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South Africa to play key role in unprecedented international scientific expedition off Antarctica

UCT ocean researchers to explore coldest and harshest sea

In an event held at The Royal Geographical Society in London today, it was announced that, during January/February 2019, a major international scientific expedition will explore one of the coldest, harshest and most remote locations in the world: the Weddell Sea off Antarctica.

Ocean researchers from the University of Cape Town (UCT), Nelson Mandela University (NMU) and the South African Environmental Observation Network (SAEON) will join an international team of scientists from institutions around the world, including the Nekton Foundation in the United Kingdom (UK) and the University of Canterbury in New Zealand.

Professor Isabelle Ansorge of UCT said: "Participating in the Weddell Sea Expedition 2019 will give South African researchers an unprecedented opportunity to investigate and explore one of the most remote, and least-studied place on our planet, and to collaborate with international research colleagues across different disciplines."

The objective of the expedition is to survey the underside of the Larsen C Ice Shelf, document the rich and little-studied marine life of the western Weddell Sea ecosystem, and attempt to locate the wreck of Sir Ernest Shackleton's ship Endurance, which was trapped and crushed by the ice and sunk there in 1915.

South African research organisations and scientists will play a vital role in the Weddell Sea Expedition 2019. The 45-day voyage will be conducted from the South African polar research and logistics vessel the S.A. Agulhas II, owned by the Department of Environmental Affairs, and managed by South African company Amsol. Built in 2012, the vessel is one of the largest and most modern research ships anywhere in the world, has a wide range of science laboratories and facilities, and offers a powerful and effective platform for the multi-disciplinary research.

Antarctica has about 1.5 million square kilometres of floating ice shelves, which have been surveyed and studied from above, but only very rarely from beneath. Many of these ice shelves are thinning and retreating rapidly, making scientific investigations here very timely. The Larsen A and B ice shelves collapsed suddenly in a matter of weeks in 1995

and 2002, respectively, and one of the biggest iceberg calving events ever recorded took place from Larsen C Ice Shelf in July 2017. Ice shelves are of particular scientific interest because they are susceptible both to atmospheric warming from above and ocean warming from below.

The vessel has been chartered by a charitable trust in the Netherlands, The Flotilla Foundation, which will use the ship for a pioneering programme of science and exploration planned by Professor Julian Dowdeswell, Director of the Scott Polar Research Institute at the University of Cambridge in the UK. The team will comprise glaciologists, marine geologists, marine biologists, marine biogeochemists, oceanographers and marine archaeologists, who will use autonomous underwater vehicles (AUVs) to survey the sea floor down to beyond 3 000 metres, study cavities on the underside of the ice shelf, and search for the wreck of Endurance.

The Weddell Sea has been nominated as a large, international Marine Protected Area, with the support of the South African government, so the expedition will gather vital baseline data on the rare and little-studied species which inhabit this icy ecosystem, as well as studying the key physical processes driving changes in the region's sea ice, ocean currents and the fringing ice shelves.

Prof Dowdeswell commented: "Ice shelves surrounding the Weddell Sea are important because they affect the mass-balance and stability of the Antarctic Ice Sheet, as well as ocean-current circulation. If ice shelves thin, break up to produce icebergs and retreat as the atmosphere and ocean waters warm, then ice flow from the interior accelerates and more mass is lost, contributing to global sea-level rise. Melting at the base of ice shelves and calved icebergs also releases fresh water which can inhibit the generation of very dense Antarctic Bottom Water; one of the major drivers of the thermohaline circulation of the oceans, which provides vital nutrients to major fishery grounds around the world."

The Weddell Sea Expedition 2019 hopes to inspire young people about science, engineering and technology, and the protection of Antarctica, and is partnering with the Royal Geographical Society to ensure that the expedition's research and findings are disseminated as widely as possible to schools and students in South Africa, the UK, and beyond. The programme will also work with the existing schools outreach programmes developed in South Africa by UCT and NMU to expand student knowledge of polar science and environmental issues in the Weddell Sea.

Notes to editors

For more information about the about the South African Environmental Observation Network click [here](#).



The SA Agulhas II to be used for the expedition (above and below). Credit: Toucanmoon



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