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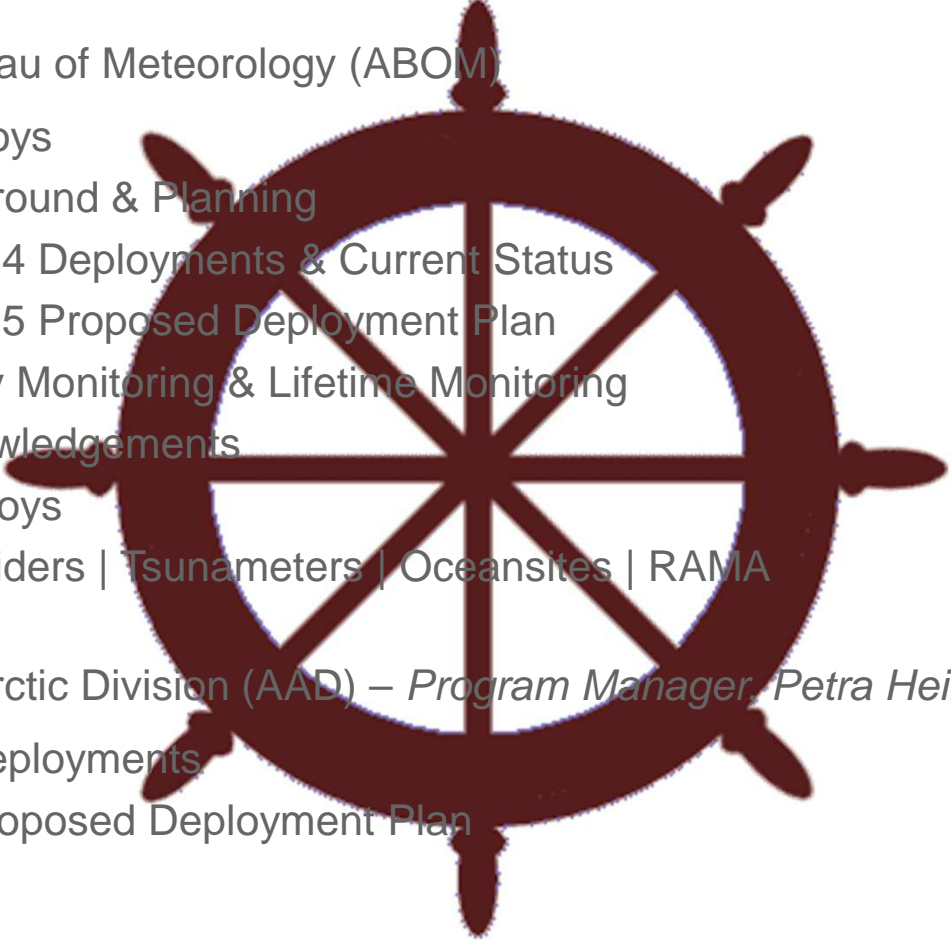
Australian National Report to DBCP

DBCPC-30 | 27-31 October, 2014 | Weihai, China





Outline

- 
- ⊗ Australian Bureau of Meteorology (ABOM)
 - Drifting Buoys
 - Background & Planning
 - 2013/14 Deployments & Current Status
 - 2014/15 Proposed Deployment Plan
 - Quality Monitoring & Lifetime Monitoring
 - Acknowledgements
 - Moored Buoys
 - Waveriders | Tsunameters | Oceansites | RAMA

 - ⊗ Australian Antarctic Division (AAD) – *Program Manager, Petra Heil (Uni. of Tasmania)*
 - 2013/14 Deployments
 - 2014/15 Proposed Deployment Plan



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ABOM – Drifting Buoys





Background

- ⊗ The Bureau's Buoy Program started in 1978 with FGGE. The aim remains to support the Bureau's forecasting & warning service.
- ⊗ Deployments are mainly in the Indian & Southern Oceans & contribute to the IBPIO, SOBP & IPAB
- ⊗ Deployments are also arranged for the GDC at mutually beneficial locations.
- ⊗ Deployments are mostly made from merchant ships. A small number of deployments each year are from Australian Customs & Antarctic re-supply vessels.
- ⊗ The Program runs from July to June to align with the AU financial year.



