

Energy Harvesting and Autonomous Underwater Vehicle Docking to Power a Persistent Presence of Oceanographic Instrumentation

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Abstract

The Monterey Bay Aquarium Research Institute (MBARI) includes a focus on expanding a persistent presence of oceanographic instrumentation in the ocean. Projects include vehicle development and reliability, instrumentation development, autonomy, and techniques for environmental energy harvesting and autonomous vehicle docking for energy transfer. This lecture will outline recent efforts to develop and field a small wave-energy harvesting device and new docking techniques for the MBARI long-range autonomous underwater vehicle platform. A description of these efforts, results from recent deployments, and an outline of the scientific explorations currently being supported will be presented.

Biography

Andrew Hamilton has served as the engineering division chair at MBARI in Moss Landing, California, since 2020, and has been a mechanical engineer at MBARI since 2002. He completed a bachelor's degree in mechanical engineering at the University of Colorado in 1991, and a doctorate degree in mechanical engineering at the University of California, Berkeley, in 2001. Andrew's engineering and research interests include energy harvesting for powering autonomous systems, deep-water mooring design, hydrodynamics of underwater vehicles, underwater vehicle docking, embedded systems, and control systems.

