

St. Johns County/GTM Beachfront Data Collection Facility Goes Online

William R. (Bill) Dally, Ph.D., P.E.

Surfbreak Engineering Sciences, Inc.

wdally@surfbreakengineering.com

&

University of North Florida

w.dally@unf.edu

Collaborating Partners



Special thanks to our dedicated technical team:

Giztronics, LLC
The Semaphore Group, Inc.

and

Students of the University of North Florida

Background

Goal

To create a permanent field installation to collect and disseminate (in near real-time) nearshore oceanographic & beachfront meteorological data at a site in St. Johns County, Florida.

Purposes

- a) To enhance public awareness and provide educational opportunities afforded by a real-time nearshore wave & weather monitoring system.**

- b) To supply basic, long-term data required for the development and validation of the tools/ideas needed to promote coastal resiliency in St. Johns County (SJC).**

- c) To supply data needed for ongoing support of beach nourishment projects in SJC, and for the management of the County's inlets.**

- d) To provide "back-bone" field instrumentation-infrastructure required by scientific and engineering research investigations of coastal phenomena.**

Location

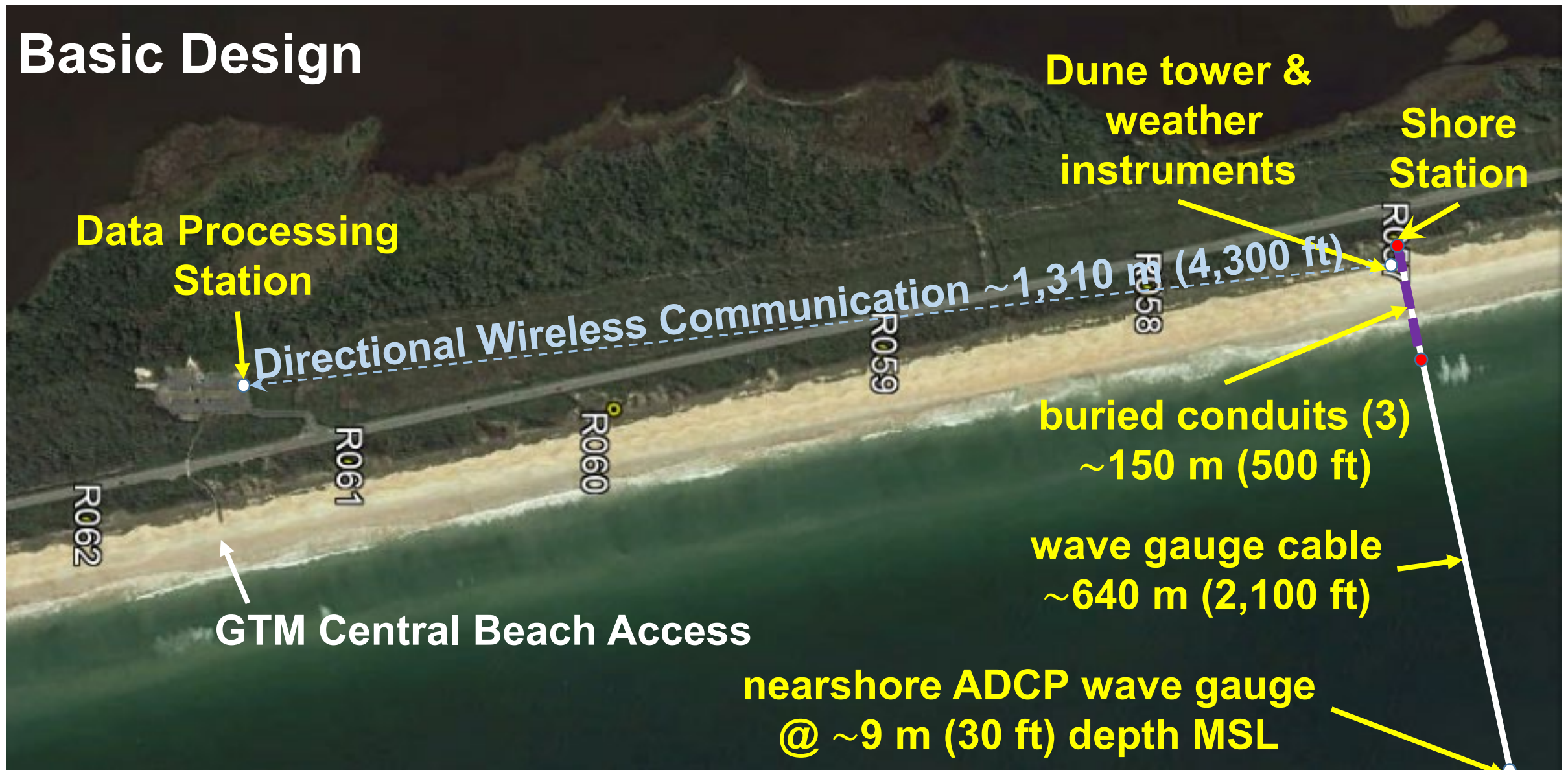


Why R-57 in the GTM ?

