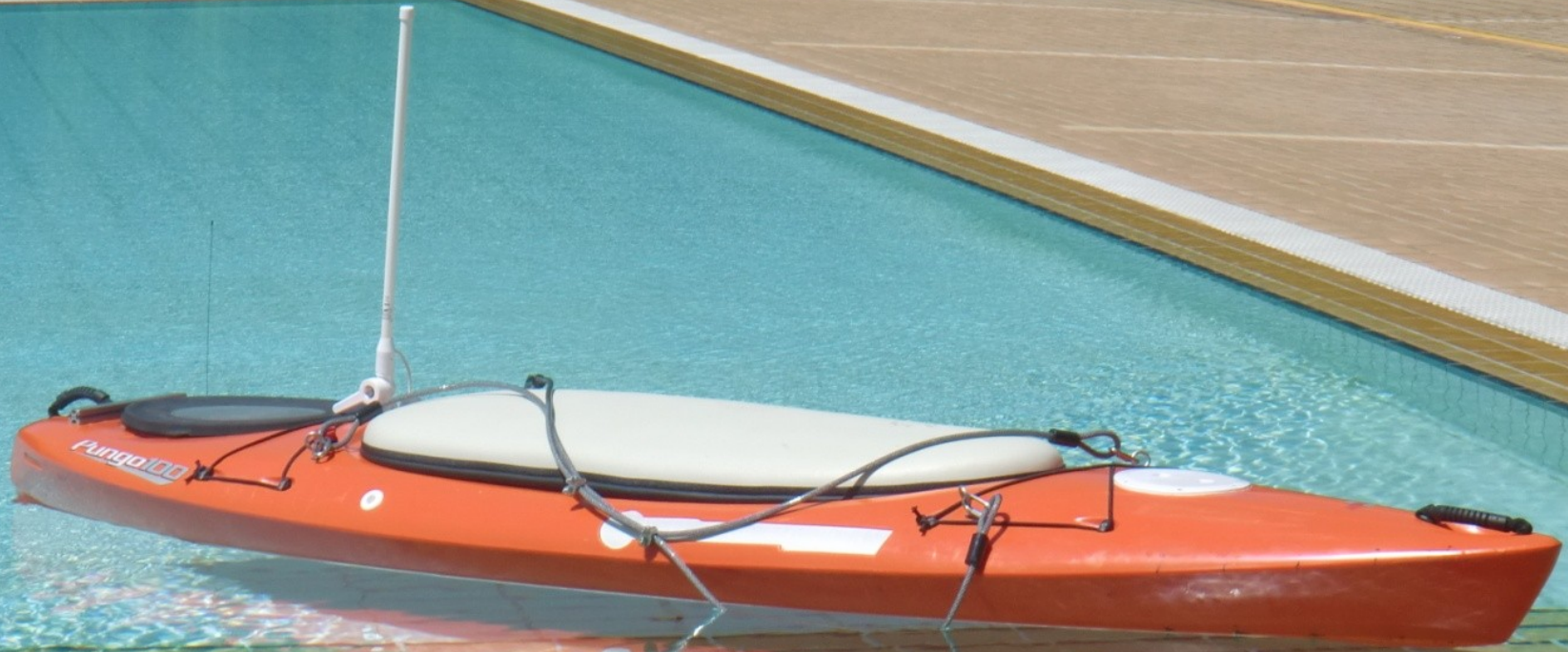


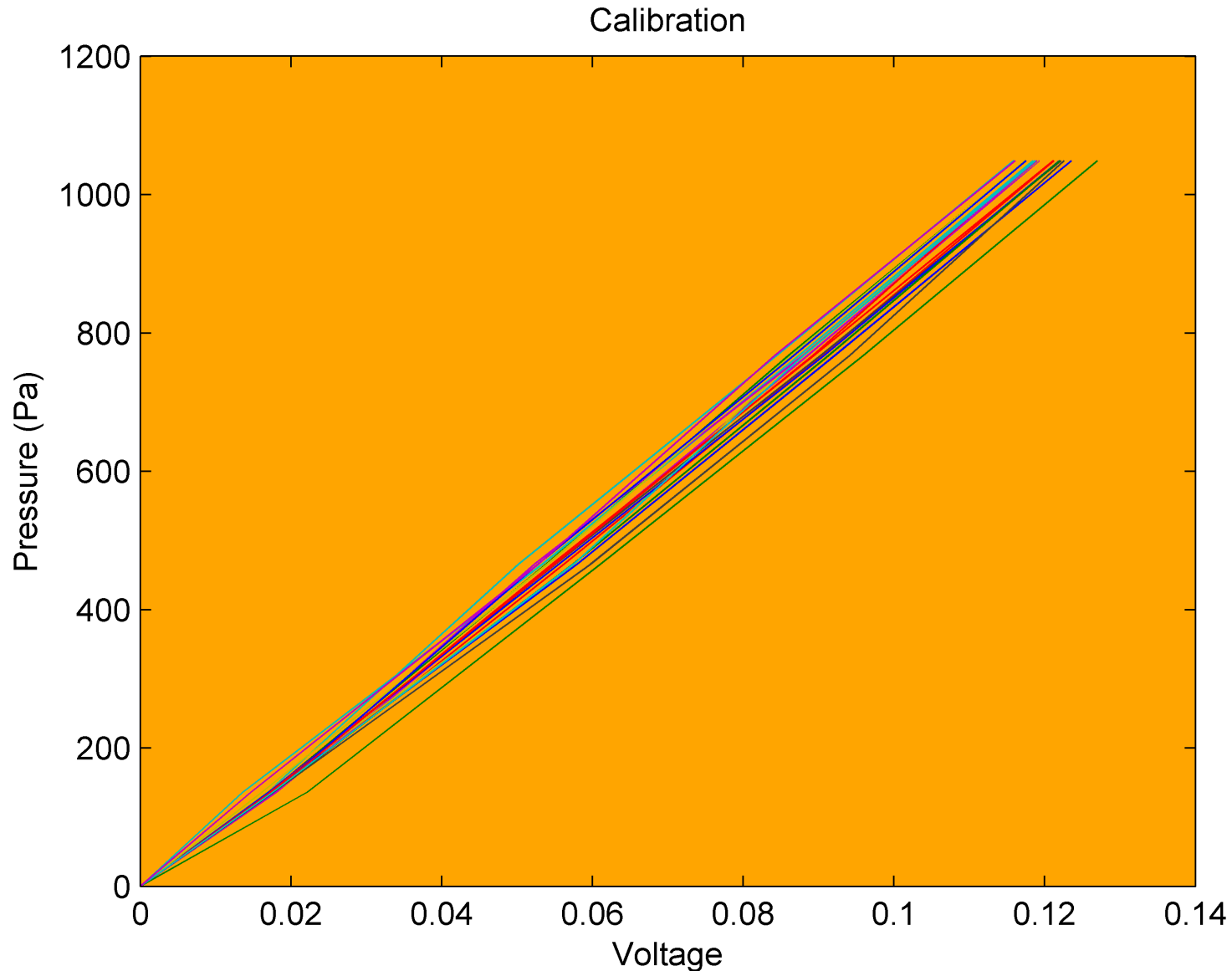
Orange Kayak Update



- Calibrated sensors
- Results from first pool test
- Plans for second pool test

Sensor Calibration

5 point hydrostatic calibration curves for 19 sensors mounted in kayak bow:



Pool Test Results

- Collected data from 19 pressure sensors in kayak bow, IMU, GPS, Compass
 - IMU is better than Compass
- Experiments included
 - Roll, yaw, hydrostratic, heading

