R.V. FRANKLIN

NATIONAL FACILITY

OCEANOGRAPHIC RESEARCH VESSEL

RESEARCH PLAN

CRUISE FR 5/90

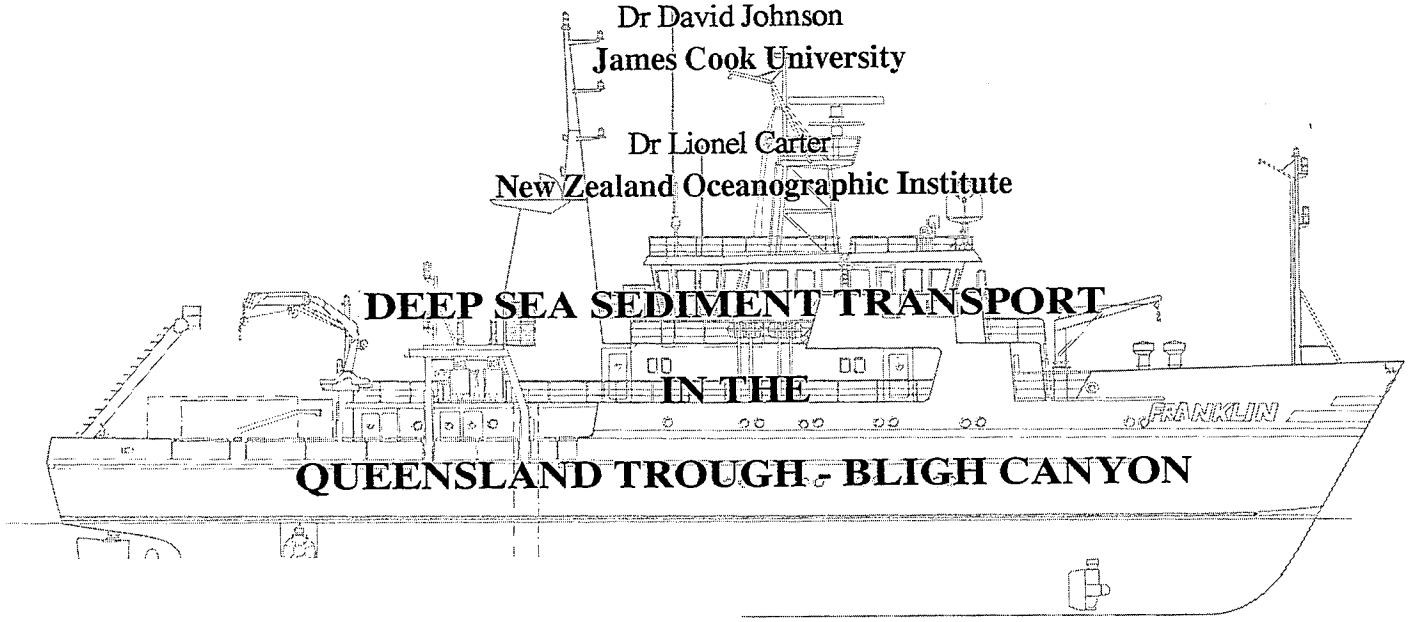
Sail Townsville 0800 Friday 25 May 1990
Arrive Townsville 1500 Tuesday 5 June 1990

Principal Investigators

Professor Bob Carter
Dr Craig Fulthorpe
Dr David Johnson
James Cook University

Dr Lionel Carter
New Zealand Oceanographic Institute

DEEP SEA SEDIMENT TRANSPORT IN THE QUEENSLAND TROUGH - BLIGH CANYON



15 March 1990

Bernadette 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

:D AND OPERATED BY CSIRO

R.V. FRANKLIN

NATIONAL FACILITY OCEANOGRAPHIC RESEARCH VESSEL

RESEARCH PLAN --- CRUISE FR 5/90

ITINERARY

Depart Townsville: 0800h Friday May 25 (Day 1)
Return Townsville: 1500h Tuesday June 5 (Day 12)

PERSONNEL

R.M. (Bob) Carter - Co-Chief Scientist, James Cook University
D.P. (David) Johnson - Co-Chief Scientist, James Cook University
C.C. (Chris) von der Borch - Flinders University
L. (Lionel) Carter - New Zealand Oceanographic Institute
J. (John) Hunt - New Zealand Oceanographic Institute
J.E. (John) Hughes Clarke - James Cook University
C.S. (Craig) Fulthorpe - James Cook University
K.G. (Kevin) Hooper - James Cook University
P. (Piers) Larcombe - James Cook University
Plus one
R.J. (Bob) Edwards - Cruise Manager, CSIRO
E. (Erik) Marsden - CSIRO