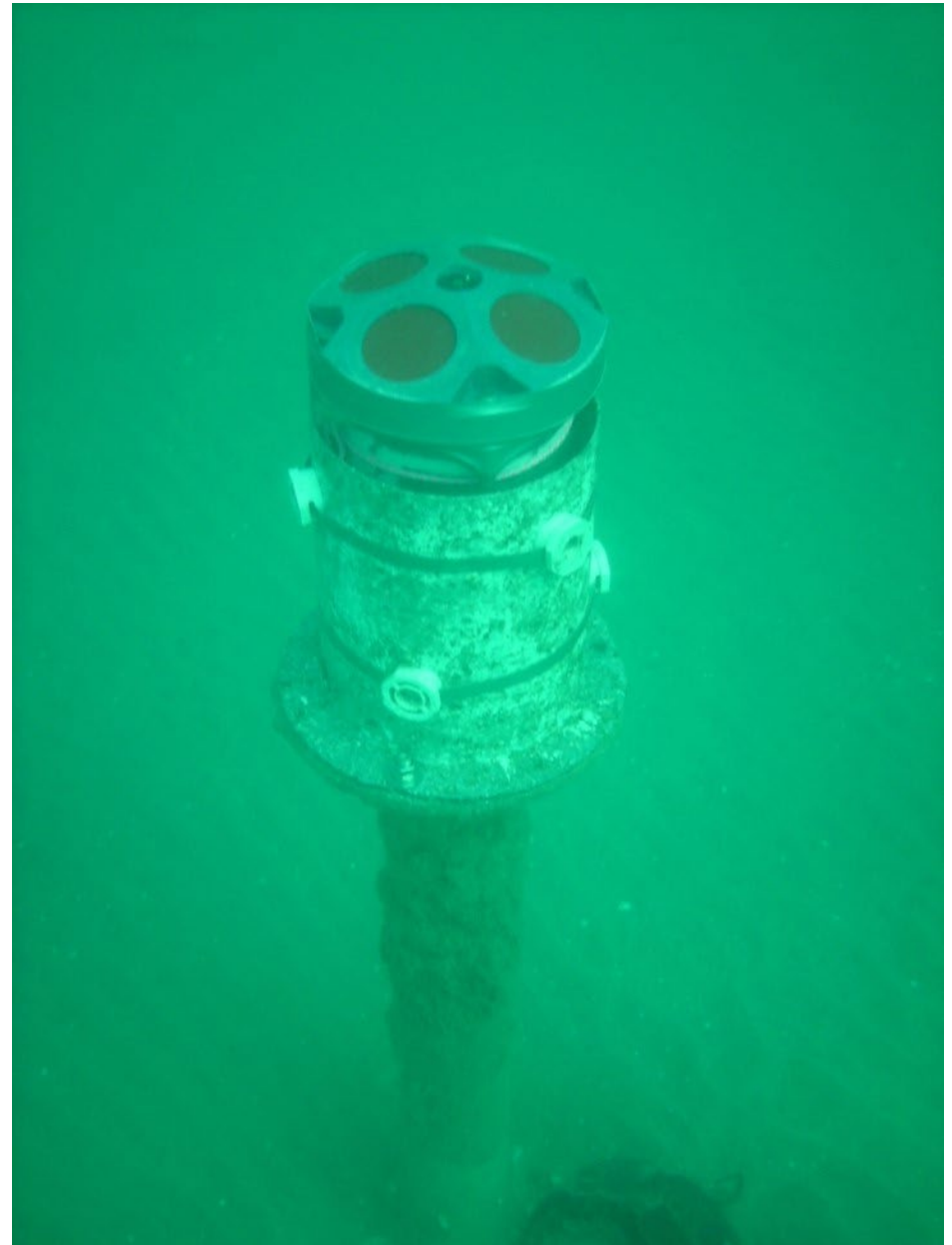
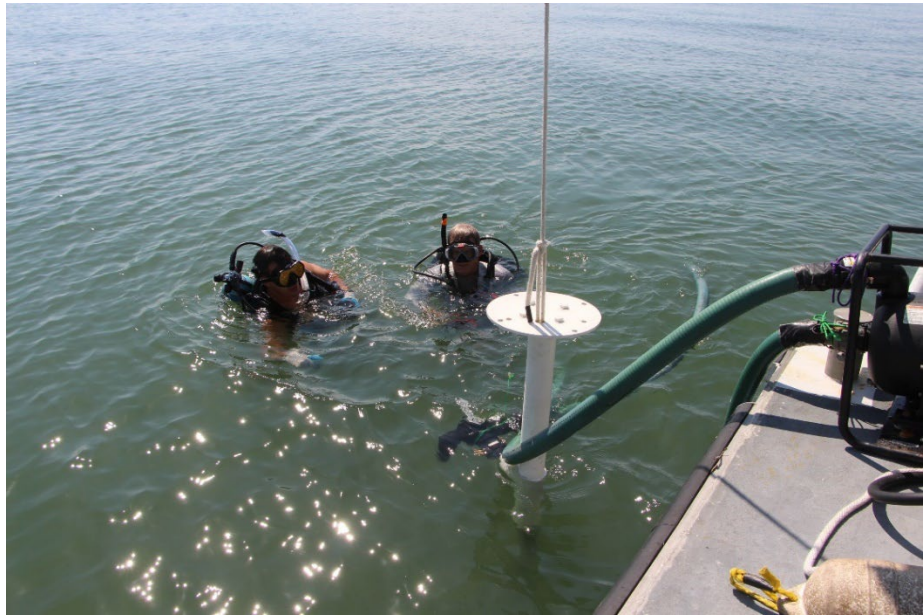
- a) Located in the middle of a 6.5 km (4-mile) stretch of pristine beach and dune system.
- b) Proximity to UNF.
- c) Existing dune-cut for off-road vehicular access.
- d) Abundant public parking nearby.
- e) Ability of GTM-NERR rangers to monitor the site.

