

VOYAGE PLAN SS05/2004

Title

The geology of a large submerged continental block: the Kenn Plateau off northeast Australia.

Itinerary

Depart Sydney 1000 hrs, Monday 3 May, 2004
Arrive Nouméa 1000 hrs, Sunday 30 May, 2004

Principal Investigator

Dr Neville Exon (Chief Scientist)
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Scientific Objectives

The scientific objectives of this voyage are to improve our understanding of the geological evolution and modern environmental setting of the Kenn Plateau

Voyage Objectives

To acquire geoscience data from the Kenn Plateau to the abyssal plain

- 200-4500 m water depth
- 20 to 27° South, 154 to 159° East.
- Highest priorities are seismic profiling (3300 km at 7.5 knots) and dredging (40 dredges, 500-4000 m water depth)
- Secondary priorities are magnetic profiling (on seismic profiles), swath mapping, echosounder profiling, seabed sampling (10 cores, 500-4000 m water depth) and 10 grabs, 200-1000 m water depth)
- Swath will be run the whole time, except on final transit to Nouméa
- Transits at 11 knots to and from work area

Voyage Track

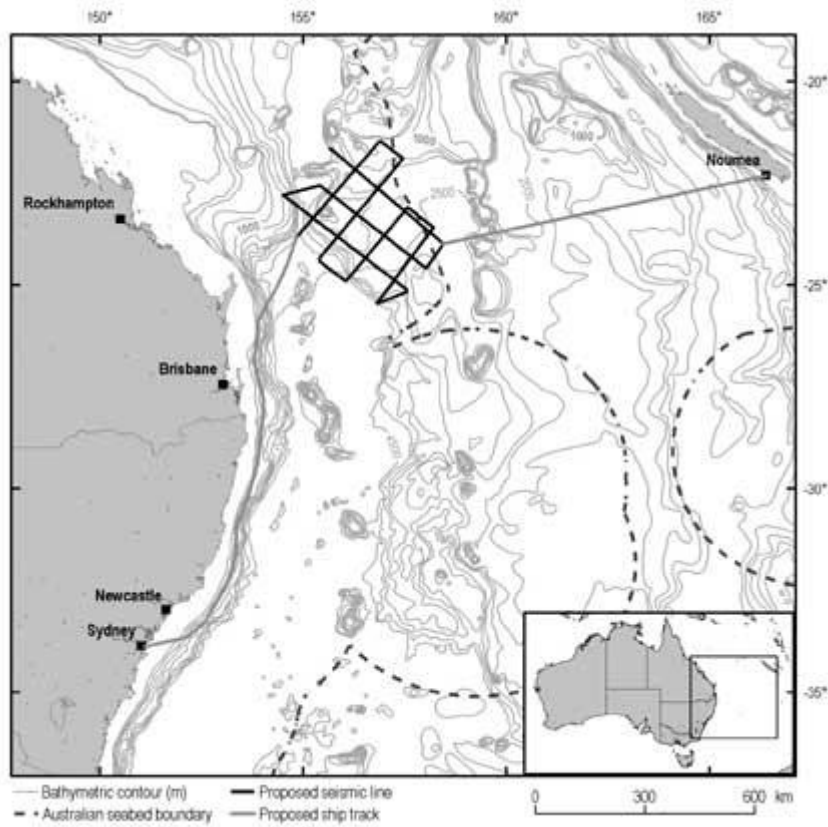


Figure 1: Proposed voyage tracks for Kenn Plateau voyage. Within the work area, only the seismic tracks are shown. Sampling locations and tracks will be worked out aboard.

