

R.V. FRANKLIN

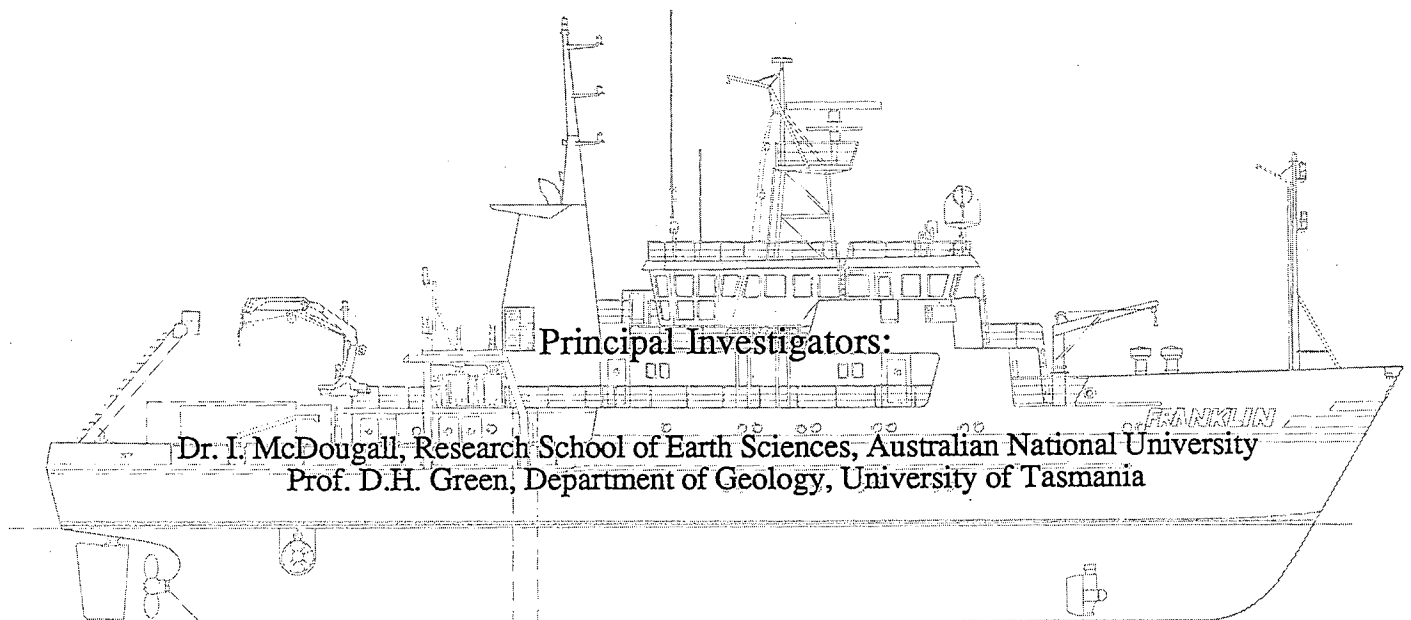
NATIONAL FACILITY
OCEANOGRAPHIC RESEARCH VESSEL

CRUISE PLAN

R.V. 'FRANKLIN'

FR08/88

Depart Townsville 1000 Thursday 6 October, 1988
Arrive Sydney 1000 Wednesday 19 October, 1988



Principal Investigators:

Dr. I. McDougall, Research School of Earth Sciences, Australian National University
Prof. D.H. Green, Department of Geology, University of Tasmania

For further information contact

ORV Operations Manager
c/- CSIRO Division of Oceanography
GPO Box 1538, Hobart, Tas. 7001
Telephone (002) 20 6222
Telex AA 57182



R.V. FRANKLIN IS OWNED AND OPERATED BY CSIRO

**CRUISE PLAN
R.V. 'FRANKLIN'
FR 8/88**

ITINERARY

Depart	Townsville	1000 hrs	Thursday 6 October 1988
Arrive	Sydney	1000 hrs	Wednesday 19 October 1988

SCIENTIFIC PROGRAM

Seamount chains of the Tasman Sea : Geochronology, geochemistry and origin

PRINCIPAL INVESTIGATORS

1. Dr I. McDougall,
Research School of Earth Sciences,
The Australian National University,
G.P.O. Box 4,
CANBERRA, A.C.T. 2601
Tel: (062) 49-4136
Telex: AA62693
Fax: (062) 47-4639
2. Prof. D.H. Green,
Department of Geology,
University of Tasmania,
G.P.O. Box 252C,
HOBART, TAS. 7001
Tel: (002) 20-2477
Telex: AA58150
Fax: (002) 20-2186

CRUISE OBJECTIVES

The principal objective of the cruise is to dredge igneous rock samples from selected volcanoes of the Lord Howe and Tasmanid Seamount chains in the Tasman Sea. Dredging is a difficult and somewhat risky enterprise, but is the most convenient and practical way of obtaining samples from these large submarine volcanoes at the present time.