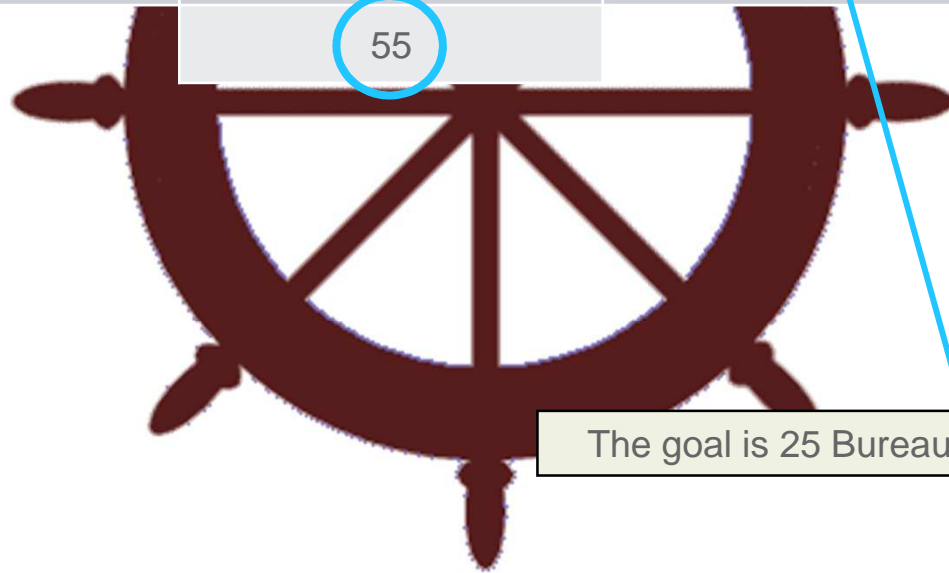
Planning

- ⊗ The annual deployment plan is prepared in consultation with key Bureau stakeholders:
 - Regional Forecasting Centres;
 - Bureau national Operations Centre; and
 - Weather Forecasting Branch.
- ⊗ The deployment plan is published each August. Details are available at JCOMMOPS – http://www.jcommops.org/depl_opport/australia.html.
- ⊗ Current funding provides for the annual purchase of:
 - ~20 SVP-B buoys; and
 - ~8 barometer upgrades.



Current Status

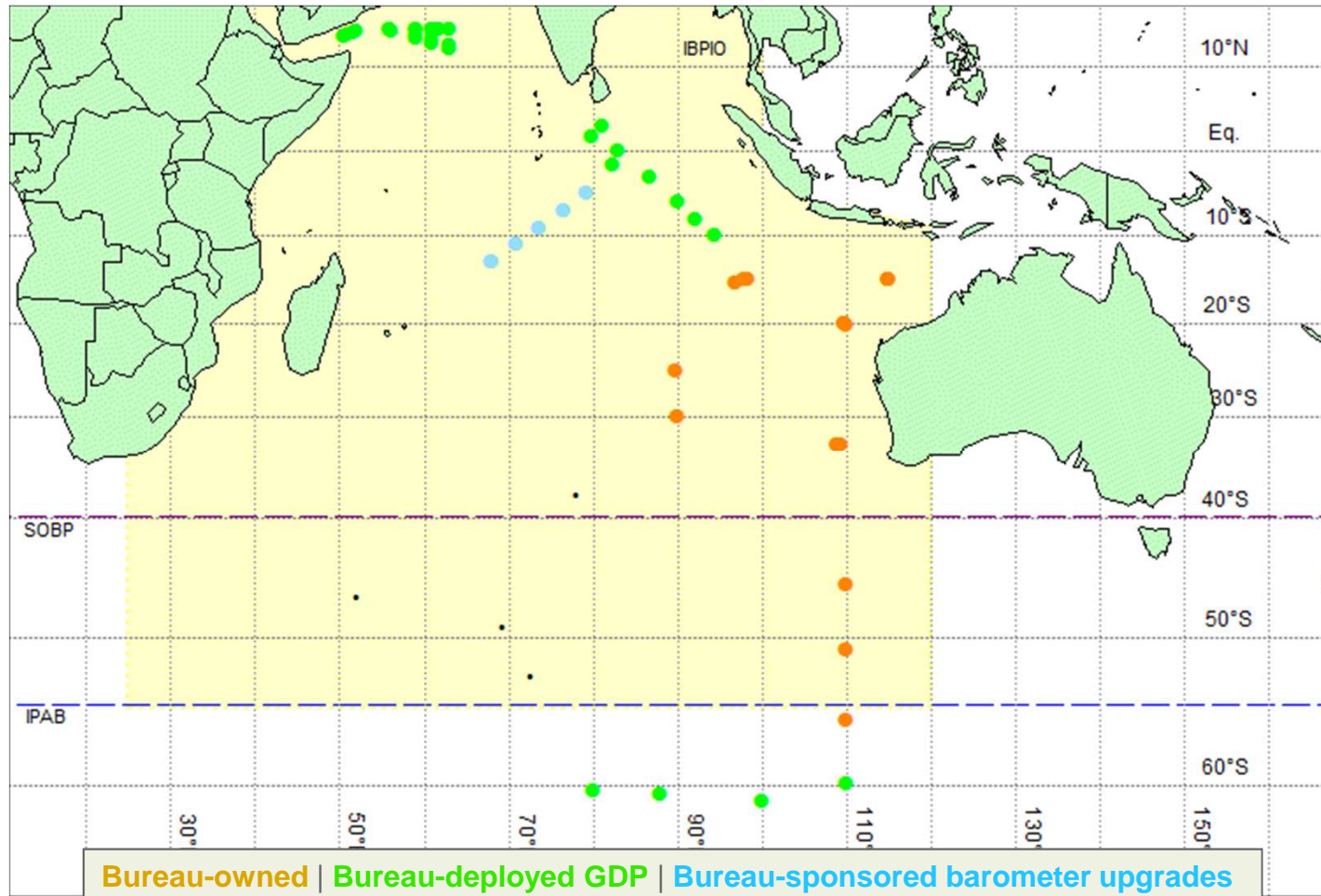
Program Description	Deployed 1-7-2013 to 30-6-2014	Active as at 31-7-2014	On GTS as at 31-7-2014
Bureau-owned buoys	17	15	14 *
Bureau-funded upgrades	5	0	0
Bureau-deployed GDP buoys	33	30	30
	55		



