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South African Navy Expeditionary Operations in the Southern Ocean

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Abstract

The South African maritime relation with the Southern Ocean dates back to the earliest voyages of discovery. Cape Town provided a logistical staging point for mariners on their expeditions further south where a number of isolated islands are situated in one of the most inhospitable and stormy oceans in the world. The strategic importance of the Prince Edward Islands was considered after the Second World War, and the Union Defence Force was tasked to annex the two uninhabited islands. The equipment and expertise of the South African Naval Forces provided the most effective way to reach the desolate islands in the Southern Ocean. The Navy continued to provide a regular service to the weather stations on Marion and Gough Island, until the Department of Transport acquired its first dedicated polar research and supply ship. The Navy however continued to undertake mercy dashes south, to uplift critically sick patients or to conduct search and rescue operations. Developments in maritime aviation provided the South African Air Force with new capabilities to support the Navy in such operations. Larger vessels, such as the hydrographic survey vessel SAS *Protea* (from 1972) and the logistical supply vessel SAS *Drakensberg* (from 1987), were well suited to conduct operations independently, and made several voyages south. From 1993, the capable supply vessel SAS *Outeniqua* made eight round-trip voyages to Antarctica to assist the construction of the new SANAE IV base. The frequency of Navy operations to the Southern Ocean and Antarctica diminished significantly during the last 20 years, in part due to the addition of dedicated vessels operated by the Department of Agriculture, Forestry and Fisheries and the Department of Environmental Affairs.

Keywords: South African Navy; South African Air Force; Southern Ocean; Expeditionary Operations; Marion Island; Antarctica

Introduction

To celebrate its seventy-fifth birthday in 1997, the South African Navy (SAN) published a commemorative coffee table book, titled *A Navy for Three Oceans*.[1] This suggestive title and arguments underlined the importance to recognise the wider area of responsibility of the Navy. South Africans easily recognise the "two oceans" – the Atlantic Ocean, to the west and the Indian Ocean on the eastern seaboard – but the "third ocean" to the south, is mostly disregarded.

Historically, South African (SA) military strategic viewpoints and policy have strongly orientated itself landward, a continental alignment with a focus to the north. As Abel Esterhuyse points out, 'the Air Force and Navy had to align themselves with the nature and outcome of [such] doctrinal processes'.[2] As a result, there has been a strategic neglect of maritime matters, notwithstanding a vast SA coastline of approximately 1 500 nautical miles (2 800 km) and an exclusive economic zone (EEZ), which extends 200 nautical miles (370 km) out to sea. This EEZ contains two islands, Prince Edward Island and Marion Island, located in the "third ocean" – the Southern Ocean. Such "sea-blindness" has consequences, which have led to a general lack of jurisdiction and enforcement capacity to secure the safety in SA littoral waters.[3]

In the study on which this article reports, the expeditionary capabilities of the SAN and its predecessor the South African Naval Forces (SANF) were examined through a historical lens with a singular focus on operations in the Southern Ocean. This "third ocean" has been selected as a focus area, to highlight the operations of the Navy at 'considerable distances from home, over a considerable length of time'[4] – essentially the mark of expeditionary operations. The period spans almost seventy years of such operations to the south, from the first annexation of Marion Island in December 1947, to the last known Navy operation into the Southern Ocean, which was a submarine patrol off the Prince Edward Island group in April 2016. The development of the long-range maritime patrol and search and rescue capabilities of the South African Air Force (SAAF) as well as its shipboard helicopter operations in support of the Navy was significant.

From an academic point of view, Navy and Air Force maritime operations in this specific area of operations have received scant attention, and the current study therefore endeavoured to contribute in this regard. South African naval historiography shows a varied range of coverage, themes and focus, with distinct leanings towards the Second World War (1939–1945) narrative and certain popular aspects of the so-called Border War era (1966–1989). South African post-Second World War naval operations in the Southern Ocean are discussed in the general works of naval historians, André Wessels, Allan du Toit and Thean Potgieter, but not to great depth or based on specific analysis.[5] An engaging first-hand account by John Marsh (a journalist) who covered the annexation of the Prince Edward Islands in 1947 and 1948 provided an early publication.[6] Since then, only short articles have been published on this operation and subsequent operations in the Southern Ocean. On the other hand, the scientific and environmental aspects of SA involvement in the Southern Ocean, and more specifically Antarctica, are better served by the academia of natural sciences. In such works, SA naval involvement and collaboration received coverage, but again, not always to great depth.[7]

South African naval activities in the Southern Ocean – the "annexation of an island", "search and rescue of marooned men", and "expeditions to Antarctica" – often made headlines, due to the sensational nature of such operations. As a result, a wealth of secondary sources (newspaper and magazine articles) are available, while primary sources (official documentation created for each operation) can be found at the Department of

Defence Archives, the South African National Archives, the South African Naval Museum, and The National Archives (United Kingdom).

The author does not attempt to provide a detailed account of each expeditionary operation conducted, although the available primary and secondary sources suggest that this "ocean of information" is ready to be trawled. This article therefore provides the results of a baseline analysis of the Navy and maritime Air Force capabilities in this area of operations through the years.

The Cinderella Service: An Expeditionary Navy?

The concept of expeditionary operations refers to 'military operations undertaken in foreign countries, usually overseas and often at considerable distance from home' and may include 'small actions with discrete objectives, such as the capture of an island or [the] destruction of an enemy facility'.[8] Expeditionary operations can involve land, air and sea forces, and today it is most often conducted in joint operations, where all three forces [and other agencies] are combined.[9]

The SAN has always been a small navy and at its operational zenith would have been ranked as a coastal defence navy with an occasional regional projection (expeditionary) capability. It therefore ranked number four in the Todd & Lindberg classification system of 2015. The occasional expeditionary operation to the Southern Ocean (the focus of this article) confirms this status.[10]

Today, the *South African Defence Review* of 2014 aims to configure the Navy as a 'versatile littoral Navy with a credible deep-ocean [blue-water] capability'[11] – therefore also within the Todd & Lindberg ranking of number four. One can however argue that current constraints would rather place it at a lower ranking level of 6 or 7. These current capability constraints will be discussed toward the end of this article. One can therefore not compare the expeditionary warfare capabilities (past and present) of the SAN with those of other "big-ship navies", where expeditionary warfare 'in its most modern and sophisticated applications involves the [sustained] projection of power across the oceans'.[12]

Historically, the role and responsibilities of the Navy have changed and evolved over the course of its existence. A dynamic and ever-changing strategic and political landscape influenced its development, the size of its fleet, the type of naval vessels at its disposal, and ultimately, the nature of its operations.[13]

The development of an own independent maritime defence organisation, even after 1912 when the Union Defence Force (UDF) was established, was always slow. The formation of a South African Naval Service (SANS) followed ten years later in 1922, but it consisted of only three ships – a hydrographic survey vessel and two minesweeping trawlers. A crippling global economic depression (1933–1934) resulted in the demise of the organisation, to the point where all three ships had to be returned to the Royal Navy. Even worse, during the inter-war years, senior UDF leadership showed a distinct lack of

interest in having a navy at all. Compared to other dominion navies and navies of similar lineage, the SANS organisation therefore remained small and insignificant.[14]

This lack of growth of the embryonic Navy during the 1920s and 1930s is an important aspect to consider within the theme of this article. It is argued that the size and the nature of its fleet inhibited the SANS to conduct expeditionary operations, any 'considerable distance from home'.[15] By comparison, other dominion navies, such as Australia, Canada and even New Zealand, acquired sizeable warships, such as cruisers and destroyers, during the inter-war years. At the outbreak of the Second World War, the Royal Australian Navy numbered 5 440 personnel, with six cruisers and five destroyers, while the Navy of New Zealand numbered about 1 340 personnel with two cruisers. The SANS had only two officers and three ratings with no warships on strength!