The dredged samples subsequently will be characterized in terms of their mineralogical, chemical and isotopic composition to provide insights into the origin and evolution of the magmas and their mantle source regions. Age measurements on the rocks will enable further

tests of the hypothesis that these two chains of submarine volcanoes are effectively recording motion of the Australian crustal plate over two hotspots situated in the mantle below the plate, and that these hotspots provide a convenient frame of reference for plate motions on a global scale.

CRUISE TRACK

The total distance to be steamed is approximately 2100 nautical miles as shown in Figure 1. The initial leg is from Townsville to Nova Bank, the first potential target for dredging. The track is then southward along the Lord Howe Seamount chain, aiming to dredge Gifford Guyot and possibly an additional volcano in between. The next leg is to Moreton Seamount in the Tasmantid Seamounts with possible dredging of Moreton, Queensland and Stradbroke as the ship heads approximately south along the chain. A leg back to the east is planned to enable dredging on the flanks of Elizabeth (or Middleton), toward the southern end of the Lord Howe Seamount chain. From Elizabeth Reef the ship's track is direct to Barcoo Bank to dredge this volcano and then to Sydney.

The cruise track is planned to facilitate dredging of volcanoes in both seamount chains with the aim of maximizing the recovery of volcanic rocks. The ship's track and actual dredging targets may differ in detail from those proposed, depending upon the success of the dredging, especially in the case of the sediment-covered Lord Howe Seamounts, as well as upon other factors such as the prevailing weather conditions.

Q.R.V. EQUIPMENT REQUIRED

- SATNAV and GPS navigation
- Navigation plotting in real time
- Main towing winch, including 5000 m of 12 mm steel cable and instrumented towing block which includes tensionmeter and wire-out meter with readouts on the bridge and operations room.
- Chart record of tensionmeter readout also desirable
- Backup tensionmeter (Piab Dynamometer 1000 kg), which can be jury-rigged if necessary
- Appropriate weak links, cables, swivels for attachment of dredges to main towing cable
- Precision depth recorder

EQUIPMENT PROVIDED BY USERS

Rock dredges (3 from ANU, 2, possibly 3 from University of Tasmania)

TIME ESTIMATES

Steaming time (12 knots) as per track on Figure 1 (~2100 nautical miles)	7.3 days
Time on station, including site survey and actual dredging	5.7 days
	<u>13.0 days</u>

PERSONNEL

Research School of Earth Sciences, Australian National University

- Ian McDougall (Chief Scientist)
- Jon D. Woodhead
- Des B. Patterson

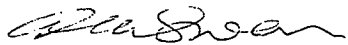
Department of Geology, University of Tasmania

Tony J. Crawford
Steven Eggins
Trevor J. Falloon

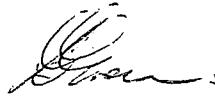
CSIRO Marine Laboratories

David Vaudrey (Cruise Manager)
Phillip Adams (Electronics)

This Cruise Plan is in accordance with the directions of the National Facility Steering Committee for the oceanographic research vessel R.V. 'FRANKLIN'.



