IHO HYDROGRAPHIC COMMISSION ON ANTARCTICA (HCA)
13th Meeting – Cadiz, Spain 3-5 December 2013

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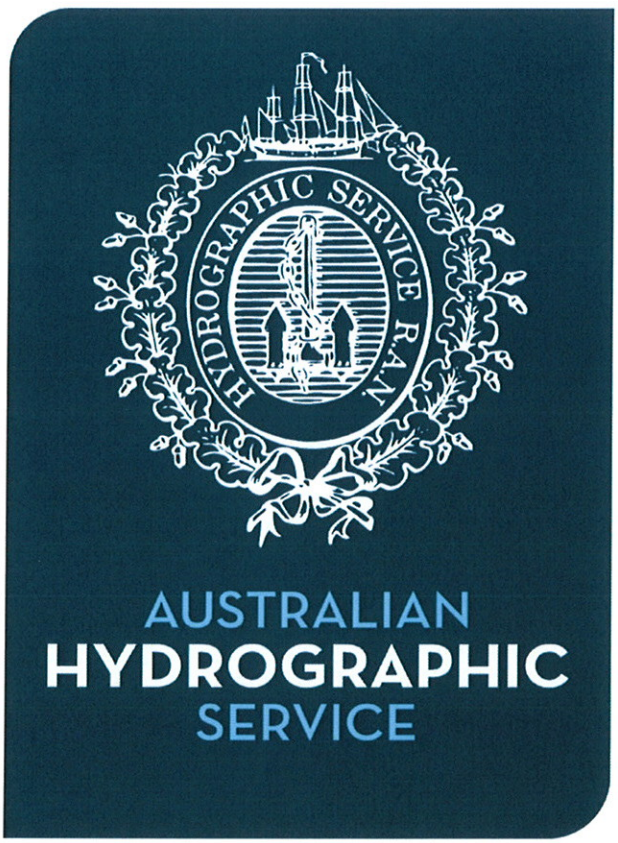

National Report
AUSTRALIA

13th Hydrographic Commission on Antarctica (HCA) Meeting
Cadiz, Spain, 3-5 December 2013

NATIONAL REPORT - AUSTRALIA

1. GENERAL

The key focus of the Australian Hydrographic Service (AHS) has been to achieve initial ENC coverage of Australia's waters. Initial coverage to meet the needs of commercial ports, national and international shipping was achieved in the first half of 2011. There are four ENC still required for full coverage (total approx. 870 cells). These remaining cells cover some small areas of Corner Inlet on Australia's south east coast. They should be published in early 2014.

The AHS ISO 9001:2008 Quality Management System was re-certified in 2011 but certification was not sought again in 2013 due to resource pressures. However, the AHS will continue to operate to the standard, focusing on those activities and aspects considered most important to navigation safety. A program of competency mapping of specialist skillsets is currently in progress and arrangements have been made for regular Nautical Cartography training.

2. SURVEYS

2.1 General

Hydrographic surveying in Antarctica is carried out by the Australian Hydrographic Service (AHS) on an opportunity basis when resupply ships chartered by the Australian Antarctic Division (AAD) are available to transport and support the AHS Deployable Geospatial Support Team (DGST). The AHS therefore continues to remain fully reliant on the AAD for logistic support and transport to and from the Antarctic continent.

2.2 Hydrographic Surveys in 2012/13 – Passage Sounding and Terrestrial Observations Davis Station

The AHS provided DGST for Voyage 3 of the AAD marine science and resupply program for the 2012/13 summer. The team embarked on *RSV Aurora Australis* and DGST continued the ongoing project to process automatically logged passage sounding data. Station resupply visits to Davis and Mawson provided an opportunity to conduct terrestrial observations for future seasons.

2.3 Hydrographic Surveys Planned for 2013/14 – Passage Sounding Processing and Survey Motor Boat Trials at Casey Station

One AHS DGST team will deploy to Antarctica on AAD Voyage 2 departing in early December 2013 and returning early January 2014. The AHS program for 2013/14 will focus on the test and evaluation of the extensively refitted Antarctic Survey Motor Boat during the Casey Station resupply visit. Where trials of the new multibeam echo sounder system allow, surveyed waters will be extended north and south of the current station anchorage areas. The team will also process passage sounding data collected during 2013.

