

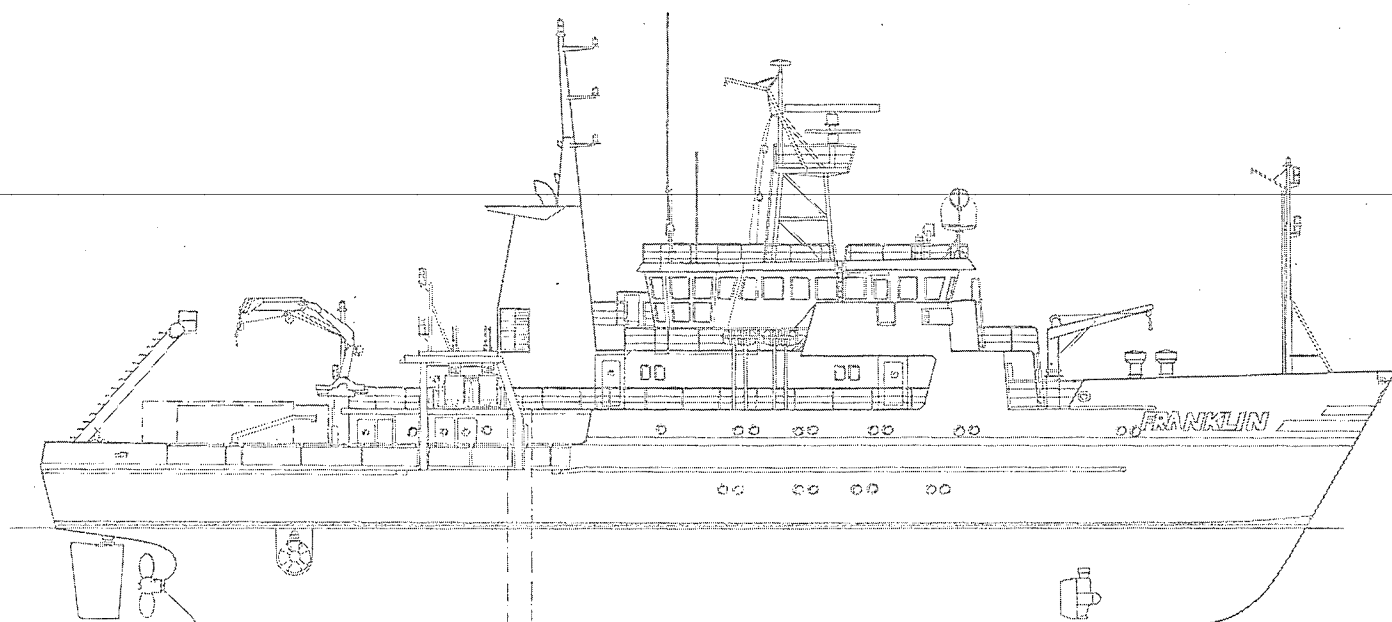
R.V. FRANKLIN

NATIONAL FACILITY
OCEANOGRAPHIC RESEARCH VESSEL

CRUISE PLAN

R.V. 'FRANKLIN'

FR 10/87



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

August 1987

CRUISE PLAN
R.V. 'FRANKLIN'
FR10/87

ITINERARY

Depart Broome:	1200 hrs	Tuesday	3 November 1987
Arrive Gove:	1200 hrs	Thursday	19 November 1987
Depart Gove:	1300 hrs	Thursday	19 November 1987
Arrive Cairns:	1200 hrs	Tuesday	24 November 1987

