

R.V. FRANKLIN

NATIONAL FACILITY OCEANOGRAPHIC RESEARCH VESSEL

RESEARCH PLAN

CRUISE FR 7/90

Sail	Cairns	0900	Fri 7 September 1990
Arrive	Rabaul	1000	Tue 25 September 1990
Sail	Rabaul	0800	Wed 26 September 1990
Arrive	Rabaul	0900	Mon 1 October 1990
	<i>LAE</i>	--000--	

Principal Investigators

Drs Eric Lindstrom & Stuart Godfrey
CSIRO Division of Oceanography, Hobart

Drs Frank Bradley & Peter Coppin
CSIRO Division of Environmental Mechanics

Bismark Air-Sea Interaction And Circulation Study

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Dr Eric Lindstrom
Dr Hideo Inaba
Tokai University, Japan

Australia - Japan Equatorial Moored Instrument Array

25 June 1990

Bernadette Baker

CSIRO Division of Oceanography

HOBART

For further information contact

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ED AND OPERATED BY CSIRO

**Research Plan
RV *Franklin*
FR7/90**

Itinerary

From	To	Depart	Arrive
Leg 1: Cairns	Rabaul	0900 hrs, 7 Sept.	1000 hrs, 25 Sept
Leg 2: Rabaul	Rabaul	0800 hrs, 26 Sept	0900 hrs, 1 Oct

Scientific Program

The cruise consists of two legs. The first from Cairns to Rabaul will be primarily devoted to studies of surface heat and gas fluxes and upper ocean heat content. The primary instrumentation used on this leg will be the meteorological boom and the CTD. A free-floating Drifter may also be deployed.

The second leg of the cruise from Rabaul to Rabaul will involve transit to the equator at 147°E for operations associated with the joint Australia/Japan mooring maintained at this site. The CSIRO mooring on the site will be recovered and the scientific instruments refurbished on board. These instruments will be immediately redeployed on a new mooring.

Cruise Objectives

1. To measure all components of the heat budget of one or more parcels of water in the Bismarck Sea over several days, so that the total budget is closed to an accuracy of 20 W/m².
2. To measure the carbon dioxide flux out of the ocean.
4. To recover and redeploy a joint Australia/Japan current meter mooring on the equator at 147°E.

Principal Investigators

Eric Lindstrom and Stuart Godfrey (CSIRO Division of Oceanography)

Frank Bradley and Peter Coppin (CSIRO Division of Environmental Mechanics)

Hideo Inaba (Tokai University, Japan)

Cruise Track

A cruise track is shown in Figure 1.

Time estimates

Steaming time	192 hours	
Science time	384 hours	
Total	576 hours	(24 days)

ORV Equipment Required

All standard systems, but especially the CTD system with 12 bottle rosettes, the ADCP, GPS, scientific sounder thermosalinograph. Underway measurements of pH and fluorescence will require the GP Laboratory. A balloon platform will be deployed on the afterdeck. The specialised meteorological boom will be installed on the bow in Cairns. It may be necessary (because of failure of other equipment) to deploy a small boat for up to two hours at a time during daylight hours for use by scientists making measurements in the upper few meters of the water column.

Personnel

Entire cruise:	Eric Lindstrom	CSIRO Division of Oceanography
	Jeff Butt	CSIRO Division of Oceanography
	Ian Helmond	CSIRO Division of Oceanography
	David Edwards	ORV Electronics
	Gary Critchley	ORV Hydrology
	Frank Bradley	CSIRO Centre for Environmental Mechanics
	Peter Coppin	CSIRO Centre for Environmental Mechanics
	Ryo Kodama	Tokai University

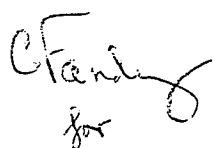
Plus

Leg 1	Cairns to Rabaul	
	J. Stuart Godfrey	CSIRO Division of Oceanography
	Bob Cechet	CSIRO Division of Atmospheric Research
	Tom Denmead	CSIRO Centre for Environmental Mechanics
	John Bryan	CSIRO Centre for Environmental Mechanics
Leg 2	Rabaul to Rabaul	
	Hideo Inaba	Tokai University

Kevin Miller
Daniel McLaughlan
Fred Boland

CSIRO Division of Oceanography
CSIRO Division of Oceanography
CSIRO Division of Oceanography

