

R.V. FRANKLIN

NATIONAL FACILITY OCEANOGRAPHIC RESEARCH VESSEL

RESEARCH PLAN

6/91

CRUISE FR 7191

Sails Townsville 0900 Friday 12 July 1991
Calls Lae Friday 19 July 1991
Arrives Lae 1200 Saturday 27 July 1991
Sails Lae 1200 Sunday 28 July 1991
Arrives Townsville 1200 Thursday 1 August 1991

Principal Investigators

Dr Eric Lindstrom - UCAR

JOINT AUSTRALIA - JAPAN MOORED ARRAY

Dr Eric Lindstrom - UCAR

NEW GUINEA COASTAL UNDERCURRENT

Drs Ian Barton & Fred Prata - CSIRO Division of Atmospheric Research
VALIDATION OF ERS1 SCANNING RADIOMETER

Neil White

CSIRO Division of Oceanography

HOBART

14 February 1991

For further information contact

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R.V. FRANKLIN IS OWNED AND OPERATED BY CSIRO

Research Plan
RV Franklin
FR7/91



Itinerary

Leg 1:	Townsville	Depart 0900 hrs Friday July 12
	Lae	Arrive 0700 hrs Friday July 19
Leg 2:	Lae	Depart 0900 hrs Friday July 19
	Lae	Arrive 1200 hrs Saturday July 27
Leg 3:	Lae	Depart 1200 hrs Sunday July 28
	Townsville	Arrive 1200 hrs Thursday August 1

Scientific Program

Three scientific programs are to be carried out on this three leg cruise:

Program 1-Joint Australia-Japan Moored Instrument Array (Cycle 4),

Program 2-Moored Current Meter Array in the New Guinea Coastal Undercurrent,

Program 3-Application and Validation of Data from the Along Track Scanning Radiometer.

Program 1 is to be carried out during Leg 2, Program 2 is to be carried out during Leg 1 and Program 3 is to be conducted throughout the cruise. Details of each of these programs follows.

JOINT AUSTRALIA-JAPAN MOORED INSTRUMENT ARRAY (CYCLE 4).

This project was commenced in November 1989 and involves maintaining a current meter mooring on the equator at 147°E. The mooring is part of the Tropical Ocean Global Atmosphere (TOGA) moored observing array for observing currents in the equatorial Pacific Ocean. This cruise will be the fourth cycle, during which the second Japanese mooring will be recovered by a team from Tokai University and the third Australian mooring deployed by a team from CSIRO. A short CTD section along 147°E from 2°N to 2°S and an ADCP time series at the mooring site will complement the data collected by the moorings.

MOORED CURRENT METER ARRAY IN THE NEW GUINEA COASTAL UNDERCURRENT.

The principal aim of this experiment is to directly measure the currents in and transport through Vitiaz Strait over an annual cycle. A line of five moorings across the strait are to be deployed (from a US vessel) in about May 1991 for a period of approximately 12 months. It is planned that these moorings will be recovered during Franklin cruise FR7/92. During FR7/91 Franklin will carry out two CTD sections in Vitiaz Strait, one along the mooring line and the other perpendicular to this line through the strait. Dedicated Acoustic Doppler Current Profiler (ADCP) traverses along the mooring line will complement the current meter and hydrographic data.

APPLICATION AND VALIDATION OF DATA FROM THE ALONG TRACK SCANNING RADIOMETER.

A new generation oceanographic satellite ERS-1 is due to be operating in May 1991. This satellite will be equipped with an Along Track Scanning Radiometer (ATSR) designed

specifically for the accurate measurement of Sea Surface Temperature (SST). The importance of the radiative skin layer on the remote measurement of SST and 'ground' truthing will be assessed by surface measurements. These surface measurements will be supplemented (subject to suitable weather conditions and time constraints) with data collected from a Surface Temperature Profiler (STP). Radiosonde flights will allow the investigation of the infrared absorption properties of the atmosphere in tropical regions.

Cruise Objectives

1. To conduct CTD and ADCP work about the line of current meter moorings in Vitiaz Strait. To conduct a longitudinal CTD section through the strait.
2. To recover and deploy joint Australia/Japan current meter moorings on the equator at 147°E. To collect a time series of ADCP measurements at the mooring site and to conduct a CTD section along 147°E from 2°N to 2°S.
3. To obtain -atmospheric temperature and humidity profiles,
-sea surface temperatures,
-near surface sea temperature profiles under light wind conditions
beneath the track of the ERS-1 satellite.

Principal Investigators

Eric Lindstrom (University Corporation for Atmospheric Research, USA)

Jeff Butt (CSIRO Division of Oceanography)

Steve Murray (Louisiana State University, USA)

Hideo Inaba (Tokai University, Japan)

Ian Barton (CSIRO Division of Atmospheric Research)

Cruise Track

A cruise track is shown in the attached figure.

Time estimates

Steaming time	312 hours
Mooring operations	48
CTD stations	37
ADCP surveys	48
Steaming with STP	12
Port calls	26
Total	483 hours (21 days)

ORV Equipment Required

All standard systems, including the CTD system with 12 bottle rosette, the ADCP, GPS, scientific sounder and thermosalinograph. The after deck should remain as clear as possible for mooring operations. The Meteorological station, Meteorological balloon launching facilities and the Surface Temperature Profiler (also known as the 'flying fish') will also be required.

Personnel

Entire	Eric Lindstrom	UCAR, USA (Chief Scientist)
Cruise:	Jeff Butt	CSIRO Division of Oceanography (Cruise Manager)
	Jan Peterson	CSIRO Division of Oceanography
	Phil Adams	CSIRO Division of Oceanography
	Dave Terhell	CSIRO Division of Oceanography
	Kevin Miller	CSIRO Division of Oceanography
	Danny McLaughlin	CSIRO Division of Oceanography
	Bob Cechet	CSIRO Division of Atmospheric Research

PLUS

Leg 1 Townsville to Lae

Steve Murray Louisiana State University, USA

Leg 2 Lae to Lae

Hideo Inaba	Tokai University, Japan
TBA	Tokai University, Japan
TBA	Tokai University, Japan

This Cruise Plan is in accordance with the directions of the National Facility Steering Committee for the oceanographic research vessel *Franklin*.



A.D. McEwan
CSIRO Division of Oceanography



G. Paltridge
National Facility Steering Committee

