

# FRANKLIN

National Facility  
Oceanographic Research Vessel

## RESEARCH PLAN CRUISE FR 1/94

Sail	Hobart	2200	Monday 10 January 1994
Arrive	Sydney	1200	Tuesday 18 January 1994

### COLLECTION OF PLANKTONIC AND BENTHIC ORGANISMS FOR THE INTERPRETATION OF SEDIMENT CORES NEAR THE SUBTROPICAL CONVERGENCE ADJACENT TO TASMANIA

#### Principal Investigators

Patrick De Deckker, Michael Ayress & Tony Rathburn

Department of Geology

The Australian National University,

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December 1993

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### **Itinerary**

Sail Hobart 2200 Monday 10 January 1994  
Arrive Sydney 1200 Tuesday 18 January 1994

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### **Principal Investigators**

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### **Scientific Objectives and Methods**

1. Collect living planktonic and benthic organisms to build an ecological database of organisms of use for the reconstruction of past oceanic conditions - planktonic organisms will be collected near the water surface using plankton and micronekton nets; we aim at collecting foraminifera, pteropods, diatoms, radiolarians and calcareous nannoplankton. - benthic organisms will be collected using either a Macintyre grab sampler (small PVC tubes will be used to sub-sample the sediment in the grab to separate different layers of sediment cm by cm) or a box corer
2. Collect short (~3-5m long) gravity cores from selected sites along a transect on the South Tasman Rise to study the history of change of the subtropical convergence
3. Collect water samples from specific depth profiles down to 3,000m for chemical analyses and for correlating water chemistry data with the chemistry of the calcareous micro-organisms collected at the same sites.

## Cruise track and Work

Station locations are indicated on the attached map

Day 1. Departure Hobart 0800h 80 nautical miles (travel time 6.5h) to station 1, 44.0°S:147°00E where a grab sample will be taken at 400m depth (sampling time 1/2 h). Go to station 2 just south of there (<1/2 h travel time) to take another grab sample at 1000m (sampling time 2h). Departure for station 3 at 1730h; 130nm (11h of travel time)

Day 2 Arrival at station 3 at 0430h; location 46.2°S:146.5°E - grab sampling at 2,500m depth (3 1/2h); then CTD again (3 1/2h). Departure for station 4 at 1130h; 22nm (2h travel time) Arrival at station 4 at 1330h; location 46.3°S:146.2°E - grab sampling at 1,750m (2 1/2h); then gravity core (2 1/2h); then CTD (2 1/2h). Departure for station 5 at 2100h; 42nm (travel time 3 1/2h)

Day 3 Arrival at station 5 at 0030h; location 46.7°S:147.0°E - grab sampling 1,500m (2 1/2h); then gravity core (2 1/2h); then CTD (2 1/2h). Departure for station 6 at 0800h; 22nm (2h travel time). Arrival station 6 at 1000h; location 47.0°S:147.5°E - grab sampling 1,250m (2h); then gravity coring (2h); then CTD (2h). Departure for station 7 at 1600h; 32nm (~3h travel time). Arrival station 7 1900h; location 47.3°S:148.0°E - grab sampling 900m (1 1/2h); then gravity coring (1 1/2h); then CTD (1 1/2). Departure for East Tasman Plateau at 2330h

Day 4 Travel to East Tasman Plateau 230 nm this should take 19h of travel time but we want to take plankton tows along this transect and we assume this will add another 5 hours of travel time). Arrival on top of East Tasman Plateau around midnight at station 8

Day 5 Arrival station 8 at 0000h; location 43.7°S:150.1°E - grab sampling 2,000m (3h); then gravity core (3h); then CTD (3h). Departure for Sydney at 0900h. From here there are 60h of travel time, plus we would like to take an additional 16 plankton tows (allow 8h for sampling), plus the sample. We anticipate that any additional time will easily be used along the way because of extra sampling and anticipated delays with the grab sampling and gravity coring exercises.

## ORV equipment

Meteorological data

Thermosalinograph

CTD (with 12 bottle rosettes and altimeter), including niskin bottles

Freezer and refrigerator space

Milli-Q water

Smith-MacIntyre grab sampler

Nutrient analyses (Nitrate, silicate, phosphate)

Dissolved oxygen

Access to personal computer

We will need access to the container lab on the main deck for the preparation of the samples.

### Equipment supplied by users

Sediment coring equipment (gravity corer and possibly box corer)

Sampling gear for sediment samples, and living material collected in the grab samples

Eskies

Alcohol and buffered formalin for sample preservation

Epibenthic grab or dredge

Sieves for separating animals from sediment, and glassware plus reagents to preserve animals and extract DNA.

### Personnel

Patrick De Deckker	ANU Geology Department	Chief Scientist
Michael Ayress	"	
Tony Rathburn	"	
Leanne Dainsie	"	
Stefan Nees	"	
Jean-Jacques Pichon	"	
Chikara Hiramatsu	"	
Tim Burrows	"	

Bob Edwards	CSIRO - ORV	Cruise Manager
Bernadette Heaney	"	
Erik Madsen	"	
Mark Rayner	"	

This Research Plan is in accordance with the directions of the National Facility Steering Committee for the Research Vessel *Franklin*.



A D McEwan  
CSIRO Division of Oceanography



G W Paltridge  
National Facility Steering Committee

December 1993

