

**VOYAGE SUMMARY** ss2011\_c01

## Tsunami Detection Buoy Maintenance in Tasman Sea

**Voyage period:**

01/04/2011 to 08/04/2011

**Port of departure:**

Sydney Australia

**Port of return:**

Hobart, Australia

**Responsible laboratory:**

Australian Bureau of Meteorology  
700 Collins Street Docklands  
3008 Victoria, Australia

**Chief Scientist(s)**

Mr Alan Thomas,  
Bureau of Meteorology

## Scientific Objectives

Provide continued support of the Australian Tsunami Warning System (ATWS). This is a joint project between Geoscience Australia, the Australian Bureau of Meteorology and Emergency Management Australia.

Two Tsunimeters are permanently located adjacent to the New Zealand's Puysegur Trench in the Tasman Sea that are monitoring any significant tectonic instability.

For more information consult the following URL;

<http://www.bom.gov.au/tsunami/about/jatwc.shtml>

## Voyage Objectives

To carry out scheduled maintenance of the Tasman Sea Tsunameter systems and to extend the life of an experimental Tsunameter ETD (Easy To Deploy) buoy.

## Voyage Narrative

On arrival at each deployment site a High resolution swath survey of the ocean floor was performed to determine the depth and layout of the bottom.

The ship remained at each deployment site until the data transmission to the RUDICS Server are verified.

A brief summary of the work performed at each station is as follows:

### Tasman Sea 1 – WMO No 55042 (World Meteorology Organization)

An ETD Tsunameter was deployed at 46° 52.2' S , 161° 43.80' E., depth 4848 meters and a Tsunameter Buoy recovered.

Unfortunately the Bottom Pressure Recorder (BPR) could not be recovered. Release commands were acknowledged but the unit failed to surface. Either the BPR was stuck in mud on the ocean bottom or a number of glass floats imploded causing less buoyancy. Monitoring of the BPR continued for 3 hours then the ship departed to the next site.

### Tasman Sea 2 – WMO No 55015

A moored Tsunameter Buoy and BPR (Bottom Pressure Recorder) were deployed at location 46° 52.2' S, 160° 19.80' E , depth 5025 meters Seas moderate and went to plan.

### Tasman Sea 3 – WMO No 55013

An experimental ETD was deployed at this site in March 2008 to find out its operational life. A tender was used to secure a lifting sling to the original Buoy. This was successfully recovered and new ETD changed over. The same BPR is used.