Site investigations and conceptual design began in fall of 2020 – welcome COVID!

Basic Design



Wave Gauge Installation



**Dune-top RM Young anemometer
& barometer; Ethernet directional
antenna.**



Shore Station



Data Processing Station



Available Data

Preliminary, Self-Recorded Data – September-October 2021

Real-time data collection initiated on November 16, 2021

Website went live on July 10, 2023:

https://surfbreakengineering.com/gtm-nerr_bdcf.html

Online Webpage

St. Johns County Beachfront Data Collection Facility
Guana Tolomato Matanzas National Estuarine Research Reserve (GTM-NERR)



Most Recent BDCF Data
Nearshore Waves at 8.5m (28 ft) depth
All Times are Eastern Standard Time

Wave: 06 Feb 2024, 0904 EST

Height 2.05 m (6.7 ft)

Period 8.2 s

Direction from 66 deg

Tide -0.30 m (-0.98 ft)

Current:

Speed 0.62 m/s (2.02 ft/s)

Direction toward 165 degrees

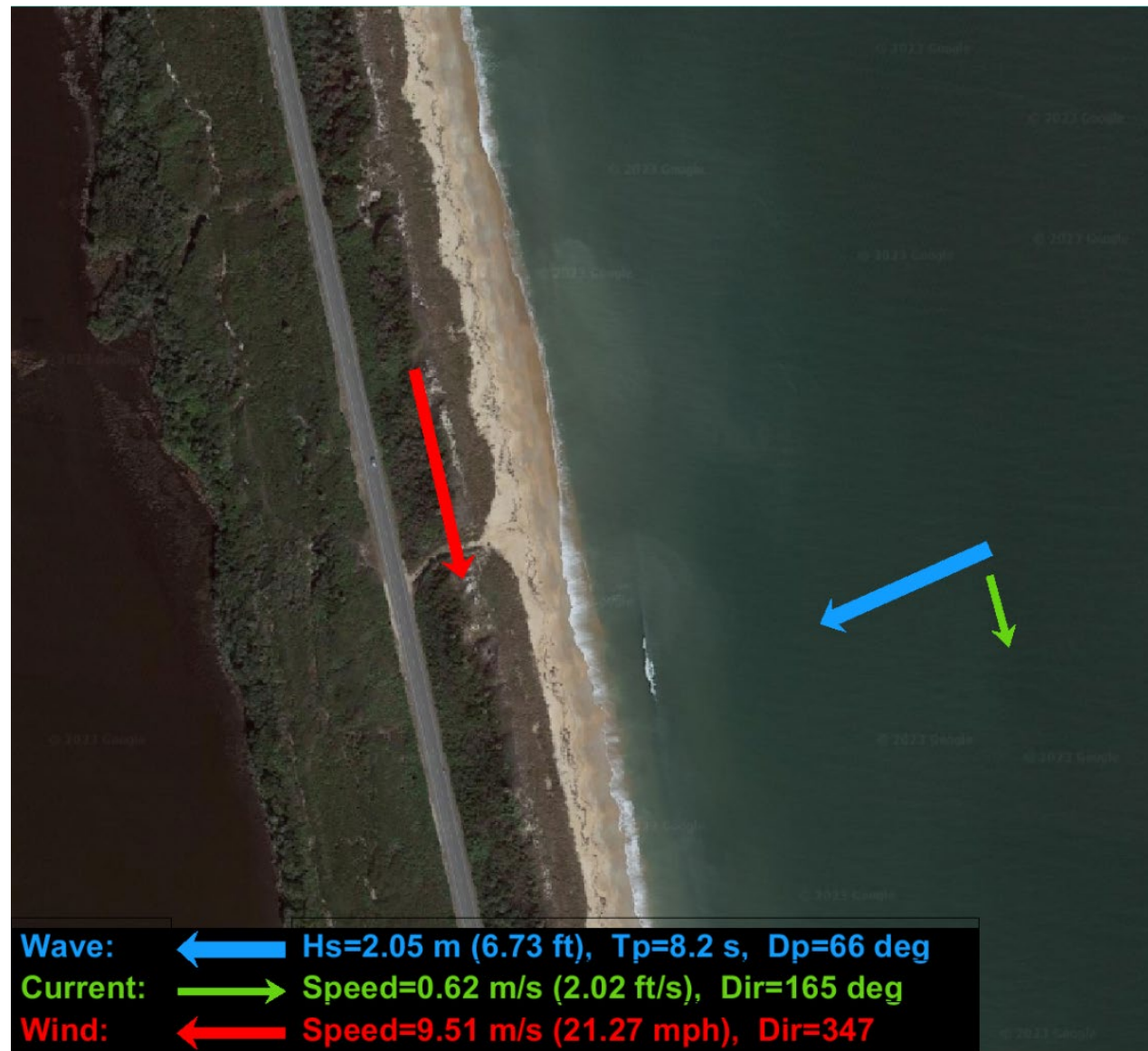
Wind 06 Feb, 2024 0950 EST

Speed 9.51 m/s (21.3 mph)

