

Final Report

A Pressure Tight Water Sampler for AUVs

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In recent years AUVs have developed into reliable platforms capable of carrying a wide variety of environmental sensors for in-situ chemical measurements. Physical sample collection however remains difficult, due to the combination of space, power and complexity constraints inherent in working with autonomous platforms. The AUV sampler is a small (12 cm x 85 cm) cylindrical package designed to collect eight 20ml gas tight volumes of water, with each sample maintained at high pressure to depths of 2000 meters. The motivation behind this device is to provide high quality autonomous water sample collection and return for accurate analysis of dissolved chemicals without degassing. Additionally the system can be used to ground truth in-situ chemical measurements.

As proposed, the design and preliminary test results for a small gas tight water sampler (Figure) intended to work on scientific AUVs have been completed. We expect to start using this device routinely on AUVs in the coming months.

A paper published in the 2006 IEEE Oceans/MTS Conference which details our work is attached.

