

REPUBLIC OF SOUTH AFRICA

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SAN HYDROGRAPHIC OFFICE

NATIONAL REPORT

TO THE

IHO HYDROGRAPHIC COMMISSION ON ANTARCTICA (HCA)
12TH MEETING, MONTEVIDEO, URUGUAY

10 - 12 OCTOBER 2012

12TH HCA MEETING

REPORT BY THE REPUBLIC OF SOUTH AFRICA

1. **SA Navy Hydrographic Office (SANHO)**

The SA Hydrographic Service is a government-funded service and is part of the SA Navy. The major assets for the Hydrographic Service are as follows:

- a. One Hecla Class Hydrographic Survey Vessel namely **SAS PROTEA**. She carries on board two smaller survey launches that are deployed for shallow water surveys. There is an additional launch on a trailer and equipment that is used as a mobile survey unit (MSU).
- b. The Hydrographic Office, with the following principle functions: conduct hydrographic surveys, produce paper nautical charts, electronic navigational charts (ENCs) and publications including List of Lights and Radio Services, three volumes of Sailing Directions, maintain a tide gauge network and provide tidal information, collect GEBCO data, issue monthly Notices to Mariners, Radio Navigational Warnings and a Chart Depot service.
- c. The officers and ship's company of the survey vessel; and
- d. The staff members of the Hydrographic Office (SANHO) at Cape Town, in Tokai.

2. **Oceanographic Activities**

The South African geographical area of interest in Antarctica is concentrated in Dronning Maud Land and the South African Hydrographic Office has published paper chart SAN 2004 (INT 9056) – Approaches to Dronning Maud Land and an ENC, covering the region between 69° 10' 00"S to 71° 41' 00"S and 05° 30' 00"W to 00° 10' 00"W at a scale of 1:300 000. The standard land area (buff) has been substituted with a greyscale RADARSAT image supplied by the South African Satellite Application Centre (SAC). The main purpose of the chart is to cover the approaches to the area negotiated by scientific research vessels to land scientists and equipment for deployment at the South African Research Station SANAE IV. It is the intention to update this image every 2 years with a new RADARSAT image due to the constant movement of the ice shelf.

A new edition of SAN 2004 (INT 9056) was published in September 2012 based on a much-improved geo-referenced TerraSAR-X image of 2011 (*Figure 1*) and the corresponding ENC ZA300300 which is currently in preparation (*Figure 2*).

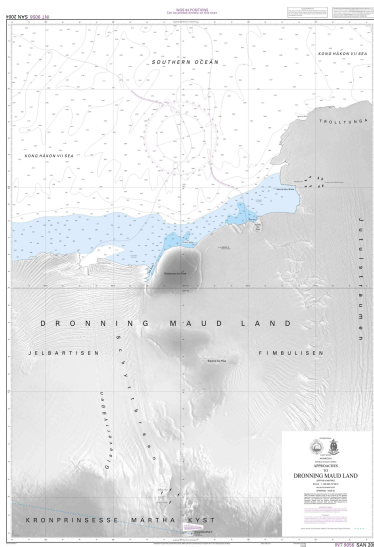


Figure 1. Paper Chart SAN 2004-INT 9056

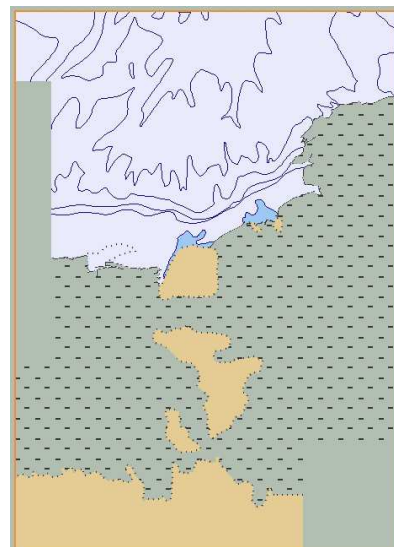


Figure 2. ZA300300

The bathymetric data within the area of the approaches to Dronning Maud Land is based on satellite derived altimetry and bathymetric contours from the Alfred-Wegener Institute, Germany and trackline bathymetric cruise data from the US National Geophysical Data Centre, Boulder, Colorado, USA (GEODAS) and the South African Department of Environment Affairs Directorate (DEA): Antarctica and Islands, Cape Town.