*participation to be confirmed

BACKGROUND TO SCIENTIFIC PROGRAMME

A GLORIA survey accomplished in June-July 1989 has resulted in swathe-imagery of the Queensland Trough, together with detailed Seabeam bathymetry of two areas on the western slope of the trough. The imagery demarcates clearly the major morphology of the trough and the main sediment facies present within the trough, in particular:

* erosive features, including channels and slides, on the western slope (northern parts)

* a scarp between the trough axis and the Queensland Plateau (northern parts)

* a northward-draining channel system within the northern trough axis (Osprey system)

* a smooth, sediment-mantled trough floor and western and eastern slopes (southern parts)

The overall scientific aim of the cruise, therefore, is to provide ground-truth samples for the GLORIA survey, to be used for sedimentary facies study and geotechnical testing. The primary sampling device will be a piston-corer, backed up by grabs and rock dredges. Secondary research aims include (1) recovery of cores of undisturbed hemipelagic sediment for analysis for palaeoclimatic indicators; and (2) recovery of surficial sediment samples for study of the contained ostracod faunas.

James Cook University of North Queensland
Professor R.M. Carter
Head of Department of Geology
TELEPHONES:
National: (077) 81 4536 (W)
(077) 75 1268 (H)
10 Jacaranda Crescent,
Village Haven
Townsville, Q. 4814
James Cook University,
Townsville, Q. 4811
Telex: AA47009
Facsimile: (077) 79 6371
Departmental Fax: (077) 25 1501

SPECIFIC CRUISE AIMS

To collect seismic profile data (mainly overnight) and piston core/grab bottom samples (mainly daytime) from selected targets within the Queensland Trough. The main target areas for sampling are:

A. Erosive slope (east of Lark Pass)

B. Gullied slope (east of Cape Tribulation)

C. Failed slope (east of Trinity Passage)

D. Isolated debris flow (east of Cairns)

E. Transect to Queensland Plateau (east of Cairns)

A cruise track-chart and sampling-location chart are provided (Fig. 1).

ORV EQUIPMENT REQUIRED

Standard navigation and depth systems will be required, but no call will be made on the specialised physical oceanographic facilities. Use will be made of IBM compatible computers for logging of data and report writing. The cruise party will provide piston-corers and accessories, grabs and dredges, together with all sample handling and collection tools and containers.

There will be a requirement for:

* Rigging the piston-corer for deployment through the stern A-frame (including the positioning and attachment of guide rails on the deck)

* 12 KHz pinger/s for attaching to main wire just above corer

* Storing 1.5m lengths of cut core in vertical position in an air-conditioned hold

* Routine handling of muddy sample materials in a wet laboratory

Maximum clear space will be required on the aft deck to facilitate the loading and unloading of the corer. The cruise party will provide a wooden cradle to receive the corer weight assembly, which will be retrieved by pivoting it inboard through the A-frame, and then laid horizontally on the deck. During retrieval of the corer, a second wire (independent of the main winch) will be required for attaching to the trigger weight assembly prior to its removal.

DETAILED CRUISE PLAN

NOTE. In all cases, time has been allowed at coring stations for two full deployments, assuming a winch speed of 50 m/min. If there is no need for a replicate core, the time will be used either (a) to collect a grab sample; or (b) to schedule an extra core station nearby.

See Table 1 for a summary of position waypoints an sampling points for all cruise operations.

DAY 1 (May 25).
Leave Townsville 0800h. Steam to Trinity Pass (2400h). Stop en route for one trial deployment of piston-corer in sheltered waters.

Seismic line A ENE to mid-trough, arrive at Site 1 (distal flow; 1800m) at 0700h.

DAY 2 (May 26)
Rig corer; deploy at Site 1 (distal flow; 1800m; 0900h); finish coring 1200h.
Steam WSW to Site 2 (mid-flow; 1600m), arrive 1300h; deploy corer 1330; finish coring 1530h.
Steam WSW to Site 3 (slide scar; 1350m), arrive 1630h; deploy corer 1700h; finish coring 2000h.

Seismic survey lines B overnight (transverse to flow).

DAY 3 (May 27)
Rig corer 0700h and deploy on Site 4 (edge of flow; 1750m); finish coring 1030h. Steam NW to Site 5 (trough floor, outside flow; 1750m). Deploy corer Site 5 1130h; finish coring 1500h. Steam SW to Site 6 (slope outside flow, 1100m); deploy corer 1600h; finish coring 1900h.

Seismic survey lines C overnight (slope structure).

DAY 4 (May 28)
Rig corer 0700h and deploy on Site 7 (undisturbed slope above headwall; 1000m); finish coring 0900h. Steam NE to Sites 8 and 9 (athwart headwall scarp; 1200m). Arrive and deploy corer at Site 8 0930h; finish coring at site 9 at 1500h.

Seismic/transit line D overnight to Erosive Slope area.

