



## **voyageplan**

**ss2012\_v05**

# 2012

*RV Southern Surveyor*

## program

**IMOS: Sustained observations of the Timor Passage and Ombai Strait components of the Indonesian Throughflow.**

### **Itinerary**

Mobilise Darwin 0800hrs,  
Tuesday 25 September 2012

Depart Darwin 1000hrs,  
Wednesday 26 September 2012

Arrive Darwin 0800hrs,  
Wednesday 10 October 2012 and demobilise

### **Principal Investigators**

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## Scientific Objectives

The Indonesian seas are the only major low-latitude connection in the global oceans (Figure 1). This connection permits the transfer of Pacific waters into the Indian Ocean, known as the Indonesian Throughflow. The Indonesian Throughflow actually consists of several filaments of flow that occupy different depth levels and weave their way through the complex island geometry comprised of broad shallow shelves and deep basins. The largest Indonesian seas are: the shallow Java Sea, the deeper Flores, Banda and Timor Seas, and the shallow Arafura Sea.

The Indonesian Throughflow has a major influence on both the climate of the Indian Ocean and the global oceans. It is an important pathway for the transfer of climate signals and their anomalies around the world's oceans. While the heat and fresh water carried by the Indonesian Throughflow are known to affect the basin budgets of both the Pacific and Indian Oceans, the Indonesian Throughflow is poorly simulated in ocean circulation, seasonal prediction and climate models.

Given the importance of the Indonesian Throughflow to the Australian climate IMOS supported the long-term monitoring of the two major pathways of the throughflow – namely the Timor Passage and Ombai Strait. The first 18-month deployment of the moorings array was completed in June 2011. This voyage will recover and redeploy these moorings for a further 18 month period.

## Voyage Objectives

The primary objectives of this voyage are:

1. Recover and redeploy three long moorings: 2 in the Timor Passage and 1 in Ombai Strait.
2. CTD/rosette/LADCP and SADC sections across the Timor Passage and Ombai Strait.

The order of operations will be the recovery and re-deployment of the 2 Timor Passage moorings. We will also complete a swath map of the Timor Passage, CTD stations and SADC sections across the Passage. The swath mapping, CTD and SADC sections will fit around the mooring operations. We will then move to the Ombai Strait mooring site. Recover and redeploy the Ombai mooring and undertake CTD and SADC sections in East Timor waters. Before recovery and redeployment of the mooring we will assess the current over a tidal cycle to provide details on likely surface drift of mooring and ship during recovery and deployment of the mooring.

## Voyage Track

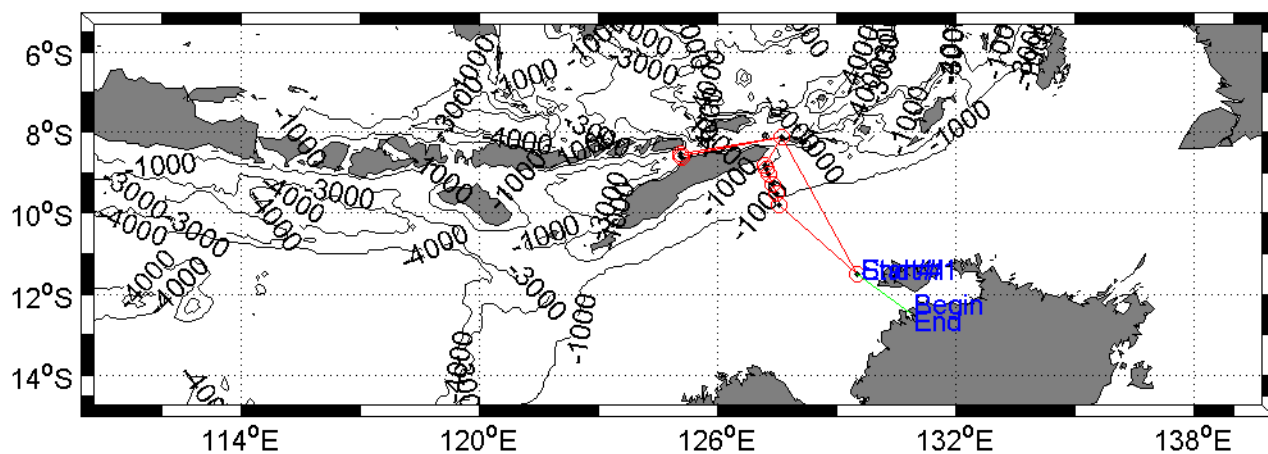


Figure 1. Position of CTD stations (10) and mooring locations (3) in Timor Passage and Ombai Strait.  
See appendix for location of CTD stations and moorings