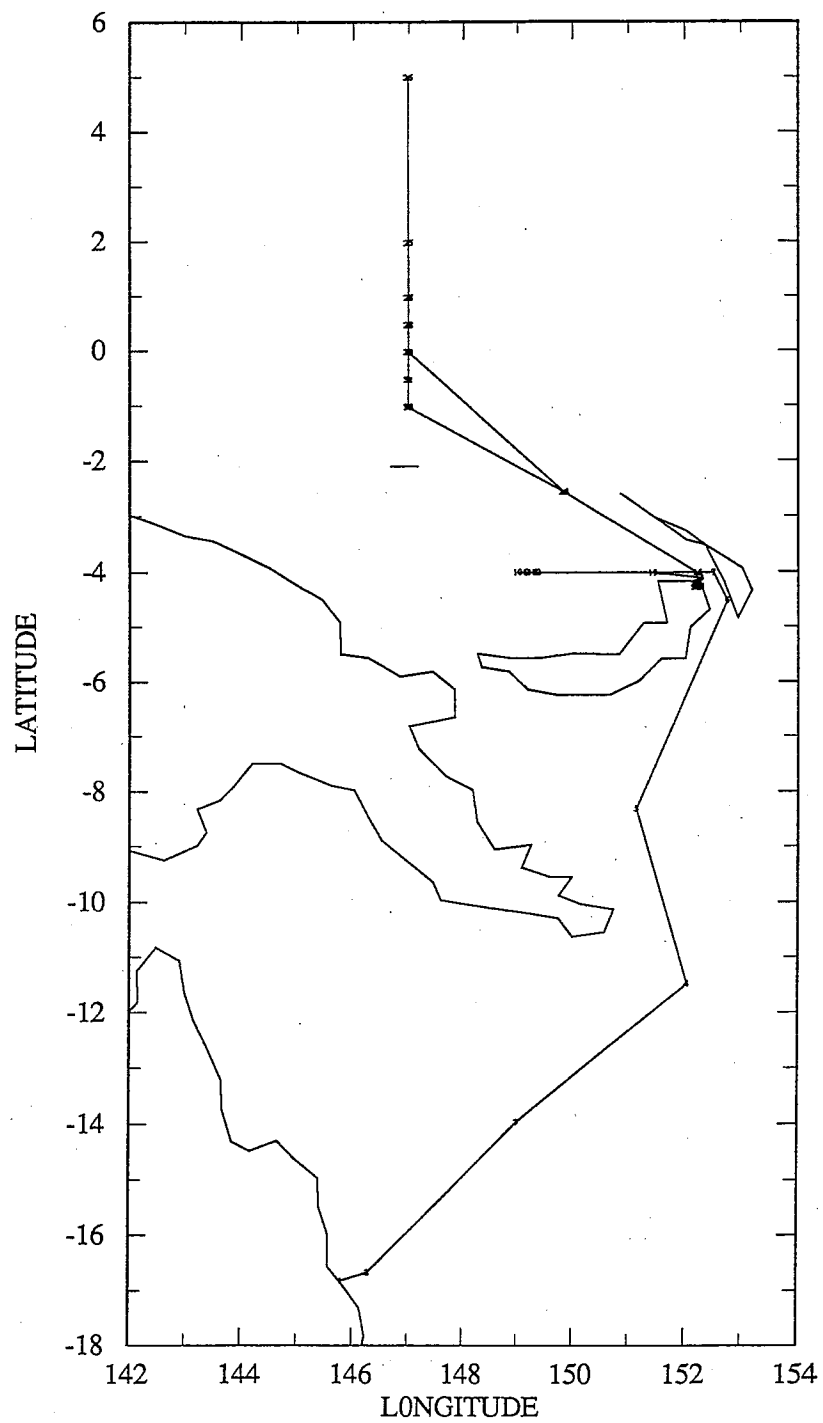
This Cruise Plan is in accordance with the directions of the National Facility Steering Committee for the oceanographic research vessel RV *Franklin*.

A handwritten signature in cursive script, appearing to read 'A.D. McEwan'.

A.D. McEwan
CSIRO Division of Oceanography

A handwritten signature in cursive script, appearing to read 'D.H. Green'.

D.H. Green
National Facility Steering Committee



BASICS

"the" version

BASICS-VERSION 16 (REVISED 26/6/90)