A.D. McEwan
CSIRO Division of Oceanography



D.H. Green
National Facility Steering Committee

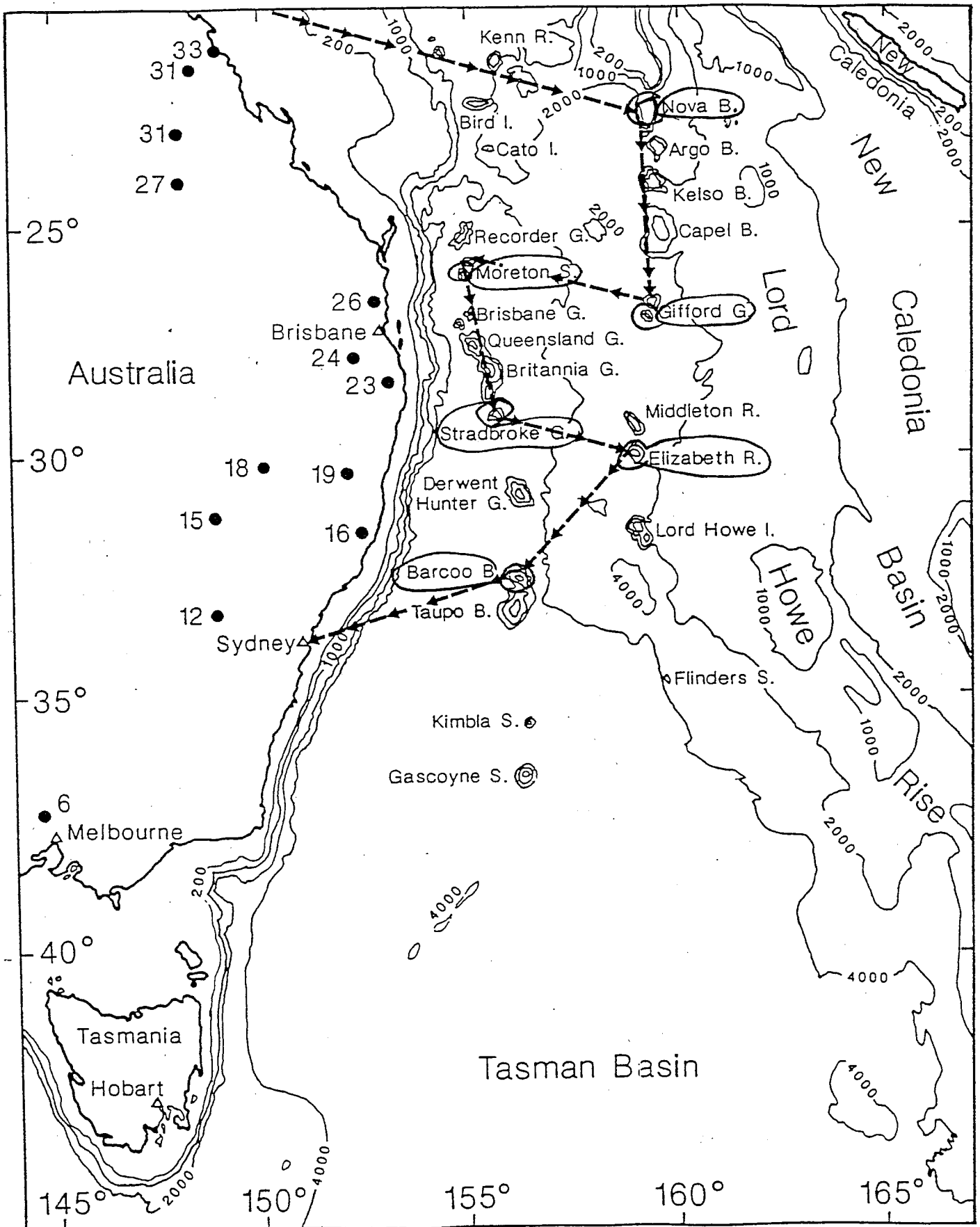


Figure 1. Bathymetric map of the Tasman Sea showing the Tasminid and Lord Howe Seamount chains. Isobaths in metres. Filled circles in eastern Australia show locations of central volcanoes and their average K-Ar ages. Star in Tasman Basin indicate epicentre of magnitude 6 earthquake of 25 November 1983. (Abbreviations: B-Bank; G-Guyot; I-Island; R-Reef and S-Seamount).