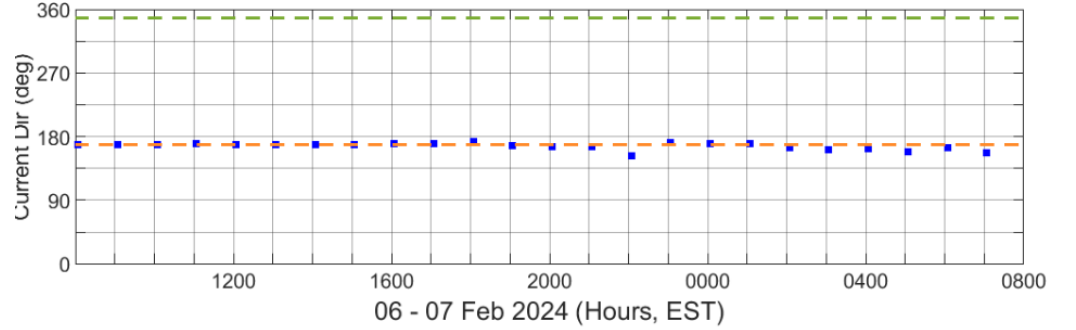
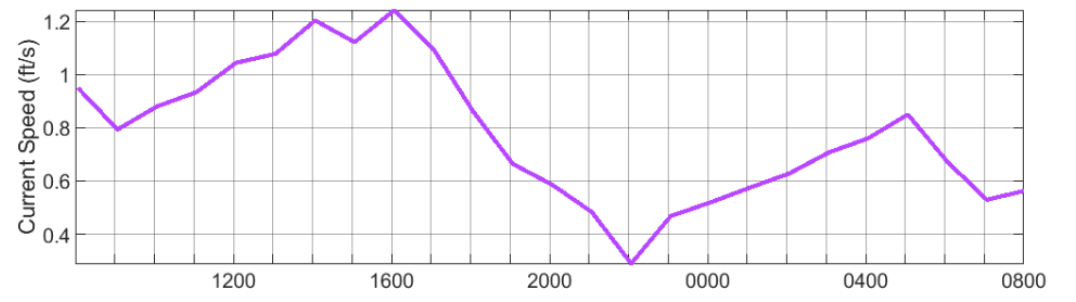
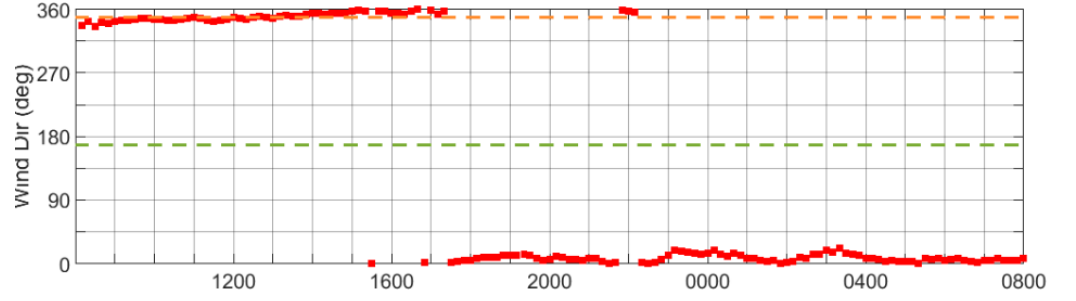
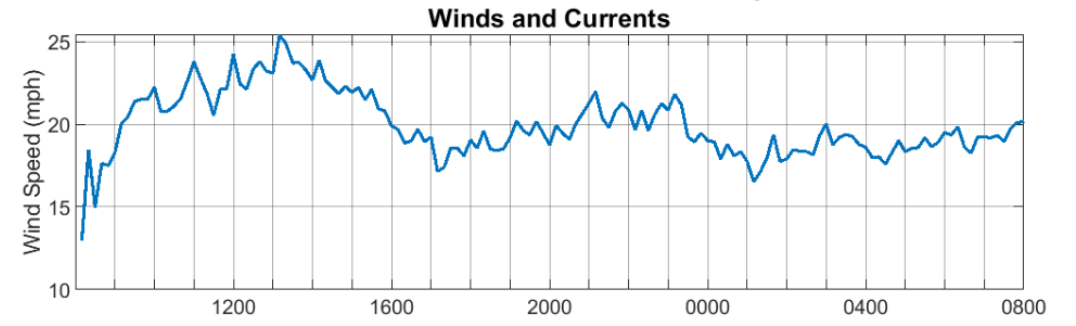
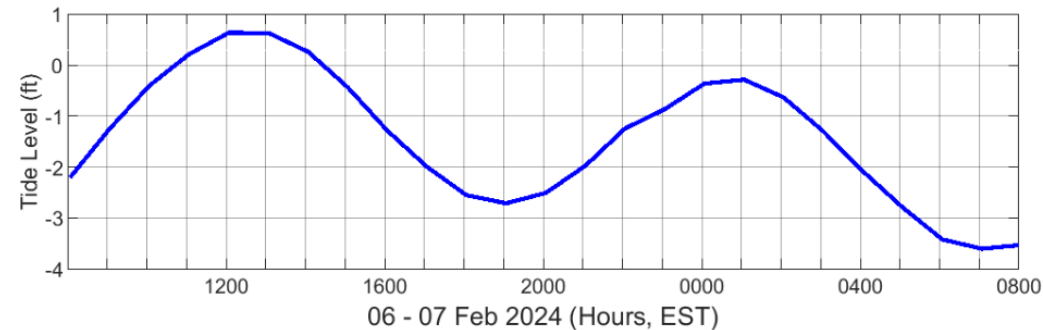
