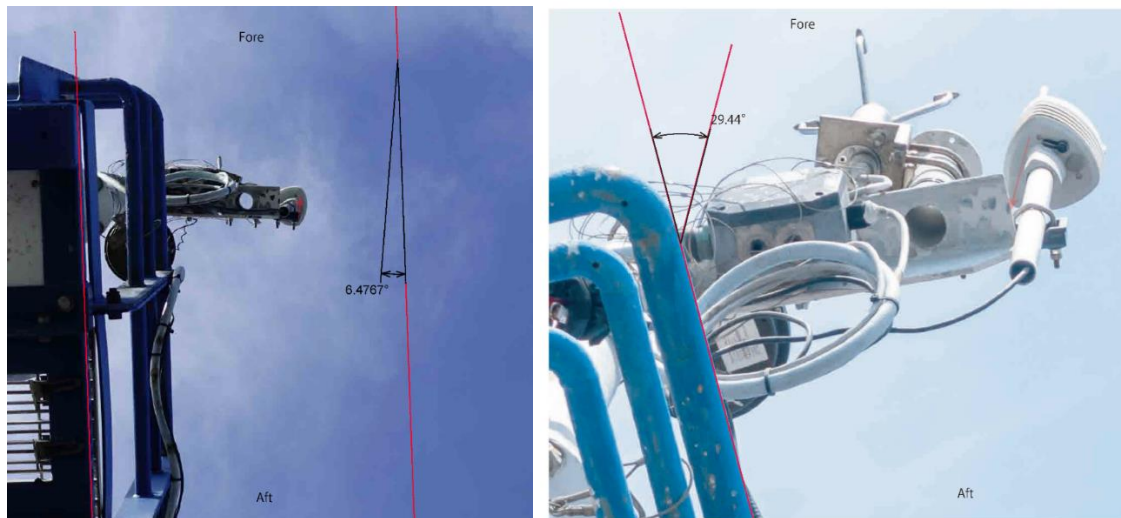
Figure 2. Photos focusing on the meteorological sensor at the top of the derrick on 6 th October in 2018 (left) and 5 th April in 2019 (right).

(4) Data archive

These obtained data will be submitted to JAMSTEC Data Management Group (DMG).

Data format is

[Header info: 4 row]

[Date] [Time] [Record Number] [Wind Velocity (m/s)] [Wind direction (from bow)] [Air Temperature] [Humidity] [Air Pressure] [Rainfall amount]

(5) References

Climatec Inc., (2008): Manual of CVS-WXT520,

(web site in Japanese) http://www.weather.co.jp/catalog_html/CVS-WXT520.htm