

MR08-03 Cruise Summary

1. Cruise Information

- 1) Cruise Code: MR08-03
- 2) Ship Name: R/V Mirai
- 3) Title of Cruise (project): Tropical Ocean Climate Study
- 4) Chief Scientist: Yuji Kashino (IORGC, JAMSTEC)
- 5) Cruise Period: 3 July 2008 – 6 August 2008 (36 days)
- 6) Ports call: Auckland - Hachinohe – Sekinehama
- 7) Research Area: Western equatorial Pacific and Kuroshio Extension region

2. Overview of Observations

- 1) Maintenance of TRITON moorings:
9 buoys were recovered and re-installed at 5N147E, 2N147E, 0N147E, 2S156E, 5S156E, 0N156E, 2N156E, 5N156E and 8N156E.
- 2) Maintenance of subsurface ADCP moorings:
2 moorings with an ADCP at the depth of 300m were recovered and re-installed at 0N147E and 0N156E.
- 3) CTD and water sampling: 79 casts
Observations were conducted along 147E and 156E lines. At some of these casts, a Lowered ADCP or fluorescence / light photon meters were installed in order to observe current profile or distribution and daily variability of chlorophyll near the sea surface.
Water was sampled for analysis of salinity or nutrients.
- 4) XCTD: 48 casts
Measurement depth is 1000m. Observations were conducted near the TRITON buoys, 156E line, and Kuroshio Extension region. Sixteen probes were deployed in the XCTD performance test at 8N156E.
- 5) Radiosonde observations: 68 casts
Radiosondes were launched every 12 hours from 12:00Z 3 July to 0:00Z 4 August. In the Kuroshio Extension region, observation interval was 6 hours.
- 6) Rain sampling: 26 stations.
Rainfall samples were collected in 6cc glass bottle for analysis of stable isotopes
- 7) Continuous observations:
Current profile observation by a shipboard ADCP
Sea surface temperature, salinity, and dissolved oxygen, fluorescence and CO₂ measurements by intake method
Surface meteorological observations (wind, air temperature, pressure, humidity, radiation, rain rate, turbulent flux, and cloud base height)
Note: For accurate measurement of turbulent flux, cruises to the windward were conducted 15 times in the night.
Water vapor and sea surface water sampling for analysis of stable isotopes
Rain fall observation using Doppler radar
Aerosol and cloud profile measurements using two-wavelength lidar
Bathymetry, sea surface gravity and geomagnetic measurements