

R.V. FRANKLIN

NATIONAL FACILITY OCEANOGRAPHIC RESEARCH VESSEL

RV FRANKLIN

RESEARCH PLAN

CRUISE FR 11/89

Sails Brisbane 0700 hrs Thursday 7 September 1989
Arrives Hobart 2100 hrs Tuesday 26 September 1989

Principal Investigators

Dr John Church

&

Dr Gary Meyers

CSIRO Division of Oceanography

together with

Associate Professor Matt Tomczak

Ocean Sciences Institute

The University of Sydney

OCEAN TRANSPORT IN THE TASMAN SEA

FRANKLIN

April-1989

For further information contact

ORV Operations Manager

c/- CSIRO Division of Oceanography

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R.V. FRANKLIN IS OWNED AND OPERATED BY CSIRO

**Cruise Plan
R.V. Franklin
FR11/89**

Itinerary

Depart Brisbane:	0700Hrs	7 September 1989
Arrive Hobart:	2100Hrs	26 September 1989

Scientific Program

Although the East Australian Current (EAC) has been studied close to the western boundary, the transport of the EAC is not well determined and there is virtually no information on the seasonal and interannual variations in this transport. This investigation is designed to determine the transport of the EAC (and estimate the temporal variations in this transport) using a combination of in-situ observations (CTD, ADCP, moored instruments) and GEOSAT altimeter data. Knowledge of the EAC is the key to determining the role of the South Pacific in the poleward transport of heat.

This study is also designed to determine the large-scale general circulation of the Tasman Sea using patterns of tracers (temperature, salinity, oxygen and nutrients) and of density to estimate geostrophic circulation at all depths.

A New Zealand scientist has expressed interest in this project and details of his participation are currently under discussion.

Principal Investigators

Dr. J.A. Church
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Hobart, Tas 7001

Dr. G. Meyers
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Dr M. Tomczak
Ocean Sciences Institute
The University of Sydney
Sydney, NSW 2006

Cruise Objectives

1. To estimate the volume transport (and its time variability) of the EAC along the east Australian coast and in the Tasman Front using CTD, ADCP and current meter moorings.
2. To determine the large-scale general circulation of the Tasman Sea using patterns of tracers (temperature, salinity, oxygen and nutrients) and of density to estimate geostrophic circulation.
3. To determine temporal changes in surface pressure gradient between two points on the Lord Howe Rise, one at 28°S and the other at 38°S using two independent methods (steric height estimate and GEOSAT altimetry).
4. To estimate the meridional heat and freshwater fluxes at 28° and 43°S where there are previous trans-Pacific hydrographic sections (the "Scorpio" sections).

Cruise Track

A proposed cruise track is shown in Figure 1. The cruise immediately follows FR 10/89, Hobart to Brisbane.

ORV Equipment Required

All standard instrumentation plus 24 bottle rosette, ACR deck unit, Aanderaa tape reader. We will require a large storage space.

Time Estimates

Steaming	11.6 days
CTD stations	8.0* days
Total	19.6 days
Time available	20.0 days

*If 24 bottle rosette is not available, an additional 1.9 days will be required

Personnel

J. Church (Chief Scientist)
G. Meyers
D. Vaudrey
E. Madsen
R. Beattie
B. Barker

R. Plaschke
John Luick (OSI, University of Sydney)
Song Haiguang (OSI, University of Sydney)

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



A.D. McEwan
CSIRO Division of Oceanography



D.H. Green
National Facility Steering
Committee

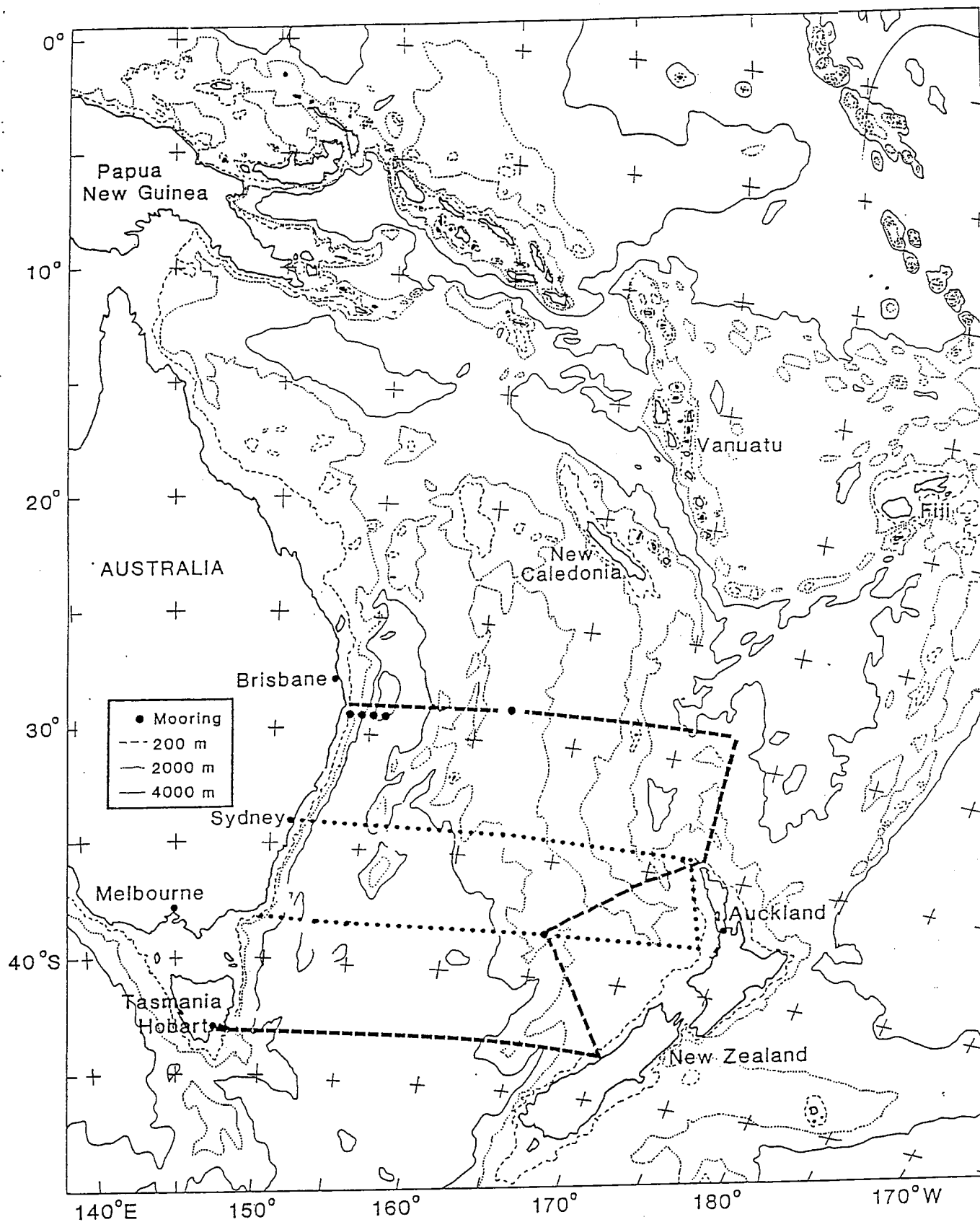


Figure 1

Cruise tracks for FR10/89 (-----) and for FR11/89 (.....).