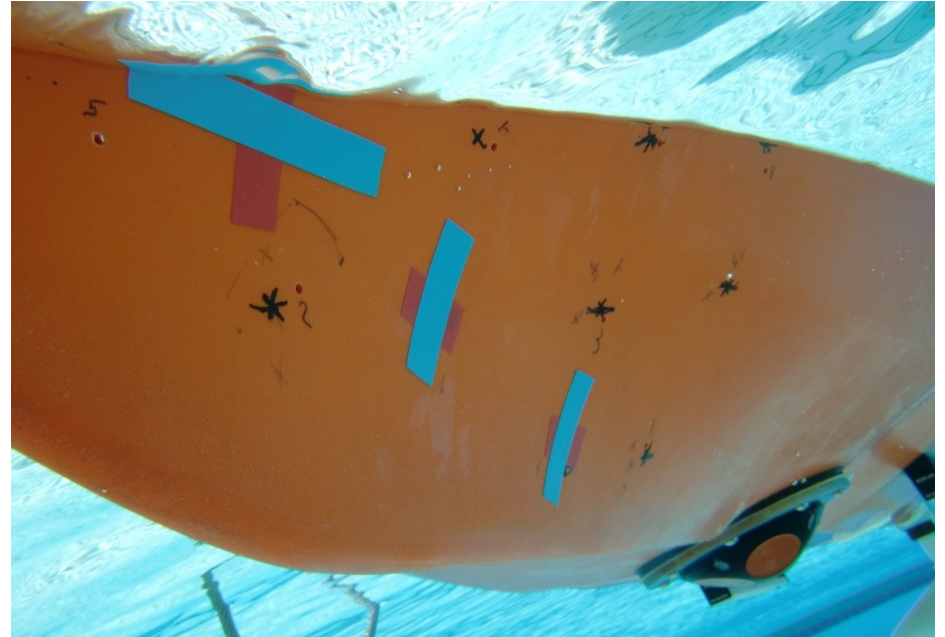
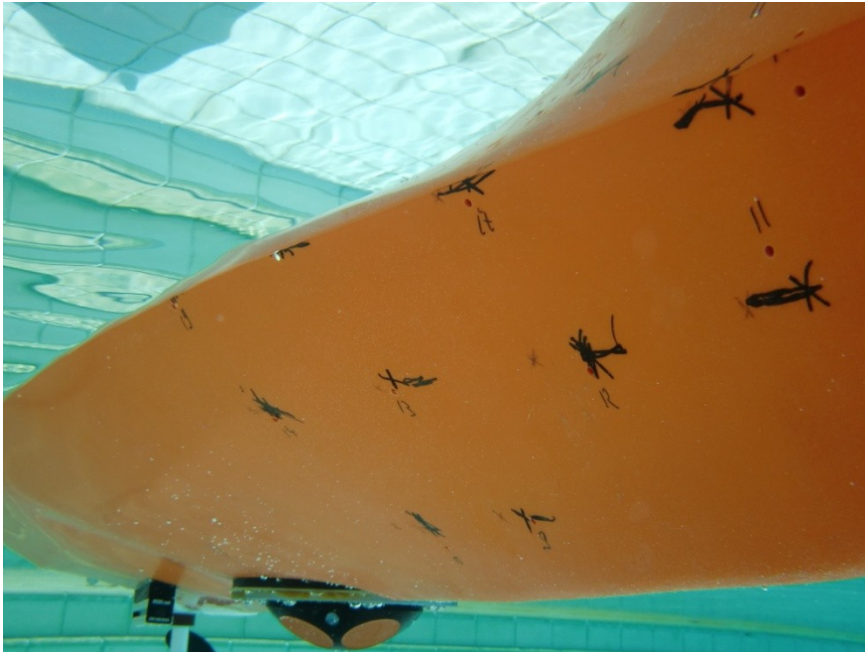


