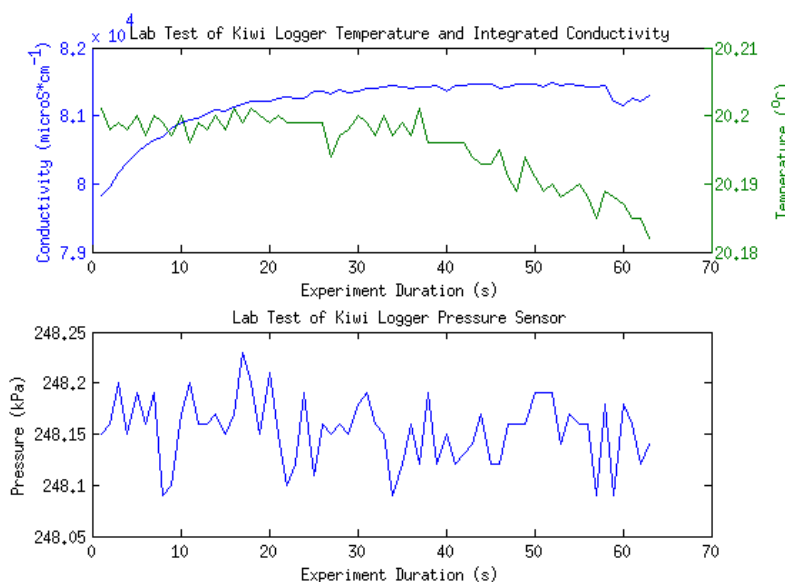


## OCN 418 Final Project Report

Throughout the Fall semester I was exposed to computer programming, sensor design and construction, and hands-on learning in OCN 418. I entered the course with a rudimentary foundation in MATLAB and was introduced to the programming language Python 3 including class exercises and homework assignments. While beginning with a robust plan for a turtle tracker with an integrated CTD, time constraints and my skill set led me to integrate an ATLAS EC EZO conductivity sensor into the existing Kiwi loggers which measure temperature and pressure. By adding conductivity to the T & P sensor, the newest iteration, once packaged, will be a low-cost CTD ideal for citizen science. Specific examples of use for the new sensor include K-12 monitoring of coastal water quality, community monitoring of loko i'a, and as a springboard for further refinement of a low-cost CTD.

In addition to sensor design and programming I learned skills applicable to my own area of work including spot welding and soldering. Prior to OCN 418 soldering seemed like a mystical black art. After 30 minutes of practice and a brief introduction by Stanley I successfully began to solder parts of my instrument together. More recently I learned how to spot weld in OCN 418. I was able to use this skill outside of class as I needed to create battery packs for a SeaFET instrument. Instead of making a mess with solder, I utilized spot welding to combine 7 alkaline D batteries into a functioning 11.2 V battery pack.

All-in-all, I had an introduction to a common computer language, was able to design and create a useful environmental sensor of my own, and learn mechanical skills which I was able to apply outside of class. Through OCN 418 I have gained important and applicable skills not available anywhere else in SOEST. This was a unique class with an atmosphere and set of instructors that promote thinking outside of the box, as well as continued interaction and support beyond the end of the semester.



**Figure 1. Conductivity, temperature, and pressure data during lab experiment. Pressure values abnormally high and are an area for improvement on future sensor iterations.**