DAY 5 (May 29)
Arrive 0700h on Site 10 (axis of North Channel; 2200m); finish coring 1130h. Steam NW to Site 11 (proximal axis; 2000m), transit time 1 hour. Deploy corer at 1230h, finish coring 1730h. Steam NW to Site 12 (channel interfluve; 1500m), transit 30 minutes. Deploy corer at 1800h, finish coring 2100h.

Seismic line E overnight down North Channel and across trough axis.

DAY 6 (May 30)
Arrive 0700h on Site 13 (plateau rim; 2100m). Retrieve at 1100h. Steam W to Site 14 (proximal Osprey Channel system; 2300m); transit 1 hour. Deploy corer at Site 14, finish coring 1600h. Steam N to Site 15 (axial part of Osprey Channel system; 2500m). Transit 1 h. Deploy corer 1700h, finish coring 2100h.

Seismic survey F (Osprey system and adjacent plateau scarp).

DAY 7 (May 31)
Arrive 0700h on Site 16 (Osprey axis; 2500m); finish coring at 1200h. Steam SW to Site 16 (slope adjacent to Osprey channel system; 2100m); transit 1 hour; retrieve at 1700h.

Seismic survey G (grid over Erosive Slope area)

DAY 8 (June 1)
Contingency day. (To be used for oceanographic observations and/or extra cores in vicinity of Osprey Channel and adjacent slopes if programme is running to schedule)

Seismic line H, overnight to Gullied Slope.

DAY 9 (June 2)
Arrive 0700h on Gullied Slope. Deploy Cores 18-20 (1500-2000m).

Seismic line I, transit to Isolated Flow.

DAY 10 (June 3)
Arrive 0700h. Deploy corer Site 21 (Isolated Flow - bright, distal; 1600m); finish coring 1000h. Steam SW to Site 22 (proximal flow; 1400m). Transit 1.5h, deploy corer at Site 22 at 1130, finish coring 1500h. Steam W, deploy for Core 23 (undisturbed slope; 900m), finish coring 1800h.

Seismic line J1 (half-trough transect).

DAY 11 (June 4)
Arrive 0700 on Site 24 (trough axis, off-flow, 1600m); finish coring 1030. Steam NE to site 25 (slope of Qld. Plateau; 1600m), 1.5h transit. Deploy corer 1200h, finish coring 1500h. Steam NE to site 26 (edge of Plateau; 1500m), transit 1h; deploy 1600h, finish coring 1900h.

Seismic line J2 (half-trough/plateau transect).

DAY 12 (June 5)
Seismic lines K+, towards Townsville.

Return to port of Townsville, ETA 1500h.

SUMMARY TIME ESTIMATES FOR CRUISE

Steaming time: 360 nm @ 11 knots = 1.4 days
Seismic survey: 660 nm @ 5 knots = 5.5 days
26 Coring/Sampling Stations = 3.7 days
Total Operations Time = 10.6 days
Contingency Time = 0.7 days
Time Available = 11.3 days