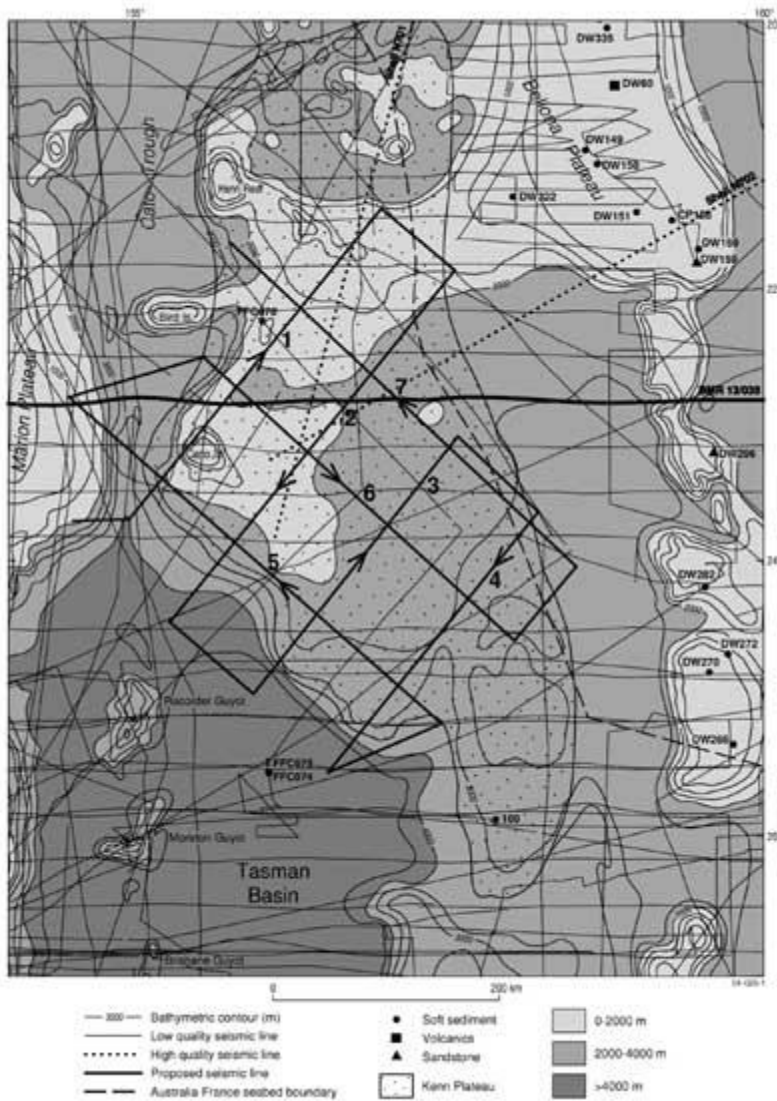


Figure 2. Bathymetric map of the Kenn Plateau study area showing existing seismic coverage and sample locations. The proposed Southern Surveyor seismic lines are shown. The total seismic requirement is about 3300 km. The sample locations will be selected once all seismic data have been interpreted.

Time Estimates

- Transit from Sydney (1200 km at 11 knots) – 3 days
- Seismic profiling: 3300 km – 10 days
- Dredging (40 dredges) – 7 days
- Coring (10 cores) – 1.5 days
- Grab samples (10 grabs) – 0.5 day
- Transits during sampling program – 3 days
- Transit to Noumea (900 km at 11 knots) – 2 days
- Total – 27 days

Southern Surveyor Equipment

Swath-mapper with sound velocity profiler
Sub-bottom profiler
12 KHz echosounder
Trawl winch for dredging
Smith-Macintyre grab
Coring winch
Space in operations room to set up seismic recorders
Space for swath and seismic processing
Room in wet laboratory for sedimentology
Cold room for core storage
Room for rock saw in wet laboratory
Room for microscopes in dry lab

GA equipment

GA navigation system
GA airgun seismic system: compressor, guns, winch, streamer, recorders
Magnetometer
Core deployment system (Thomas)
Piston and gravity corers
Dredges
Grabs
Microscopes
Rock saws

Special requirements

Room for compressor on deck
Room for sampling gear on deck
Room for seismic winch on deck
Room for magnetometer winch on deck
8,000 litres of diesel fuel to run compressor

Data sets collected from the National Facility's instruments

Navigation, with digital acquisition
Swath-bathymetry (digital)
Sub-bottom profiles (digital)
Bathymetry, with digital acquisition (12 kHz)

Personnel List

Neville Exon	GA	Chief Scientist
Peter Hill	GA	Senior Geophysicist
Alix King	GA	Geologist
Georgina Burch	GA	Geophysicist
Christian Heine	Sydney University	geologist
Lydia Taylor	Sydney University	geophysicist
Jon Stratton	GA	science technician
Lyndon O'Grady	GA	science technician
Craig Wintle	GA	mechanical technician
Wojciech Wierzbicki	GA	electronic technician
Pamela Brodie	CMR	Voyage Manager and Computing
Lindsay MacDonald	CMR	Electronics

This voyage plan is in accordance with the directions of the National Facility Steering Committee for the Research Vessel Southern Surveyor.

Neville Exon
Chief Scientist