

# MR04-08 Leg1 Cruise Summary

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## 1. Cruise Title

The Study of the Air-Sea Interaction in the Tropics  
Cruise code : MR04-08 Leg-1

## 2. Objectives and Overview

In order to investigate the precipitation mechanism of convective clouds developed over the warm pool region, the stationary observation near Palau islands was carried out from December 15, 2004 through January 10, 2005 (refer to IOP; Intensive Observation Period). The location – about 60km off to the west coast of Palau islands – was chosen to conduct the dual Doppler radar observation by shipboard Doppler radar system and land-based one. In Palau, two Doppler radar systems have been deployed at Aimeliik and Peleliu island by IORGC in collaboration with Nagoya University.

During the first half of IOP, weak westerlies were prevailed in the lower troposphere, while easterlies were dominant in the latter period. In general, observational area had been located under the convectively suppressed condition during the whole IOP except several days in the end of December 2004. Indeed, based on several satellites data and the objective analysis data (not shown here), we confirmed that the dry air masses were frequently intruded into the observational area from northern higher latitudes. As a result, total amount of water vapor sometimes showed tremendously low values.

In the range of the dual observation, only a few organized mesoscale convective systems (MCSs) passed by. Especially, several MCSs and many cumulus were apparently weaken in passing by Palau islands when they moved from east to west. There might give rise to new statistical features for climatology of this area.

## 3. Period

Dec. 12, 2004 departed Chuuk, Federated States of Micronesia  
Jan. 12, 2005 arrived at Koror, Republic of Palau

## 4. Chief Scientist

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## 5. Themes and Participants List

- Study of the air-sea interaction in the tropical western Pacific region.  
K. Yoneyama, M. Katsumata (JAMSTEC)
- Study on the development of convective systems and its relation to environmental conditions over the tropical ocean.  
T. Shinoda, S. Endoh (Nagoya University)
- Study on the morphology of convective systems and its relation to environmental conditions.

- S. Yairo (Osaka University)
- Observational study on the lower troposphere by SG-LTR
  - M. Teshiba (Kyoto University)
- LIDAR observation of aerosols and clouds over the Pacific Ocean.
  - I. Matsui (NIES)
- Combined cloud measurement system for Asian and tropical regions climate study.
  - Nobody was on board (Tohoku University)
- Study on the microphysical processes in the tropical maritime clouds by using videosonde system.
  - K. Suzuki, Y. Shigenaga (Yamaguchi University)
- Study on the transport and dehydration processes around the tropical tropopause in the tropical western Pacific region.
  - M. Fujiwara, Y. Inai (Hokkaido University)
- Eddy flux measurement of energy and CO<sub>2</sub> fluxes.
  - T. Ohsawa (Kobe University), K. Nishioka (Osaka University)
- Studies of aerosols and ocean color in the tropical western Pacific Ocean.
  - I. Sano (Kinki University), K. tanaka (Kobe University)
- Study of optical properties of atmospheric aerosol over ocean by sky radiometer
  - Nobody was onboard (Tottori Kankyo University)
- Study on the oceanic structure using Argo float.
  - S. Minato (JAMSTEC)
- Continuous geological survey
  - Nobody was onboard (JAMSTEC)
- Technical Staff
  - K. Maeno, Y. Imai, N. Nagahama, K. Yoshida (GODI),
  - N. Takahashi, S. Yokogawa, F. Matsunaga, T. Noguchi, K. Matsumoto, T. Shiozaki, M. Hori,
  - T. Shibuya (MWJ)