The outbreak of the Second World War (September 1939) necessitated the establishment of a Seaward Defence Force (SDF), which in 1942 amalgamated with the Royal Navy Volunteer Reserve to form the SANF. Wartime mobilisation led to a vast and speedy expansion of the naval forces, and by the end of the war, 1 436 officers and 8 896 ratings had served. No fewer than 88 vessels were in service, which notably included three frigates, 45 minesweepers and 20 anti-submarine vessels. Apart from the three frigates, only commissioned towards the end of the war, the SANF wartime fleet mainly consisted of commercial fishing vessels requisitioned for war service, also referred to as the "little ships".[16]

Notwithstanding the vast expansion (in numbers), the SDF and subsequently the SANF were not ideally equipped to conduct expeditionary warfare operations. The handful of larger vessels, imminently more suitable for expeditionary operations, were two salvage vessels, two boom defence vessels, and a controlled minelayer, but they were essentially auxiliary support vessels, for coastal and harbour work. The "small-ship navy" trend persisted throughout the war, and no larger warships, such as battleships or cruisers, were added to the SANF. Dominion navies, such as Canada and Australia, however added aircraft carriers to their inventory shortly after the war and other comparative navies, such as Argentina and Chile, were equipped with battleships and cruisers.[17]

The SANF was deemed a small ocean-going navy, specifically created for the defence of ports of the Union of South Africa and its coastline, while its "big-brother", the Royal Navy, with several cruisers and frigates on station, continued to maintain the deep-water responsibility from its South Atlantic Station in Simon's Town. It must be mentioned that at least 786 SA naval officers and 2 151 ratings were seconded and served with distinction on ships of the Royal Navy during the Second World War.[18] Despite these limitations, the SANF managed to undertake an important operation at a considerable distance away from its home ports during the Second World War. The South African Anti-Submarine Group and the South African Minesweeping Group formed an important part of the British Mediterranean Fleet, and the SANF ultimately provided four anti-submarine vessels, eight minesweepers and one salvage vessel, HMSAS *Gamtoos* in this theatre of operations.[19]

During the post-war era, the premise of the Navy evolved around the Simon's Town Agreement of the mid-1950s, which inferred that the reason for the existence of the Navy was to act as the custodian of the Cape Sea Route on behalf of its Western allies amidst the perceived Cold War threat. South African Navy force structures of the 1960s and 1970s were determined by the Simon's Town Agreement between Britain and South Africa. The agreement focussed on the transfer of the naval base in 1957 and procurement of new equipment – most notably, three President-class (Type 12) frigates, one Type 15-frigate, eight Avro Shackleton maritime patrol aircraft, sixteen Blackburn Buccaneer maritime strike aircraft, and ten Westland Wasp maritime helicopters from 1957 to 1965.[20]

During the late 1970s, the role of the Navy changed again, from that of the 'defender of the Cape sea route'[21] to one that focussed on coastal national defence, and had to contribute to the national strategy, particularly in relation to the Border War (1966–1989). It is held that this conflict, which occurred mostly in Namibia (then South West Africa) and Angola, counted against the SAN during which time the defence budget was directed to the landward Army and Air Force operations, a debilitating factor that placed the Navy under considerable strain.[22] At the same time, the planned modernisation of the Navy suffered due to arms embargoes, preventing it from acquiring new corvettes and submarines to maintain some semblance of a blue-water capability. As a result, vessels less suited to SA sea conditions formed the backbone of the surface warfare capability of the Navy for most of the 1980s and 1990s. Four larger auxiliary support vessels, the fleet replenishment vessel SAS *Tafelberg* (1967), the hydrographic survey vessel SAS *Protea* (1972), the logistic support vessels SAS *Drakensberg* (1987) and SAS *Outeniqua* (1993) were utilised for the occasional expeditionary operations.

The Southern Ocean

The strategic location of the Cape of Good Hope has provided an ideal gateway for explorers, whalers and sealers to the Southern Ocean and Antarctica. A number of small and isolated islands are spread along the way, situated in one of the most renowned stormy seas in the world known as the "Roaring Forties", between the southern latitudes of 40º and 50º where strong westerly winds and turbulent seas are most prevalent. Even stronger conditions, which occur further south, are hailed the "Furious Fifties" and the "Screaming Sixties". An old sailor's expression 'below 40 degrees south, there is no law; below 50 degrees, there is no God'[23] underscores the fierce reputation of this ocean.

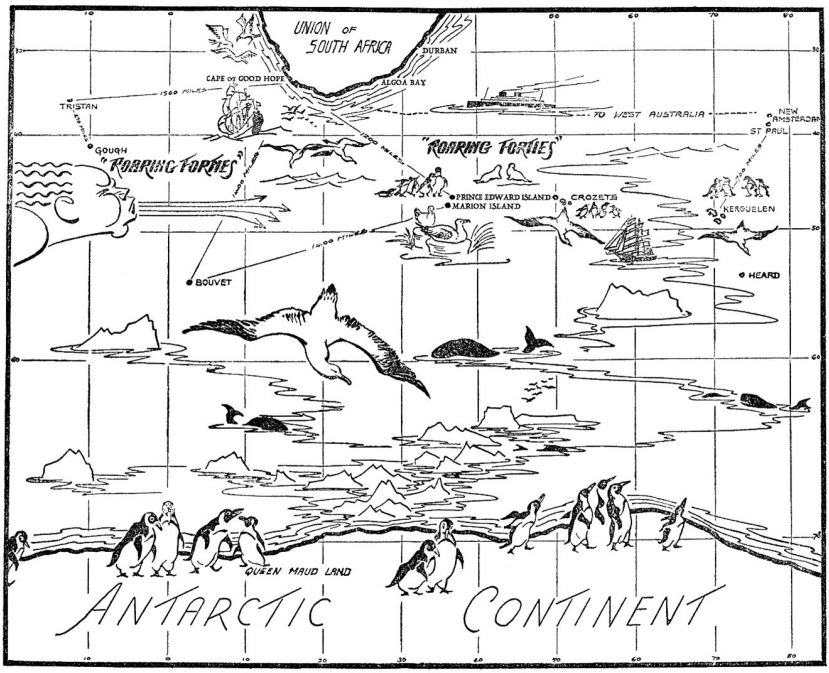

Figure 1: The area of operations – the Southern Ocean and the "Roaring Forties", showing the remote islands and Antarctica.[24]

The Prince Edward Islands

Two small islands in the sub-Antarctic Indian Ocean, Marion Island and Prince Edward Island, are located about 955 nautical miles (1 769 km) south-east of Port Elizabeth (now called Gqeberha). They were discovered by chance in 1663 by a navigator of the Dutch East India Company, Barentzoon Lam. It was not until 100 years later that the two islands were revisited, this time by the French naval officer Marion du Fresne. Later, in 1776, Captain James Cook named the islands the Prince Edward Islands, after the fourth son of the British King.[25]

Bouvet Island

Also referred to as "Bouvetøya", this is an uninhabited sub-Antarctic high island and a dependency of Norway in the South Atlantic Ocean. It is the most remote island in the world, approximately 1 400 nautical miles (2 600 km) south-southwest of the Cape Town and approximately 917 nautical miles (1 700 km) north of Antarctica.[26]

Tristan da Cunha Islands

This is a group of volcanic islands in the South Atlantic, which comprises:

- the occupied island Tristan da Cunha, the wildlife reserves of Gough Island (see below) and Inaccessible Island; and
- the smaller uninhabited Nightingale Islands.

The main island of Tristan with its 250 permanent inhabitants are situated 1 313 nautical miles (2 432 km) west of Cape Town, 1 166 nautical miles (2 161 km) south of Saint Helena Island and 1 872 nautical miles (3 486 km) northeast of the Falkland Islands.[27]

Gough Island

Gough is a rugged volcanic island in the South Atlantic Ocean. It is a dependency of Tristan da Cunha and part of the British overseas territory of Saint Helena, Ascension and Tristan da Cunha. Gough Island is about 215 nautical miles (400 km) south-east of Tristan da Cunha, 1 457 nautical miles (2 700 km) west from Cape Town and over 1 727 nautical miles (3 200 km) from the nearest point of South America. The South African Weather Service (SAWS) has been operating a weather station on the island since 1956.[28]

Antarctica

The permanent presence of South Africa in Antarctica dates back to 1959, when the first South African National Antarctic Expedition (SANAE) established a scientific base at a former Norwegian station in Queen Maud Land, a region claimed by Norway as an independent territory. South Africa signed the Antarctic Treaty, with eleven other countries on 1 December 1959, to establish Antarctica as a continent dedicated to peace and scientific cooperation. The first SA expedition departed early in December 1959 on the Norwegian ship, the *Polarbjørn*, to take over the Norwegian Station. The stations SANAE I, SANAE II and SANAE III were subsequently built on the Fimbul Ice Shelf near the Blåskimen Island. The current base, SANAE IV, is located at Vesleskarvet in Queen Maud Land, Antarctica. Overwintering teams consist of scientists and support personnel from South Africa, totalling about 10 members, although the base itself often hosts summer teams of up to 100 people from various countries.[29]

The South African National Antarctic Programme (SANAP) is an SA government programme for research in the Antarctic and sub-Antarctic. This includes the Antarctic research station (SANAE IV), and one station each on Gough Island and Marion Island. The stations are managed and administered by the Directorate: Antarctic and Islands of the Department of Environmental Affairs (DEA) and the SAWS.[30]