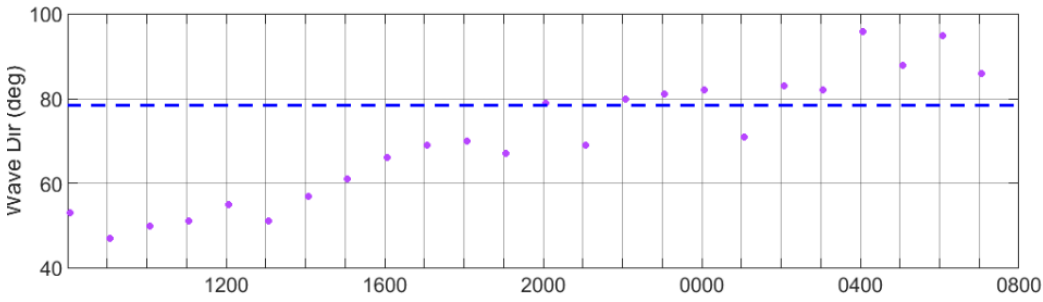
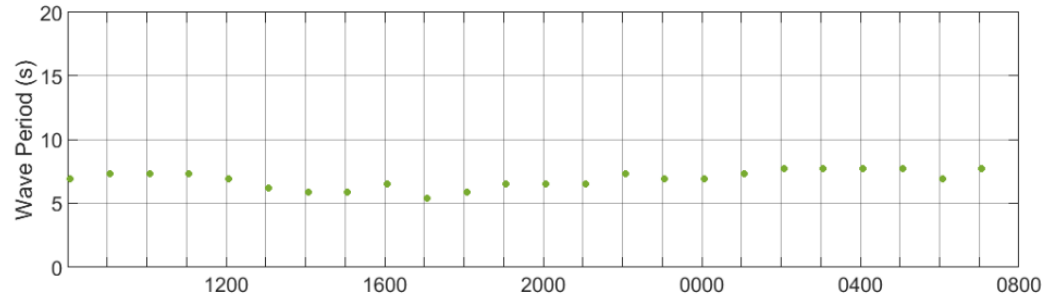
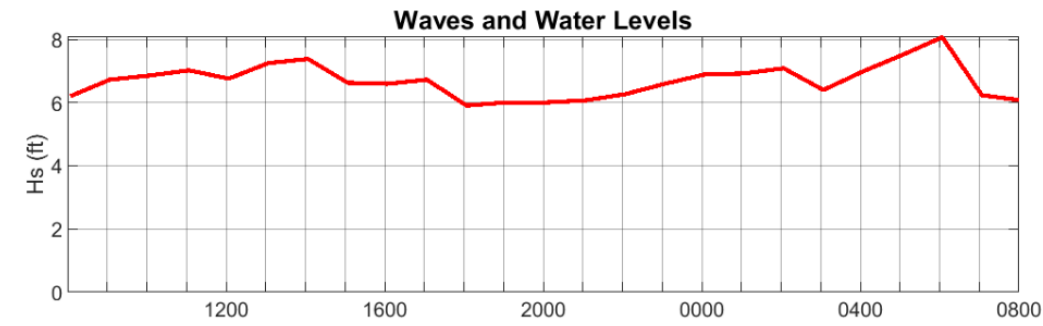
Direction from 347 deg

Water Temp 13.9°C (57.0°F)