R.V. FRANKLIN

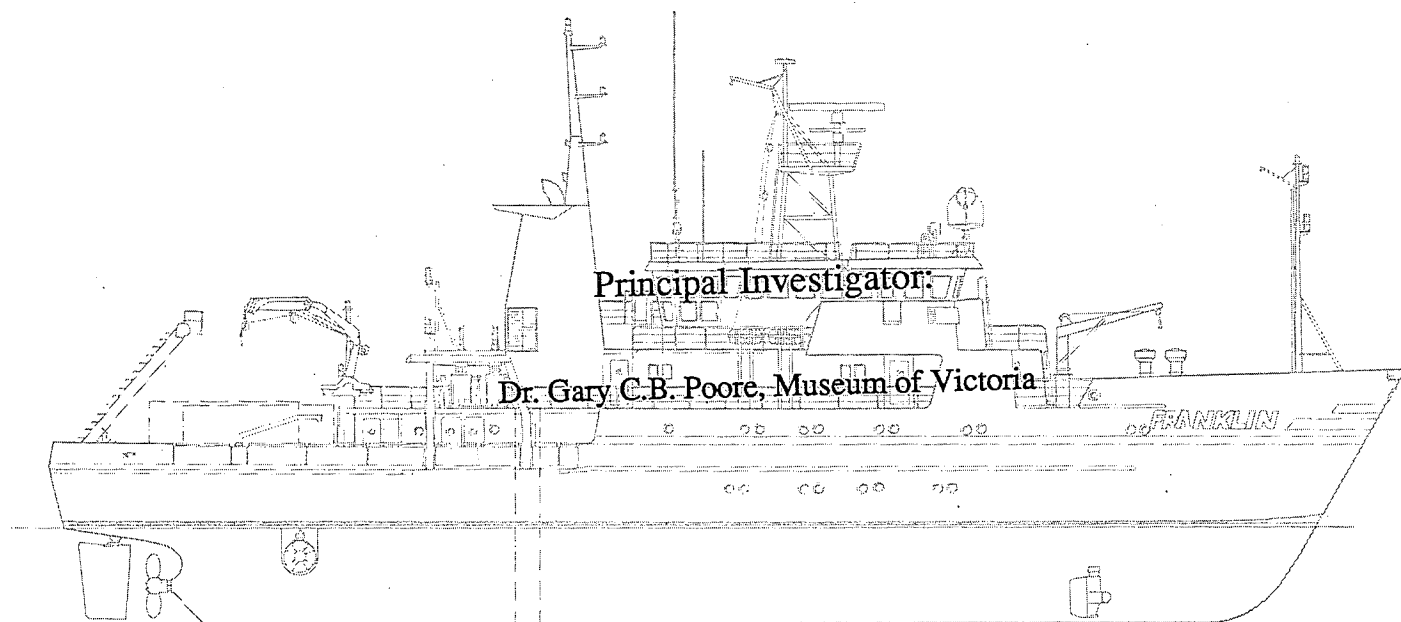
NATIONAL FACILITY
OCEANOGRAPHIC RESEARCH VESSEL

CRUISE PLAN

R.V. 'FRANKLIN'

FR09/88

Depart Sydney 0800 Thursday 20 October, 1988
Arrive Hobart 1200 Monday 31 October, 1988



Principal Investigator:

Dr. Gary C.B. Poore, Museum of Victoria

For further information contact

ORV Operations Manager
c/- CSIRO Division of Oceanography
GPO Box 1538, Hobart, Tas. 7001
Telephone (002) 20 6222
Telex AA 57182



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RV FRANKLIN
RESEARCH PLAN
RESEARCH CRUISE FR 9/88

Itinerary

Depart Sydney	0800 hr	Thursday 20 October, 1988
Arrive Hobart	1200 hr	Monday 31 October 1988

Scientific Program

To sample benthic, demersal and mesopelagic fauna from the continental slope of SE Australia from a depth range of 400 to 3000m

Principal Investigator

Dr. Gary C.B. Poore
Museum of Victoria
71 Victoria Crescent
ABBOTSFIELD, Vic. 3067.

Cruise Objectives

- To sample benthic invertebrates on 3 transects using epibenthic sled and grab.
- To sample epibenthic and demersal invertebrates and fishes using a beam trawl
- To sample mesopelagic fishes, squid and other invertebrates using Isaacs-Kidd mid water trawl.
- To compile file of the cruise activities and scientific findings for natural history documentary.
- To sieve, sort and study material from the samples and to preserve samples for further research.

Cruise Track

Sydney-Hobart, with work in following transect areas:

1. Off Port Jackson NSW
Between 1000 and 2000 m depth
2. Off Nowra, NSW: appr. 34°52'S 151°09'E to 34°58'S 151°28'E
Between 400 and 3000 m.