Operation Snoektown: The Annexation of the Prince Edward Islands

The end of the Second World War in 1945 resulted in rapid changes of the global military balance. The attention of the Union of South Africa was directed to the strategic importance of the Prince Edward Island group, two small islands in the Southern Ocean, consisting of Marion Island and Prince Edward Island. It was feared that Marion Island could potentially serve as a base for the deployment of guided ballistic missile systems, which was a perceived threat during the angst in the face of a possible nuclear holocaust. The British government advised the SA government to carry out an occupation of the islands in order to forestall any outside powers from realising such a possibility.[31]

The SANF received the instruction on 19 December 1947, and decided to send the Loch-class frigate SAS *Transvaal* to annex the islands for South Africa. The frigate under the command of Lt Cdr John Fairbairn departed Cape Town on 21 December 1947 in the company of the SA coaster SS *Gamtoos* on a secret expedition, which was dubbed "Operation Snoektown". Lt Cdr Fairbairn and his landing party first set foot on Marion Island on 29 December 1947 and raised the SA flag. The annexation was repeated in a more formal manner on 24 January 1948 when another frigate, HMSAS *Natal*, landed a second party on Prince Edward Island. The formal proclamation was read out by Lt Cdr Drydon Dymond and he declared, 'the effective occupation and administration of the said Islands, by His Majesty's Government in the Union of South Africa'.[32]

The addition of the last unoccupied territories of the world represented a rare expansion of SA territory. Polarisation between East and West and a growing Cold War angst informed the concern that the islands may be taken and exploited by an adversary. At the time, this was a valid consideration, but perhaps a strategic overestimation, given the technological limits of the supposed threat, namely Russian guided ballistic missile systems. The SAWS had identified Marion Island, as well as Gough Island in the South Atlantic, as potential sites for the establishment of meteorological stations before the Second World War. The strategic importance of the Prince Edward Islands was therefore overemphasised, and only of secondary concern to its eventual meteorological and scientific significance of later years.[33]

The 1947–1948 annexation of the islands was an ambitious operation for the recently established SANF. It demanded most of the SANDF assets, and all three of the available Loch-class frigates and one of the two new Algerine minesweepers made the arduous expeditions to the islands during the first year of the annexation in order to establish a permanent outpost there. The frigates could not carry the 300 tons of cargo needed to set up permanent structures on Marion Island, and the coaster, the SS *Gamtoos*, which had served the SANF so well during the Second World War, and another cargo vessel, *Norse Captain,* had to be chartered to transport heavy stores and army engineers to the island.[34] The SANF continued to provide annual passages to the islands after 1948 to service the weather stations on both Marion Island and Gough Island. On more than one occasion, assistance was provided at short notice (see Figure 3). This dependency on the Navy

became less frequent when the Department of Transport acquired its first, dedicated, polar research and supply vessel, the *RSA* in 1961.[35]

The Right Ships for the Task

The availability of a cargo vessel was an important factor in the success of Operation Snoektown. SS *Gamtoos* was one of only a few large vessels available to the SANF – a crucial requirement for such an important expeditionary operation. SS *Gamtoos* had already served the SANF well in the Mediterranean during the Second World War as a salvage vessel. *Gamtoos* was built in 1935, for the coastal trade between Durban and Cape Town with a displacement of 900 tons – it was 192 feet (58,5 metres) long with a 31 feet (9,4 metres) beam. The maximum speed of the vessel was only nine knots with a coal consumption of about 10 tons per day and bunker capacity of 235 tons, which provided a slow passage, but good endurance. It had a freshwater tank capacity of about 20 tons, but 150 tons could be carried additionally. To carry cargo, the *Gamtoos* was fitted with one large hold and two hatches, fitted with additional watertight bulkheads, therefore making two holds. The forward hold was fitted out with additional accommodation, a workshop and storerooms. The vessel was fitted with a magazine and refrigerator at the aft end. Two derricks (gantries) with a capacity to lift three tons with two winches operated over the first hatch, while the second hold was fitted with a 10-ton derrick, and two winches, to handle heavier lifts. This hold was able to load 300 to 400 tons of cargo if required.[36]

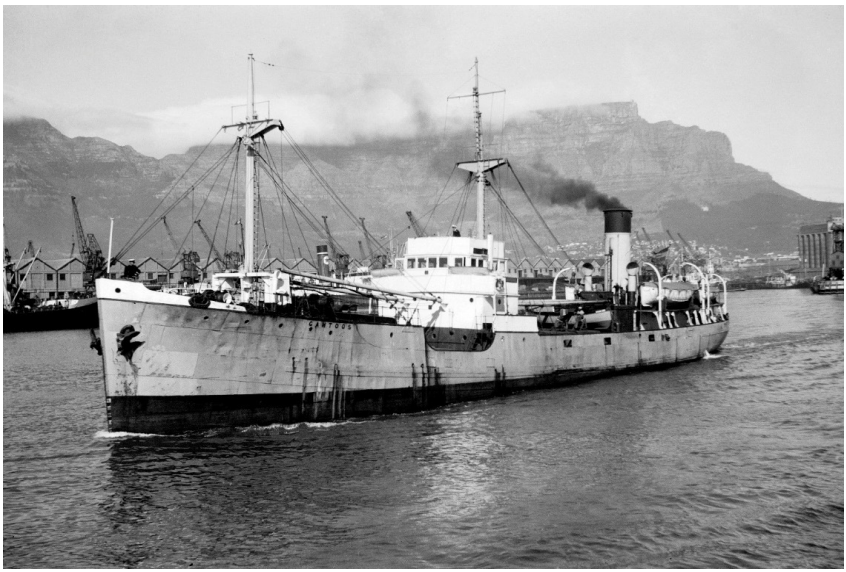

Figure 2: The coaster SS Gamtoos proved vital in the expeditionary Operation Snoektown.[37]

From 1948, the SAN continued annual passages to the islands to service the weather stations on both Marion Island and Gough Island during which the teams were rotated and relieved. Apart from the scheduled annual passage, the SAN provided assistance on other expeditionary operations as can be seen below:

Date	Ship	Details of operation
Aug 1948	HMSAS *Bloemfontein*	First relief voyage to Marion Island
Feb 1949	HMSAS *Transvaal*	Towed the disabled steamer *Pequena* from Tristan da Cunha
Dec 1952	SAS *Protea (iii)*	Mercy dash to Marion Island (medical emergency)
Jan 1955	SAS *Transvaal*	Radar assisted survey of Bouvet Island
Jan 1956	SAS *Transvaal*	Radar assisted survey of Gough Island
Mar 1957	SAS *Vrystaat*	Mercy dash to Marion Island (medical emergency)
Oct 1961	SAS *Transvaal*	Evacuation of Tristan da Cunha following volcanic eruption
Jan 1962	SAS *Transvaal*	Survey of Tristan da Cunha Island following volcanic eruption
Sept 1963	SAS *Transvaal*	Air & sea rescue in support of first USAF[38] overflight of South Pole

Table 1: South African Naval Forces and Navy operations into the Southern Ocean 1947–1963.[39]

The first South African National Antarctic Expedition (SANAE) was formed in 1959 and the first South African Expedition sailed from Cape Town to Antarctica in the chartered Danish vessel *Polarbjorn* to take over a Norwegian base, which subsequently became the SANAE 1 base. In 1961, the second SANAE team again chartered a Danish vessel, the *Polarhev*, but the dependency of the Department of Transport on the SA Navy (and chartered vessels) became less frequent with the acquisition of its first dedicated polar research and supply ship in 1961. The new vessel, which was built in Osaka Japan, was named the *RSA*, and sailed from Cape Town on its first voyage to Antarctica, Gough Island and Marion Island on 5 January 1962. The vessel was under the command of ice pilot, Cdr Jack Netterberg, who was seconded from the Navy to the Department of Transport for this expedition.[40] After a total of seventeen years of service, which included seventeen round trips between Cape Town and Antarctica, the *RSA* was withdrawn from service in 1978 and replaced by the new 5 000-ton Japanese-built Antarctic supply and research vessel, the SA *Agulhas*.[41]

The SAN continued to provide assistance when needed, increasingly so with the support of the SAAF (see section below). An example of such a joint operation occurred when radio contact was lost with the weather station on Marion Island on 26 June 1966. The Air Force dispatched a Shackleton maritime patrol aircraft from Cape Town three days later

to investigate and re-establish contact, and to drop the necessary emergency equipment. A fire had destroyed the radio room and almost all the living quarters at the weather station, and the Navy frigate SAS *President Kruger* was consequently dispatched to the island on 29 June 1966 to provide further assistance.[42]

