



Motivation

With the rise of global warming, understanding the dynamics of nearshore waves is becoming increasingly important. This is because there is becoming a need to be able to understand and predict the properties of these waves in order to mitigate the amount of damage that they will cause.

Obtaining Data

The current setup utilizes an Arduino microcontroller with a high resolution pressure sensor. The sensor is threaded onto the end cap of a PVC pipe in order to mount it under the surface of water in the Jere A. Chase Ocean Engineering tow tank. Data was logged directly to a SD card for analysis on matlab.

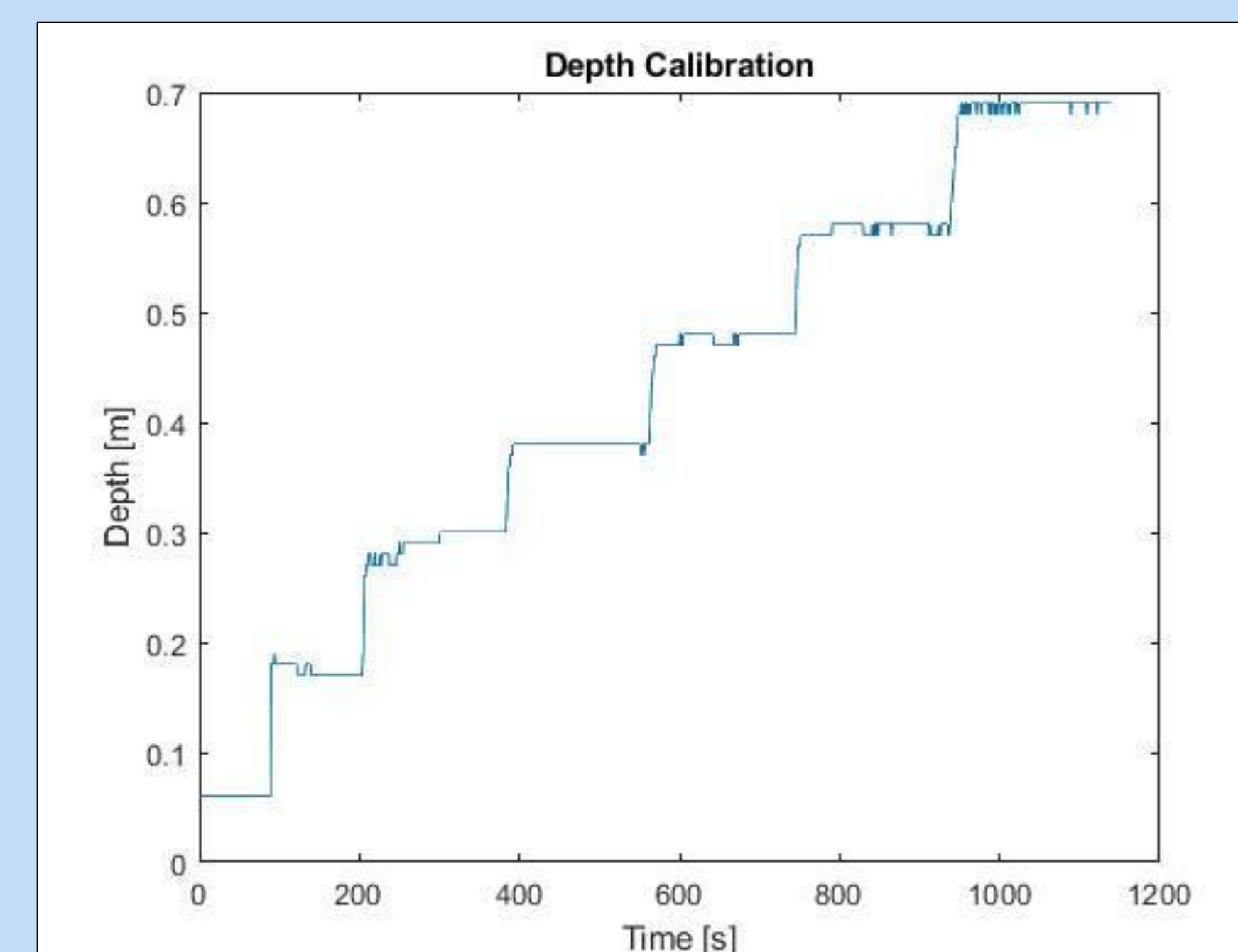
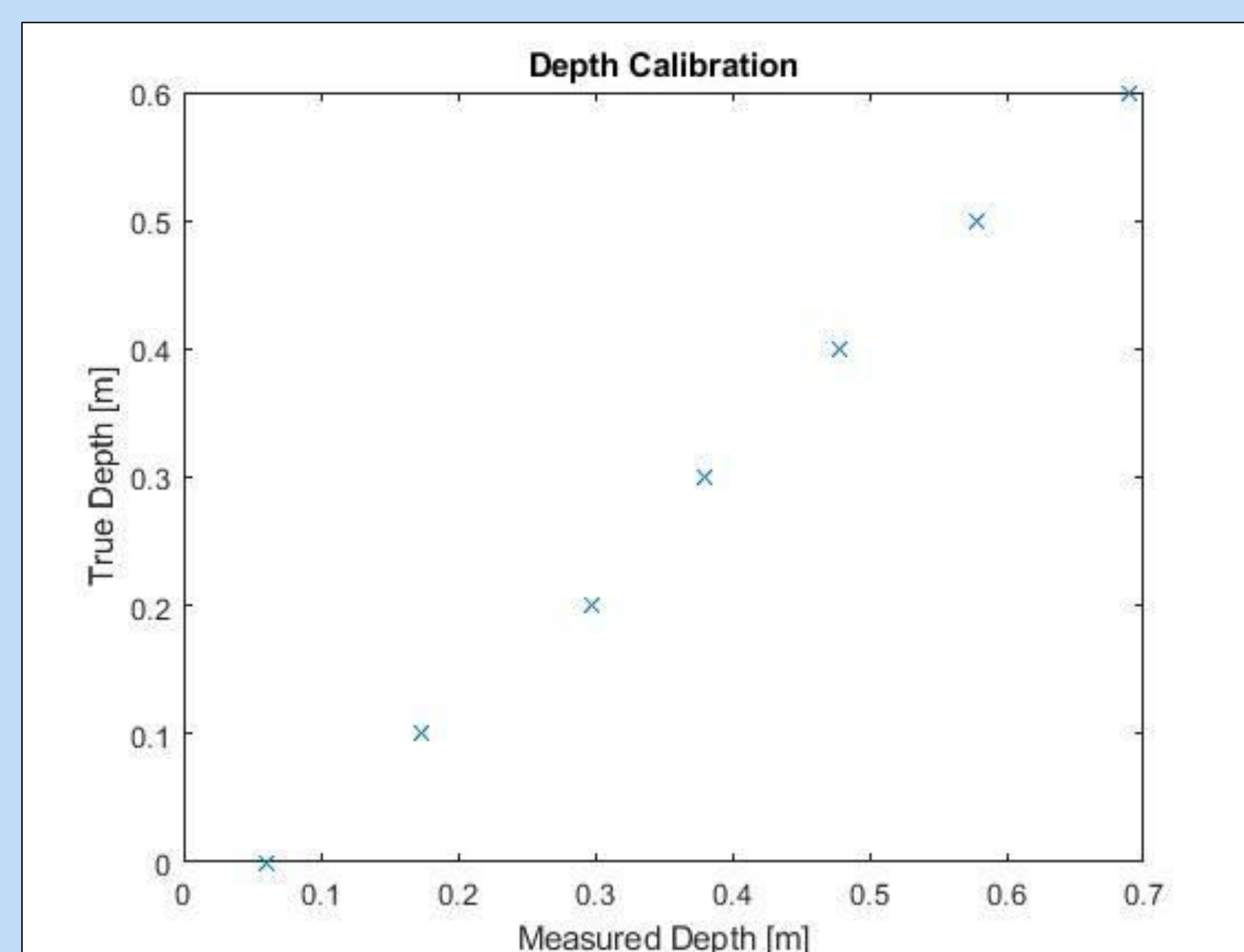
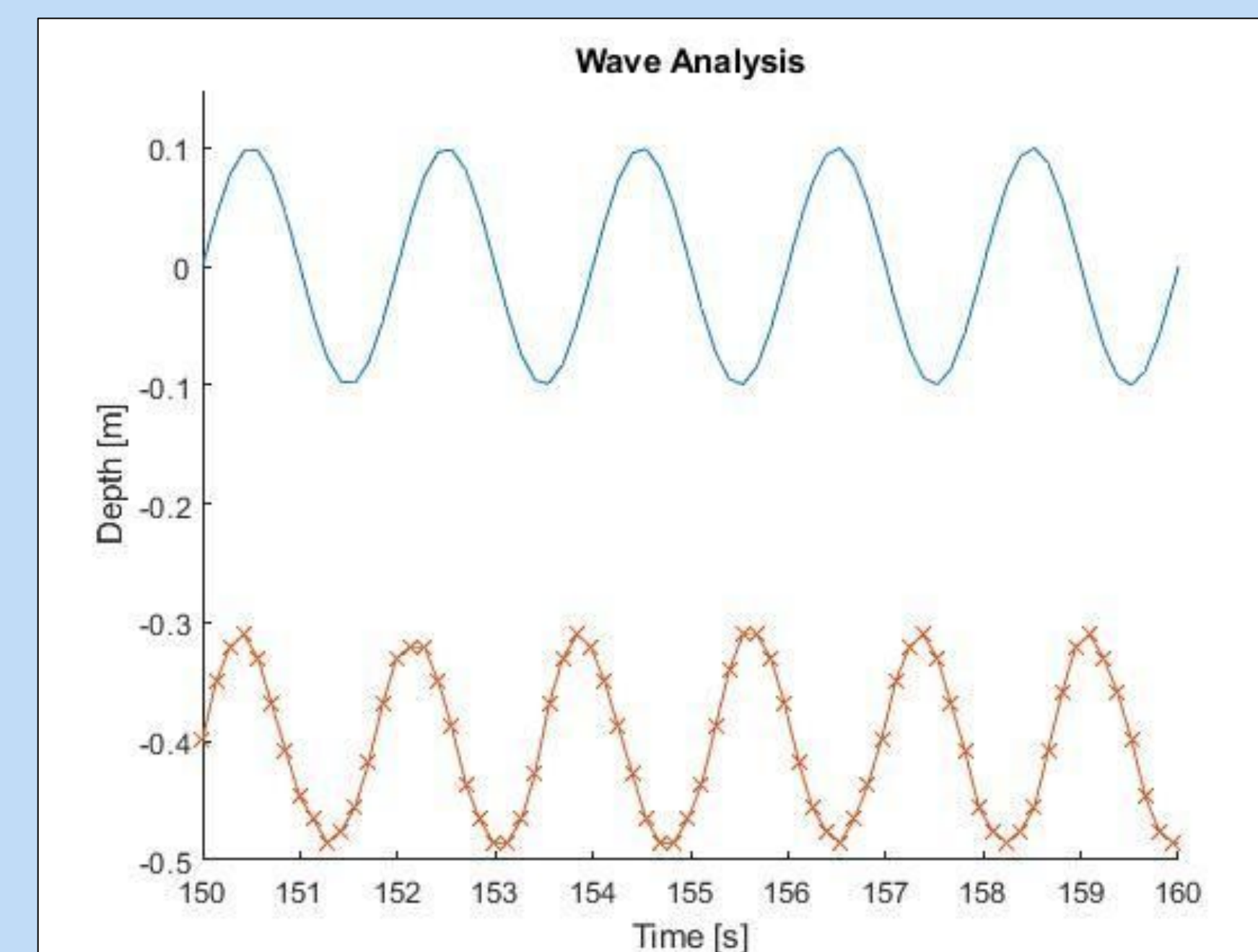
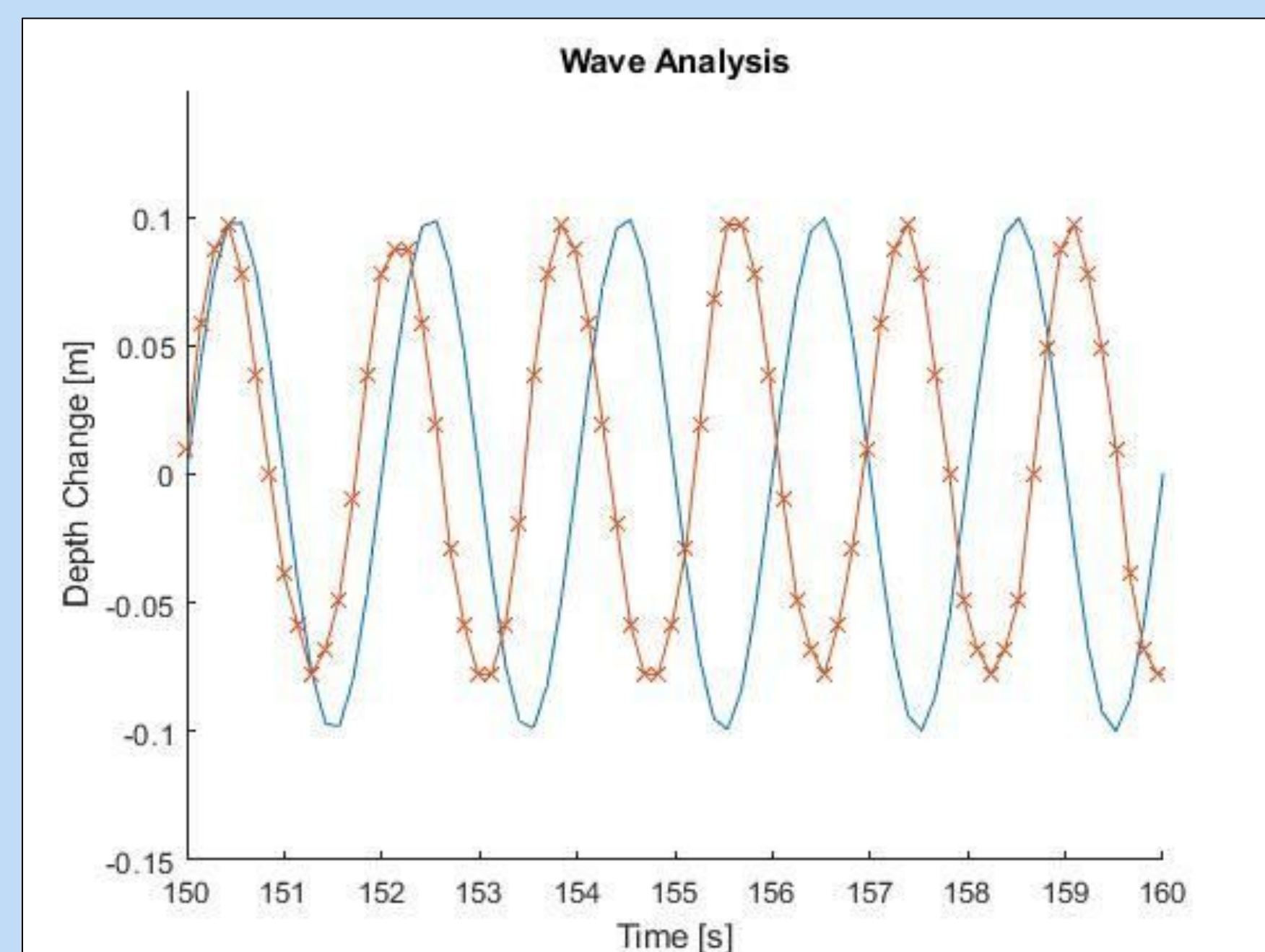
