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**RockBLOCK Iridium link provides crucial data communication for novel new Arctic research system**

* ***New expendable ‘Pop-up Buoys’ designed to measure under-ice conditions***

A team from the ITAE (Innovative Technology for Arctic Exploration) collaborative research effort by University of Washington (JISAO), University of Alaska Fairbanks (UAF), and NOAA engineers and scientists at the Pacific Marine Environmental Lab (PMEL) have integrated the RockBLOCK Iridium communication device from UK company Rock Seven in a unique new system designed to collect data on under ice sea conditions.

RockBLOCK will provide the crucial communication link for researchers to study oceanographic conditions in the Arctic using the entirely new concept of ‘Pop-up Buoys’ otherwise referred to as ‘Expendable Floats’. This new technology overcomes many of the unique challenges of deploying and recovering equipment in the incredibly harsh, unpredictable environment during annual sea-ice breakup. The first version of the system will collect information on Depth, Temperature, and Photosynthetic Active Radiation; the first deployment is expected to take place in early 2017, as permitted by ship schedules and research cruises.

The Pop-up Buoys are designed to be deployed from a research vessel during the ice-free season, where they remain anchored on the seabed for many months until the surface is completely covered in sea ice. At a designated time for each device, a release is triggered which allows the buoys to float upward in the water column and float just under the ice. The buoys remain under the ice until they are forced out by break-up and melting, transmitting their data to shore via RockBLOCK when they arrive at the surface.

*“Conditions just under Arctic sea ice during Winter and Spring months are largely a mystery. However, we do know those conditions play a critical role in shaping one of the world’s most highly productive ecosystems during the ice-free Summer months,”* said LT Daniel Langis, NOAA/PMEL - EcoFOCI/EDD. *“The Pop-Up Buoy is a new type of mooring, designed to collect a vertical profile of the water column and data at the water-ice boundary during these vital periods.”*

Designed to work with any platform with a serial or USB port, including Arduino™, Raspberry PI™ and Intel Edison, as well as Windows, Mac and Linux computers, RockBLOCK is a simple and reliable way to integrate two-way communication into sensor and measurement based research projects. It can send messages of 340 bytes and receive messages of 270 bytes using Iridium Short Burst Data (SBD), which offers global, pole-to-pole coverage.

*“One of the most critical elements of this project has been driving down the cost of each buoy at every level,”* adds LT Daniel Langis. *“Low-cost pressure housings, sensors, electronics, and materials all needed to be integrated without sacrificing performance in order to make this a viable technology. RockBLOCK was a crucial piece of this puzzle, allowing us to not only reduce the size and cost of the electronics, but also to dramatically reduce product development time.”*

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**About Rock Seven**

Rock Seven is a manufacturer of Iridium-based satellite tracking & communication systems and an airtime contracts provider. The Rock Seven portfolio includes the RockSTAR & RockFLEET tracking systems, the RockBLOCK M2M product, and The CORE web-based tracking management solution.

Founded in 2005 the company aims to make satellite communications & tracking accessible to everybody in a simple and easy to understand way. Rock Seven provides services to a wide range of organisations, ranging from government and military to NGOs, private companies, ship-owners and consumers.

[http://www.rock7.com](http://www.rock7mobile.com/)