Another frigate, SAS *Simon van der Stel* was involved in a much-publicised search and rescue operation at the end of June 1969 when two members of the weather station on Gough Island were reported missing. With its two Wasp shipboard helicopters and the Royal Fleet Auxiliary tanker RFA *Ennerdale* in support, a lengthy search and rescue operation was launched, more than 1 400 nautical miles (2 600 km) from Cape Town. The bodies of the two men were eventually located.[43] Gough Island was again the destination when the Navy was requested at the end of June 1972, to extract a seriously ill member of the SA weather team from the island. On this occasion, the frigate SAS *President Steyn* was dispatched, but the weather was so unfavourable at the island that its Wasp helicopter could not fly, and a small *Gemini* inflatable boat had to be launched to bring the patient to the ship.[44]

There is no doubt that these operations in the harsh conditions of the Southern Ocean honed the boat handling and seamanship skills of officers and men and tested the flying skills of air crews. In many cases, operational doctrines had to be developed to suit the unique conditions that prevailed. These types of humanitarian search and rescue operations created much public interest and made the headlines, much to the benefit of the public image of the Navy and the Air Force. The Navy later instituted a Sword of Peace to recognise such deeds of valour and humanitarian efforts.[45]

Replenishment at Sea: Extending the Reach

In 1967, the SAN commissioned a former Danish built oil tanker the *Annam* into service. Named SAS *Tafelberg*, it was the largest ship ever commissioned by the SAN at 557,7 feet (170 metres) long, with a full displacement of 25 300 tons. This provided new capabilities previously not available, and made it possible to supply other ships at sea with fuel, stores and fresh water, enabling them to operate over long distances, independent of other ships or foreign ports.[46] Prior to the arrival of SAS *Tafelberg*, the only other ship capable of carrying sizeable amounts of stores and victuals was the coaster *Gamtoos* (see previous section).

The absence of a SAN replenishment or supply vessel over the preceding twenty-year period (1946–1966) should be explained. The continued presence of the Royal Navy in SA waters contributed in this regard, by virtue of both its naval base in Simon's Town (up to 1957) and regular maritime exercises. The Royal Navy deployed its replenishment oilers during the annual maritime exercises held in Cape waters; the SAN thus benefitted greatly, with its own destroyers and frigates often on the receiving end of replenishment at sea (RAS) evolutions.[47] Although this all took place in the course of training exercises, the application of the RAS evolutions became important during subsequent operations, as was the case in June 1969 when the RFA *Ennerdale* replenished the destroyer SAS *Simon van der Stel* off Gough Island.[48]

The second consideration for the reluctance to employ a dedicated fleet replenishment vessel was the favourable geo-strategic position of the 1940s and 1950s. The availability of foreign but friendly ports along both the African west and east coasts eliminated any need for RAS operations. Amidst the changing political situation and gradual political isolation of apartheid South Africa during the 1960s and 1970s, the availability of a dedicated fleet replenishment vessel became increasingly critical.[49] Operations in the Southern Ocean were less affected by the changing geo-strategic position, but the "extension of the reach" was nevertheless an important capability and backup, where the range of a ship could easily be affected by worsening sea conditions or mechanical breakdown.

During her busy 25-year service career, SAS *Tafelberg* made surprisingly few voyages into the Southern Ocean and Antarctic region, even though she had been built with an ice-strengthened bow. A special request by the DEA did however take the *Tafelberg* to Marion Island in May 1990 with two Alouette III helicopters and members of the Special Forces Regiment on board. The purpose of this unusual operation was of an environmental nature – to cull the feral cat population on the island![50]

Closing the Distance: Maritime Aviation Developments

Significant technological aviation advancements overlapped the first decade of naval expeditions into the Southern Ocean. The delivery of new maritime patrol aircraft to the Air Force and the development of shipboard helicopter operations during the 1950s and 1960s were important. In this regard, a high level of interoperability existed between the Air Force and the Navy, which optimised operational effectiveness in the Southern Ocean.

The responsibility to patrol and protect the extensive SA coastal and EEZ areas had been (and remains) a joint task of the SAN and the Air Force. To meet this requirement effectively, the Air Force established an area command, known as 2 Group in 1950, which became Maritime Group in 1958 and then Maritime Air Command in 1969, initially based at Youngsfield near Cape Town, and then at Silvermine since 1973. A number of Air Force squadrons were assigned to the command and were located at the coastal airbases in Durban, Port Elizabeth, Cape Town and Langebaanweg.[51]

At the time of the annexation of Marion Island and Prince Edward Islands by the Navy in 1947 and 1948, the Maritime Group utilised the Short Sunderland flying boat for long-range maritime patrols of the SA coastline. The Sunderland saw service from April 1945 with 35 Squadron and was based at Congella in Durban. It was a capable aircraft (perhaps better known for its anti-submarine feats during the Second World War), but lacked the range to fly to the Prince Edward Islands and back. It could land on water at the island, refuel and make the return flight to the Union, but the typically unfavourable weather conditions, rough seas and high wave action made a water landing at the island a risky proposition and highly unlikely.[52]

An improvement that brought the Southern Ocean and more specifically Marion Island "closer to the Union" was the delivery of eight Avro Shackleton MR.3 aircraft to the Air Force from May 1957 to February 1958, to replace the Sunderlands. The new maritime patrol aircraft were allotted to 35 Squadron in Cape Town, a move that coincided with the relocation of the Navy from Durban to Simon's Town in 1957. The new capabilities of the squadron were put to the test barely a year later when a Shackleton made the first flight to Marion Island. The purpose of the mission was to provide exposure to the flight crews in the planning of long-range flights over water. The aircraft departed the (then) DF Malan Airport at 01:08 on 22 March 1958, reached Marion Island at 07:40, and remained in a holding pattern at 800 feet for almost 30 minutes. Radio contact was established with the weather station, and vertical and oblique photos were taken of the two islands. The Shackleton landed at Ysterplaat Air Force Base at 16:10 that afternoon, logging a total flight time of 15,04 hours in which 2 426 miles (3 904 km) were covered. The flight was planned to coincide with the visit of the hydrographic survey vessel SAS *Natal* to the island, which at the time, would be halfway en route, to act as a rescue and radio picket ship. A second training flight to Marion Island was undertaken just a week later, on 28 March 1958.[53]

Figure 3: The Shackleton flights of March 1958 provided the first aerial photographs of Prince Edward Island and Marion Island to the world.[54]

The first operational tasking of the Shackleton to Marion Island came on 5 July 1960, following a request from the Department of Transport to assist with the transportation of vital spares for machinery necessary to sustain operations on the island. The spares, together with official and personal mail for the staff were packed in nine supply-dropping canisters and loaded into the bomb bay of a Shackleton. The long flight to the island

provided navigational challenges, but was otherwise of a routine nature, this time with the frigate SAS *Good Hope* en route on picket duties. As expected, however, the weather conditions at Marion Island were not ideal, and the commander of the flight later reported that, on approach and having to descend to a lower level, conditions became extremely turbulent with the large Shackleton bouncing around 'like a leaf in the storm'.[55] The nine canisters were nevertheless released over the dropping zone and retrieved by the personnel of the weather station – all of the important spares and supplies intact. The Shackleton landed safely in Cape Town after another long flight of almost 16 hours.[56]

It was now possible to reach the island within 15 to 16 hours by aircraft, as opposed to the four or five-day passage by ship through the Southern Ocean. While fixed-wing aircraft could not transfer personnel to and from the island, it could drop cargo and equipment by air. This capability was again well demonstrated when a fire broke out at the weather station on Marion Island on 26 June 1966, and radio contact was lost with its inhabitants. A Shackleton was dispatched from Cape Town three days later to investigate, re-establish contact, and drop the necessary emergency equipment. The Navy frigate SAS *President Kruger* reached the island a week later.[57]

The development of the so-called "turboprop" – gas turbine engine, which superseded piston engine aircraft (such as the Shackleton) offered even more advances. The Air Force took delivery of seven Lockheed C-130B Hercules transport aircraft in 1963 that were allotted to 28 Squadron at Air Force Base Waterkloof (inland) near Pretoria.[58] The C-130 had a greater range and a higher cruise speed, and could carry and deliver a bigger payload than the Shackleton, and could fly above bad weather en route to the islands, because it was pressurised. From the mid-1960s, the C-130 was therefore often selected and favoured above the Shackleton for such missions. One of the most significant missions was an emergency supply drop of spare parts for a defective crane at Gough Island on 16 November 1971. The C-130 flew a 3 260-mile (5 246 km) round trip from Cape Town to the island and back.[59]