## Time Estimates

Transit time Darwin to test CTD	= 0 days 10 hr
Science steaming time	= 3 days 19 hr
CTD time	= 0 days 15 hr

## Mooring operations/swath

Mapping/SADCP sections	= 6 days
Weather/lost time	= 2 days 12 hrs
Transit test CTD to Darwin	= 0 days 10 hrs
<b>Total voyage time</b>	<b>= 13 days 18 hours</b>

## Piggy-back Projects

None

## Southern Surveyor Equipment

A-Frame, with remote control

24-bottle rosette

CTD, LADCPs, niskin bottles,

Swath mapper

SADCP

Meteorological sensors

Underway data – eg TSG, ship speed, location

Hydrochemistry Lab – salinity, and oxygen samples

In hull transducer

## User Equipment

CSIRO mooring winch,

Additional lift point on A-frame,

Calibration bath with 24 volt pump

See Danny McLaughlan equipment list for further information

## Special Requests

We will use the ships crane to load and offload the CSIRO mooring winch. Extra lift point on the A-frame will need to be installed and removed, and the associated wiring run back to CSIRO winch. The installation and removal of the lift points and wiring will require working at heights.

The mooring equipment will require the use of the ship crane for load and offload. This will require access to the wharf of a flat-tray semi-trailer.

Danny McLaughlan estimates that we have 24 tons of equipment to load. This is two semi-trailer loads of not more than 14 ton each. This does not include the weight of the semi-trailer

## Personnel List

List all scientific participants, their affiliation and position on the voyage.

Bernadette Sloyan	CSIRO	PI
Rebecca Cowley	CSIRO	Co-PI
Danny McLaughlan	CSIRO	Mooring Engineer
Jamie Derrick	CSIRO	Mooring Engineer
Phil Adams	CSIRO	Electronics Engineer
Kate Snow	ANU	student
Isabella Rosso	ANU	student
TBA	East Timor	observer
TBA	East Timor	observer
TBA	First Institute of Oceanography, China	Mooring Engineer
Pamela Brodie	CMAR/MNF	Voyage Manager
Lindsay MacDonald	CMAR/MNF	Electronics Support
Tara Martin	CMAR/MNF	Swath Support
Hugh Barker	CMAR/MNF	Computing Support
Alicia Navidad	CMAR/MNF	Hydrochemistry Support

As per AMSA requirements for additional berths on Southern Surveyor, the following personnel are designated as System Support Technicians and are required to carry their original AMSA medical and AMSA Certificate of Safety Training on the voyage:

Name	AMSA Certificate of Safety Training No.
Pamela Brodie	AS02447
Lindsay MacDonald	ASO4157
Tara Martin	BB05761
Hugh Barker	BB05460
Alicia Navidad	AS04836

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

Bernadette Sloyan

Chief Scientist.

## Appendix A

### CTD stations

1 -11.5 129.5.0 100 (test station)

2 -9.81 127.55 1249

3 -9.50 127.47 3000

4 -9.30 127.37 3007

5 -9.05 127.30 2000

6 -8.90 127.22 1173

7 -8.80 127.18 900

8 -8.58 125.075 3000

9 -8.62 125.10 2000

10 -8.53 125.06 3224

CTD station 1 is a test station on the continental shelf within 10 hour steam of Darwin. CTD stations 2-7 are in Timor Passage, and CTD stations 8-10 are in Ombai Strait in East Timor waters.

### Mooring recovery and redeployment

Location	ITF CODE	Longitude	Latitude	Depth
Timor Sill	TSILL	127.37 (127° 22.2) E	9.30 (9°, 18.0) S	3340
Timor North	TIN	127.22 (127° 13.2) E	8.90 (8° 54.0) S	1173
Ombai	OMB	125.064 (125° 3.86) E	8.533 (8° 32.0) S	3224

Appendix B – Deck Layout

