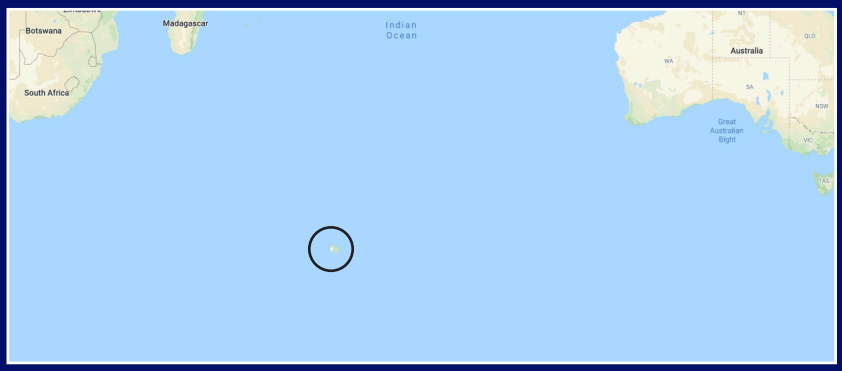
ROVER
CASE STUDY

On June 4th, around 11 am AST Xeos technologies was notified by a customer in Cape Town, South Africa that a USV (Unmanned Surface Vehicle) was in distress in the Southern Ocean. The customer was trying to co-ordinate with a fishing boat in the area off the coast of Kerguelen Island (circled below) to retrieve the vehicle.



The problem arose from the location of the mission, where deep in the Southern hemisphere there wasn't enough light to continually power the vehicle, which runs on solar power. June in the southern hemisphere is right in the middle of winter, with almost 16 hour darkness.

The USV would recharge enough for one position to be transmitted by the onboard system and then lose connection to the operator. The timing of these position reports were sporadic, which of course was a concern of the operators of the vehicle. Losing a USV of this value (> $500k USD) and importance to research would be a huge loss for the program run by CSIR.

Xeos was contacted by the customer, since transmissions from the USV were becoming less and less frequent. Luckily, this USV had a backup Iridium/GPS tracker onboard that would allow them to track it without communications from the main system. It was time to shine for the Xeos Rover beacon!

Before the mission in October of 2019, new batteries were installed in the Rover (as they always should be) which allowed for some flexibility around the report rate that could be set. At launch, the Rover was set to transmit a position every 18 hours at the choice of the operator. Under the distress condition, the customer wanted to change the report rate to every 5 minutes so the nearby fishing vessel could get an accurate and up-to-date position. Having the ability to see the voltage left in the Rover through Xeos Online, it was deemed safe to update the report rate to 5 minutes. The commands were sent over Iridium by the Xeos team with the help of the vehicle manufacturer's technical support and the Rover began to transmit every 5 minutes.

Fast forward almost 24 hours, and the customer was able to talk with the fishing boat and get them in the right area. Using the 5 minute GPS reports from the Rover, the USV was recovered! It was high-fives all around at the Xeos office when we got the emails confirming the recovery. The USV will be delivered to Madagascar at the end of the month and sent back to Cape Town for a dust off... and some new batteries for the Rover!

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