The third and last Air Force fixed-wing aircraft type to be utilised in operations to the Southern Ocean was the Boeing 707 of 60 Squadron. Five of this type was introduced into Air Force service from 1986, primarily for in-flight refuelling, transport and special missions, such as electronic warfare (EW) and intelligence gathering (ELINT). The Boeing 707 was originally built as a transatlantic–transcontinental airliner with a range in excess of 6 000 miles (9 600 km) and four turbojet engines, which ensured high-altitude cruise performance.[60] From September 1988, a number of long-range navigational training sorties were flown, to Marion Island (nine), Tristan da Cunha and Gough Island (three) as well as Bouvet Island (once). Many of the operations of the squadron were of a covert nature, and long-distance flights were often described (in the flight authorisation books) as "navigation" or "training" flights, but other sorties were more specific. A flight was made to Antarctica on 10 September 1988, which (at the time) was the longest operational flight ever made by an SAAF Boeing 707. Urgently needed medical supplies had to be air-dropped at the SANAE base, and the flight totalled 11 hours and 30 minutes, covering a distance of 5 319 miles (8 560 km).[61]

The illegal fishing of the highly sought-after Patagonian Toothfish off the Prince Edward Islands prompted the DEA to request the Air Force to investigate such activities. A Boeing 707 was tasked to fly to Marion Island in 1996 and was able to track four fishing vessels in or approaching the SA territorial waters around the islands – a protected no-fishing zone. Radio signals and messages were intercepted and recorded, while Air Force photographers captured the perpetrators on camera, which were later presented as evidence to authorities.[62]

Flying distance:	**Maximum range:**			
Cape Town – Marion Island – Cape Town	**Short Sunderland GR5 (1945)**	**Avro Shackleton MR.3 (1957)**	**Lockheed C-130B (1963)**	**Boeing 707-320C (1986)**
2 236–2 609 miles 3 600–4 200 km	2 671–2 982 miles 4 300–4 800 km	4 214 miles 6 782 km	4 848 miles 7 803 km	6 000 miles 9 600 km

Table 2: The introduction of new aircraft provided improvements in range to conduct safe round-trip (non-stop) flights from Cape Town to Marion Island.[63]

The Shackleton aircraft of 35 Squadron were phased out of service in 1985, and never replaced with a suitable long-range maritime patrol aircraft. Instead, the older Douglas C-47 Dakota and an upgraded version, the C-47TP (Turbo-Dak) were configured for maritime patrol work. Operating procedures of 35 Squadron however limited the effective range of the Turbo-Dak over water to only to 200 nautical miles (370 km) from the coast.[64] In November 2007, the Boeing 707s of 60 Squadron were withdrawn from service. To replace the type, an initial order was placed for eight Airbus A-400M transport aircraft (with long-range search and rescue capability), but the order was cancelled in November 2009, due to escalating costs.[65] The C-130B Hercules transport fleet, so often utilised for long-range search and rescue missions, have remained in service for 62 years; however, a lack of serviceable aircraft seriously hampers mission availability today. At the time of writing, the Air Force is without a dedicated maritime patrol aircraft.[66]

Helicopters on South African Navy ships

Until 1964, the SAN had no ships equipped to land or carry helicopters. The Air Force had acquired its first helicopters, the Sikorsky S-51 in 1948, and the larger Sikorsky S-55, in 1956. The need for a helicopter in naval expeditionary operations to the south became apparent following the January 1955 Navy expedition to Bouvet Island. The frigate SAS *Transvaal* had taken a team of the Department of Transport to investigate the prospects of establishing a meteorological station on the island. In his subsequent report, the Officer Commanding of Coastal Command highlighted the requirement for a helicopter, 'to assist the [next] expedition to reach the ice plateau [on the higher part] of the island'.[67] This request was supported by the Navy (Naval Chief of Staff), but ultimately not approved by the Air Force (Air Chief of Staff).[68] Although not stated, this was supposedly because the Air Force had only one S-51 helicopter in service at the time (it had lost two others in accidents) and the only Navy vessel that could possibly embark this (single) helicopter

was SAS *Good Hope*. The former frigate was converted to a dispatch vessel in 1954 and had a large reception deck fitted aft, which could be utilised as a quasi- "flight deck". The lack of enclosed stowage or hangar facilities for prolonged helicopter operations in the stormy Southern Ocean negated any further consideration. It was only two years later, in the calmer waters of Saldanha Bay, that the first helicopter deck-landing took place when an S-55 landed on the quarterdeck of the *Good Hope*.[69]

No further progress was made until 1964 when the Westland Wasp helicopter was taken into service by the Air Force. The British-built Wasp was a dedicated maritime helicopter built specifically to operate from the deck of a frigate. As part of the Simon's Town Agreement, an initial order was placed for ten helicopters, which were delivered between 1964 and 1966.[70]

To operate the Wasp helicopter, the SAN converted its two W-class destroyers to Type 16 fast anti-submarine frigate standard, with flight deck and hangar. These conversions, carried out locally between 1962 and 1966 coincided with the delivery of three new Type 12 (President-class) frigates, also part of the Simon's Town Agreement. These frigates were also progressively modified to the same standard, with the addition of a flight deck and hangar to carry the Wasp.[71] The unique abilities of a helicopter – to hover in flight, to land in confined spaces, and to hoist and carry cargo and personnel in a vertical manner – made them indispensable in expeditionary and search and rescue operations to the south.[72] The Wasp was not confined to operations off frigates alone, but was also suitable utilised when the hydrographic survey vessel SAS *Protea* entered service in 1972 (see section below).

Figure 4: A Westland Wasp helicopter from 22 Squadron on Marion Island in 1974. It flew from the hydrographic survey vessel SAS Protea to transfer personnel and cargo, amongst others, a number of field huts to allow scientists to conduct research in far-flung parts of the island.[73]

Apart from the Wasp, no fewer than four other helicopter types have operated from SAN ships through the years.

The Alouette III

The SAAF first took delivery of the French-built Aérospatiale Alouette III type in 1962. Alouette IIIs were added to 22 Squadron at Air Force Base Ysterplaat in 1978 to complement the Wasp helicopters already in service. The maritime Alouette III was easily distinguished by the emergency flotation gear and bright orange colour scheme they carried.[74]

The expeditionary capabilities of the Navy were enhanced considerably when maritime helicopters, such as the Wasp and Alouette III, were added to the various ships discussed in this section. The landing of stores and personnel on islands, such as Marion and Gough, were extremely hazardous. Prior to the introduction of helicopters, this required the use of smaller motor launches and whalers. Lives were lost in such operations, as was the case when Petty Officer (PO) JG Bold of SAS *Transvaal* drowned at Marion Island when the motor cutter and whaler of the frigate both capsized in a landing attempt on 10 April 1956.[75] The use of helicopters limited this risk while adding additional capabilities, effectively extending the range of the ship in search and rescue and vertical replenishment operations.

The SAS Tafelberg Conversion: The SAN "Helicopter Carrier"

The fleet replenishment vessel SAS *Tafelberg* was taken into service by the Navy in 1967 (see section above). In 1975, a small helicopter deck (without a hangar) was added to the stern of the ship, aft of the funnel. This made it possible to land the Wasp helicopter. The *Tafelberg* however underwent a major conversion in 1983–1984, which modified the vessel to a combat support ship. A large helicopter flight deck and big hangars were added aft, which made it possible to accommodate the largest helicopter in SAAF service, the French Aérospatiale Super Frelon, then in service with 30 Squadron at Air Force Base Ysterplaat. The Super Frelon and Puma helicopters from 30 Squadron, and the much smaller Wasp could now be operated together. This comprehensive conversion was carried out locally by the dockyard in Simon's Town, and provided SAS *Tafelberg* with a new lease of life and new capabilities.[76]