SCIENTIFIC PROGRAM

1. Investigate distribution of copper complexing capacity on the North West Shelf of Australia
2. Collect water samples for As and I determinations
3. Collect samples for trace metal analysis using clean techniques
4. Investigate biological productivity of nearsurface waters and carbon assimilation pathways using ^{14}C
5. Collect samples of particulate matter using Niskin bottles and Seastar in-situ pumps for the analysis of lipids, pigments and total CHN. Sediment samples will be collected at the same sites
6. Collect samples for the analysis of dissolved organic carbon and use hydrophobic adsorbents (XAD-2, C18 SEPPAK and Styragel SEPPAK) to obtain subsamples for analysing by GC-MS, FT-IR and HPLC-AF
7. Investigate surface pH and fluorescence using continuous data logging of Radiometer and Turner systems
8. Measure vertical profiles of pH using probe fitted to CTD unit 1
9. Measure vertical profiles of fluorescence and turbidity using Variosens III interfaced to CTD unit 1
10. Collect water samples for the analysis of pigments and for intercalibration experiments with the Turner and Variosens
11. Use Variosens III to investigate the nature of the suspended matter that accumulates near the shelf break
12. Investigate the sources of nutrient enrichment near the offshore reefs and near the entrance to King Sound (and possibly other Sounds further north). Real time analysis of these samples will be used to determine our sampling protocol

13. Collect water samples for the analysis of total bacteria and particle size distribution
14. Install current meters between Arnhem Land and the PNG boundary and in the centre of the Gulf of Carpentaria
15. Deploy sediment traps (if available) at suitable locations on the shelf to obtain information on the fluxes and chemical composition of sinking particulates
16. Deploy Seastar in-situ water sampler to obtain integrated particulate and POC samples at selected stations
17. Collect sediment trap, particulate and DOC samples (Seastar) from the Gulf of Carpentaria to provide preliminary data for FR02/88

PRINCIPAL INVESTIGATORS

Dr Denis Mackey
Dr John Volkman
Dr Edward Butler
Dr Peter Nichols

CSIRO Division of Oceanography
GPO Box 1538
HOBART TASMANIA 7000
Tel: (002) 206280

CRUISE TRACK

Approximately six sections from the coast to the shelf edge between 18°S and 12°S and west of 130°E. Extensive sampling in the regions of Rowley Shoals, Lynher Bank and the entrance to King Sound. If possible, one section to extend to the head of King Sound. One transect to be repeated. Three deep stations to the bottom (4000 m). Exchange of three personnel at Gove for the deployment of current meters in the Gulf region.

O.R.V. EQUIPMENT REQUIRED

1. CTD unit 1 with pH sensor fitted and modified to provide power to Variosens III
2. Underwater power supply, data logger (SDL) and supporting frame for Variosens III so that the latter can be deployed as a self contained unit - preferably to 800 m
3. Computer and deck unit for interfacing with SDL
4. pH system and Turner fluorometer for continuous monitoring of surface pH and fluorescence. Data to be recorded on chart recorder and continuously logged together with output of thermosalinograph
5. Clean container
6. Biological container

7. Precision depth recorder
8. G.P.S. navigation
9. Freezers (-20 C and -40 C)
10. Acoustic doppler current profiler
11. Milli-Q and RO4 water supply
12. Scintillation counter
13. Autoanalyser (nitrate, nitrite, silicate and phosphate)
14. Salinometer/dissolved oxygen
15. Ship's refrigerator for storage of seawater samples
16. Thermosalinograph
17. CTD unit 2
18. Clean cabinet in GP laboratory
19. Satellite SST data from University of Western Australia (?)
20. 10 l and 5 l Niskin bottles

EQUIPMENT PROVIDED BY USERS

1. Teflon coated Niskin bottles
2. Pressure system for clean sampling
3. Seastar samplers (including elution apparatus)
4. Epifluorescence microscope
5. Liquid nitrogen dewars (possibly)
6. Smith-McIntyre grab sampler
7. Sediment traps
8. Iodate channel for autoanalyser (modified from ammonia channel)
9. Mooring equipment
10. Incubation tanks, vacuum pumps etc for primary productivity experiments
11. Drogue (with sonar reflector) for following water mass movements during long stations. Will include suitable attachments for supporting free floating sediment traps (if available)

PERSONNEL

CSIRO

Denis Mackey - (Chief Scientist)
John Volkman
Edward Butler
Peter Nichols
David Everitt
Patrick Deprez
Neil White
Jeanette Atack
Ron Plaschke
David Terhell - (ORV hydrology)
Eric Madsen - (ORV electronics)
Bob Beattie - (ORV computing)

At Gove, change three of above with

Andrew Forbes (+ two)