The goal is 25 Bureau-owned buoys



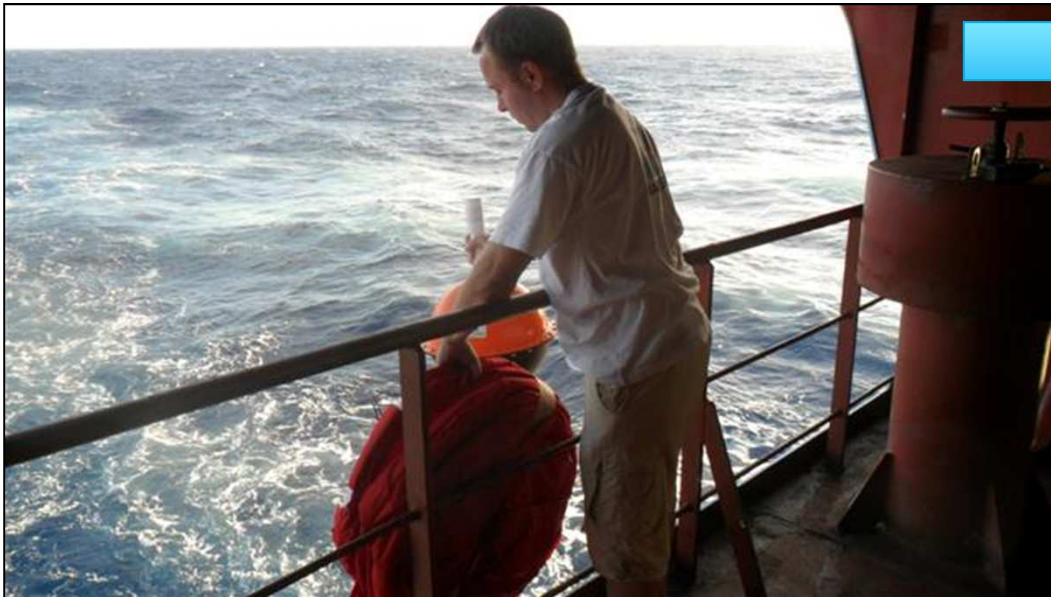
2013/14 Deployment Locations





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Deployment Notification



BUOY DEPLOYMENT ADVICE

TO: Marine Operations Group (email: marine_obs@bom.gov.au or fax: +61 3 9669 4168)

BUOY ID NUMBER: _____

DEPLOYMENT DETAILS _____ (degrees, minutes) N/S

_____ (degrees, minutes) E/W

_____ (date/time) UTC

DEPLOYED FROM SHIP _____ m above MSL

port / starboard / stern

forward / amidships / aft

WEATHER REPORT Mean sea level pressure: _____ (hPa)

Sea surface temperature: _____ (deg C)

Air temperature: _____ (deg C)

Wind speed: _____ (knots)

Wind direction: _____ (deg true)

COMMENTS AT LAUNCH:

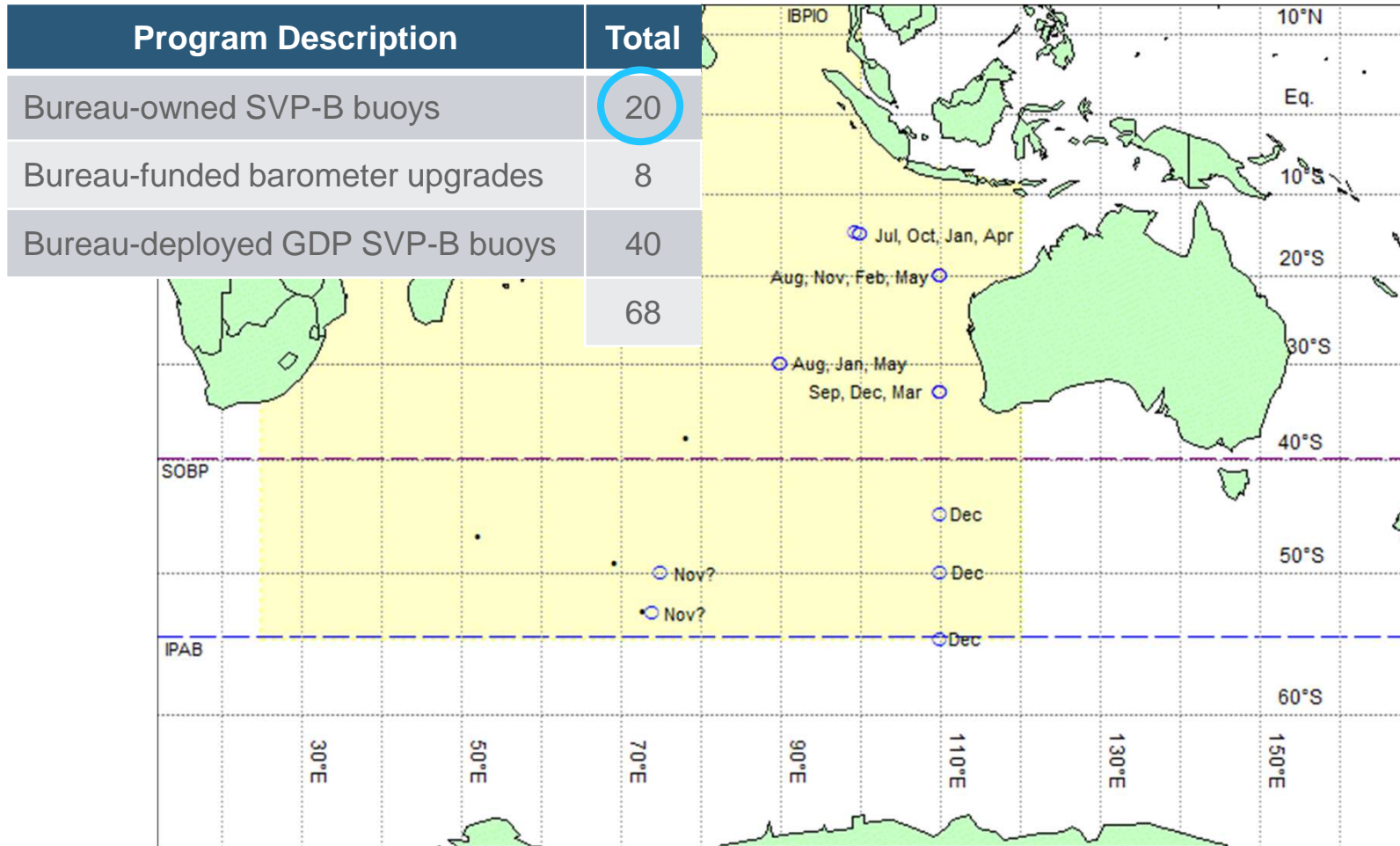
MASTER: _____



ABOM sends the notification to the GDC for GDP deployments



2014/15 Proposed Deployment Plan





Quality Monitoring

- 
- ⊗ Routine weekly monitoring using the Météo France QC Tools.
 - ⊗ UK Met Office monthly monitoring statistics:
 - Confirming an identified problem, or
 - Forewarning about a developing problem.
 - ⊗ Infrequent feedback from bench forecasters regarding “bad buoys” in the Australian Region:
 - Message sent to Buoy QC mailing list for non ABOM-owned buoys.
 - ⊗ Infrequent feedback via the Buoy QC mailing list:
 - ABOM is usually aware of QC issues from routine weekly monitoring.



SVP-B Lifetime Monitoring

Lifetime* analysis of Metocean Iridium buoys purchased by ABOM

BUILD DATE	JOB No.	BUOYS RECEIVED	BUOYS DEPLOYED	FAILED BUOYS			SURVIVING BUOYS		
				NUMBER	MEAN	MAXIMUM	NUMBER	MEAN	MAXIMUM
Dec-09	1761A	5	5	5	0.30	0.43	0		
May-10	1803A	17	17	17	0.35	0.70	0		
Apr-11	2207A	22	22	22	0.45	0.75	0		
Aug-12	2926A	20	20	10	0.53	1.33	10	1.36	1.89
Dec-12	3112A	10	10	4	0.22	0.48	6	0.45	0.67
Feb-14	3885A	23	3	0		0.00	3	0.10	0.17

* buoy lifetimes determined by the operational lifetime of the barometer

lifetime analysis as at: 24/10/2014

- ⊗ Discernible improvement in lifetimes beginning with the August 2012 build.
- ⊗ Still seeing a significant number of premature failures (0 – 6 months). ~ 27%

Note: The barometer is declared **failed** when (1) the complete buoy fails, (2) the buoy is reporting but the barometer has failed, or (3) the buoy is reporting but the Bureau declares the barometer as suspect.



