FlightWave Edge™ Deployed in Cutting Edge Study Aboard the Schmidt Ocean Institute's R/V Falkor

UASs and autonomous vehicles aiding international research into ocean fronts

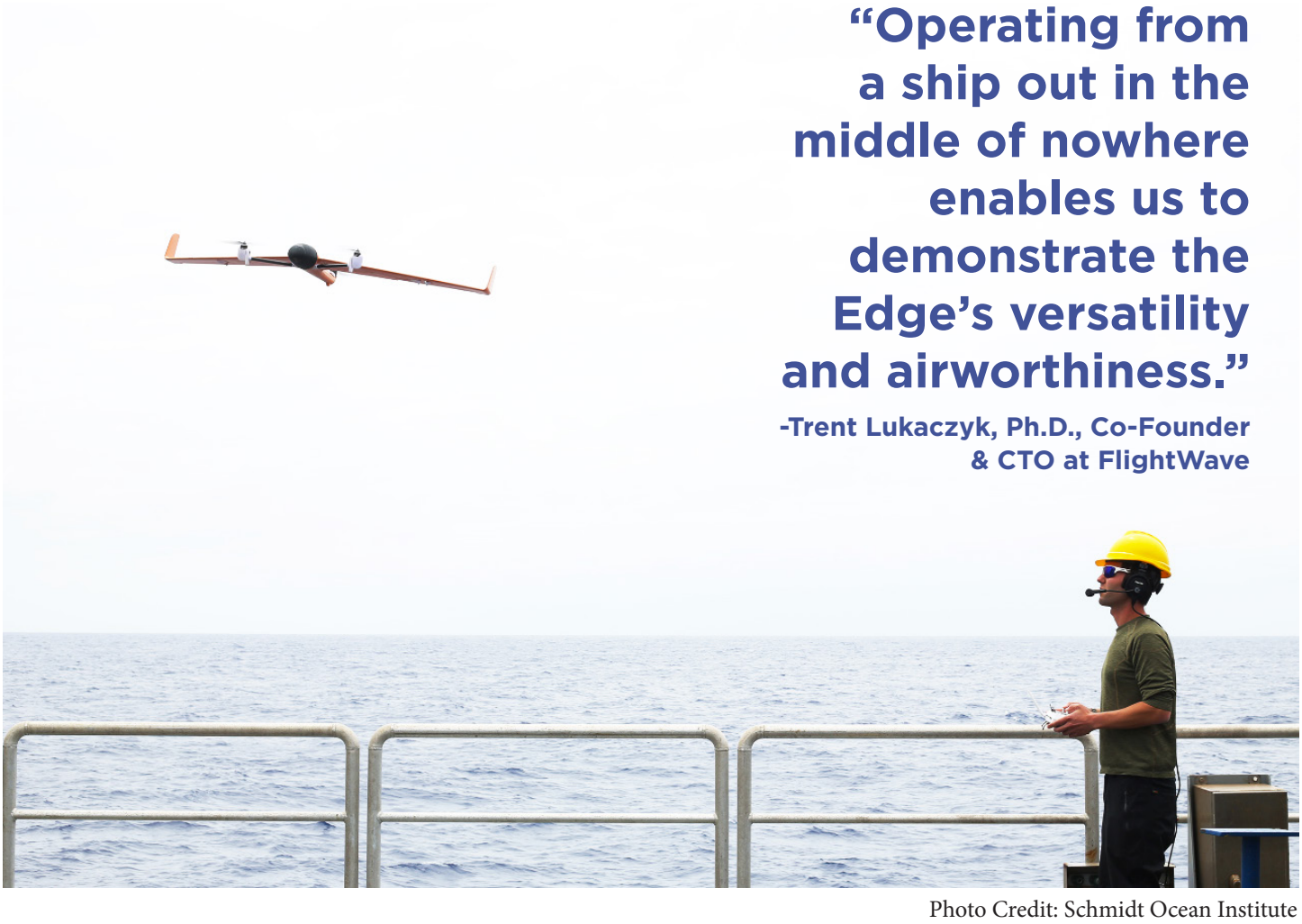

Photo Credit: Schmidt Ocean Institute

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The FlightWave Edge™ UAS is part of a high-tech flotilla of underwater vehicles (AUVs), autonomous surface vessels (ASVs), and unmanned aerial vehicles (UAVs) being used on the research ship R/V Falkor enroute to an area of the Pacific Ocean approximately 1,000 miles west of Southern California in an area called the Subtropical Front. The mission: Establish a new method for observing dynamic ocean systems and processes with autonomous vehicles that maintain constant communication between themselves and a remote control center on the Falkor.

The ecological mysteries of the Subtropical Front are extremely important for scientists to unravel and understand, and also offer a highly valuable opportunity for researchers to experiment with the simultaneous management of multiple autonomous vehicles.

Principal Investigator João Tasso de Figueiredo Borges de Sousa of the Laboratório de Sistemas e Tecnologias Subaquáticas (LSTS) from Porto University and his team are leading the effort, along with researchers from the Interdisciplinary Centre of Marine and Environmental Research (CIIMAR), a leading research and advanced training institution of the University of Porto in Portugal; Technical University of Cartagena in Spain; Norwegian University of Science and Technology in Norway; and U.S. researchers from Harvard, University of Rhode Island, and Lamond-Doherty Observatory.

The Edge will be working as part of a system of autonomous marine vehicles to map out ocean fronts. Researchers will use it to try out three types of sensors: a thermal camera to measure sea surface temperature, a multispectral camera to detect plankton, and a special sensor made by NASA that measures a gas called DMS emitted by plankton.

"Operating from a ship out in the middle of nowhere enables us to demonstrate the Edge's versatility and airworthiness," said FlightWave co-founder and CTO Trent Lukaczyk, Ph.D. — who is part of the team at sea. "And there's only one good place to land: back on the ship. The Edge's VTOL and payload swapping are important capabilities out here. And networking into a system of autonomous assets via the Falkor's network and supercomputer puts this demo on a whole new level."

The Falkor set sail May 28 and is scheduled to be back in port on June 17. Follow the voyage's progress online and on Facebook, Twitter and Instagram.

Discover more about the Edge at FlightWave.aero.

About FlightWave

FlightWave Aerospace Systems Inc. is a California-based aerospace company that designs and manufactures unmanned aerial systems. Our groundbreaking technology enables aerial operations anywhere on the planet, empowering government agencies, private companies, and nonprofits to get more mission for their money. Whether your goal is protecting assets, mapping the environment, or monitoring wildlife, FlightWave has one mission in mind — yours. Learn more about FlightWave at http://flightwave.aero.