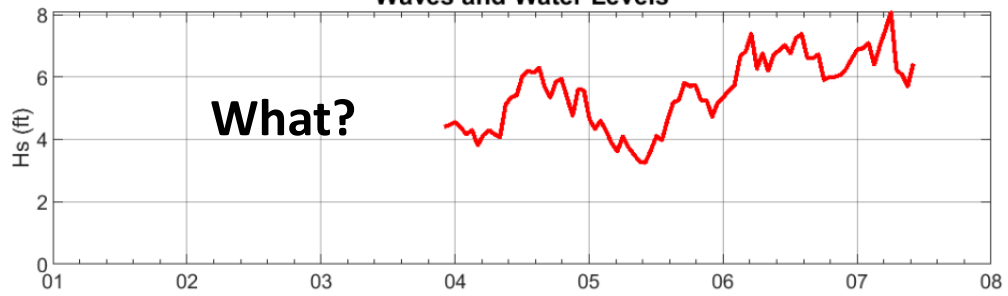
Barometer 1009.9 mb (29.82 in Hg)



Previous 24 hours

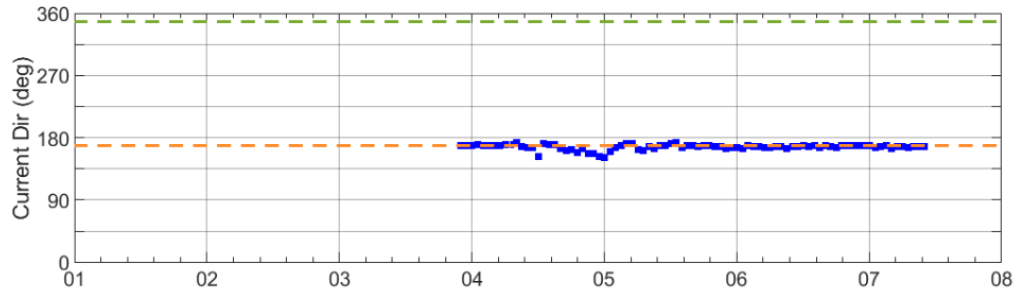
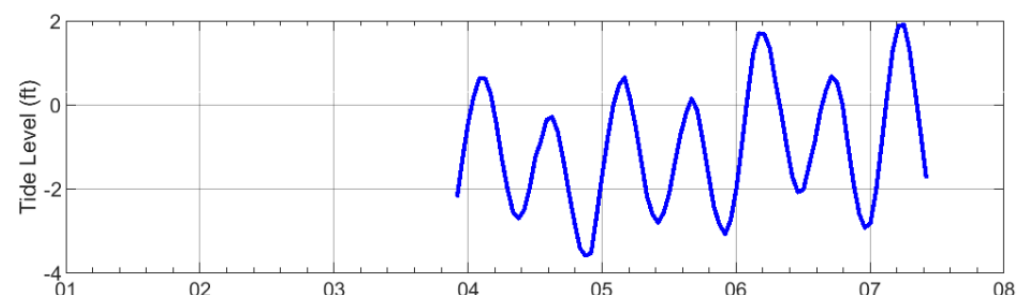
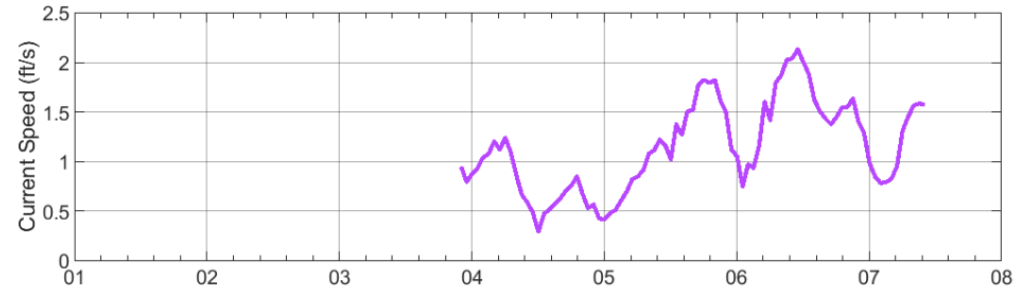
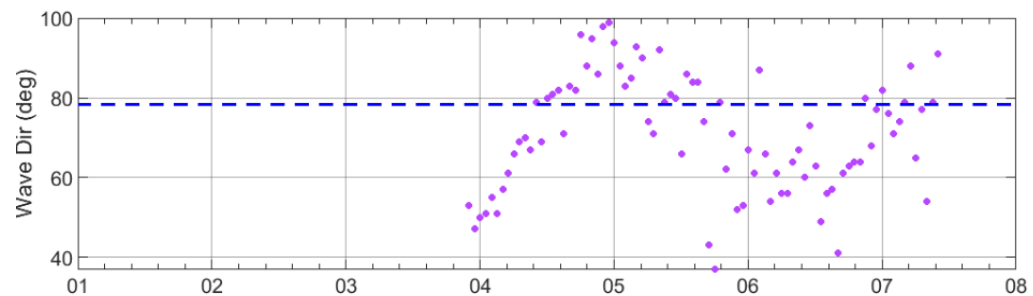
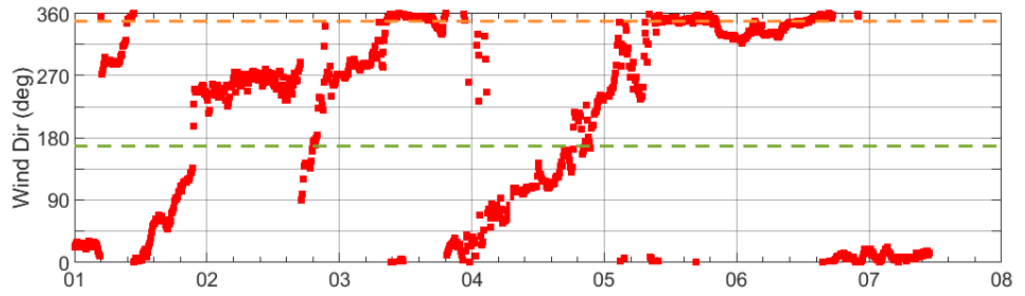
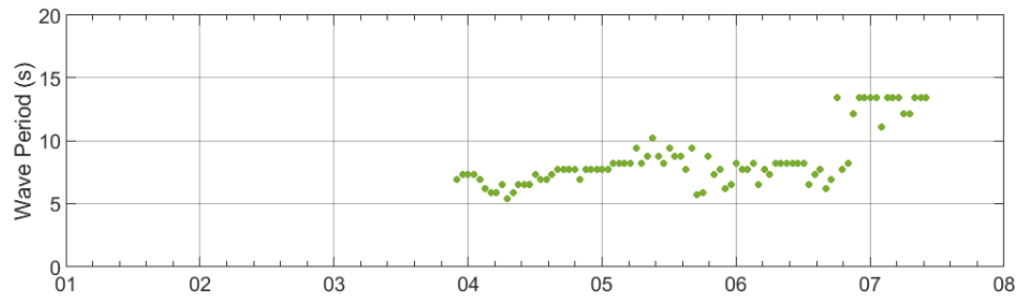
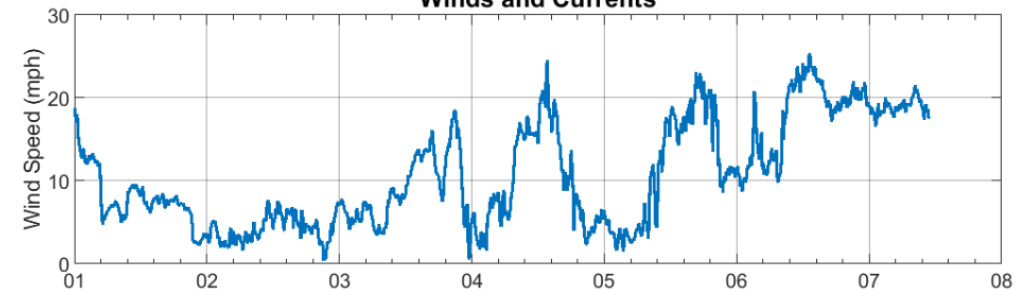


