

FRANKLIN

National Facility
Oceanographic Research Vessel

RESEARCH PLAN

Cruise FR10/94

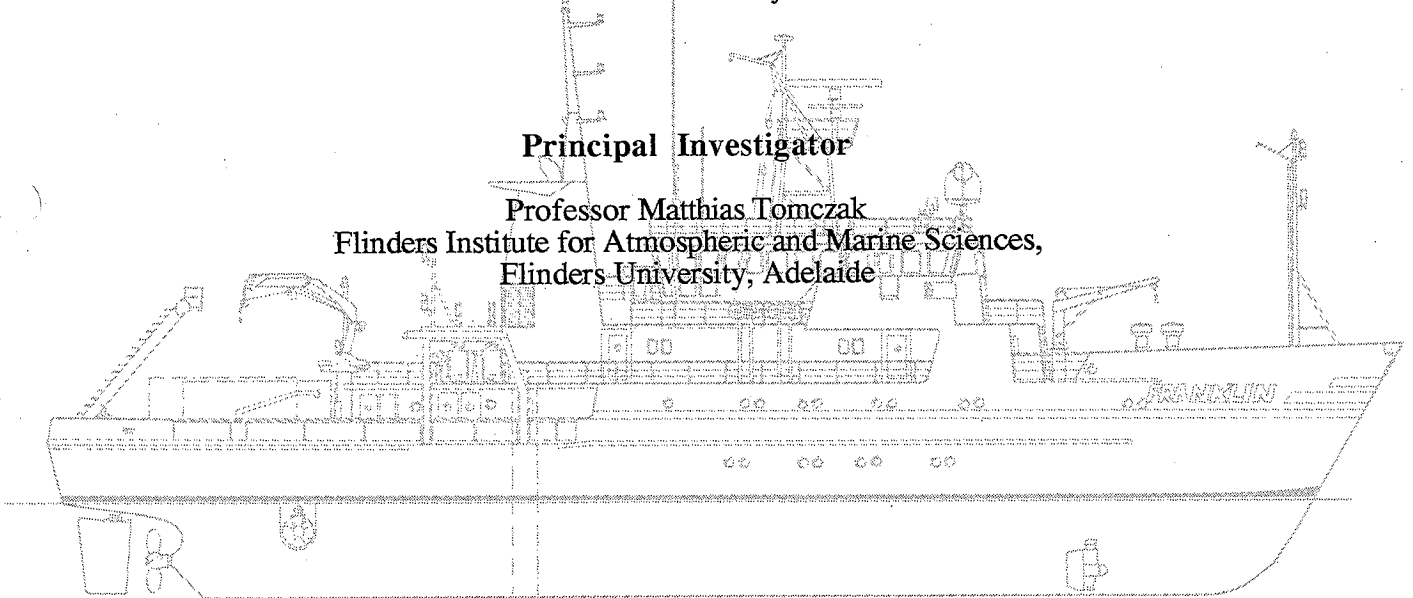
World Ocean Circulation Experiment (WOCE)

**HYDROGRAPHIC SECTIONS IN THE SOUTHERN INDIAN OCEAN
(GREAT AUSTRALIAN BIGHT)**

Sail Fremantle 0600 Saturday 12 November 1994
Arrive Port Lincoln 1200 Monday 5 December 1994

Principal Investigator

Professor Matthias Tomczak
Flinders Institute for Atmospheric and Marine Sciences,
Flinders University, Adelaide



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FRANKLIN is owned and operated by CSIRO

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Scientific Programme

To determine the movement of Antarctic Intermediate Water and Indian Central Water in the Great Australian Bight and possible exchange between the Pacific and Indian Oceans in the depth range of these water masses.

To investigate the flow of Antarctic Bottom Water through the Australian-Antarctic Discordance and its passage into the basins of the Indian Ocean.

Cruise objectives

To complete two meridional sections of temperature, salinity, oxygen and nutrients from the Australian coast to 48°S, along 120°42'E and along 132°00'E, with CTD/Rosette coverage from the surface to the bottom.

To complete a zonal section along 48°S from 120°42'E to 132°00'E, with CTD/Rosette coverage from the surface to the bottom.

Cruise track

The track of *Franklin* from Fremantle to Port Lincoln is shown on the attached figure. A list of station positions is attached.