## Results

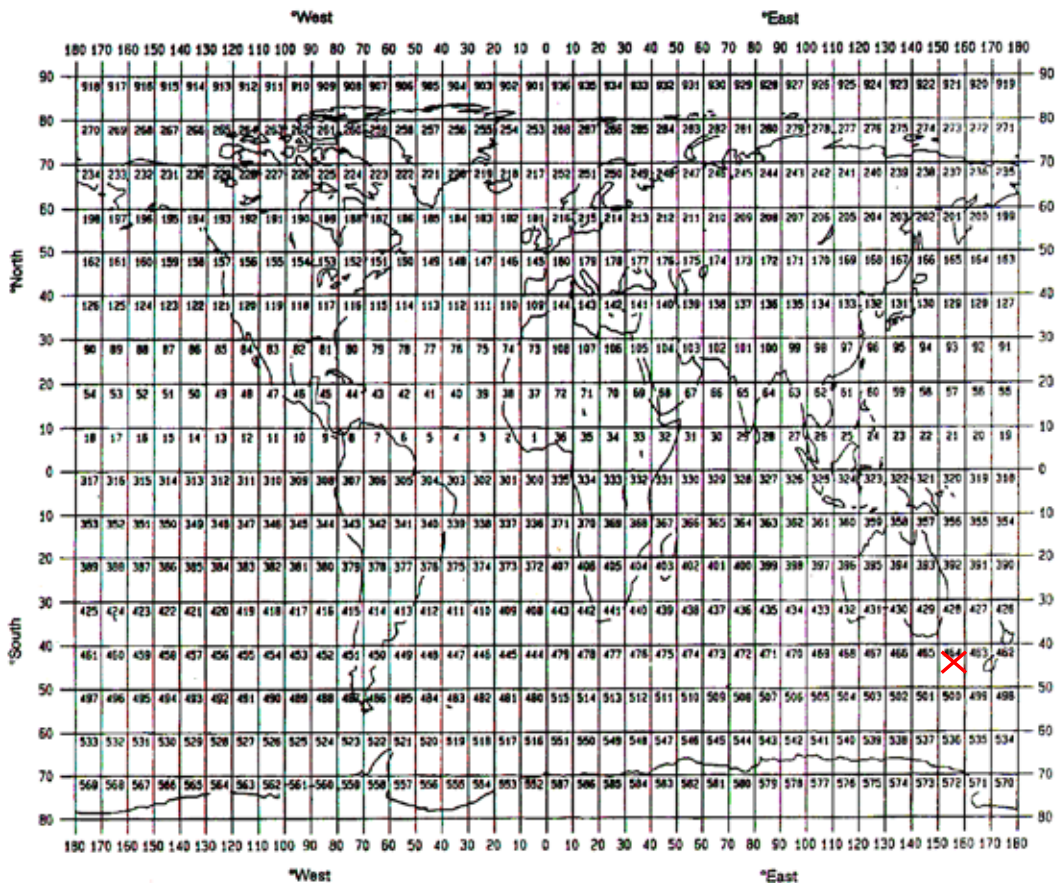
Deployment of ETD, DART II recovery of the STB tsunameter was carried out as per plan.

Recovery of the Bottom Pressure Unit (BPR) could not be carried out.

## Summary

The program successfully completed the voyage objectives to perform scheduled preventative maintenance and to extend the life of the experimental ETD.

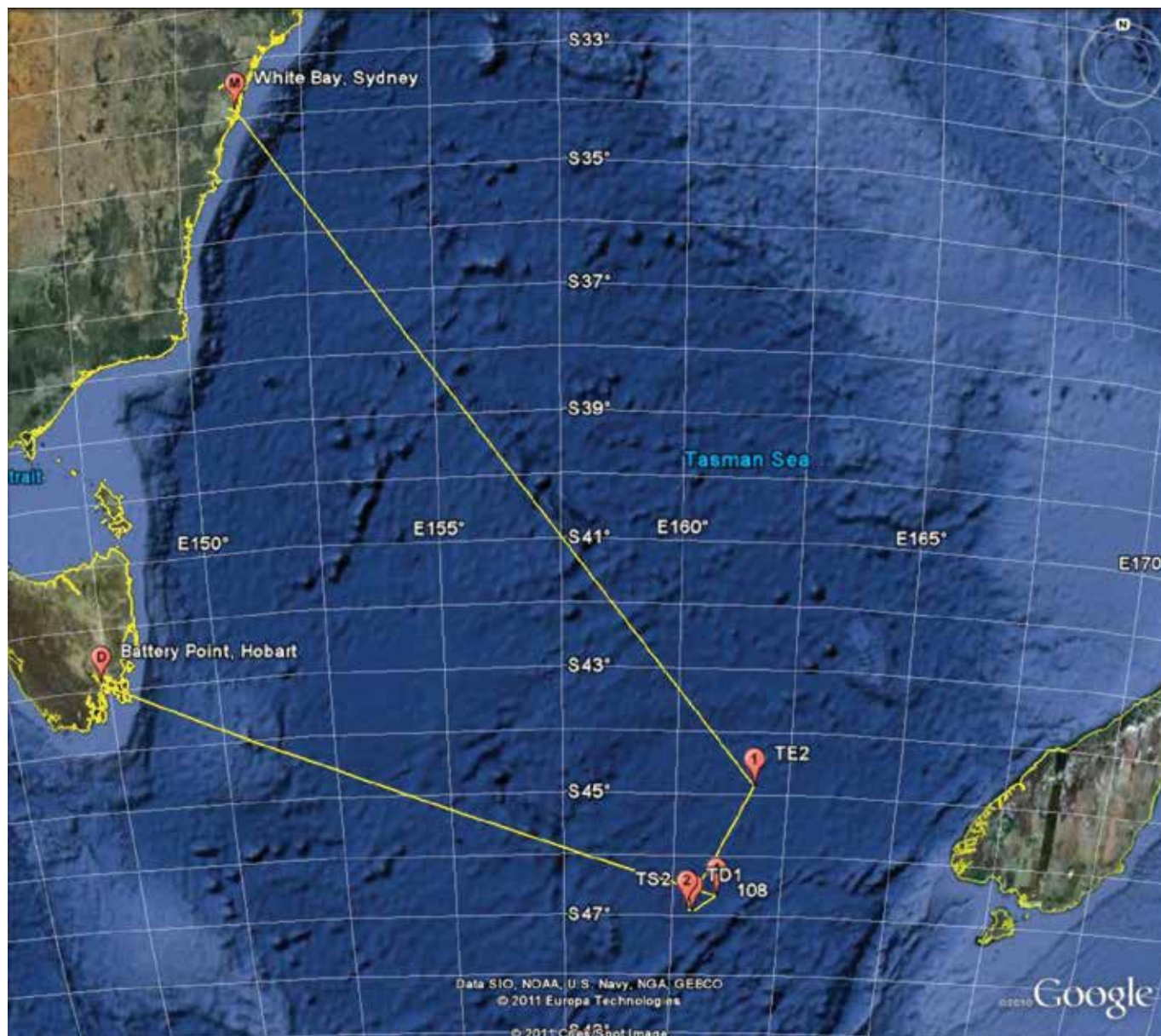
A red "x" indicates where data was collected.