3. Bass Strait, off Pt. Hicks, Vic: appr. 38°15'S 149°20'E to 38°43'S 149°20'E. Between 400 and 3000 m.
4. Off Freycinet Peninsula, Tas: appr. 42°00'S 148°39'E to 42°05'S 149°13'E. Between 400 and 3000 m.

Work at each transect

	IKMT	=	ISAACS Kidd Midwater Trawl
	EBS	=	Epibenthic sled
	BT	=	Beam Trawl
	G	=	S-M Grab or Box corer
Transect 1)	IKMT	:	7 hauls between 150 and 1350m (bottom 1000-2000m)
Transect 2)	IKMT	:	2 hauls between 750 and 1350 m
	EBS	:	6 hauls between 400 and 3000 m
	BT	:	4 hauls between 400 and 3000 m
	G	:	6 samples between 300 and 3000 m
Transect 3)	IKMT	:	1 haul, 1350 m (bottom 2000 m)
	EBS	:	7 hauls between 1200 and 3000 m
	BT	:	7 hauls between 400 and 3000 m
	G	:	6 samples between 800 and 3000 m
Transect 4)	IKMT	:	6 hauls between 150 and 2000 m (bottom 1000-2000 m)
	EBS	:	5 hauls between 1000 and 3000 m
	BT	:	7 hauls between 400 and 3000 m
	G	:	5 samples between 700 and 3000 m

Equipment

All sampling equipment will be supplied for use on the trawl winch or oceanographic winch (epibenthic sled, Smith-McIntyre grab, box corer, 4 m beam trawl, Isaacs-Kidd mid-water trawl).

Underwater camera for use on some sampling gear will be supplied by ImaginACTION.

Use of the deck laboratory for sample processing is requested.

Use of wet laboratory and/or chemistry laboratory for filming in aquaria is requested.

Needs from CSIRO:

Station position and bathymetric records.

Cable length, cable angle and tensionmeter readings while sampling.

Fitting of pinger or SDL to mid-water sampling gear.

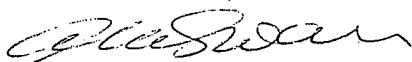
Time Estimates

Steaming time, Syd-Hob via transects:		2.5 days
Transect 1	c. 24 hours	1 day
Transect 2	c. 45 hours	2 days
Transect 3.	c. 60 hours	2.5 days
Transect 4.	c. 48 hours	2 days
TOTAL		10 days

Personnel

Gary Poore	Museum of Victoria	Chief Scientist
Jean Just	Museum of Victoria	
Martin Gomon	Museum of Victoria	
C.C. Lu	Museum of Victoria	
Robin Wilson	Museum of Victoria	
Laurie Hammond	VIMS	
David Smith	ImaginACTION FILMS	
Ivan Johnson	ImaginACTION FILMS	
Dave Vaudrey	CSIRO	Cruise Manager
Erik Madsen	CSIRO	Electronics
Peter Shaugnessy	Nat. Facility Steering Committee.	

