

# Sonardyne technology helps locate Shackleton's historic Endurance vessel



Having been lost for more than 100 years beneath more than 3,000 metres of sea ice in the Antarctic's Weddell Sea, the almost fully intact wreck of Ernest Shackleton's *Endurance* has been found, supported with underwater navigation and positioning technology from Sonardyne.

The pioneering search, launched in February this year, saw the Endurance22 team deploy Saab Seaeye Sabertooth

hybrid autonomous underwater vehicles (AUVs) from the ice-breaking polar supply and research ship *SA Agulhas II*.

## Underwater robots with hybrid acoustic-inertial navigation

During their hunt of the seabed, close to where the 1914–1917 expedition came to its end, these underwater robots used Sonardyne's [SPRINT-Nav](#) hybrid acoustic-inertial navigation system (INS) technology to navigate their search routes. They also used Sonardyne's [AvTrak 6](#) tracking and telemetry transceiver, to send commands and position updates from a Ranger 2 Ultra-Short BaseLine (USBL) system, also from Sonardyne, onboard the *SA Agulhas II*.

"It is amazing what the team have achieved, given the extreme depths and under the ice conditions they were working in," says Geraint West, head of science at [Sonardyne](#), who has himself been involved in hunting for wrecks in the Antarctic. "The stunning condition of the *Endurance* as it rests on the seabed, like it's been frozen in time, really is astounding and beyond our wildest hopes."

"We're thrilled that it was our positioning and navigation technology and expertise that were chosen to support this what can only be called extreme science mission and we congratulate the [Endurance22](#) team on their historic discovery. I'm sure this is also just the start of the story, as we begin to learn more about the remains of this historic ship."

## 3D models and true colour images of the wreck

For ease of deployment, the Ranger 2 was configured with a Gyro USBL transceiver. This comes with an inbuilt attitude, heading and reference sensor (AHRS) and is pre-calibrated, making it easy to deploy on vessels of opportunity. A second Ranger 2 Gyro USBL system was also on hand, ready to be deployed from the surface of the ice if the *SA Agulhas* was unable to get through the Weddell Sea's sea ice. Both were LMF systems, enabling tracking at ranges beyond 7,000m, to meet the Endurance22 team's potential under-ice tracking requirements.

Sonardyne's sister company, [Voyis](#), also had equipment on the project. Its Insight Pro and Observer stills camera were integrated into the [Saab Sabertooth](#) to generate 3D models and capture high-resolution true colour images of the wreck, all geolocated by Sonardyne navigation data.



One of the Endurance22's two Saab Seaeye Sabertooths, showing the blue cap of Sonardyne's AvTrak instrument near the front of the vehicle. (Photo: Esther Horvath / Falklands Maritime Heritage Trust)