## MOORINGS, BOTTOM MOUNTED GEAR AND DRIFTING SYSTEMS

ITEM No.	PI	APPROXIMATE POSITION						DATA TYPE	DESCRIPTION
		LATITUDE			LONGITUDE				
		deg	min	N/S	deg	min	E/W		
1		46	52.2	S	161	43.8	E	D09	Bottom Pressure Recorder at 4848 m
2		46	52.2	S	160	19.8	E	D09	Bottom Pressure Recorder at 5025 m
3		46	39.9	S	161	0.1	E	D09	Bottom Pressure Recorder at 4920 m

### Track map



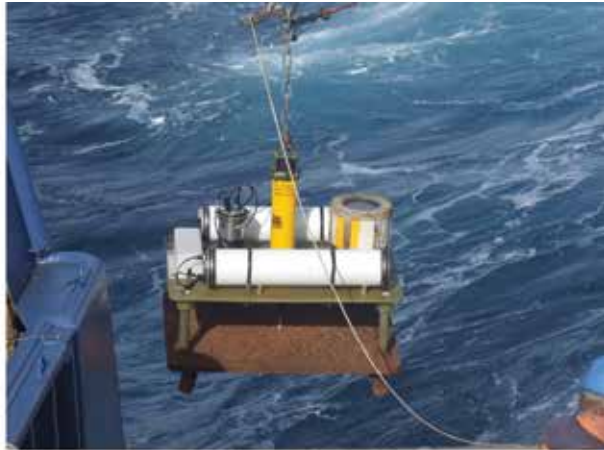
## Personnel list

### Scientific Participants

Alan Thomas	BOM	Chief Scientist
Bill Gauci	BOM	Deployment Mooring Engineer
Pamela Brodie	CSIRO	MNF Voyage Manager
Pete Dunn	CSIRO	MNF Electronics Support
Hugh Barker	CSIRO	MNF Computing Support
Rod Palmer	CSIRO	MNF Electronics Support
Tara Martin	CSIRO	MNF Swath Mapping Support