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

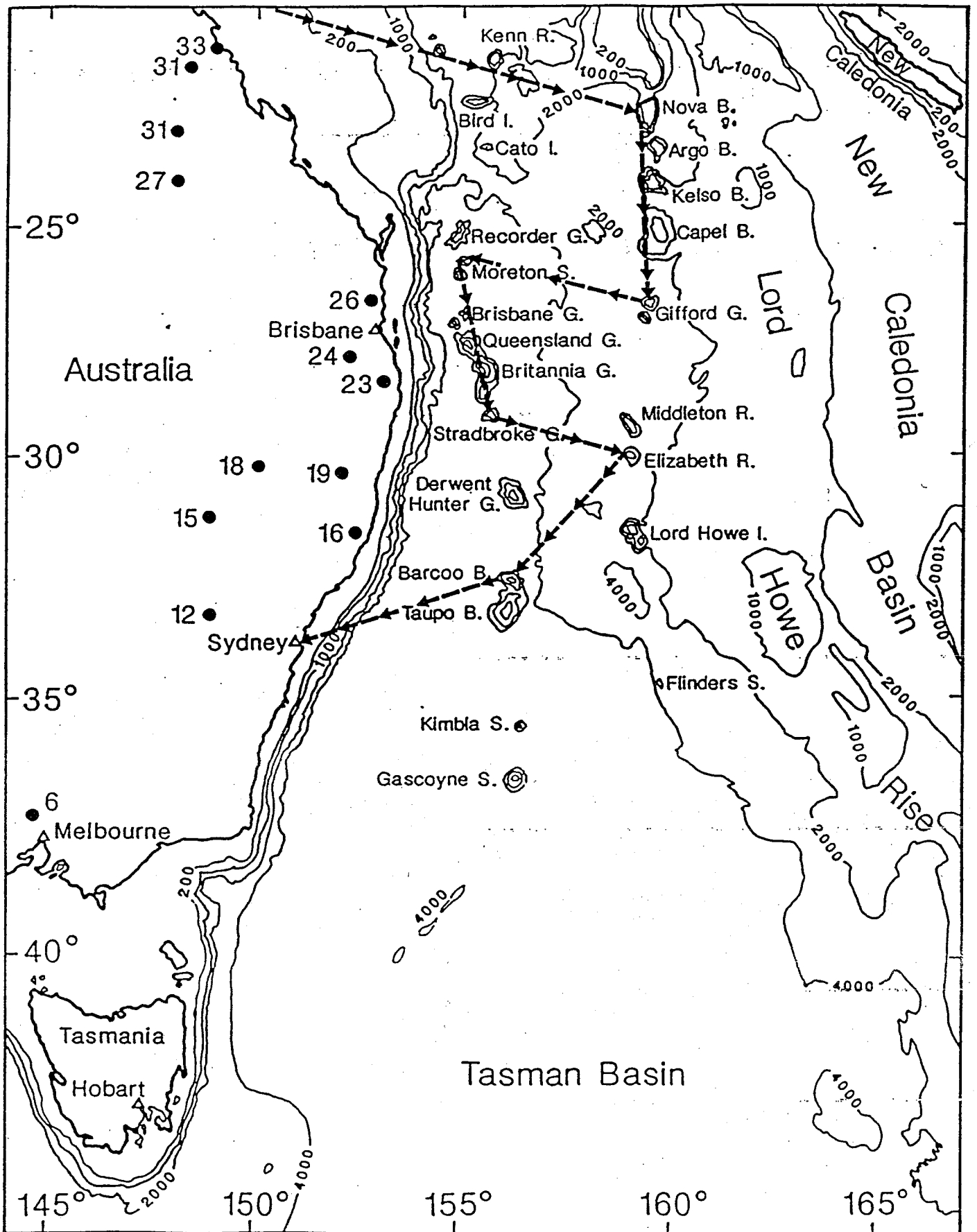


Figure 1. Bathymetric map of the Tasman Sea showing the Tasmantid and Lord Howe Seamount chains. Isobaths in metres. Filled circles in eastern Australia show locations of central volcanoes and their average K-Ar ages. Star in Tasman Basin indicates epicentre of magnitude 6 earthquake of 25 November 1983. (Abbreviations: B-Bank; G-Guyot; I-Island; R-Reef and S-Seamount).

R.V. FRANKLIN

NATIONAL FACILITY OCEANOGRAPHIC RESEARCH VESSEL

RV FRANKLIN

RESEARCH PLAN

FR10/88

Sail Hobart 2000hrs Mon 31 October 1988
Arrive Hobart 1500hrs Wed 2 November 1988