In preparation for the 2013/14 season the Officer in Charge of DGST attended an Antarctic Waters Navigation Course provided by the Maritime Instruction and Training Centre in Valparaiso, Chile. The course was extremely beneficial and included a large cross section of international students.

The location and duration of hydrographic survey deployments to Antarctica is dependant upon the AAD resupply schedule.

3. NEW CHARTS & UPDATES

3.1 National Charting Scheme

Hydroscheme is the three year rolling hydrographic surveying and Nautical Chart Production Plan. The current version of Hydroscheme 2013-2015 is available to the public via the AHS website (www.hydro.gov.au). It provides details on our upcoming programme. The Antarctic area remains of low priority in the current Hydroscheme.

25 New Charts and New Editions of the national paper and raster chart series were produced from Oct 2012 to Oct 2013. None of these were charts covered the Antarctic.

Production priorities in the area remain low but charts flagged for action over the next 5 years are:

Action	Chart	Title	Scale
New Edition	Aus 602 (INT 9032)	Approaches to Davis Anchorage	1:12,500
New Chart	Aus 453 (INT 9022)	Cape Filchner to Mill Island	1:500,000 at lat 68
New Chart	Aus ??? *	Nilsen Bay to Point Williams	1:150000
New Chart	Aus ??? *	Point Williams to Point Darwle	1:150000
New Chart	Aus ??? *	Approaches to Vessvol Hills and Rauer Group	1:150000
New Chart	Aus ??? *	Larsemann Hills	1:150000
New Chart	Aus ??? *	Sanson Is to Randvik Bay	1:150000
New Chart	Aus ??? *	Approaches to Casey	1:150000
New Chart	Aus ??? *	Approaches to Commonwealth Bay	1:150000
New Chart	Aus 460 (INT ????)	Slava Bay to Belousov Point	1:500,000 at lat 68
New Chart	Aus 459 (INT ????)	Buckley Bay to Slava Bay	1:500,000 at lat 68
New Chart	Aus 458 (INT ????)	Commonwealth Bay to Buckley Bay	1:500,000 at lat 68
New Chart	Aus 456 (INT ????)	Mavry Bay to Davis Bay	1:500,000 at lat 68
New Chart	Aus 455 (INT ????)	Cape Poinsett to Paulding Bay	1:500,000 at lat 68

* A request has been received from Aurora Australis, the Australian Antarctic Division vessel, for better scaled coverage of Antarctica in several locations as Approach charts to Australian Stations. The new charts are proposed to be 1:150,000 and will be schemed over the next few years as data becomes available and processed. It is undecided at this stage as to the impact on the INT series charts produced by Australia.

3.2 International (INT) Charting Scheme for Region 'M'

The current status of the INT charts produced by Australia in Region 'M' is as follows:

INT No.	Producer *Producteur*	National No.	Date		Scale/*Echelle*		Format	Printer *Reproducteur*
			Publication	N.Edition	1:	Latitude		
9022	AU	Aus 453	Proj 14/15		500 000		A0	
9030	AU	Aus 451	1992		500 000	68°	A0	
9031	AU	Aus 452	2002		500 000	68°	A0	
9032	AU	Aus 602	2003		12 500		A0	
9033	AU	Aus 450	1991		500 000	68°	A0	
9035	AU	Aus 449	1993		500 000	68°	A0	
9036	AU	Aus 600	1987		25 000		A0	
	Plan: A- Horseshoe Harbour 1:5 000							
9037	AU	Aus 599	2011		25 000		A0	
9038	AU	Aus 448	2011		500 000		A0	
9014	AU	Aus 603	2002	2011	25 000		A0	
	Plan: A – Boat Harbour 1:5000							
9020	AU	Aus 454	1998		500 000	68°	A0	GB
9021	AU	Aus 601	1992		50 000		A0	
	Plan: A – Newcomb Bay 1:12 500							

3.3 ENCs

Australia has achieved its coverage of Antarctica.