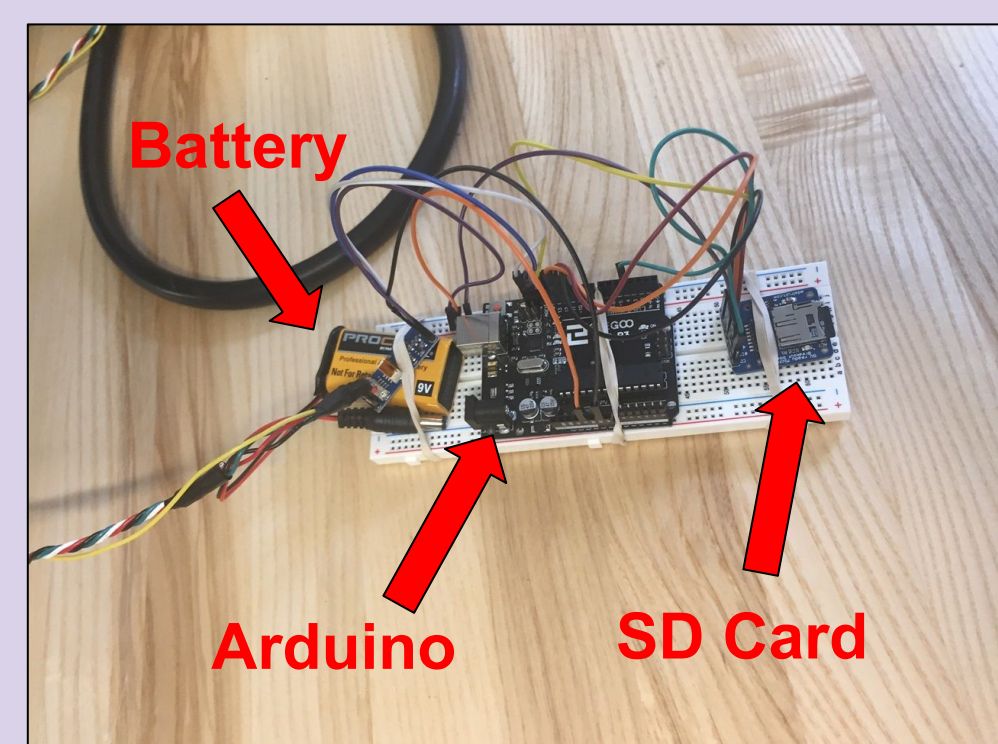
Tests were conducted in the Jere A. Chase Ocean Engineering tow tank at a specific wave conditions and depth. Pressure time series were analyzed to gain understanding of sensor responses to conditions under test.