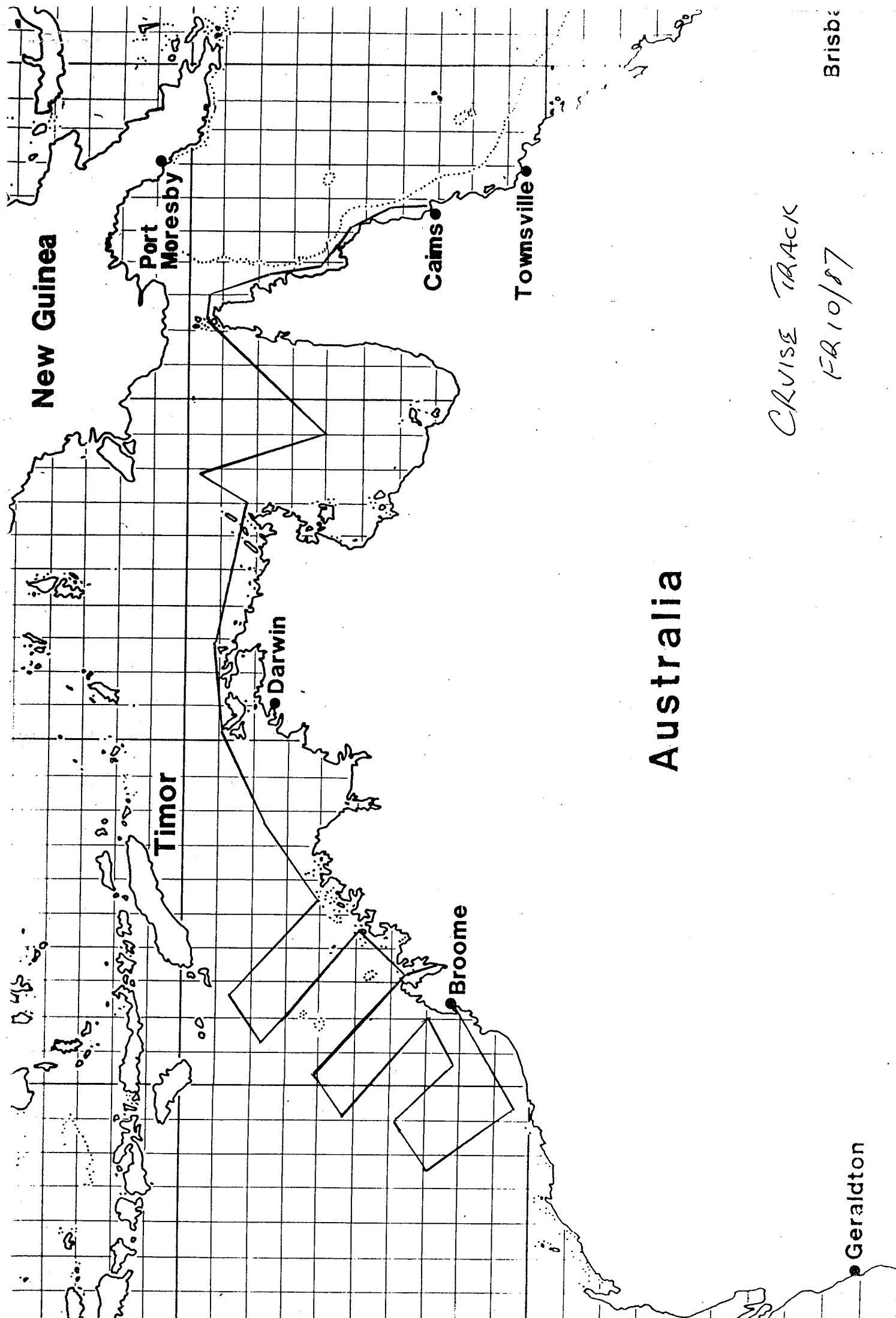
This Cruise Plan is in accordance with the directions of the National Facility Steering Committee for the oceanographic research vessel RV 'Franklin'



A. D. McEwan
CSIRO Division of Oceanography



D. H. Green
National Facility Steering Committee



New Guinea

Port Moresby

Caims

Townsville

Timor

Darwin

Broome

Australia

Geraldton

CRUISE TRACK

FEB 10/87

Brisba