H13N-1193 Smart Rock: Low-Cost Stream Monitoring

Monday, 9 December 2024

13:40 - 17:30

Hall B-C (Poster Hall) (Convention Center)

Abstract

The Smart Rock is a submersible sensor suite that monitors temperature, pressure (water depth), turbidity, and electrical conductivity. The sensor suite can be deployed in streams for ~24 months at a time taking data every 15 minutes. The frequency of data collection can be changed which will affect battery life. Smart Rock assembly has been streamlined to make assembly and programming as accessible as possible. We want water sensing to be affordable and accessible to water scientists around the world. Our goal with the Smart Rock remains to develop an affordable, user friendly, low cost, and accessible sensor for our different users' needs.

Many important changes have been accomplished based on valuable feedback of our users of the previous two versions.. We have successfully calibrated a new four-pin electrical conductivity (EC) sensor with greater precision and much wider range. We are also in the process of developing a sample and hold method for measuring EC which is more accurate than our current setup. The internal sled has been redesigned once again and merged with the sensor plate. This moves the pressure sensor to the center of the faceplate to ensure no matter the orientation of the sled in the outer enclosure, it is always in the center of the device. We now have enough space to fit a 10050mAh battery which drastically improves our battery life. We worked on stabilizing the code and simplifying the operation, updating to Loom4 which is on a new more robust code base.

First Author

T

Bryce Truong

Oregon State University

Authors

M

Chris Milford
Oregon State University

U

Chet Udell
Oregon State University

S

John Steven Selker
Oregon State University

Scientific Team

OPEnS (Openly Published Environmental Sensing Lab)

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