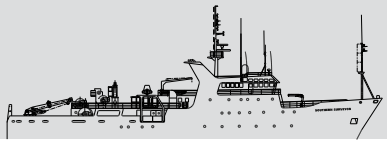

MARINE
NATIONAL FACILITY

2007 program

RV *Southern Surveyor*

voyageplan
ss2007_t06

SS Transit 06/2007

Itinerary

Depart Mackay 1000hrs, Wednesday 17 October, 2007

Arrive Newcastle, 0800hrs Monday 22 October 2007

Chief Scientist

Rudy Kloser
CSIRO Marine and Atmospheric Research
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Voyage Manager

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CSIRO

Scientific Objectives

As part of a trial national seabed mapping initiative map the upper-slope and mid-slope seabed focusing on the 200 m to 1500 m depth range and regions important for regional marine planning, biodiversity and conservation assessments and fisheries habitat mapping.

Objectives for the transit voyages:

1. Using transit time, map key areas as identified in gap analysis.
2. Develop methods of improving data quality and calibrating the EM300 backscatter data.
3. Develop and test new rapid methods of "ground truthing" acoustic backscatter maps with optical and physical sampling.
4. Process bathymetry and backscatter data and create maps suitable for ecological interpretation.

The objectives to be accomplished on this transit are to complete a swath survey line from Mackay to Newcastle, predominately along the 400m contour, map and sample reference sites at 50, 100, 200 and 400m and deploy the CTD in order to test new CTD acquisition software currently under development as well as to provide calibration data for the swath mapper.

Swath Survey

On route to the 400 m depth contour (23.284o S 152.828o E) from Mackay map scientific reference sites at 50, 100, 200, and 400 m with orthogonal cross transects. At these reference sites obtain a sediment sample and photographic image at each site. It is estimated that 2 hrs is required at each site. At the 50 m and 200 m site carry out repeat transects to investigate optimal swath mapping settings for data quality and minimisation of acoustic and electrical interference. During these trials the raw data logging facility of the EM300 will be operating and other acoustic instruments (EA500, EK500, ADCP and TOPAS) will be sequenced on and off to quantify interference. At 3 to 5 selected locations (2 hr per station that and could coincide with CTD testing sites) obtain CTD measurements to provide calibration inputs to the swath mapper for sound speed and absorption measurements and quantify measurement uncertainty when compared to the historic seasonal oceanic temperature and salinity profiles of the region. Map the seabed terrain following predominantly the 400 m contour to Newcastle with estimated swath distance being 900 n.miles with detailed maps over areas of interest 60 n.miles. On route minimise the turning rate of the vessel to reduce motion induced artefacts.

CTD Acquisition Software Testing

Over the past couple of years CSIRO/CMAR has been developing a new CTD acquisition application as a background task with a view to replacing the existing but obsolete MNF system. This system has many features which extend the usability, visualization and interface to hydrology and CTD processing beyond anything which currently exists. The application is nearing its first release and this transit provides an idea opportunity to do preliminary testing. The testing can be undertaken on an opportunistic basis, but the preference would be to do 2 CTD deployments, one on the second day of the transit and another close to the end of the transit. The first deployment can be in water as shallow as 100m, but the second would preferably be undertaking in water of at least 1000m depth. The estimated time on station required for both deployments would be approximately 2 hours. The 24 bottle rosette with at least 10 bottles is required. There will be no water sampling requiring hydrology support.

