

Greensea unleashes autonomous ROV for underwater exploration



Greensea Systems, a leading provider of marine robotic software solutions, has successfully demonstrated untethered autonomy for remotely operated vehicles (ROVs). The company used a Defender ROV from VideoRay, equipped with batteries, an acoustic modem and the new OPENSEA Edge system, to showcase the untethered operation of an ROV at sea.

OPENSEA Edge, which runs on a dual parallel NVIDIA edge platform, processes data onboard and eliminates the need for a topside computer via the tether. This software handles the sonar and video perception feeds while providing autonomy, navigation, communications and task management for the robot. By reducing the amount and frequency of data being transmitted, Greensea was able to use a lower bandwidth/higher latency communication method, such as acoustic modems.

Autonomous ROV successfully operated at sea

During recent operations at sea, [Greensea](#) demonstrated that the [VideoRay Defender](#) equipped with [OPENSEA Edge](#) could search, classify, map and inspect during a mock EOD mission while being untethered. The company also used its Safe C2 technology for seafloor to over-the-horizon communications, enabling the ROV to be supervised over low bandwidth and high latency-sparse data connections by an operator using a tablet.

“Eliminating the tether, surface ship and on-site operator from ROV operations presents the opportunity for the industry to realize a new era of working in the ocean”, said Ben Kinnaman, Greensea’s CEO. “In this concept, our reach into the ocean is infinite and presence persistent. This demonstration shows that it is possible, affordable and enabling.”

Greensea’s partners in the test were [VideoRay](#), [SeeByte](#) for the Automatic Target Recognition (ATR) on OPENSEA Edge, and [OceanComm](#) for the acoustic modem solution. The company will demonstrate the latest developments of OPENSEA Edge and Safe C2 at Ocean Business, held from 18–20 April in Southampton, UK.



VideoRay in untethered autonomous operation. (Image courtesy: Greensea Systems)