



Satellite Communications

The SPECTRE system is capable of using the Iridium RUDICS satellite network for communications world-wide.

This means that a scientific research vehicle can be far offshore, beyond the range of conventional radio modems, and still be piloted remotely. Live and historic data, from sensors and scientific instruments can be transferred over the network, allowing access to data during the mission. The operator workstation software, RCW, connects from any location via the Internet, allowing multiple pilots and observers to log in simultaneously. Built into RCW is a system to allow pilots to communicate with each other, so that control can be passed from one pilot to another and acknowledged.

This system was tested in extreme circumstances in 2014 when used on a 3.5m wave powered Autonaut vehicle that launched from the Scilly Isles as part of the MASSMO

mission organised by NOC (National Oceanography Centre). The vehicle was piloted to a position 160 km west of the Scilly Isles before returning to the launch site for recovery. In the trial the vessel successfully tracked fish that had been fitted with acoustic trackers.

Satellite communications were maintained at regular intervals, and allowed pilots to maintain control over the vessel, monitor the power consumed by scientific instruments using the Power Management Modules, and monitor the power produced by solar panels and a fuel cell on-board. During the 13 day mission, the vessel experiences high waves, storms, and even rolled multiple times in the storms, but continued to complete the mission successfully.

