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Networked Vehicle Systems for Ocean Observation: from Concepts to Operations

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3:00-4:00 pm Seminar

Abstract

The future of ocean observation will be significantly different from the current state-of-the-art. In fact, unmanned underwater, surface, and air vehicles are already delivering new capabilities, but this is just the beginning. Trends including miniaturization of sensors and computer systems, energy harvesting from atmospheric/ocean phenomena, power sources with increased energy-density, and increased subsystem standardization and modularity, as well as advances in networked autonomy, will have transformational effects in the future. This talk presents the University of Porto's LSTS vision for ocean observation, describes the vehicles, tools, and technologies under development to achieve this vision, and discusses large scale operations where developments are being evaluated and tested. There will be an equal emphasis on the conceptual contributions and on the LSTS vehicles and open-source software that yield more immediately practical benefits for ocean observation. The LSTS communications, command, and control software (http://www.lsts.pt/toolchain) is already enabling shipboard systems, sensors, computers, unmanned underwater, surface, and air vehicles (http://www.lsts.pt/vehicles/), and scientists-in-the-loop to perform synoptic observation and analysis of ocean processes on unprecedented time-space scales.