Sensor Locations 1



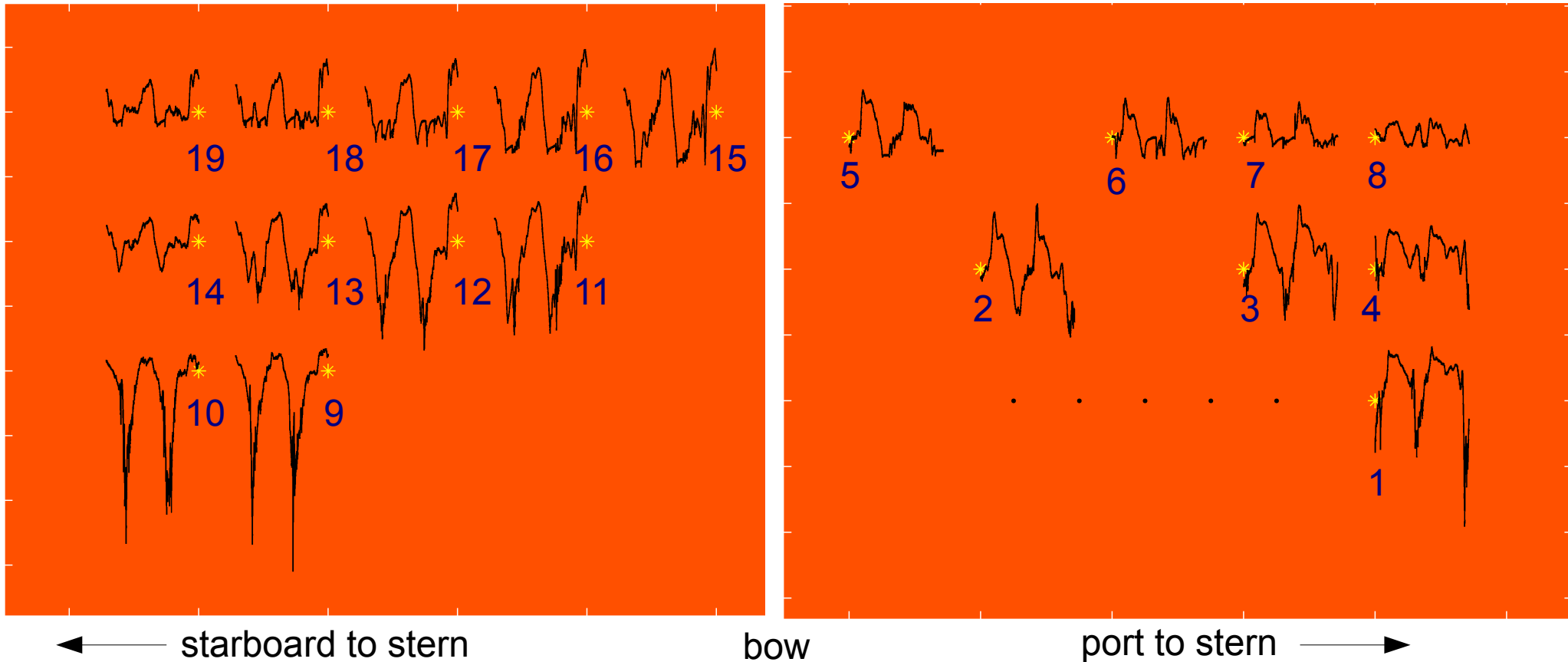
- Starboard side complete with 11 sensors
- Port side has 8 sensors
 - 3 are missing (blue tape) due to space constraints