Waves and Water Levels



Previous 7 days

Winds and Currents



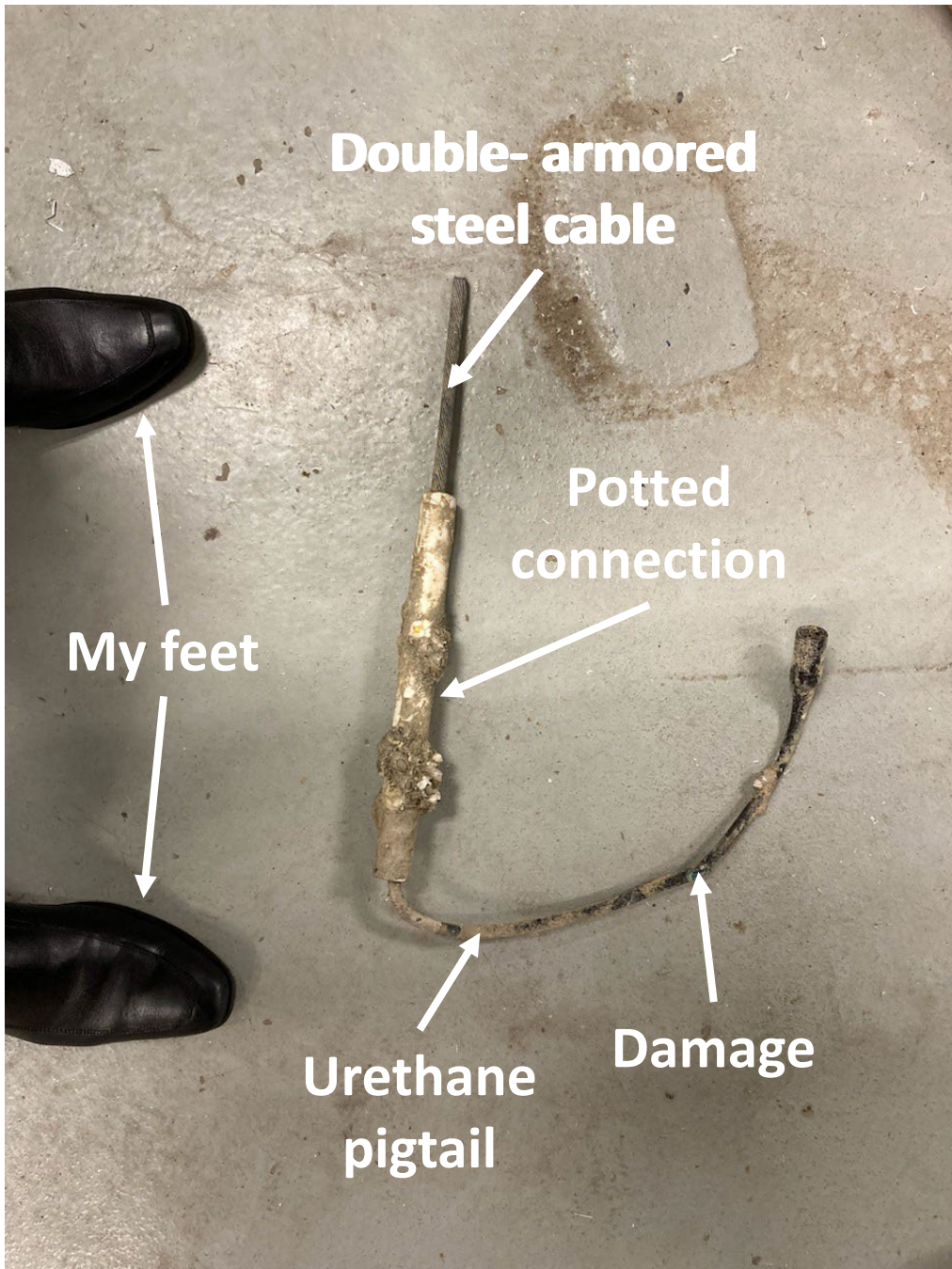
Feb 2024 (Day, EST)