Acknowledgements

- 
- A large, dark red silhouette of a ship's steering wheel is centered on the page, partially overlapping the text of the acknowledgements.
- ⊗ Craig Foster & Ian Charlesworth,
 - Port Meteorological Officer (PMO), Fremantle, Western Australia.
 - ⊗ Shaun Dolk,
 - Global Drifter Center, NOAA/AOML.
 - ⊗ Shuki Ushio,
 - National Institute of Polar Research (NIPR), Japan.
 - ⊗ Masters & crews of all deploying vessels.



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ABOM – Moored Buoys



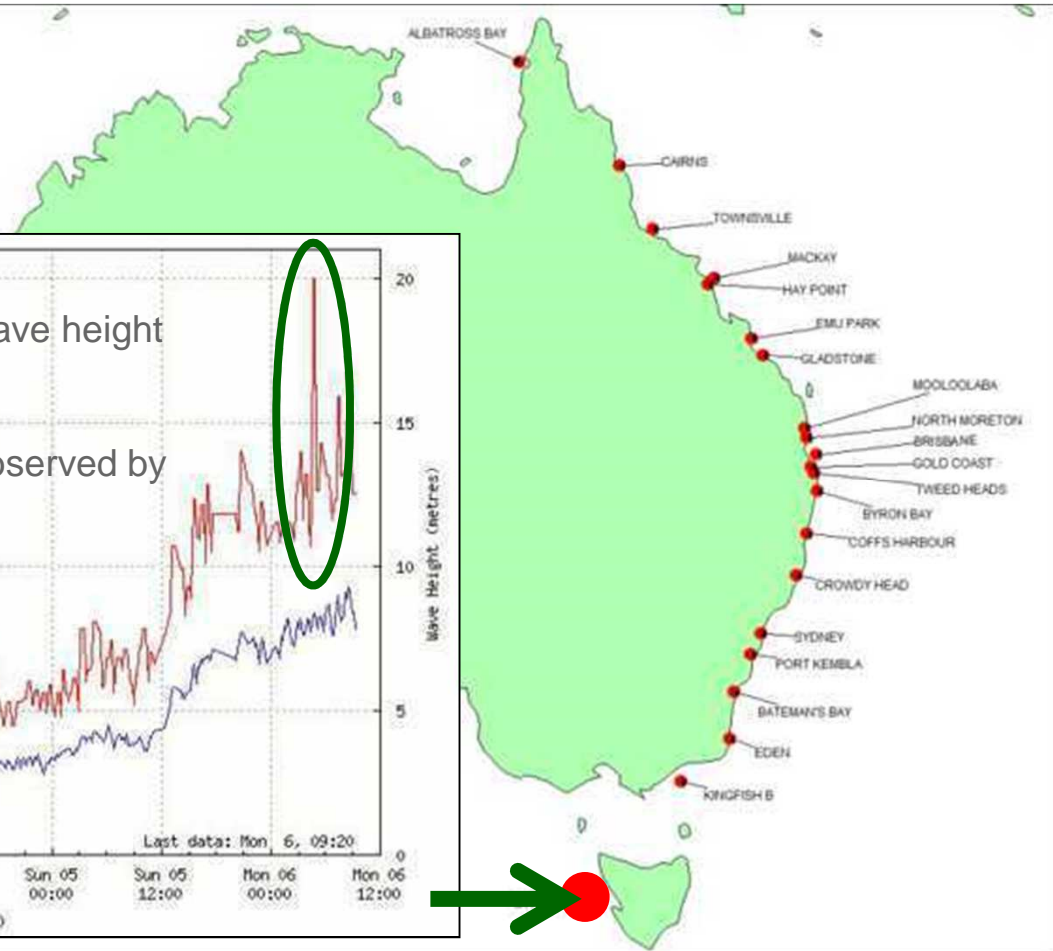
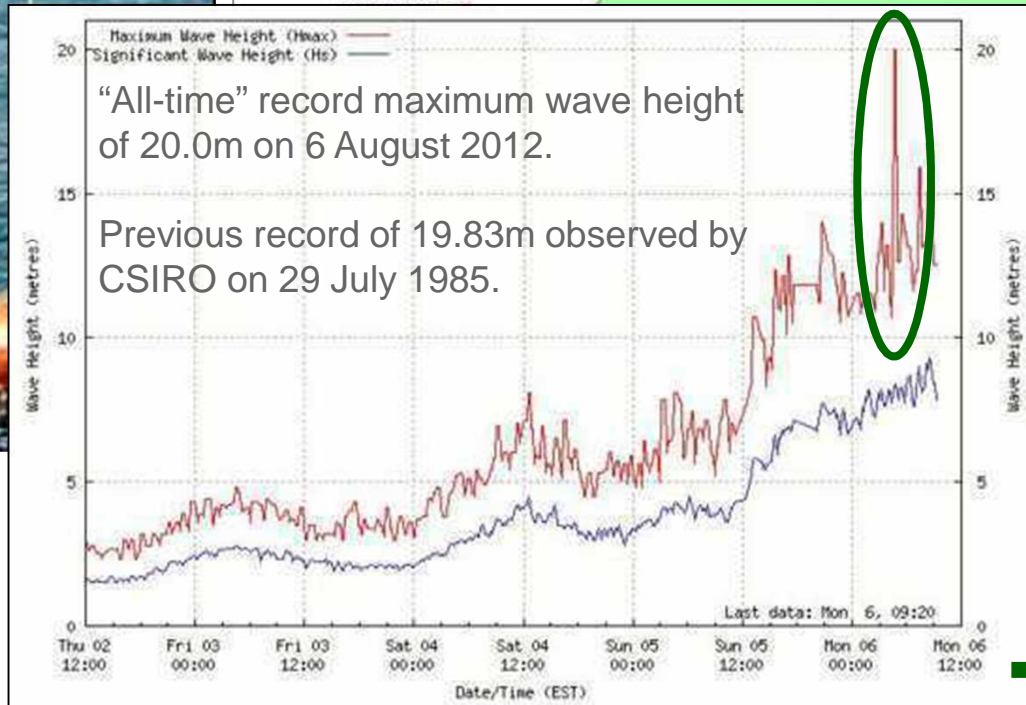
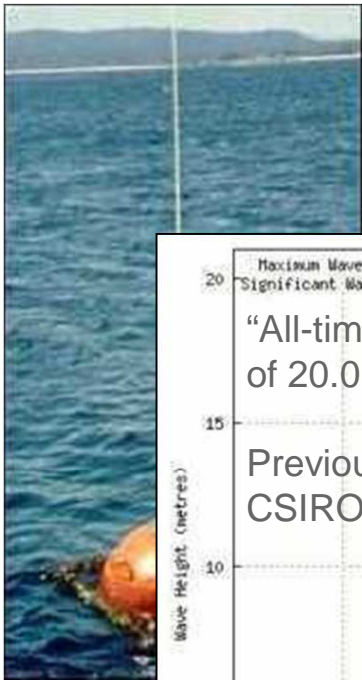
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Waverider Buoys