3. RESEARCH AND SUPPLY VESSELS

The SA AGULHAS (*Figure 3*) is the Research and Supply vessel used by DEA to transport equipment and supplies to the researchers at SANAE IV (*Figure 4*) and conducts research in the waters surrounding Antarctica. The servicing of the SANAE base on the Antarctic mainland and the two weather stations on Marion and Gough Islands is carried out once per year. During these voyages, meteorologists accompany the vessel to collect data and deploy ocean drifting weather buoys. If the ship's program allows it, bathymetry is gathered in areas on request as specified by the SA Hydrographic Office. A replacement supply vessel, SA AGULHAS II (*Figure 5*), has been launched in STX Finland's Rauma shipyard and was commissioned in South Africa in July 2012. While the re-supply functions will consume some 180 days per year, the ship will spend up to 120 days per year on dedicated deep water oceanographic and geological research cruises to depths of 6 000 metres. These cruises will take place in the Southern Ocean, but the ship has been designed to operate in tropical waters to enhance its ability to serve a wider user community. On all voyages a continuous record of weather data for meteorological institutions around the world will be maintained. Approximately 800m² of space has been set aside for dedicated research laboratories and up to six specialist container laboratories. The new ship is a multi-purpose vessel and it will carry 100 passengers, 4000 m³ of cargo space to supply the three remote stations and two Super Puma class helicopters.



Figure 3. M/V SA AGULHAS ¹

¹ All images courtesy of SA Department of Environment Affairs Directorate: Antarctica and Islands, Cape Town



Figure 4. SANAE IV



Figure 5. M/V SA AGULHAS II

4. Charts and Publications

a. Charts

International (INT) paper chart and ENC. South Africa is the co-ordinator for international charting within Region H but also the producer nation of a single paper chart and an ENC within charting Region M, which is based on the WGS 84 ellipsoid.

Region M:

INT Paper Chart No	SAN No	Title
9056	2004	Antarctica. Approaches to Dronning Maud Land

ENC

ZA300300, based on SAN 2004, is currently in preparation.

b. Publications

South Africa has since 2001 published, in its South African Sailing Directions Vol III (SAN HO-23) Chapter 10, information on the Antarctic Region. The scope of this chapter encompasses that part of NAVAREA VII south of the 60° parallel and the Antarctic Coast between 20°W and 80°E. It consists of seven sections that provide essential information on the regulations/Antarctic Treaty, aircraft operations, general scientific and environmental information, natural conditions, sea ice, navigation in ice and a section on Bouvet Island (Bouvetøya).

5. Maritime Safety Information (MSI)

NAVAREA VII – Co-ordinator

The Co-ordinator of NAVAREA VII in association with the South African Meteorological Service currently transmits all the necessary NAVAREA VII and METAREA VII (SafetyNET) Weather Information and Shipping Safety messages via the IOR and AOR-E satellites as far south as the Antarctic. These messages are backed up by HF transmissions from Cape Town Radio. No NAVAREA VII messages were transmitted during 2012 for the Antarctic Region (Sea Area A4) thus far, but it is well known for icebergs to be sighted well north of the 60° parallel during the summer season.

6. Capacity Building

Since the summer season of 2004/2005, the MV AGULHAS discharged cargo at the Akta-bukta in the vicinity of the German research station Neumayer. Due to the ever-increasing height of the ice-shelf in the vicinity of the abandoned SANAE III, it has become extremely dangerous to back-load and discharge cargo from the +32 metre high and very unstable ice-shelf. South Africa and Germany has exchanged source information in preparation of their now published adjoining paper charts INT 9057, INT 9055 and ENC. This has enhanced the existing co-operation between South Africa and Germany.



Figure 6. Offloading at SANAE III



Figure 7. Offloading at Akta-bukta

South Africa will welcome any additional survey data including satellite imagery (geo-referenced) within their charting area from neighbouring countries to update chart SAN 2004 (INT 9056) and ENC ZA300300.

7. **IHO Special Publication C-55**

The South African Hydrographic Office acknowledges the importance of the constant review of IHO publication C-55 to improve hydrographic services along the routes in the Antarctic. A full status assessment on the Antarctic Region was carried out in 2004 with no change emanating over the past years that will have any significant impact on the IHO database, at this time.

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September 2012