

CRUISE PLAN

RV FRANKLIN

FR 07/99

Title

Acoustic Thermometry of the Indian Ocean

Itinerary

Depart Singapore 1200hrs, Wednesday September 29, 1999

Arrive Darwin 1200hrs, Tuesday October 19, 1999

Principal Investigators

Dr. Andrew Forbes (Chief Scientist)

CSIRO Marine Research

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Scripps Institution of Oceanography

La Jolla, California, USA

Dr. Bruce Howe

Applied Physics Laboratory, University of Washington

Seattle, Washington, USA

Principal Contact

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Scientific Objectives

The long-term objective of the project is to measure climate scale temperature change in the Indian Ocean. This involves the following more immediate objectives, all aimed at preparing for a future installation of an acoustic source on the seabed.

- Map the sound speed structure to find the axial depth of the SOFAR channel in the vicinity of Cocos Is.
- Conduct a detailed bathymetric survey of the acoustic source site.
- Conduct a detailed bathymetric survey of the proposed cable route to shore

Cruise Track

See attached Figure 1.

Time Estimates

September 29 - depart Singapore

Transit to Cocos - 4.75 days (@ 10 kt)

Site survey at Cocos - 7 days

Weather allowance - 1 day

Transit to Darwin - 8 days (@ 10 kt) including 4 CTDs to 2000m

October 19 - arrive Darwin

Piggyback Projects

- COOE Float Deployment

Principal Investigator

Dr. Susan Wijffels, CSIRO Marine Research, Hobart, Tasmania

Objectives

- Deployment of up to four profiling PALACE floats to track the South Equatorial Current. At each deployment position along 12S, conduct a 2000m CTD cast.

Time Estimates

Each deployment/CTD will take about two hours. The time estimate I calculated (assuming 10 kt ship speed) for the Cocos-Darwin transit yields at least 20 hours of weather allowance. I propose to accommodate Piggyback Project 1 in that allowance.

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- Muirfield Seamount Reconnaissance Survey

Principal Investigator

Graeme Beech, Environment Australia, Canberra, ACT

One additional activity may eventuate, which I believe we can accommodate within the 21 project days granted for the cruise. It involves a brief visit to Muirfield Seamount, which I am told lies 60-70 nm to the south of Cocos. Environment Australia wants to conduct a reconnaissance survey of the seamount, using two of their people who are stationed at Cocos. We do not know yet whether they will accept the costed proposal we have submitted to do this work.

Objectives

- Undertake a preliminary assessment of the geomorphology and fauna of Muirhead Seamount

Time Estimates

Transit to Muirfield 7 hours

Photo-transects and sampling 18 hours

Transit from Muirhead 7 hours

Total time 1.5 days

This could be done at the end of my site survey, if we have finished our work in good time, especially if we have not had to use my weather allowance of 1 day. It would mean that we would have to return to Cocos to drop off the EA personnel before heading for Darwin.

Franklin Equipment

Standard

Navigation and sounder.

Underway

Meteorological data, thermosalinograph, XBT.

Hydrology

CTD, salinity and oxygen analysis

On-board Instrumentation

Colour printer, UNIX computer, personal computers

After Deck

Acoustic release, pinger

Other Items

Compressor, small winch, ships boat

User Equipment

Sidescan Sonar stand-alone system (towed fish, cable & winch, deck-unit) to be loaded in Singapore (this item is not yet confirmed)

EY-500 portable sonar system for use in ships boat

Portable Omnistar DGPS receiver or portable DGPS base station

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Personnel List

Andrew ForbesCMRChief Scientist

Bruce HoweAPL/UWCo-Principal Investigator

Matt DzieciuchScrippsActing Co-Principal Investigator

Ron PlaschkeCMRCruise Manager

Phil AdamsCMRElectronics

Daniel ConwellCMRElectronics

Bernadette HeaneyCMRComputing

Pamela BrodieCMRComputing

David TerhellCMRHydrochemistry

Kevin MillerCMROcean Engineering

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This cruise plan is in accordance with the directions of the National Facility Steering Committee for the Research Vessel Franklin.

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Ships Manager

CSIRO Marine Research