

MR13-01 Cruise Summary

1. Cruise Information

- 1) Cruise Code: MR13-01
- 2) Ship Name: R/V Mirai
- 3) Title of Cruise (project): Tropical Ocean Climate Study
- 4) Chief Scientist: Yuji Kashino (RIGC, JAMSTEC)
- 5) Cruise Period: 18 February 2013 – 28 March 2013 (39 days)
- 6) Ports call: Fremantle (Australia) - Hachinohe (Japan) - Sekinehama (Japan)
- 7) Research Area: Western equatorial Pacific and Kuroshio Extension region

2. Overview of Observations

- 1) Maintenance of TRITON moorings
Three buoys were deployed at 8N,137E, 5N,137E and 2N,138E.
Five buoys were recovered at 8N,137E, 5N,137E, 2N,138E, 8N,130E and 2N,130E
We tried to recover TRITON buoy #13 (0N, 138E), which started drifting on 9 February 2013, however, it failed because the buoy drifted ashore at the coast of Aua Island, Papua New Guinea. We also tried to recover underwater parts of this buoy, however, it failed again because it could not come up to the surface.
- 2) Recovery of subsurface ADCP moorings
One mooring was recovered at 7N, 127E.
We tried to recover the buoy at 7N, 128E, however it failed because it could not come up to the surface.
- 3) Repair of Ina-TRITON (Indonesia TRITON) buoy
We had a plan of repairing the Ina-TRITON buoy at 0.5N, 138E, which was deployed by Indonesia in September 2012. However, we could not do so because we could not find the surface buoy at that location.
- 4) Recovery of NKEO buoy
NKEO buoy which was deployed in the Kuroshio Extension region started drifting on 9 March 2013. We recovered its surface buoy on 24 March.
- 5) CTD and water sampling: 43 casts
Observations were conducted every 6 to 30 nautical miles along 137-138E, 130N and 7N lines until 500m -1000m depth with a lowered ADCP. We sampled water for filtering nannoplankton at the depths of surface and chlorophyll maximum layer.
- 6) XCTD: 21 casts
Measurement depth is 1000m. Observations were conducted in the tropical region.
- 7) Ocean turbulence observations: 27casts
Ocean turbulence was observed after CTD observation along 137-138E and 130E lines until 500m depth.
- 8) Launch of Argo floats: 17floats
Floats were deployed north of 5N and west of 134E.
- 9) Surface drifters.: 20 drifters
Drifters were deployed along 137-138E and 130E lines.
- 10) Rain and surface water samplings: 7 and 22 casts, respectively
- 11) Continuous observations:
Current profile observation by a shipboard ADCP
Sea surface temperature, salinity, and dissolved oxygen by intake method
Surface meteorological observations (wind, air temperature, pressure, humidity, radiation, and precipitation)
Aerosol observation using the Sky radiometer
Aerosol and cloud profile measurements using a two-wavelength lidar
Bathymetry, sea surface gravity and geomagnetic measurements