Puma and Oryx Helicopters

The locally built combat support vessel SAS *Drakensberg*, commissioned into service in 1987, was a large and versatile vessel of 12 500 tons equipped with a helicopter flight deck with two hangars that could accommodate two Super Frelon or Puma helicopters. The French Aérospatiale Puma entered SAAF service in 1972, and the type was added to 30 Squadron at Air Force Base Ysterplaat in 1980. For maritime duties, the Pumas at 30 Squadron were fitted with emergency flotation gear on the sponsons and nose. The Pumas accompanied *Drakensberg* on many significant expeditionary operations, especially at the dawn of the democracy in the early 1990s. This included a flag-showing cruise to Taiwan, crossing the Indian Ocean with two strike craft in 1990, a humanitarian relief operation to Turkey, transiting the Suez Canal in 1991 and representing South Africa at

the fiftieth commemoration of the Battle of the Atlantic in 1993.[77] The squadron was also responsible for Antarctic support missions, flying two Puma J models, owned by the DEA off the SA *Agulhas*. When 30 Squadron was disbanded at the end of 1991, the Pumas were transferred to 22 Squadron to replace the Wasps in the maritime role.[78]

From 1986, Atlas Aviation (now Denel Aviation) developed and produced an upgraded and remanufactured version of the Puma, known as the Oryx. The Oryx entered SAAF service in 1991, and was added to 22 Squadron by 1992 where it started flying operations from the SAS *Drakensberg*. In 1993, the Arctic supply vessel SAS *Outeniqua* was added to the fleet, and during 1994, it underwent a refit in which the flight deck and hangar were modified to allow the ship to operate two Oryx helicopters. To replace the Puma J models that were still operated on behalf of the DEA, two Oryx helicopters were modified and upgraded to continue the Antarctic service from the SA *Agulhas*. Designated the "Atlas Oryx M2", they were painted in a red and white 'coast guard' colour scheme, and entered service in 1997.[79]

Today, the Oryx helicopters of 22 Squadron continue to fly off SAS *Drakensberg* while the Super Lynx helicopters, which entered service in 2007, primarily operate from the Valour-class frigates. The new Project *Hotel* hydrographic survey vessel, under construction in Durban (see section below) at the time of writing, will be able to accommodate a Super Lynx helicopter.[80]

The SAN Workhorses: SAS Protea and SAS Drakensberg

In 1972, the SAN commissioned the new Hecla-class hydrographic survey vessel, SAS *Protea*. The "White Lady", as she was affectionately known, provided new capabilities that met the requirements for these hazardous southward journeys. The high standard of accommodation and facilities on *Protea* allowed for extended operations to the hostile and isolated Southern Ocean islands and Antarctica. Up to seven scientists could be accommodated on board while the hull design of the ship allowed for navigation in light ice.[81]

Early in 1978, *Protea* made its first voyage to Antarctica for the Department of Sea Fisheries in an international krill research project. This voyage included the rounding of Cape Horn via the Magellan Strait, the first SA naval vessel ever to do so. In line with her designated hydrographic function, SAS *Protea* was tasked in February 1987 to survey the approaches to Marion Island and to land an environmental impact study group on the island to consider the construction of an airfield there. One of the last passages south of the "White Lady" was in January 1994 under command of Captain (Capt.) Derek Law to Grunehogna 108 nautical miles (200 km) south of SANAE) Antarctica and Bouvet Island. In the process, Ensign Anne Myers became the first SAN female to cross the Polar Circle.[82]

For almost 34 years (1978–2012) the research and supply vessel, SA *Agulhas*, of the DEA was used on the route between Cape Town and the islands of the Southern Ocean and Antarctica, but the SAN was often called upon to assist when the vessel was not

available due to defects or repairs. Such interdepartmental partnerships have been a feature of the SANAP. The Department of Public Works (DPW) tasked with construction and maintenance of structures on Marion Island and at SANAE, while the Navy and Air Force provided the DEA with transport support to and from the islands and the to and from the Antarctic. To support this involvement, the 1998 *Defence Review* emphasised, 'the Navy and Air Force commitment [and support] was mainly a result of the country's membership of the [Antarctica] Treaty'.[83]

As mentioned previously, the combat support vessel SAS *Drakensberg*, commissioned into SA naval service in 1987, was the largest vessel ever designed and built in South Africa at the time. *Drakensberg* was designed to carry 5 500 tons of fuel and 750 tons of dry stores and ammunition while four on-board desalination plants could produce 70 000 litres of fresh water daily. The flight deck and hangar aft could accommodate two Puma or Oryx helicopters, while another landing spot forward enabled helicopter operations to take place both forward and aft simultaneously.[84] These capabilities proved useful and, as with SAS *Protea* in 1972, the new acquisition was well suited for extended operations to the Southern Ocean.

As early as 26 February 1988, SAS *Drakensberg* sailed south, rounded Cape Horn en route to Chile, and did so again on 5 April 1988 on the return voyage. In January 1991, *Drakensberg* rendezvoused with SA *Agulhas* at Bouvet Island in an operation code-named "Boval". This involved the transfer of crucial supplies of fuel, victuals and a Puma helicopter to the *Agulhas* in order to extend her stay in the Antarctic. The operation also allowed for the repair and recovery of a SANAE Puma helicopter stranded in Antarctica.[85]

Just a year later (February 1992) *Drakensberg* again came to the assistance of SA *Agulhas,* which had suffered a broken rudder in the pack ice of the Antarctic. The SAS *Drakensberg* became the first SA Naval vessel to proceed further south than 54 degrees south latitude when she reached the stricken *Agulhas* for the long tow back to Cape Town. With the damaged vessel undergoing repairs in Cape Town, the *Drakensberg* undertook the resupply of the Marion Island Base in March 1992.[86]

An Ice-Breaker: SAS *Outeniqua*

The long-serving fleet replenishment vessel of the SA Navy, SAS *Tafelberg*, was decommissioned in November 1992. Initially, no provision was made to replace SAS *Tafelberg*, but a fortuitous discovery by the Naval Command Council in 1992 that funds were available, led to the procurement of the *Juvent*, a Ukraine-built polar supply vessel, the following year. The 21 000-ton vessel was originally built in 1991 for the Soviet Navy to support its military bases in the Arctic, but was never taken into service due to the collapse of the Soviet Union.[87]

The *Juvent* was commissioned by the SAN as the SAS *Outeniqua*, in Simon's Town under the command of Capt. Jan Vorster on 8 June 1993. The vessel of 544,6 feet (166 metres) displaced 21 025 tons (full load displacement) and its ability to break ice was an

important advance for the SAN. The capacity to ship freight and outsized cargo was just as impressive with four heavy lift cranes, a very large internal cargo space for as many as 64 large vehicles and a roll-on, roll-off (ro-ro) capability that eased the loading and unloading procedure considerably. A helicopter flight deck was located aft, and two Puma and later Oryx helicopters could be housed inside the hangar.[88]

To test the crane lifting capabilities of the SAS *Outeniqua*, an exercise was conducted in Simon's Town in September 1995. Army heavy equipment, which consisted of an *Olifant* main battle tank (58 tons), a *G6* self-propelled howitzer (46 tons), and a *Rooikat* armoured reconnaissance vehicle (31 tons) were successfully loaded utilising all four of the cranes on the ship. Each lift took about an hour, due to the weights and operating modes of the cranes. The equipment was stowed in the tween decks of the *Outeniqua* and then lifted out of the ship again.[89]

Almost six years later, from 6 to 21 March 2001, Exercise Sealift was conducted in the harbour of Port Elizabeth under the direction of Chief of Joint Operations. It was conceded at the time that, if the SANDF was to supply a peacekeeping force and required to transport heavy vehicles, it had to be done by sea in lieu of an Air Force heavy lift capability. A total of 76 vehicles (more than the previously estimated number) and a variety of support equipment, representing a typical motorised combat team were loaded. The ship with all its staff and equipment then spent a few days at sea with the load before returning to the harbour to be unloaded.[90] These exercises displayed the importance of testing equipment and joint training for possible expeditionary operations.

The SAS *Outeniqua* was employed on numerous humanitarian missions, which included the expeditionary operations to the Southern Ocean and Antarctica, described below.

	SS *Gamtoos*	**SAS *Outeniqua***
Years in service	1942–1946 & 1947–1948	1993–2004
Length	58,52 m	166,3 m
Beam	9,37 m	22,6 m
Gross tonnage	794 tons	21 025 tons
Nett tonnage	377 tons (cargo)	8 590 tons (cargo)
Machinery	Triple-expansion reciprocating engine	MAN Burmeister & Wain diesel
Horse power	700 horsepower	13 200 kW
Speed	9 knots	16 knots
Range	3 000 nautical miles (5 556 km) at 8 knots	8 000 nautical miles (14 816 km) at 15 knots
Complement	8 officer & 47 ratings	17 officers & 109 ratings

Table 3: An illustration of two different capabilities available to the South African Naval Forces (1947–1948) and the South African Navy (1993–2004).