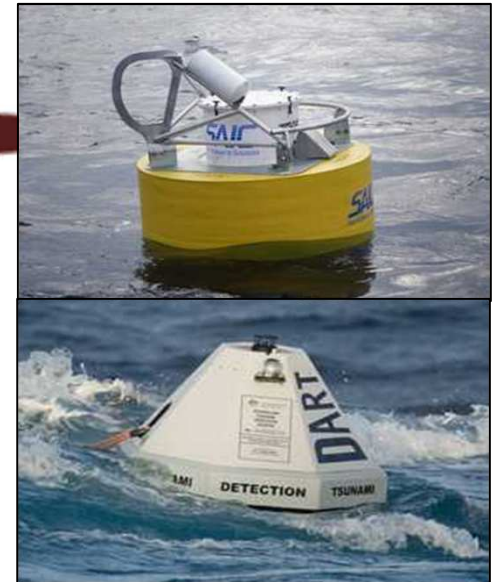
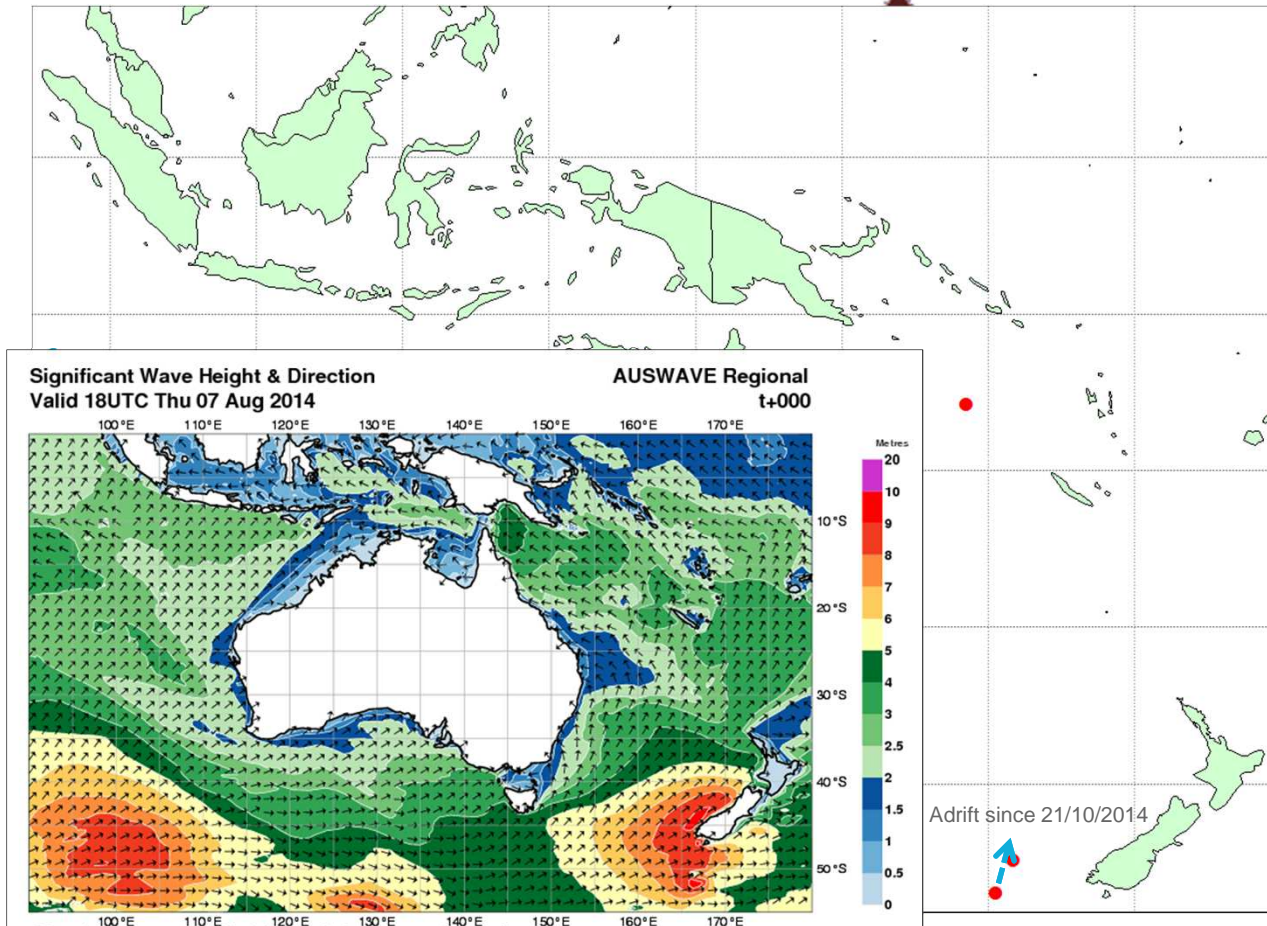




