

## **SURVICE DEVELOPS AUTONOMOUS NAUTICAL CHARTING SYSTEM**

BELCAMP, MD (August 27, 2009) – The Harford County, Maryland-based SURVICE Engineering Company recently completed a research effort for the National Oceanic and Atmospheric Administration (NOAA), to develop a new underwater charting system. The patent-pending system, named ARGUS™ (for Autonomous Remote Global Underwater Surveillance), harvests position and depth data from the chartplotters of underway vessels to provide contour mapping of the sea floor.

Using ARGUS, system planners estimate upwards of ten-fold savings over conventional surveying methods, as there are minimal costs associated with dedicated equipment, vessels, and manpower. The system simply rides onboard participating vessels, inconspicuously and autonomously collecting data as the vessels proceed along their normal routes. No interaction with the system is required on the part of vessel operators, and vessel owners are compensated for the collected data.

Most vessels transiting the world's waterways are already equipped with relatively inexpensive chartplotters, providing vessel operators with location (global positioning system) and water depth (sonar) measurements. ARGUS automatically monitors these chartplotters and records their essential outputs, as well as outputs from its own proprietary internal sensors. Then, using any number of wireless communication options, including cellular and Wi-Fi, the onboard data is remotely harvested from the individual vessels.

ARGUS's primary benefit to the marine community is providing the latest depth observations in areas with the most marine traffic (where accurate depths are most needed) and in remote areas inaccessible to larger survey vessels. The networked "vessels-of-opportunity" provide not only water depths, but even more importantly, the process highlights where conditions are not in agreement with the latest chart data. Accordingly, ships will be able to avoid areas where shoaling has occurred or where obstacles have been introduced. In addition, ARGUS data can assist in establishing priorities for more detailed surveying and/or dredging operations. The process is optimized to provide the lowest area survey cost as the number of networked vessels increases, which in turn decreases the likelihood of groundings and the associated environmental and liability impacts.

As part of the NOAA-funded research, SURVICE operated with the assistance of Flying Point Marina in Edgewood, MD, to collect data in the Bush River and Chesapeake Bay. The system and its proprietary processing were demonstrated to successfully account for tidal variations, static and dynamic vessel offsets, and environmental conditions, with location and water depth accuracies meeting International Hydrographic Organization survey standards. SURVICE is also currently conducting a related autonomous surveying project for the U.S. Navy.

Additional capabilities undergoing separate development efforts provide for the simultaneous logging of environmental sensor data and fish-finder outputs for mapping fish populations. SURVICE is also developing the capability to take full advantage of the inherent meshed network that ARGUS creates, providing two-way high-speed Internet connectivity at considerable distances offshore by leapfrogging the transfer of data between vessels. Implementation of these additional capabilities will significantly reduce the cost of the targeted survey data.

For the development effort, SURVICE is teamed with the Geographic Information Systems Program within the Center for Environment and Society at Washington College in Chestertown, MD; GEOSat Solutions in Hollywood, FL; and Marine Satellite Systems in Havre de Grace, MD. ARGUS is expected to be ready for production at the end of the next development phase, and SURVICE will be looking to team with wireless service providers and chartplotter manufacturers for future factory-integration of the technology. The development plan in place calls for establishing a pilot network in Maryland's Baltimore Harbor.

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