AusENC Cell No.	Title	Scale	Edition No	Update No
AU2597P0	Southern Ocean - Approaches to Heard Island	1:1500000	1	1
AU270040	Australian Antarctic Territory - Kirkby Head to Amundsen Bay	1:350000	2	0
AU270050	Australian Antarctic Territory - Amundsen Bay to Magnet Bay	1:350000	2	0
AU270060	Australian Antarctic Territory - Endresen Islands to Cape Rouse	1:350000	1	0
AU270070	Australian Antarctic Territory - Mackenzie Bay to Cape Tvistein	1:350000	1	0
AU270080	Australian Antarctic Territory - Cape Rundingen to Posadowsky Glacier	1:350000	2	0
AU270100	Australian Antarctic Territory - Mill Island to Hatch Island	1:350000	1	1
AU270110	Australian Antarctic Territory - Frazier Islands to Cape Poinsett	1:350000	1	0
AU467142	Australian Antarctic Territory - George V Land - Approaches to Commonwealth Bay	1:18000	1	0
AU468062	Australian Antarctic Territory - Approaches to Mawson Cell 1	1:25000	2	0
AU468063	Australian Antarctic Territory - Approaches to Mawson Cell 2	1:25000	1	0

AU468142	Australian Antarctic Territory - George V Land - Commonwealth Bay	1:18000	1	0
AU5600P1	Australian Antarctic Territory - Horseshoe Harbour	1:5000	1	0
AU5601P1	Australian Antarctic Territory - Wilkes Land - Newcomb Bay	1:12000	1	0
AU5603P1	Australian Antarctic Territory - Commonwealth Bay - Boat Harbour	1:4000	1	0

4 NEW PUBLICATIONS & UPDATES

4.1 Australian National Tide Tables (ANTT) and AusTides

The ANTT and AusTides provide data on eight sites within the Antarctica region. Four are in the Australian Antarctic Territory (AAT) - Casey, Davis, Mawson and Commonwealth Bay; and two on off-lying islands - Heard Island and Macquarie Island. The other two stations listed in the ANTT are Ross Island (New Zealand) and Port Martin (France). All are listed as secondary ports in the ANTT. Casey, Davis, Mawson and Macquarie Island are treated as Standard ports in Seafarer Tides to ensure consistency with information provided to the Antarctica research community.
For details see:
http://www.hydro.gov.au/prodserv/antt.htm
http://www.hydro.gov.au/seafarer/tides/tides.htm

4.2 Seafarers Handbook for Australian Waters

The 3rd edition of the handbook was published in December 2012. It contains information in respect of the Antarctic region and is maintained by notice to mariners.
For details of the publication see http://www.hydro.gov.au/prodserv/ash.htm
Work is in progress on the fourth edition which is planned to be published by end of 2015.
For details see: http://www.hydro.gov.au/prodserv/publications/ash.htm

4.3 Maritime Gazetteer of Australia

The AHO maintains the Maritime Gazetteer of Australia as a web product. The gazetteer is a listing of all names shown on Australian navigational chart products. The resulting search provides the latitude and longitude of the place, its feature code and the Australian navigational charts on which the place is depicted.
For details see: http://www.hydro.gov.au/prodserv/publications/mga/mga.htm

4.4 Australian Chart and Publication Maintenance Handbook

The Australian Chart and Publication Maintenance Handbook (ANP 24) was published in April 2011. Work is in progress on the third edition which is planned to be published early 2014. It describes the process for the upkeep of Australian digital and paper navigational products.
For details see: http://www.hydro.gov.au/prodserv/publications/cpmh.htm

4.5 Australia Pilot

Under the United Kingdom Hydrographic Office / Australian Hydrographic Office Sailing Directions Cooperation Project, revision of the UKHO Admiralty Sailing Directions - Australia Pilot NP 13 (2011), NP 14 (2013) and NP 15 (2012) have been published as new editions under dual UKHO and AHO badging. The AHO continues to provide updates on for the Antarctic Pilot (NP9) to the UKHO.

5. MSI

Both NAVAREA X and Australia's Search and Rescue Region (SRR) extend to the coast of part of Antarctica. For MSI purposes, the Australian Maritime Safety Authority (AMSA) covers the area with NAVAREA X using Inmarsat SafetyNET. For SAR purposes, AMSA utilises Inmarsat SafetyNET and HF DSC.

6. C-55 (Status of Hydrographic Surveying and Nautical Charting Worldwide)

The AHS provided the IHB with updates to C-55 in February 2012.

7. CAPACITY BUILDING

No capacity building activity related to Antarctica has taken place since the last meeting.