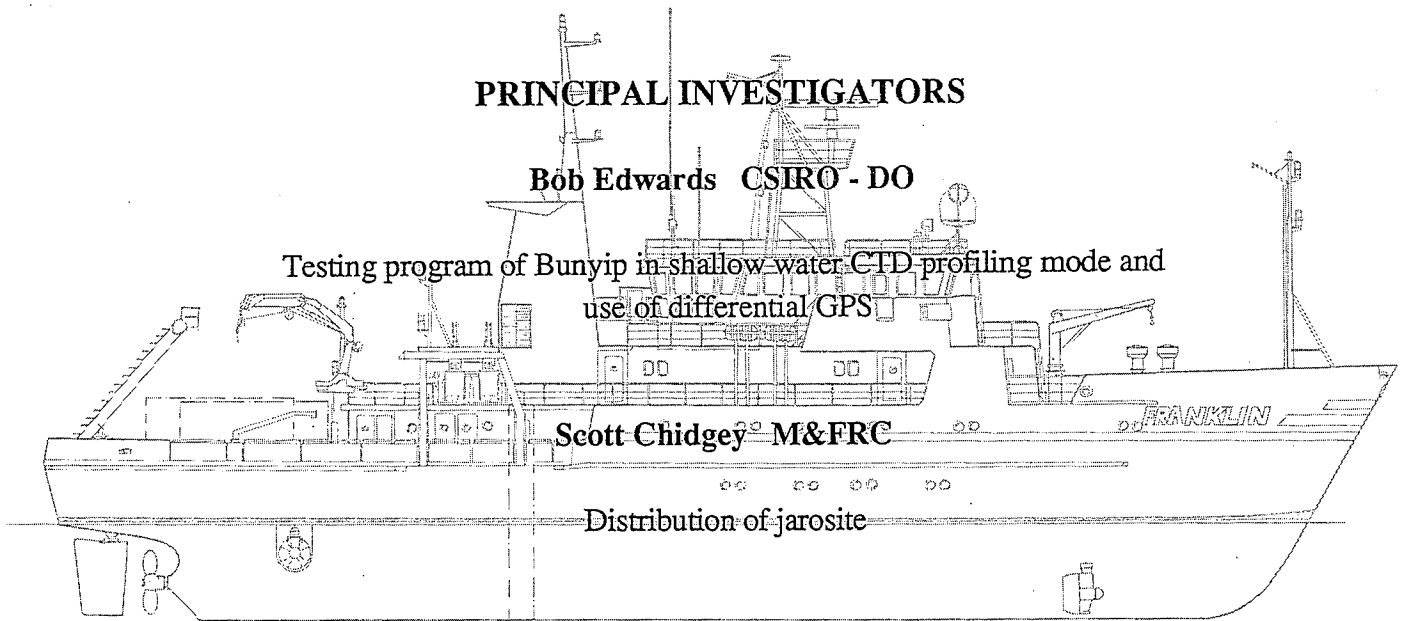
PRINCIPAL INVESTIGATORS

Bob Edwards CSIRO - DO

Testing program of Bunyip in shallow water CTD profiling mode and
use of differential GPS

Scott Chidgey M&FRC

Distribution of jarosite



Ms. B. Baker
CSIRO Division of Oceanography
HOBART

For further information contact
ORV Operations Manager
c/- CSIRO Division of Oceanography
GPO Box 1538, Hobart, Tas. 7001
Telephone (002) 20 6222
Telex AA 57182



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RV FRANKLIN

Research Plan

FR10/88

Itinerary

Sail	Hobart	2000hrs	Mon 31 October 1988
Arrive	Hobart	1500hrs	Wed 2 November 1988

Scientific Programs

To test modifications to, and the use of *Bunyip* in the CTD profiling mode in shallow water.

To undertake bottom photography and bottom sampling in the jarosite dumping area.

To undertake an experiment to see if it is possible to determine ship's head to 0.1° using GPS in a differential mode.

Principal Investigators

Bob Edwards
ORV Operations Manager
Hobart

Scott Chidgey
Marine & Freshwater Research Centre
86 Kent Street
Richmond Vic 3121

Cruise Program

On sailing from Hobart, bottom photography will be undertaken on a transect to the southeast of Storm Bay. This will continue till dawn when the ORV will move to an appropriate area for the *Bunyip* trials.

Testing will be carried out in the CTD profiling mode to check that the algorithms are correct and that the towed body can be manipulated properly. When these tests are complete, time will be spent practicing profiling with Bunyip in shallow water (30 - 200m). A further test will be made in deeper water just over the edge of the continental shelf to check whether profiling is possible with the ORV following a contour (500m?) and Bunyip profiling the water column.


When these tests are complete, bottom photography and sampling will be carried out in deep water in a profile parallel to the continental shelf slope. At the end of this project the ORV will return to Hobart.

GPS data for the ship's head experiment will be collected whenever there are three satellites in view.

Personnel

Lindsay Pender	Chief Scientist	ORV Staff
Phil Adams		"
Bob Driscoll		"
Dave Edwards		"
Ian Helmond		"
Dave Terhell		"
Stuart Swan		"
Scott Chidgey	Project Leader	M&FRC
Peter Schneider		OSI - Uni of Sydney
David Green		ORV Steering Committee
Tim Mangan		CSIRO - DO
Bertrand Merminod	Project Leader	UNSW - Surveying

This research 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



D.H. Green
National Facility Steering Committee

September 1988