ORV Equipment required

All standard equipment including CTD with 24 bottle rosette, ADCP, navigation, meteorology, thermosalinograph and XBT.

Time estimates

Steaming time	11.5 days at 11 knots
CTD station time	11.4 days at 50 min per 1000 m station depth
Total cruise time	22.9 days
Time available	23.5 days

Station time is evaluated using local water depth for stations every 30 nautical miles along the proposed track. A total of 74 CTD stations is planned. Timing is tight, and time lost through bad weather will have to be made up by reducing the number of CTD stations.

Personnel

Matthias Tomczak	FIAMS	Chief Scientist
Colin Andrew	"	
Jarrad Exelby	"	
Michael Herzfeld	"	
Michael Schodlok	"	
Peter Strutton	"	
Neil White	CSIRO-ORV	Cruise Manager
Erik Madsen	"	
Ron Plaschke	"	
Mark Rayner	"	
Dave Terhell	"	

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



G W Paltridge
National Facility Steering Committee

July 1994

RESEARCH CRUISE FR 10/94

Proposed Station Positions

Station No. Latitude (S) Longitude (E) Estimated depth (m)

Section 1 along (120°42'E)

1	34°18'	120°42'	200
2	34°36'	120°42'	2 000
3	34°51'	120°42'	3 000
4	35°12'	120°42'	4 400
5	35°30'	120°42'	4 900
6	36°00'	120°42'	5 200
7	36°30'	120°42'	5 400
8	37°00'	120°42'	5 600
9	37°30'	120°42'	5 200
10	38°00'	120°42'	5 500
11	38°30'	120°42'	5 100
12	39°00'	120°42'	5 300
13	39°30'	120°42'	4 800
14	40°00'	120°42'	5 000
15	40°30'	120°42'	5 000
16	41°00'	120°42'	4 900
17	41°30'	120°42'	4 800
18	42°00'	120°42'	4 800
19	42°30'	120°42'	4 700
20	43°00'	120°42'	4 700
21	43°30'	120°42'	4 600
22	44°00'	120°42'	4 600
23	44°30'	120°42'	4 700
24	45°00'	120°42'	4 600
25	45°30'	120°42'	4 400
26	46°00'	120°42'	4 300
27	46°30'	120°42'	4 300
28	47°00'	120°42'	4 200
29	47°30'	120°42'	4 100
30	48°00'	120°42'	4 100*

Section 2 (along 48°00'S)

30	48°00'	120°42'	4 100*
31	48°00'	121°30'	4 100
32	48°00'	122°18'	4 100
33	48°00'	123°15'	4 000
34	48°00'	123°51'	4 400
35	48°00'	124°42'	4 000
36	48°00'	125°36'	4 000
37	48°00'	126°24'	4 200
38	48°00'	127°03'	4 200
39	48°00'	127°48'	4 300
40	48°00'	128°42'	4 200
41	48°00'	129°30'	4 200
42	48°00'	130°21'	4 200
43	48°00'	131°12'	4 100
44	48°00'	132°00'	4 100*

Section 3 (along 132°00' E)

44	48°00'	132°00'	4 100*
45	47°30'	132°00'	4 200
46	47°00'	132°00'	4 300
47	46°30'	132°00'	4 400
48	46°00'	132°00'	4 550
49	45°30'	132°00'	4 650
50	45°00'	132°00'	4 750
51	44°30'	132°00'	4 850
52	44°00'	132°00'	4 950
53	43°30'	132°00'	5 050
54	43°00'	132°00'	5 150
55	42°30'	132°00'	5 200
56	42°00'	132°00'	5 300
57	41°30'	132°00'	5 350
58	41°00'	132°00'	5 550
59	40°30'	132°00'	5 600
60	40°00'	132°00'	5 600
61	39°30'	132°00'	5 600
62	39°00'	132°00'	5 600
63	38°30'	132°00'	5 600
64	38°00'	132°00'	5 600
65	37°30'	132°00'	5 600
66	37°00'	132°00'	5 600
67	36°30'	132°00'	5 600
68	36°00'	132°00'	5 000
69	35°42'	132°00'	3 000
70	35°18'	132°00'	1 600
71	34°45'	132°00'	1 300
72	34°15'	132°00'	1 100
73	33°45'	132°00'	400
74	33°15'	132°00'	150

* These stations are listed twice, as the end of one section and the beginning of the next section.