POS NO.	LATITUDE DEG:MIN	LONGITUDE DEG:MIN	DIST. NM	SPEED KTS	HDNG. DEG	TRANSIT HOURS	SCIENCE HOURS	DAY NO.	TIME EST	DATE	
1	16:50 S	145:45 E						1	9:00	6 SEP	CAIRNS (START)
2	16:41 S	146:14 E	29.2	11.0	72.8	2.7	0.0	1	11:45	6 SEP	Grafton Passage
3	14:00 S	149:00 E	227.0	11.0	45.9	20.6	0.0	2	8:15	7 SEP	waypoint
3	14:00 S	149:00 E	0.0	0.0	45.9	0.0	2.0	2	10:15	7 SEP	CTD-trial station
4	11:30 S	152:05 E	234.6	11.0	51.0	21.3	0.0	3	7:45	8 SEP	Jomard Entrance
5	8:20 S	151:09 E	197.8	11.0	343.6	18.0	0.0	4	1:30	9 SEP	Kirwina Island
6	4:30 S	152:45 E	249.0	11.0	22.7	22.6	0.0	5	0:15	10 SEP	ST. GEORGES CHANNEL
7	4:00 S	152:30 E	33.5	12.0	333.4	2.8	0.0	5	3:00	10 SEP	waypoint
8	4:00 S	149:20 E	189.5	12.0	270.0	15.8	0.0	5	18:45	10 SEP	waypoint
8	4:00 S	149:20 E	0.0	0.0	270.0	0.0	36.0	7	6:45	12 SEP	AREA MAPPING 1
9	4:00 S	149:15 E	5.0	12.0	270.0	0.4	0.0	7	7:15	12 SEP	waypoint
9	4:00 S	149:15 E	0.0	0.0	270.0	0.0	72.0	10	7:15	15 SEP	CONTROL VOLUME EXPT.1
10	4:00 S	149:00 E	15.0	12.0	270.0	1.2	0.0	10	8:30	15 SEP	waypoint
10	4:00 S	149:00 E	0.0	0.0	270.0	0.0	28.0	11	12:30	16 SEP	AREA MAPPING 2
11	4:00 S	148:45 E	15.0	12.0	270.0	1.2	0.0	11	13:45	16 SEP	waypoint
11	4:00 S	148:45 E	0.0	0.0	270.0	0.0	72.0	14	13:45	19 SEP	CONTROL VOLUME EXPT.2
12	4:00 S	148:30 E	15.0	12.0	270.0	1.2	0.0	14	15:00	19 SEP	waypoint
12	4:00 S	148:30 E	0.0	0.0	270.0	0.0	28.0	15	19:00	20 SEP	AREA MAPPING 3
13	4:00 S	148:15 E	15.0	12.0	270.0	1.2	0.0	15	20:15	20 SEP	waypoint
13	4:00 S	148:15 E	0.0	0.0	270.0	0.0	72.0	18	20:15	23 SEP	CONTROL VOLUME EXPT.3
14	5:20 S	147:35 E	89.4	12.0	206.6	7.4	0.0	19	3:45	24 SEP	waypoint
15	5:45 S	147:30 E	25.5	12.0	191.3	2.1	0.0	19	5:45	24 SEP	waypoint
16	6:20 S	147:55 E	42.9	12.0	144.5	3.6	0.0	19	9:30	24 SEP	waypoint
17	6:50 S	148:00 E	30.4	12.0	170.5	2.5	0.0	19	12:00	24 SEP	waypoint
18	6:44 S	147:00 E	59.9	12.0	275.7	5.0	0.0	19	17:00	24 SEP	IAE-Heatflux people off
18	6:44 S	147:00 E	0.0	0.0	275.7	0.0	24.0	20	17:00	25 SEP	Port Period-Mooring people on
19	6:50 S	148:00 E	59.9	12.0	95.7	5.0	0.0	20	22:00	25 SEP	waypoint
20	6:20 S	147:55 E	30.4	12.0	350.5	2.5	0.0	21	0:30	26 SEP	waypoint
21	5:45 S	147:30 E	42.9	12.0	324.5	3.6	0.0	21	4:00	26 SEP	waypoint
22	5:20 S	147:35 E	25.5	12.0	11.3	2.1	0.0	21	6:15	26 SEP	waypoint
23	3:25 S	147:40 E	115.1	12.0	2.5	9.6	0.0	21	15:45	26 SEP	waypoint
24	2:00 S	148:10 E	90.1	12.0	19.4	7.5	0.0	21	23:15	26 SEP	waypoint
25	0:00 Q	147:00 E	138.9	12.0	329.7	11.6	0.0	22	10:45	27 SEP	EQUATORIAL MOORING SITE
25	0:00 Q	147:00 E	0.0	0.0	329.7	0.0	12.0	22	22:45	27 SEP	MOORING RECOVERY
26	0:01 N	147:00 E	1.0	12.0	0.0	0.1	0.0	22	23:00	27 SEP	waypoint
26	0:01 N	147:00 E	0.0	0.0	0.0	0.0	26.0	24	1:00	29 SEP	INSTRUMENT PREPARATION
27	0:00 Q	147:00 E	1.0	12.0	180.0	0.1	0.0	24	1:00	29 SEP	EQUATORIAL MOORING SITE
27	0:00 Q	147:00 E	0.0	0.0	180.0	0.0	12.0	24	13:00	29 SEP	MOORING DEPLOYMENT
28	2:00 S	148:10 E	138.9	12.0	149.7	11.6	0.0	25	0:30	30 SEP	waypoint
29	3:25 S	147:40 E	90.1	12.0	199.4	7.5	0.0	25	8:00	30 SEP	waypoint
30	5:20 S	147:35 E	115.1	12.0	182.5	9.6	0.0	25	17:45	30 SEP	waypoint
31	5:45 S	147:30 E	25.5	12.0	191.3	2.1	0.0	25	19:45	30 SEP	waypoint
32	6:20 S	147:55 E	42.9	12.0	144.5	3.6	0.0	25	23:15	30 SEP	waypoint
33	6:50 S	148:00 E	30.4	12.0	170.5	2.5	0.0	26	2:00	1 OCT	waypoint
34	6:44 S	147:00 E	59.9	12.0	275.7	5.0	0.0	26	7:00	1 OCT	LAE (FINISH)

TOTAL DISTANCE = 2481.5 nm
TOTAL TRANSIT TIME = 213.9 hr
TOTAL SCIENCE TIME = 384.0 hr
TOTAL CRUISE TIME = 597.9 hr