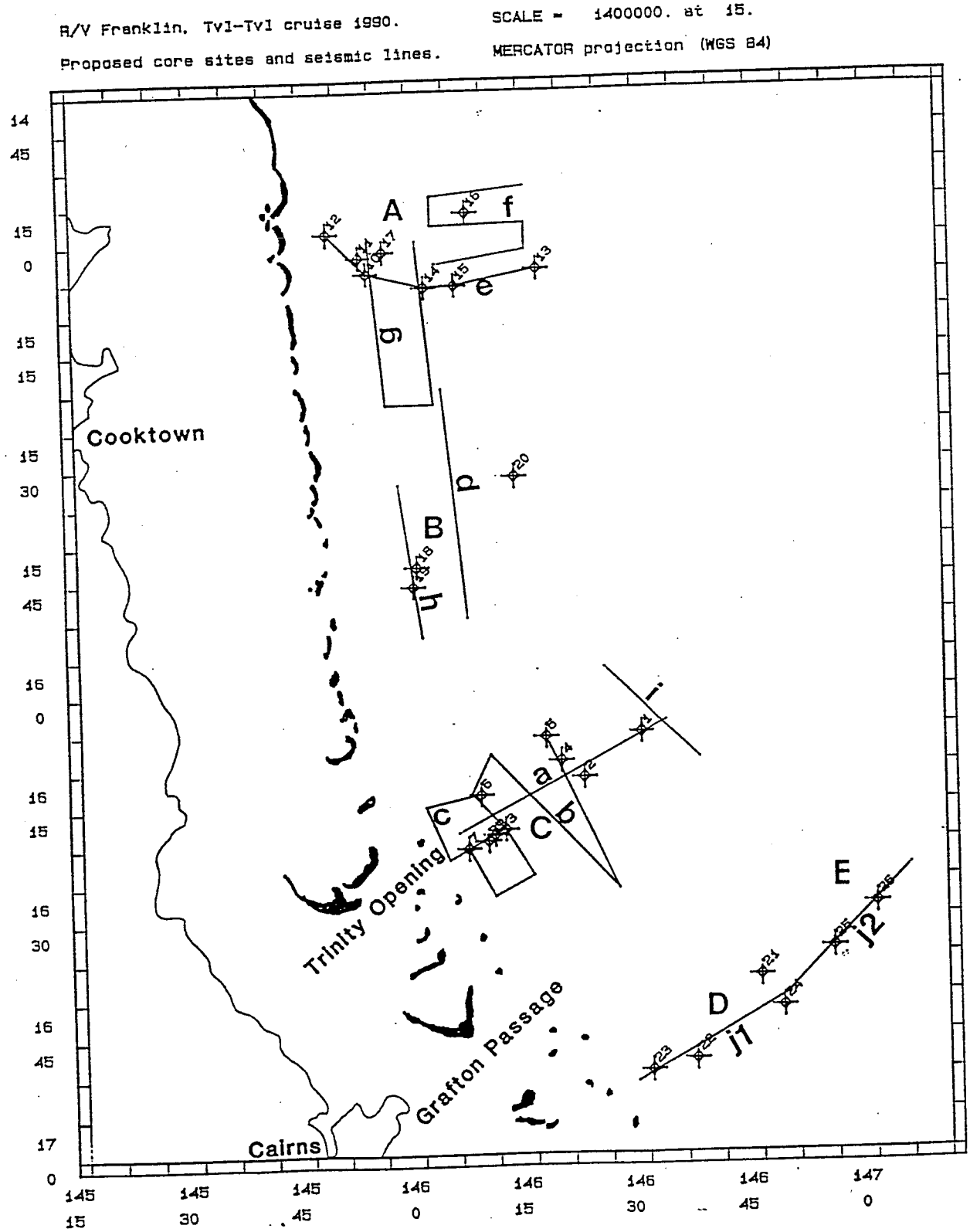
This Cruise Plan is in accordance with the directions of the National Facility Steering Committee for the oceanographic research vessel RV Franklin.

A.D. McEwan
CSIRO Division of Oceanography

D.H. Green
National Facility Steering Committee

FRANKLIN CRUISE FR 5/90

FIGURE 1. Track chart and sample locations



FRANKLIN CRUISE FR 5/90

TABLE 1. Position of seismic line waypoints, and sampling stations

Piston core Stations:

Latitude	Longitude	Core #
16 05.4	146 29.7	1
16 11.2	146 22.0	2
16 18.0	146 11.5	3
16 09.0	146 19.0	4
16 05.8	146 17.0	5
16 13.4	146 08.3	6
16 20.5	146 06.5	7
16 19.5	146 09.2	8
16 18.7	146 10.1	9
15 04.2	145 54.2	10
15 02.0	145 53.2	11
14 58.8	145 48.8	12
15 03.8	146 17.0	13
15 06.2	146 02.0	14
15 06.0	146 06.0	15
14 56.2	146 07.7	16
15 01.3	145 56.5	17
15 43.2	146 00.3	18
15 45.8	145 59.8	19
15 31.5	146 13.5	20
16 37.5	146 45.0	21
16 48.1	146 36.2	22
16 49.5	146 30.5	23
16 41.5	146 48.0	24
16 34.0	146 54.7	25
16 28.3	147 00.4	26

Seismic Line Start, turn and end points:

Line A:	
16 18.5	146 05.3
16 04.0	146 33.1
Line B:	
16 18.0	146 11.5
16 13.3	146 07.1
16 08.2	146 09.7
16 26.0	146 26.5
16 05.8	146 17.0
Line C:	
16 13.4	146 08.3
16 15.0	146 01.0
16 22.0	146 04.0
16 18.0	146 11.5
16 24.1	146 15.2
16 26.8	146 10.0
16 20.5	146 06.5
Line D:	
15 50.0	146 07.0
15 20.0	146 04.0
Line E:	
14 58.8	145 48.8
15 04.2	145 54.2
15 06.2	146 02.0
15 06.0	146 06.0
15 03.8	146 17.0
Line F:	
15 03.1	146 03.5
15 01.2	146 15.6
14 57.7	146 15.6
14 58.0	146 03.1
14 54.0	146 03.1
14 52.7	146 15.6
Line G:	
15 00.0	146 01.0
15 22.0	146 03.0
15 22.0	145 56.5
15 00.0	145 54.5
Line H:	
15 32.5	145 58.0
15 52.5	146 01.0
Line I:	
15 56.8	146 25.0
16 09.0	146 37.3
Line J1:	
16 51.0	146 28.5
16 40.0	146 48.5
Line J2:	
16 23.5	147 05.0
16 40.0	146 48.5