8. OCEANOGRAPHIC ACTIVITIES

8.1 Sea level determination

Measuring sea level in the Antarctic region is important for a number of reasons which include:

- Monitoring Sea Level Rise;
- Study of inter-annual variability of the circum-polar current and links with inter-annual climate variability, such as the El Niño-Southern Oscillation phenomenon;
- The study of tides - particularly cross-shelf transport of heat;
- Refining Vertical Datums for maps and charts;
- Operational purposes – tidal predictions for shipping, diving and other field operations;
- Macquarie Island - coastal access; and
- Tsunami warning systems

The Antarctic Climate & Ecosystems (ACE) Cooperative Research Centre (CRC) Program has five main research programs which focus on the Antarctic Marine Ecosystems, Climate Variability & Change, Ocean Control of Carbon Dioxide, **Sea Level Rise**, and Antarctic and Southern Ocean Policy. The current tide gauge work supports this entire program.

8.2 Tide gauge programme and achievements summer of 2012/13

Casey tide gauge
The tide gauges in the Casey wharf have operated successfully for the past year. Levelling to the tide gauge bench marks and Monel rod to which the pressure tide gauges are attached is planned for the 2013/14 summer.

Mawson
The existing bottom mounted tide gauge has ceased to work most probably due to battery running low. The old tide gauge has been removed, the mooring capped and a new gauge sent to Mawson for insertion before the sea ice breaks out in late January. The shore mounted tide gauge has continued to operate normally.

Davis
The Davis bottom mounted tide gauge has a lot of macro algae growing on it and prevented communication with the tide gauge. The tide gauge was removed in October 2013, downloaded and then redeployed. It is planned to deploy a new tide before the sea ice breaks out in December.

Macquarie Island tide gauge

Both the Aquatrak and Druck pressure gauges have functioned successfully for the past year. Maintenance in replacing solar panels was completed in March 2013. It is planned to replace two further solar panels in 2014 and elements of the electronic infrastructure.

Boat Harbour / Cape Denison / Commonwealth Bay
A tide gauge operated by the French has operated successfully for four years but it is not known if it is still operational due to the sea ice making it difficult to access the area. Unfortunately it was not possible to calibrate or download the tide gauge in the summer of 2012/13 due to the vast amount of ice blocking access to Cape Denison. This was due to the grounding of two huge icebergs holding the fast ice in place.

Processing data – BoM National Tidal Centre
The Bureau of Meteorology (BoM) National Tidal Centre personnel in Adelaide process the tidal data and calculate tidal predictions which are available from the BoM and Australian Antarctic Division station website pages. Tidal data is available on request to the Australian Antarctic Division. (henk.brolsma@aad.gov.au)

National Tidal Centre Antarctic data holdings:
Casey 8/3/1996 to 16/11/2012
Davis 22/4/1993 to 28/01/2010
Mawson 5/03/1992 to July 2012
Macquarie Island 31/07/1912 to 7/06/1913, incomplete record from 25/03/1964 to 18/11/1974 and 28/12/1993 to 31/08/2012

8.3 Tide gauge program summer 2013/14

Mawson – continue to download the tide gauge in Horseshoe Harbour and calibrate the tide gauge in December 2013.
Mawson East Arm – shore based tide gauge - continue to stream data to Australia.
Davis – download the tide gauges. Calibrate tide gauges using GPS on ice technique.
Casey – continue streaming of data to Kingston.
Macquarie Island – continue streaming of data to Kingston. Maintain tide gauge infrastructure and calibrate tide gauge during Voyage 4 resupply in March 2014.

9. OTHER ACTIVITIES

The Australian Antarctic Division (AAD) has an air link from Hobart on mainland Australia to Casey station that will integrate with the AAD's existing shipping operations.
For details see http://www.antarctica.gov.au/living-and-working/travel-and-logistics/shipping-and-air-schedules

The AAD website (www.aad.gov.au) provides information on Environmental Impact Assessment of activities, Pollution, Quarantine, Navigating near Antarctica, Landing Ashore and the Australian Antarctic Stations.

Information on the Antarctic and Southern Ocean weather can be found on the Australian Bureau of Meteorology website (www.bom.gov.au).

The AHS DGST in consultation with AAD and Master AURORA AUSTRALIS compiled a priority survey list to be progressed on an annual basis.

10. CONCLUSION

The Antarctic region remains an isolated region difficult to readily access and thus progress remains slow.
