

---

# MR00–K04 Cruise Summary

---



## 1. Cruise Title

The Study of the air–sea interaction in the Tropics  
Cruise code : MR00–K04

## 2. Objectives and Overview

The intertropical convergence zone (ITCZ), where north–easterly and south–easterly trade winds encounter in the range of between 5N and 10N, is well known as convectively active region and produce much precipitation over the Ocean whole the year. Most precipitation are produced by mesoscale convective systems with order of 100km. In order to survey the internal structure of these well–organized convective systems and precipitation mechanism, stationary observation using mainly shipboard C–band Doppler radar was conducted at 7N, 140E from June 19 through June 30.

In the earlier days of the stationary observation period, we observed well organized convections that could be identified to be accompanied with westward propagating equatorial Rossby wave from satellite cloud images. However, they are relatively shallow (7~8km) than we expected. It was relatively stable condition for convection in the following two days after above cloud system passed by observation area. In the last few days(June 26–30), deep convections often developed and produced much rain.

In addition to the above precipitation observation by radar, various observations were carried out including radiosonde, CTD, ADCP, solar radiation measurement, flux measurement, greenhouse effect gasses, aerosol samples. Further analysis will be done extensively.

Especially, as for aerosol observations, it was conducted as a part of pre–ACE Asia (Asian Pacific Regional Aerosol Characterization Experiment that is one of the international collaborative research campaign) cruise.

## 3. Period

From June 13, 2000 (departed Sekinehama, Aomori)  
Through July 6, 2000 (arrived at Yokosuka, Kanagawa)

## 4. Chief Scientist of the cruise

Kunio Yoneyama / JAMSTEC  
E–mail : yoneyamak@jamstec.go.jp

## 5. Themes and Participants List

\*Study of the air–sea interaction in the tropical western Pacific Ocean.  
K.Yoneyama, M.Katsumata, K.Moriwaki, K.Shibayama (JAMSTEC),  
T.Ushiyama (FORSGC)

- \*Precise observational study on the Intraseasonal Oscillation and its substructure.  
M.Hirose (Nagoya Univ.)
  
- \*Air-sea exchanges of energy and green house gases over western tropical Pacific.  
O.Tsukamoto, T.Kono, S.Takahashi, A.Nakanishi (Okayama Univ.),  
E.Yamashita, J.Iwata (Okayama Univ. of Science)
  
- \*Measurements of Solar Radiation Energy and aerosols in the Western Pacific Equatorial Ocean.  
H.Ishida (Maritime Univ. of Kobe/FORSGC),  
K.Kouzai, M.Hayashi, M.Kusakari (Maritime Univ. of Kobe),  
T.Takemi (Osaka Univ.), K.Ishida (Toba National College of Marine Tech.),  
K.Nojima (Kinki Univ.)
  
- \*LIDAR observation of aerosols and clouds over the Pacific Ocean.  
I.Matsui (NIES)
  
- \*Study on the horizontal distribution of background aerosols and the effect of continental aerosols on it.  
K.Miura, T.Hara, T.Ui, T.Kishida (Science Univ. of Tokyo)
  
- \*Study of optical properties of atmospheric aerosol over ocean by sky radiometer to calibrate and validate for remote sensing aerosol data.  
Y.Fujitani (Hokkaido Univ.)
  
- \*Physical and chemical properties of marine aerosols over the western Pacific Ocean.  
K.Matsumoto (Univ. of Tokyo/JST)
  
- \*Molecular analyses of nonmethane hydrocarbons and organic aerosols over the ocean.  
M.Narukawa (Hokkaido Univ.), M.Mochida (Hokkaido Univ./JST)
  
- \*Technical Staff  
M.Hanyu, F.Yoshiura, K.Kouzuma, S.Sueyoshi (GODI),  
S.Ozawa, A.Yasuda, K.Sagishima, K.Akizawa, A.Inoue, K.Ooyama (MWJ)