Tsunami Buoys

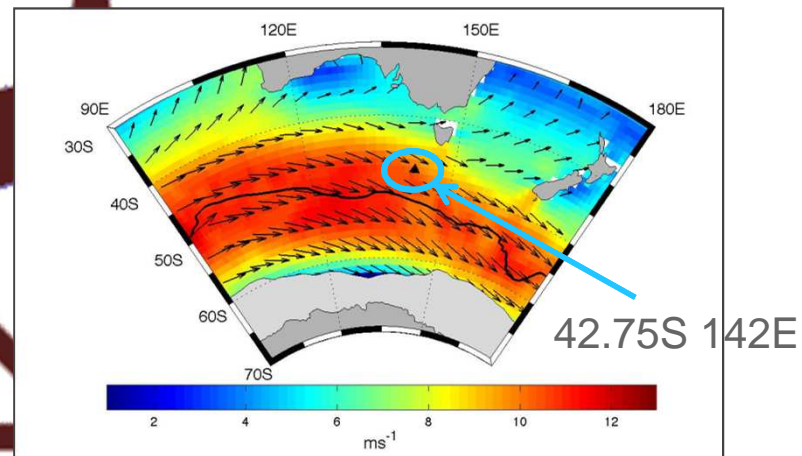
Core network is 2 tsunami buoys in each region (Indian Ocean, Coral Sea and Tasman Sea).

Mix of STB & ETD buoys, (all use DART technology).