Sensor Locations 2



Yaw Test

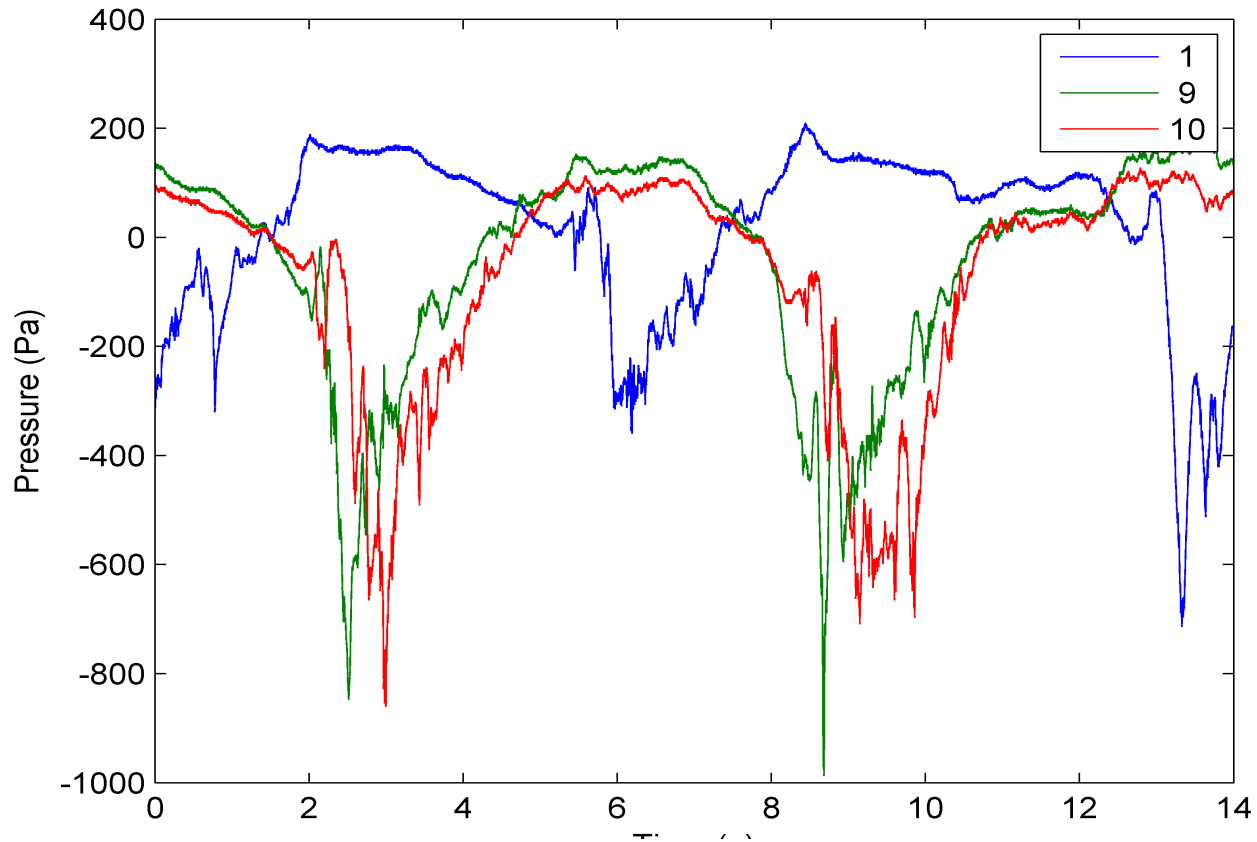
kayak forced to yaw back and forth by hand



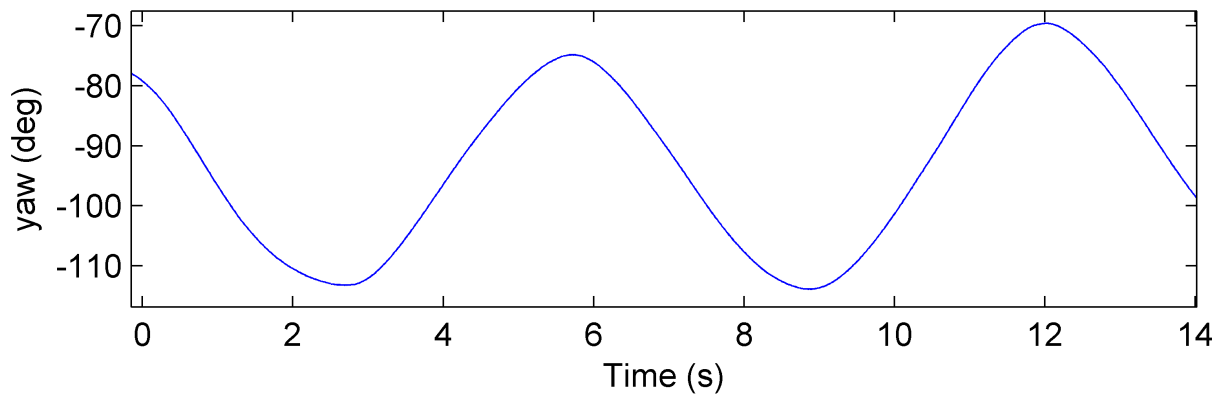
- Pressure at each port (yellow *) plotted for 2 yaw periods, time goes from bow to stern.
- Pressure along the keel is stronger than further away from the keel.