Conclusion

- Comparing data measured to a theoretical wave with a 2 second period and 10cm amplitude
- Linear calibration determined between depth and sensor pressure output.
- Sensor is submerged resulting in a decreased measured orbital diameter
- Measured wave period is between 0.2s-0.3s shorter than the theoretical wave

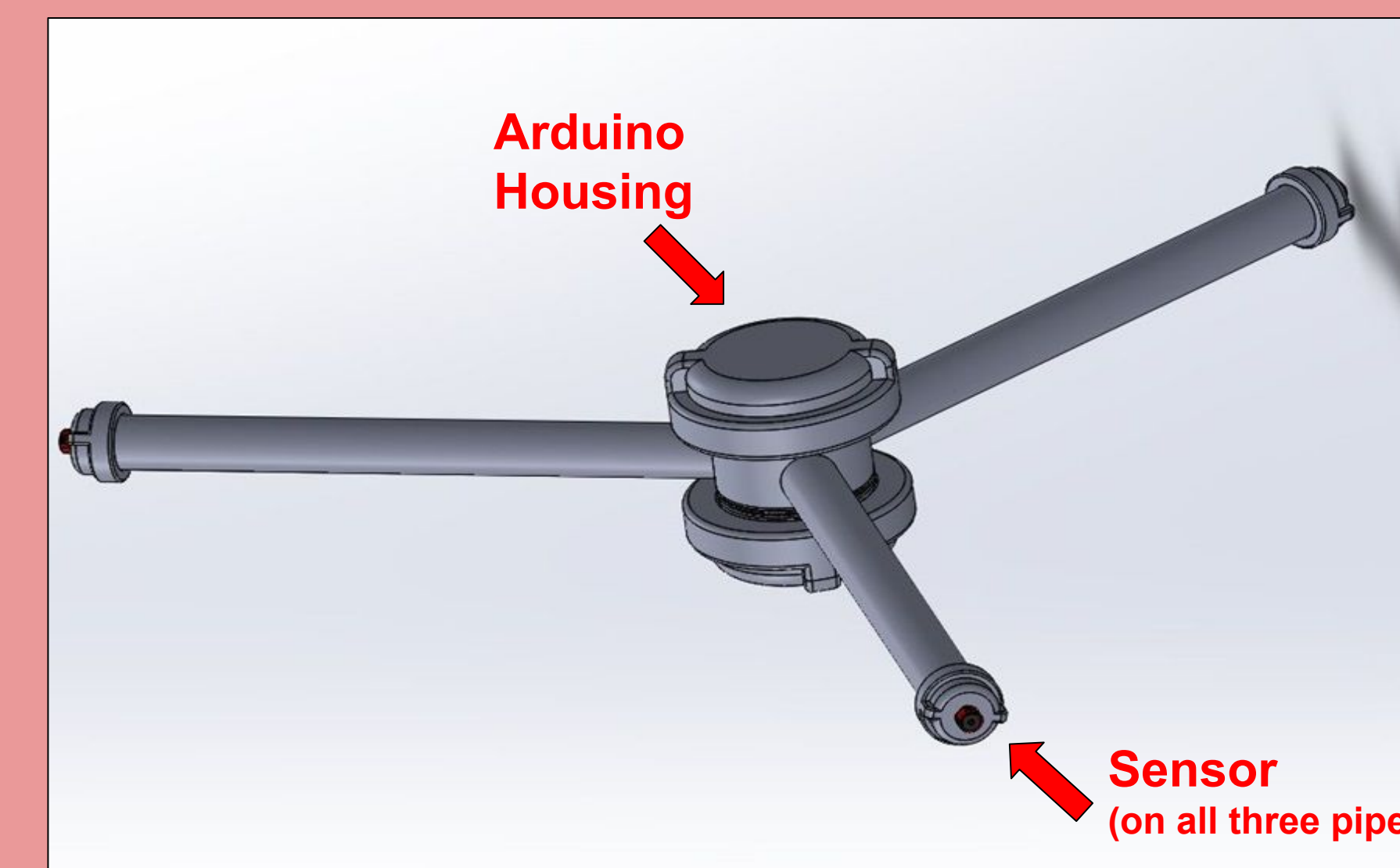
Sensor:

Bar 02 Ultra High Resolution 10 m Depth/Pressure Sensor



Future Work

First step in developing a remote pressure sensor array.



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