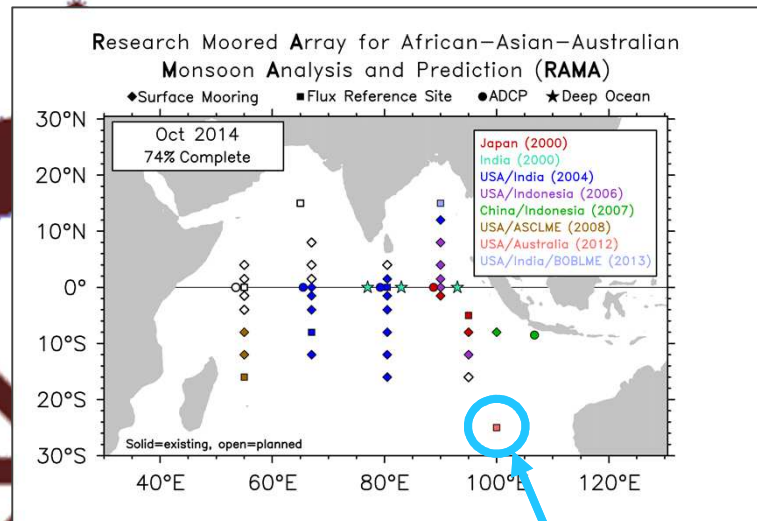
Oceansites Buoy



- ⊗ SOFS (Southern Ocean Flux Station) is funded through IMOS.
- ⊗ Managed by CAWCR with CSIRO support.
- ⊗ First deployed in April 2010.
- ⊗ Nearby sediment traps mooring & bio-geo-chemical Pulse mooring.
- ⊗ Relies on Marine National Facility ship time.



RAMA Buoy



- ⊗ NOAA Flux Reference Station.
- ⊗ Deployments in Sept 2012 and July 2013.
- ⊗ Australia provides ship time through the Marine National Facility.
- ⊗ Ship time is not assured & dependent on research applications.
- ⊗ Australian contributors: BoM, University of Tasmania & CSIRO.

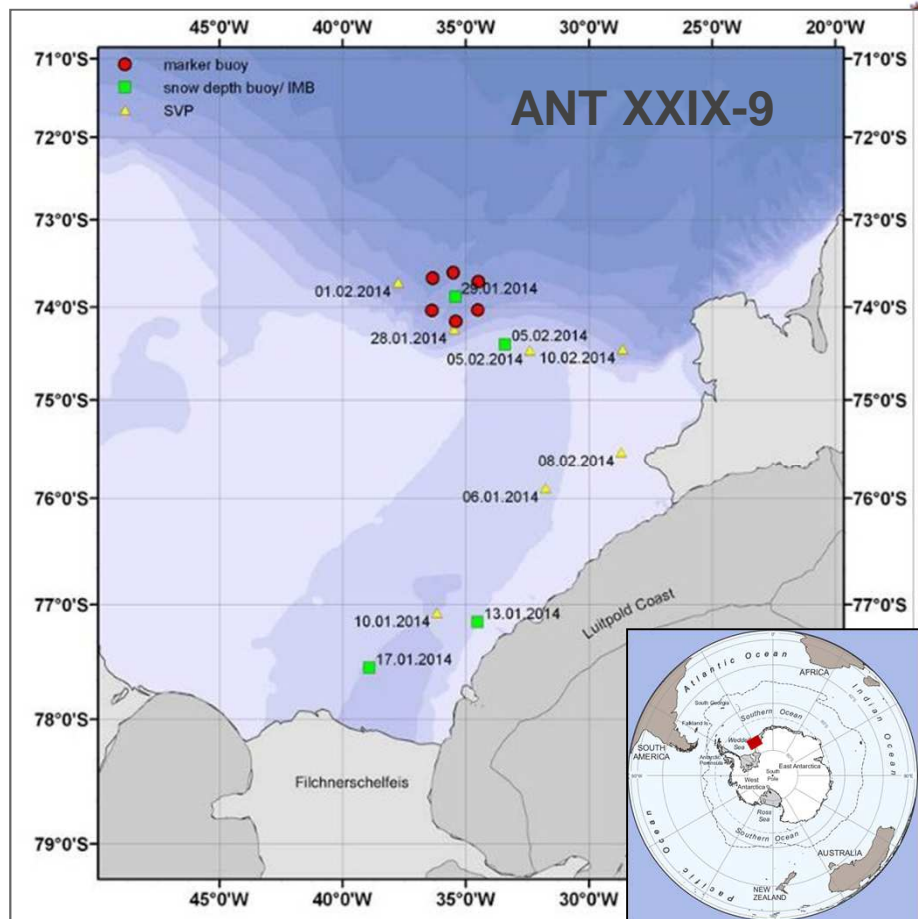


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2013/14 Deployment Locations



19 SVP buoys from the GDC.

4 Clearwater GPS buoys + 1 stress buoy in an array centred near 68S 8W.

1 Clearwater GPS buoy near 68S 6W.

6 Clearwater Ice Marker GPS buoys on ANT XXIX-9 with the Alfred Wegener Institute (AWI).



2014/15 Deployment Plan

- ⊗ AAD has no plans to deploy buoys this season unless there is further collaboration with AWI.