The first voyage south for the SAS *Outeniqua* was on 24 November 1994 with Capt. Jan Vorster in command (he previously commanded SAS *Tafelberg*), in the company of the SA *Agulhas* to transport building material and construction workers for the construction of the new SANAE IV base. The SAS *Outeniqua* became the first SA naval ship to break through Antarctic ice.[91]

Captain Tony Absalom was appointed Officer Commanding of the ship on 1 January 1995, and the *Outeniqua* departed Simon's Town shortly thereafter (12 January 1995) in support of the Department of Environmental Affairs and Tourism (DEAT) to assist in the construction of the new SANAE IV base at Vesleskarvet. The operation, dubbed "Southern Lights", was of a varied nature, as it carried 22 members of the SAAF aircrew relief team as well as eleven Navy women (Swans) on the trip. Gough Island, Zavadovskiy and Southern Thule were also visited to erect automatic weather stations there. The SAS *Outeniqua* was back in Simon's Town on 1 February 1995.[92]

During the following summer, the *Outeniqua* was at it again. The first of two deployments occurred in November and December 1995, when *Outeniqua*, still under command of Capt. Tony Absalom, accompanied SA *Agulhas* with additional personnel and equipment for the advancing SANAE IV base. On 7 February 1996, SAS *Outeniqua* left Simon's Town on her fourth voyage south, and this time stopped at Bouvet Island to replace weather station equipment en route to Antarctica.[93]

Almost all of the expeditionary operations to the Southern Ocean and Antarctica were now handed over to the capable *Outeniqua*, but the SAS *Drakensberg* (Capt. Robert Myers) also deployed south from 26 September to 7 October 1996 to transport personnel and equipment to the islands of Tristan da Cunha and Gough on behalf of the DEAT.[94]

The third Antarctic summer for the *Outeniqua* started on 2 November 1996 (Capt. Tony Absalom) when she again departed for the SANAE IV base, now nearing completion. In the company of SA *Agulhas*, unusual heavy ice delayed the progress, but it was still possible to convey some members of the relief team to the base by helicopter. On 1 January 1997, Capt. Ernst Lochner was appointed Officer Commanding of *Outeniqua,* and from the end of February to middle March 1997, the ship visited Antarctica to uplift a multi-national team of scientists at the Swedish base, Wasa.[95]

The 1997–1998 summer season again saw *Outeniqua* complete two voyages. On 4 December 1997, the ship left Simon's Town on her penultimate visit to Antarctica, again in the company of SA *Agulhas*. The Swedish base at Rampen Bukta was visited as well as the Muskeg Bukta bay, close to the new SANAE IV base. From there, *Outeniqua* sailed for South Thule Island and Zavodvski to service the automatic weather stations, and to lay approximately eighteen drifting weather buoys on the return voyage. The *Outeniqua* returned to Cape Town on 15 January 1998.[96]

Figure 5: The polar supply vessel and ice-breaker SAS Outeniqua supported the Department of Environmental Affairs and Tourism in Antarctica to complete the construction of the SANAE IV base.[97]

For the second leg of the annual deployment, *Outeniqua* (Capt. Ernst Lochner) picked up personnel and equipment at the Swedish base, Wasa. En route to Antarctica, two weather buoys were laid as part of the ongoing naval support to the Chief Director Meteorology. Five officers from foreign navies (Gabon, Belgium, Mozambique, Angola, and Brazil) had also joined the ship for the trip, on invitation from the Chief of the Navy. The SAS *Outeniqua* rendezvoused with the SA *Agulhas* near Rampen Bukta where cargo operations were completed before the SAN supply vessel returned to Cape Town on 4 March 1998.[98]

With the SANAE IV base completed and functioning properly, the work for *Outeniqua* diminished significantly. Under command of Capt. Glen Knox, who had assumed command of *Outeniqua* on 1 January 2000, the vessel made an emergency dash to Marion Island on 30 July 2001, to pick up two sick members at the weather station. The fully equipped medical facility on board and the ability to launch and recover helicopters made *Outeniqua* the obvious choice for this mission. Marion Island was reached on 3 August, and the ship returned to Simon's Town on 9 August 2001.[99]

The last sojourn south of the SAS *Outeniqua* was to Gough Island on 27 February 2003 to transport an emergency technical team to repair a defective generator on the island. Under the command of Capt. Charl Coetzee, Operation Cold Cut was successful completed, and *Outeniqua* was safely home again on 11 March 2003.[100]

The SAS *Outeniqua* was decommissioned on 30 July 2004 after a relatively short service span of eleven years, which included eight round trips to Antarctica. The arrival of the four new Valour-class frigates and three Type 209 submarines between 2003 and 2004 inevitably meant that personnel and financial resources had to be redirected toward the new projects. It was unfortunate that SAS *Outeniqua* with her unique capabilities had to go, but with the limited financial and human resources at the disposal of the Navy, not much else could be done at the time.[101]

Not Suited and Underutilised: Strike Craft and Frigates

The decommissioning of the last President-class frigate in 1985 left the SAN with the relatively small Minister-class strike craft (450 tons) as its major surface combatant. The Israeli-designed boats, designed for Mediterranean Sea conditions, rendered sterling service, but were not ideally suited to the rough local sea conditions, let alone the Southern Ocean. The strike craft SAS *Kobie Coetsee* however made a daring (and very rough) passage to Gough Island in February 1993 to fetch an ill member of the weather team. This mercy dash brought the SAS *Kobie Coetsee* to a very southern latitude for which it earned the SA Navy Sword of Peace for 1993 in recognition of this unique achievement.[102]

The commissioning of four Valour-class frigates (3 700 tons) from 2006 onward addressed this insufficiency, and provided the SAN with decent-sized warships of larger displacement and length. To this end, the Valour-class frigate, SAS *Isandlwana* (commanded by Capt. Mike Boucher) was called on to assist the crew of the Taiwanese fishing trawler *Lai Ching* that had sunk near the island of Tristan da Cunha. *Isandlwana* departed Simon's Town on 3 May 2011, and medical supplies were transported by means of the Lynx helicopter from the frigate after which eleven survivors were rescued. The SAS *Isandlwana* was back in Simon's Town on 11 May 2011.[103]

To date, this operation has been the only "mercy dash" by a Valour-class frigate to the Southern Ocean. The South Atlantic had been crossed on two occasions for Exercises Atlasur VI (November 2006) and Atlasur X (August 2014), but these were planned and scheduled operations, which took the frigates on a more northerly route; thus, avoiding the harsh weather and sea conditions encountered further south.[104] The Valour-class frigates have proved to be well-constructed and seaworthy ships, but in some aspects, they were more complex and fragile than the Loch-class frigates of the 1950s, especially when subjected to harsh conditions. The Navy therefore opted to stick to the primary mission profile of the Valour-class frigates, which is essentially surface warfare.[105]

The patrol capability of the Valour-class frigates has nevertheless been well demonstrated in other (more benign) areas of responsibility, such as the anti-piracy Operation Copper in the Mozambique Channel. The first deployment of a frigate commenced in February 2011, following the hijacking of a Mozambican fishing vessel by Somali pirates in the northern part of the channel.[106] Operation Copper deployments have continued, although with less frequency in recent years, while the Navy preferred to utilise the smaller and more economical Warrior-class offshore patrol vessels based in Durban.[107]

Stealthy Capabilities: Submarines go South

Following the withdrawal of the SAS *Outeniqua*, the SAN sojourns to the south became less frequent, but new ways were found to go south. The delivery of three new Type 209 submarines between 2006 and 2008 heralded the return of a significant capability. The new submarines offered improvements over their predecessors (the last of the Daphne-class submarines was decommissioned in November 2003) in terms of range and endurance.[108]

The SAS *Charlotte Maxeke* under command of Commander Roland Shortt left Simon's Town on 22 May 2008 to conduct the first submarine patrol off the Prince Edward Island group. The submarine with its crew of thirty-two made a discreet transit from Simon's Town to Marion Island, covered a distance of more than 2 300 nautical miles (4 259 km) and gained intelligence and evidence of illegal fishing on a number of vessels. This information, in turn, was referred to Marine and Coastal Management.[109]

As part of Operation Corona, the Submarine Squadron was tasked by Joint Operations Headquarters to prepare a submarine to conduct a patrol of the Prince Edward Island Group during April 2016. The aim was to detect and identify any illegal fishing and to observe the means and methods employed. SAS '*Manthatisi* set sail on 11 April 2016 for a three-week patrol under the command of Cdr Russel Beattie. The patrol was classified as "discrete", and the submarine remained dived for the duration of the patrol with the exception of a few hours on the surface. Her transit down south saw little activity, and then only outside the fringes of the SA exclusive fishing waters. Sea conditions were very rough and snorting routines[110] at periscope depth were 'to put it mildly', uncomfortable.[111]

