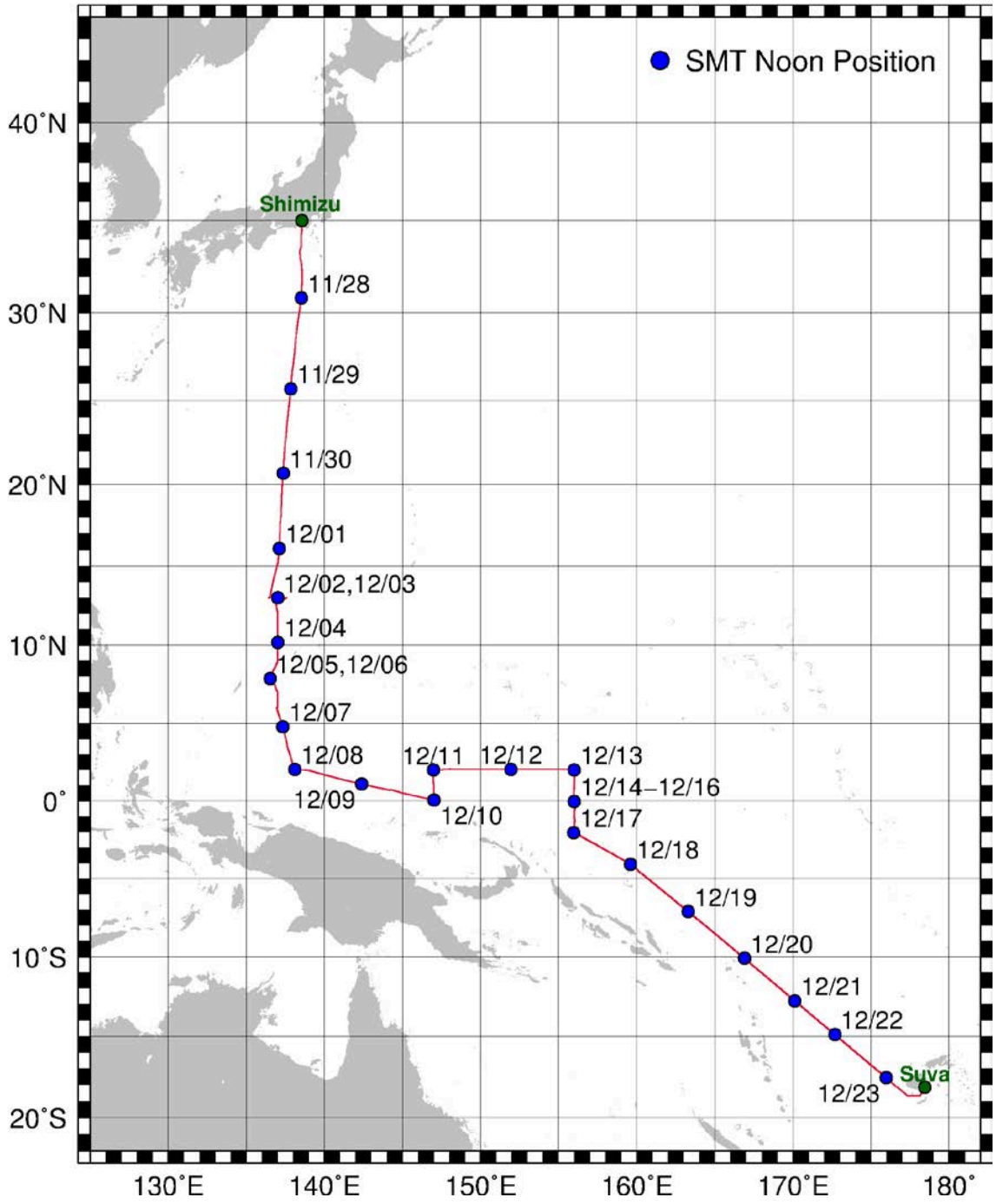
Cruise Summary

1. Cruise Information

1) Cruise ID	MR16-08
2) Name of vessel	R/V Mirai
3) Title of the cruise	Tropical Ocean Climate Study/Operation of TRITON Buoy
4) Chief scientist	Iwao Ueki (RCGC/JAMSTEC)
5) Representative of the Science Party	
	Iwao Ueki (RCGC/JAMSTEC)
	Yasuhisa Ishihara (MARITEC/JAMSTEC)
6) Piggyback projects	
	(1) Physiological and ecological studies on the relationship between the distribution and environmental tolerance by oceanic sea skaters, *Halobates* inhabiting tropical Pacific Ocean, and several environmental factors (PI: Tetsuo Harada,Kochi University)
	(2) Ship-borne measurements of aerosols in the marine atmosphere: Investigation of potential influence of marine aerosol particles on the climate (PI: Fumikazu Taketani, DEGCR/JAMSTEC)
	(3) Study on vertical measurement by in-situ pH/pCO2 sensor (PI: Kiminori Shitashima,Tokyo University of Marine Science and Technology)
	(4) Aerosol optical characteristics measured by Ship-borne Sky radiometer (PI: Kazuma Aoki,University of Toyama)
7) Cruise period	27 November 2016 – 24 December 2016
8) Ports of call	Shimizu, Japan (Departure: 27th November 2016)
	Suva, Republic of Fiji (Arrival: 24th December 2016)
9) Research area	Tropical Western Pacific Ocean

10) Research map



２. Overview of the Observation

1) Overview

The warm water pool located at the western equatorial Pacific Ocean has the highest sea surface temperature in the ocean all over the world. Therefore interaction between the ocean and atmosphere in that region becomes important for climate variability such as ENSO (El Niño/Southern Oscillation) in the Pacific Ocean. This cruise is conducted for understanding the process of warm water convergence and divergence, and interaction processes in the western tropical Pacific Ocean. For that purpose, we carried out deployment and recovery of the TRITON (TRIangle Trans Ocean buoy Network) buoys as the main mission. The TRITON buoys have advantage of analysis for long- term variability in the warm water pool. We also carried out other observations, such as ADCP moorings, CTD measurements Wave Glider experiments and meteorological observation, for understanding the ocean and atmospheric conditions.

Oceanic and atmospheric conditions in the tropical Pacific Ocean showed La Niña features. Sea surface temperatures remained below-average over the central and eastern equatorial Pacific during October 2016. Major Climate forecasts, such as JAMSTEC, JMA, NOAA and so on, says La Niña conditions will continue until the end of the year.

2) Observation summary

TRITON buoy deployment (including a Philippine sea mooring):	3 sites.
TRITON buoy recovery:	8 sites
ADCP buoy deployment:	1 sites
ADCP buoy recovery:	1 sites
Surface drifter installation	2 installed
CTD including water sampling:	14 casts
UnderwayCTD:	51 casts
XCTD:	3 launched
Radio sonde:	54 launched
Surface meteorology:	continuous
Doppler radar observation:	continuous
Shipboard ADCP measurement:	continuous
Geophysics measurement:	continuous
Surface temperature, salinity and dissolved oxygen measurements by intake method	continuous

*** Other specially designed observations have been carried out successfully.