Yaw Test

pressure from three sensors closest to keel

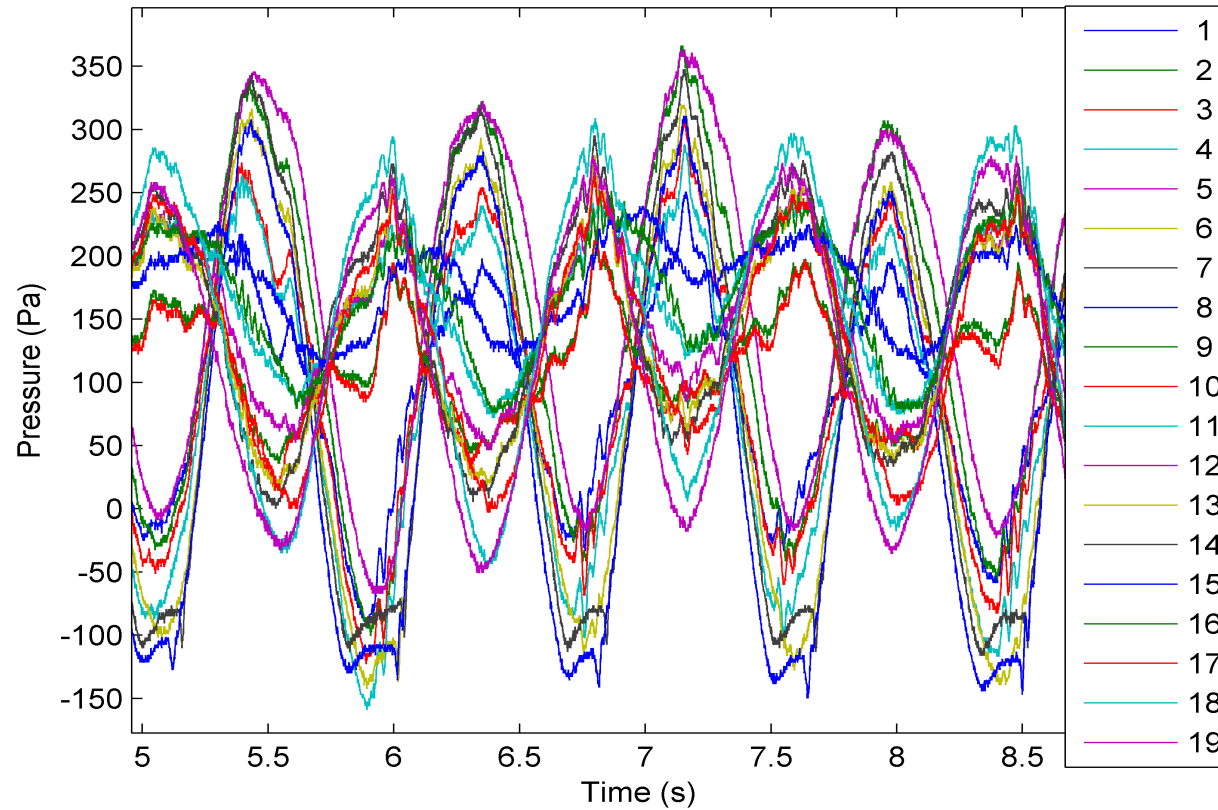


IMU

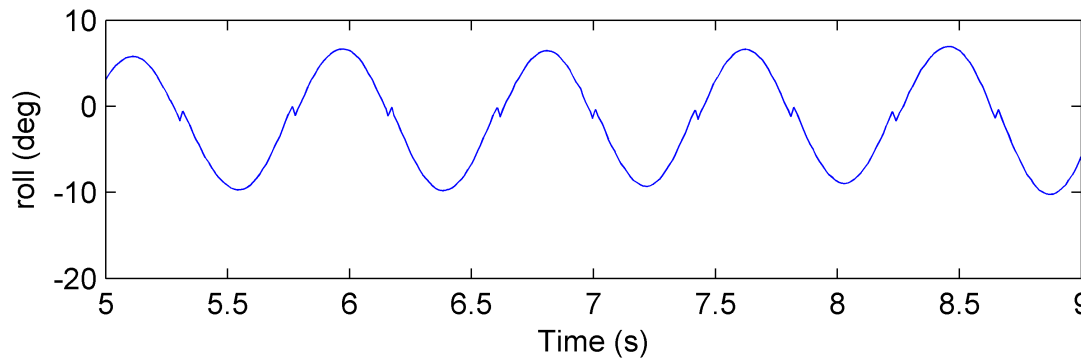


Roll Test

kavak rolled back and forth by hand

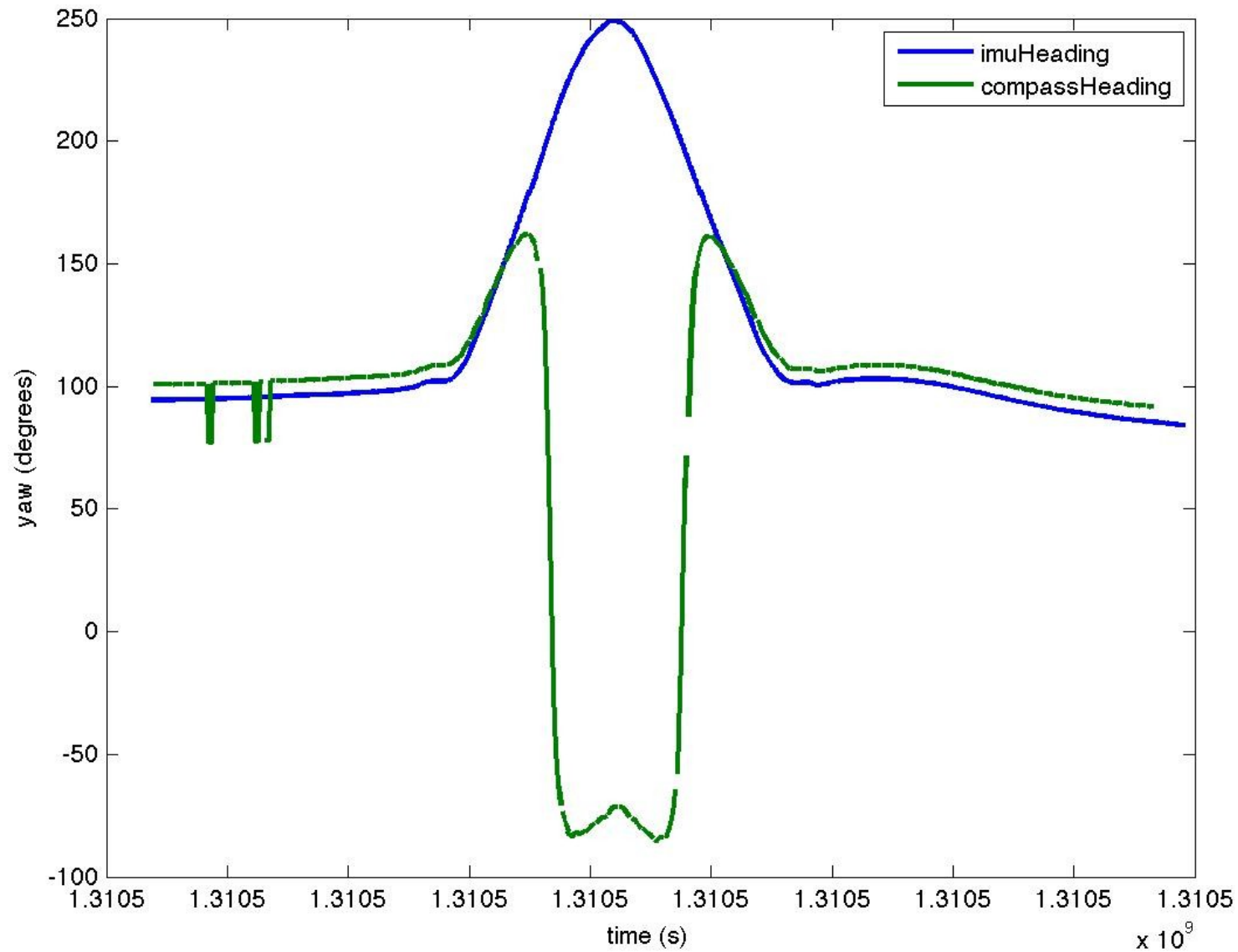


IMU



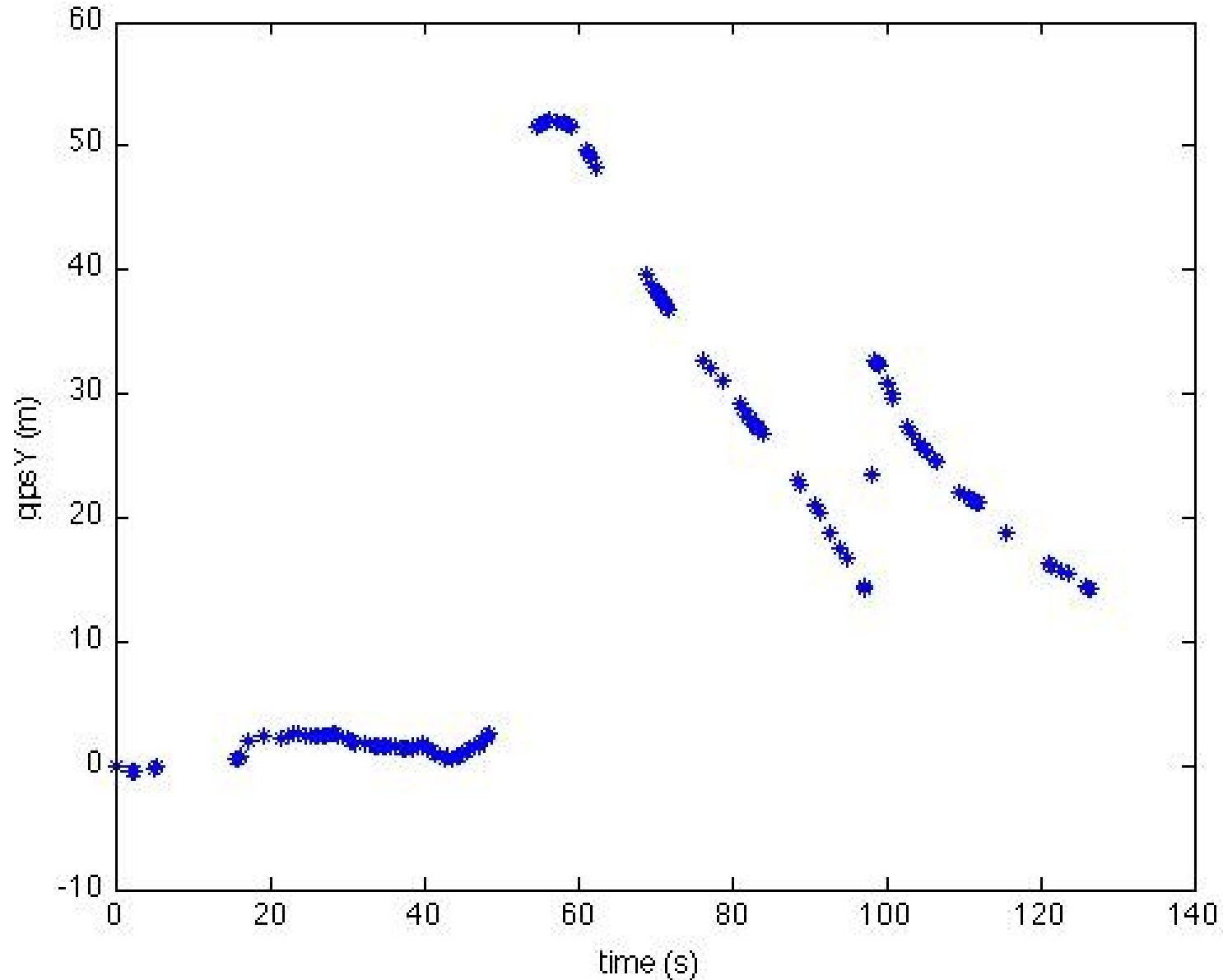
Heading Test

kayak rotated through ~160 degrees and back again



GPS data is less than excellent

7 satellites were used for the data below



Plans for Second Pool Test

- Test improvements to the kayak since last week:
 - Extended wifi range by incorporating router
 - Purchased netbook for communication
 - Set up the thruster with remote control
 - Set up logging of DVL data
 - Chee Wee's sensor array mounted to the bow
- Redo roll and hydrostatic tests with Chee Wee's sensor array installed on the bow
- Experiments with kayak driven by its own thruster
 - Constant speed, acceleration, turns