Voyage track

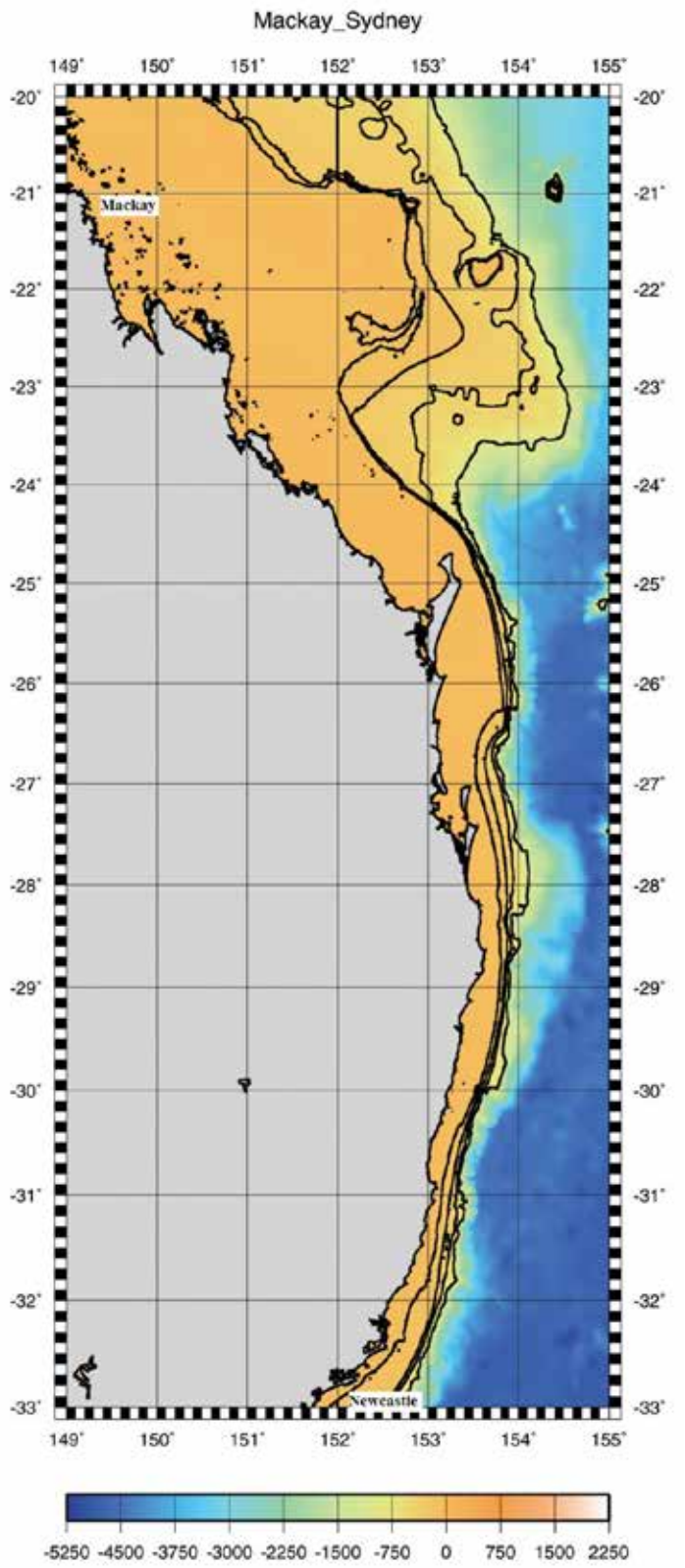

Chart showing 100m, 200m, 400m and 1000m contours.

Time Estimates

Swath mapping from Mackay to Newcastle 900 n.miles at 10 knots = 90 hrs.
Reference site sampling * 4 * 2 hrs = 8 hrs.
Detailed swath mapping of high priority region 80 n.miles at 10 knots = 8 hrs.
CTD sampling * 5 = 10 hrs.

Total time required = 116 hrs.

Specific Southern Surveyor Equipment

Smith-McIntyre sediment Grab

CTD

Personnel List

Participant	Affiliation	Position
Rudy Kloser	CMAR	Chief Scientist
Rick Smith	CMAR	Swath mapping
Gordon Keith	CMAR	Swath mapping
Lindsay Pender	CMAR / MNF	Computing support/Voyage Manager
Drew Mills	CMAR / MNF	Electronics support
Lisa Woodward	CMAR/MNF	Observer
Leanne Pitt	P&O Maritime	Observer

Rudy Kloser
Chief Scientist

Lindsay Pender
Voyage Manager