Once in the area of operation, SAS '*Manthatisi* vigorously patrolled the waters surrounding the Prince Edward Island group but, apart from observing SA *Agulhas*, no other shipping was detected. On completion of the patrol of the area designated for surveillance, SAS '*Manthatisi* surfaced in trying icy sea conditions, hailed the Marion Island research and weather station, and exchanged pleasantries with the staff from approximately a mile (1,6 km) off the coastline. The return transit to Simon's Town was also relatively uneventful with only merchant vessels detected crossing the Agulhas Bank. Fog and rain accompanied the submarine for most of the voyage back as well as severe sea conditions. The SAS '*Manthatisi* returned to its home port in Simon's Town on the morning of 29 April 2016 having travelled 2 742 nautical miles (5 078 km).[112]

The DAFF and DEA Assume More Responsibility

Between 2004 and 2005, the Department of Agriculture, Forestry and Fisheries (DAFF) commissioned three Damen-designed inshore environmental patrol vessels: the *Lillian Ngoyi*, *Ruth First* and *Victoria Mxenge* together with one Damen offshore environmental protection vessel of 269 feet (82 metres), the *Sarah Baartman*. This vessel was to be employed as a fisheries protection vessel and was designed to be capable of patrolling the area around Marion Island and Prince Edward Island. The *Sarah Baartman* was commissioned for DAFF on 10 January 2005, and undertook her first patrol of the Southern Ocean and Marion Island shortly thereafter.[113]

In 2012, the DEA took delivery of a new icebreaking polar supply and research ship, named the SA *Agulhas II* to replace the SA *Agulhas* that had been in service since 1978. Unlike her predecessor, the *Agulhas II* was designed from the outset to carry out both scientific research and to supply the SA research stations in the Antarctic, a task for which the SAS *Outeniqua* was often employed. The modern vessel was built in Rauma Finland, displaces 13 687 tons, and is classified as a Polar Class 5 vessel. It boasts an impressive array of facilities and capabilities, and must rank as the most capable and suitable vessel to sail to the Southern Ocean islands and Antarctica to date.[114]

Future Prospects of Naval Operations South

The *South African Defence Review* of 2014 regards the Prince Edward Islands in the Southern Ocean a part of the SA strategic defence considerations. Antarctica is not mentioned specifically but support of the SAN by other government departments, such as the Department of Transport and the Department of Environmental Affairs is implied.[115] Furthermore, the latest *Defence Review* includes the requirement for a blue-water navy and expeditionary capability.[116]

Today, the non-availability of serviceable platforms cast serious doubts over the ability of the SAN to provide any form of additional logistical support in the Southern Ocean. The large supply vessel, SAS *Drakensberg,* has not sailed since April 2020, while only one of the four Valour-class frigates and none of three Type 209 submarines of the SAN are currently (2025) operational. A shrinking defence budget, which negatively affects the maintenance and scheduled upgrades of SAN ships and submarines, remains a real concern in this regard.[117] As a result, the SAN is no longer in a position to provide search and rescue or "mercy dashes" beyond its EEZ or into the Southern Ocean. This situation is compounded by the current lack of a dedicated maritime patrol aircraft, which could have supplemented this capability. The outdated C-47TP aircraft of 35 Squadron were finally phased out of service in 2025, leaving the country without any maritime air patrol capacity.[118]

The SAS *Protea,* which had sailed south on so many occasions, reached its fiftieth year in service in 2022, and has been earmarked as a training vessel, and therefore unlikely to undertake any further expeditionary operations again.[119] The construction of a new-generation hydrographic survey ship to replace the *Protea* is currently underway at Sandock Austral Shipyard in Durban, but the project is lagging behind schedule by about three years.[120] The 95-metre ship design selected for Project *Hotel* is based on a version of Vard Marine VARD 9 105 science vessel design, an evolution from the hydrographic survey vessels HMS *Echo* and HMS *Enterprise,* which were in service with the Royal Navy until 2023. The ship will have a secondary offshore patrol vessel role and equipment fit and, most importantly, an ice-strengthened hull, meaning that it will be able to operate during summer and autumn in thin first-year ice, which might include old ice inclusions. The ship will have a diesel-electric power plant with a capacity of about 12.24 MW, giving a maximum speed of 18 knots, with a range of 10 000 nautical miles (18 520 km) and an endurance of 44 days, and will carry a crew of 120.[121]

Project *Hotel* also includes two fully integrated inshore survey motorboats, and the upgrade of the current shore-based hydrographic office infrastructure at Silvermine. The survey of Marion Island and Prince Edward Island, as well as other islands in the Southern Ocean, should therefore receive renewed attention and enable the SAN, as a member state of the International Maritime Organisation, to continue producing nautical charts, survey and oceanographic related data, complying with standards stipulated by the International Hydrographic Organisation.

Figure 6: An artist's impression of the new hydrographic survey vessel of the SAN, currently being built in Durban as part of Project Hotel. A pennant number A187 has been allocated, while the ship will be named SAS Nelson Mandela. An ice-strengthened bow and the ability to carry a Westland Lynx helicopter will make it suitable to carry out expeditionary operations in the Southern Ocean.[122]

Conclusion

The study on which this article reported, considered the ability of the South African Navy (SAN) to conduct expeditionary operations, through a historical lens and with particular emphasis on one area of operations – the Southern Ocean and Antarctica. The historical character of the Navy had to be examined first, as it greatly influenced the growth and capabilities of the Navy through the years. It was argued that the nature of the SAN fleet, i.e. the size and number vessels at its disposal, greatly influenced its capacity to conduct expeditionary operations.

Even so, the equipment and expertise that were at its disposal still provided the (only) most effective way for government to reach the isolated and desolate islands in the Southern Ocean. It was only with the arrival of dedicated ice-strengthened polar research and

supply vessels, operated by the responsible government departments that the role of the Navy changed. The addition of the *RSA* in 1961 and the SA *Agulhas* in 1978 consigned the responsibilities of the Navy to the more occasional mercy dashes, to pick up critically sick patients, or to conduct search and rescue operations.

The SAAF acquired the Avro Shackleton maritime patrol aircraft in 1957 and the Westland Wasp helicopter from 1964 as part of the Simon's Town Agreement. Such technological advancements enabled the Air Force to support naval operations in the Southern Ocean. Other helicopter types, such as the Puma and Oryx, were fully integrated into shipboard operations of the Navy and the Department of Environmental Affairs (DEA).

The South African National Antarctic Programme (SANAP) and the DEA continued to cooperate with the Navy in joint operations. The hydrographic survey vessel SAS *Protea* (from 1972) and SAS *Drakensberg* (from 1987) were well suited to provide assistance when called upon, and made several voyages south. From 1993, the dedicated Antarctic supply vessel and ice-breaker, SAS *Outeniqua* was fruitfully employed for the SANAP and more specifically to assist with the completion of the new SANAE IV base. In its eleven years of service, the SAS *Outeniqua* made eight round-trip voyages to the Antarctic, but also provided the Navy with other unique capabilities in other operations.

Between 2003 and 2008, the SAN was re-equipped with four Valour-class frigates and three Type 209 submarines, but in contrast to the 1950s, these new vessels (especially the frigates) were sparingly utilised in operations to the south. Fortunately, this was offset by the addition of the offshore environmental protection vessel, *Sarah Baartman* in 2005 (operated by the Department of Agriculture, Forestry and Fisheries [DAFF]) and the modern polar supply and research ship SA *Agulhas* II in 2012 (operated by DEA) which compensated for the absence of the Navy.

The frequency of the visits by the SAN to the Southern Ocean and Antarctica has therefore decreased significantly during the last twenty years. Congruently the serviceability and available of the "ready ships" of the Navy have been drastically reduced during the last ten years to a point where only one of four frigates and one of three submarines are serviceable, mainly due to a shrinking defence budget and subsequent long overdue maintenance schedules. This alarming situation casts serious doubts over the ability and capacity of the Navy to conduct any form of expeditionary operation at present. The Air Force experiences the same difficulties. The lack of a dedicated long-range Maritime Patrol Aircraft has compromised the ability to monitor and protect the South African maritime resources and to perform long-range search and rescue missions effectively.

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[*] Commander Leon Steyn is a historian in the South African Navy and the curator of the Naval Museum in Simon's Town. Cdr Steyn's research focuses on the history of the South African Navy with particular emphasis on its society and the transformation of the organisation.

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