## Marine Crew

Name	Role
Michael Watson	Master
John Boyes	Chief Officer
Simon Smeaton	2nd Officer
David Middlemiss	Chief Engineer
Jason Searle	1st Engineer
Graeme Perkins	2nd Engineer
Tony Hearne	Chief IR
Nathan Arahanga	Integrated Rating
Graham Mcdougall	Integrated Rating
Jonathon Lumb	Integrated Rating
Rod Langham	Integrated Rating
Michael Oconnor	Chief Steward
Robert Dittko	Chief Cook
Kurt Miller	Cook



Top left: ETD (Easy To Deploy) Buoy and (above) BPR (Bottom Pressure Recorder) being deployed.

Left: DART Buoy during the deployment process.

## CSR/ROSCOP PARAMETER CODES

M01	Upper air observations
M02	Incident radiation
M05	Occasional standard measurements
M06	Routine standard measurements
M71	Atmospheric chemistry
M90	Other meteorological measurements

### PHYSICAL OCEANOGRAPHY

H71	Surface measurements underway (T,S)
H13	Bathythermograph
H09	Water bottle stations
H10	CTD stations
H11	Subsurface measurements underway (T,S)
H72	Thermistor chain
H16	Transparency (eg transmissometer)
H17	Optics (eg underwater light levels)
H73	Geochemical tracers (eg freons)
D01	Current meters
D71	Current profiler (eg ADCP)
D03	Currents measured from ship drift
D04	GEK
D05	Surface drifters/drifted buoys
D06	Neutrally buoyant floats
D09	Sea level (incl. Bottom pressure & inverted echosounder)
D72	Instrumented wave measurements
D90	Other physical oceanographic measurements

### CHEMICAL OCEANOGRAPHY

H21	Oxygen
H74	Carbon dioxide
H33	Other dissolved gases
H22	Phosphate
H23	Total - P
H24	Nitrate
H25	Nitrite
H75	Total - N
H76	Ammonia
H26	Silicate
H27	Alkalinity
H28	PH
H30	Trace elements
H31	Radioactivity
H32	Isotopes
H90	Other chemical oceanographic measurements

### MARINE CONTAMINANTS/POLLUTION

P01	Suspended matter
P02	Trace metals
P03	Petroleum residues
P04	Chlorinated hydrocarbons
P05	Other dissolved substances
P12	Bottom deposits
P13	Contaminants in organisms
P90	Other contaminant measurements
B01	Primary productivity
B02	Phytoplankton pigments (eg chlorophyll, fluorescence)
B71	Particulate organic matter (inc POC, PON)
B06	Dissolved organic matter (inc DOC)
B72	Biochemical measurements (eg lipids, amino acids)
B73	Sediment traps
B08	Phytoplankton
B09	Zooplankton
B03	Seston
B10	Neuston
B11	Nekton
B13	Eggs & larvae
B07	Pelagic bacteria/micro-organisms
B16	Benthic bacteria/micro-organisms
B17	Phytobenthos
B18	Zoobenthos
B25	Birds
B26	Mammals & reptiles
B14	Pelagic fish
B19	Demersal fish
B20	Molluscs
B21	Crustaceans
B28	Acoustic reflection on marine organisms
B37	Taggings
B64	Gear research
B65	Exploratory fishing
B90	Other biological/fisheries measurements

### MARINE GEOLOGY/GEOPHYSICS

G01	Dredge
G02	Grab
G03	Core - rock
G04	Core - soft bottom
G08	Bottom photography
G71	In-situ seafloor measurement/sampling
G72	Geophysical measurements made at depth
G73	Single-beam echosounding
G74	Multi-beam echosounding
G24	Long/short range side scan sonar
G75	Single channel seismic reflection
G76	Multichannel seismic reflection
G26	Seismic refraction
G27	Gravity measurements
G28	Magnetic measurements
G90	Other geological/geophysical measurements