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UCT scientists aboard vessel to study harsh winter conditions in the Southern Ocean and Antarctica's sea ice

On 15 July 2019 the South African research vessel SA *Agulhas II* departed from Cape Town bound for the Southern Ocean and Antarctica's winter sea ice. Onboard are 25 researchers from the University of Cape Town (UCT), joining 70 participants from South Africa and the rest of the world.

The expedition – which is part of a large collaborative project sponsored by the South African National Antarctic Project (Southern Ocean Seasonal Experiment, [SCALE](#)) – plans to study winter conditions in the Southern Ocean and Antarctica's sea ice. Something scientists realised we knew very little about after they unexpectedly saw extreme changes to Antarctic sea ice during 2016.

In addition to Associate Professor Marcello Vichi from the UCT Department of Oceanography, the cruise's chief scientist, there are two principal investigators from oceanography – Dr Katy Altieri and Dr Sarah Fawcett – and three from the Faculty of Engineering & the Built Environment – Associate Professor Amit Mishra, Tokoloho Rampai and Associate Professor Sebastian Skatulla.

The team will also be the first to use a new mobile polar laboratory they've installed on the SA *Agulhas II* – a joint effort between UCT engineering and oceanography.

During 2016, the natural, seasonal melting of sea ice in Antarctica happened in less than a month between October and November – something that had never happened before. It usually takes three to four months to melt. During 2016, the extent of the ice also reached a record low.

As Vichi describes it, the 2016 melt "had an interesting statistical consequence: it wiped out the apparent increasing trend that has been reported for Southern Hemisphere sea ice previously." A trend that had, up to then, been in stark contrast to the dramatically declining sea ice in the Arctic.

Antarctic sea ice is usually measured throughout the year using satellites. However, the reliability of remote sensing relies on direct measurements taken by scientists on the ice – and only very few of those measurements have been taken during winter.

“Winter cruises to the Antarctic are essential to bridge this gap in our knowledge,” continues Vichi. “South Africa – and UCT – have contributed considerably to collecting more winter data over the past few years.”

This winter cruise of the *SA Agulhas II* is just one component of the extended SCALE programme. Later this year, during October and November, there will be a similar spring-time expedition to cover the period when Antarctic sea ice is melting more quickly.

“Lots of exciting new science is expected from this project. It will provide the first coverage of an entire seasonal cycle of sea ice in the Atlantic sector of the Southern Ocean,” says Vichi.

The cruise is a collaboration between several South African institutions (the Cape Peninsula University of Technology, the Council for Scientific and Industrial Research, South African Weather Service, Stellenbosch University and the University of Pretoria) and international partners in Australia, France, Germany, Sweden and the United Kingdom.

During August, after the *SA Agulhas II* returns to East London, the vessel will be open for two days (on 9 and 10 August) for schools and the public. This is an opportunity for people to see in-person how sea ice is measured and engage with scientists and students.

ENDS



SA Agulhas II

Credit: Brenton Geach/UCT

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