Feb 2024 (Day, EST)

Saga of the Sheephead

November 2, 2023 to February 4, 2024



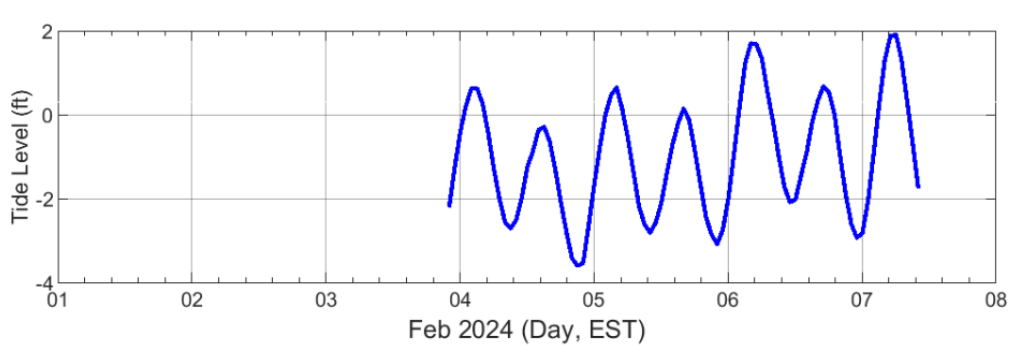
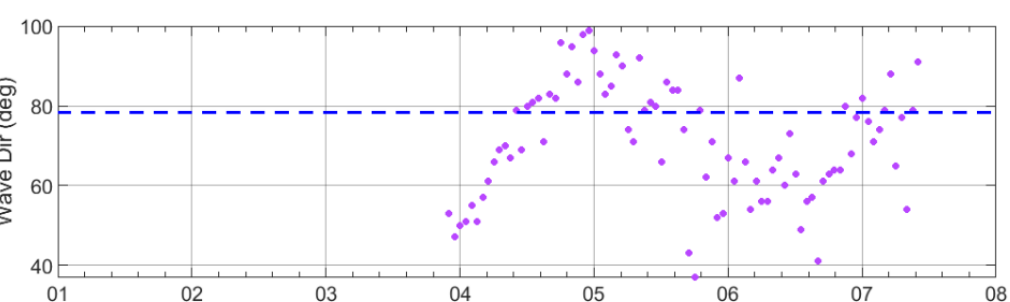
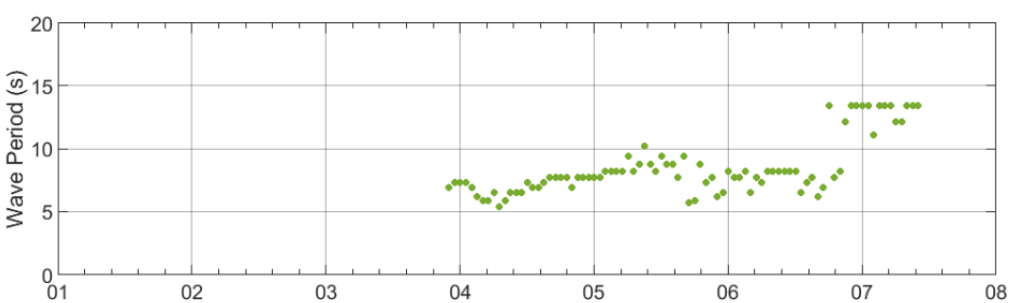
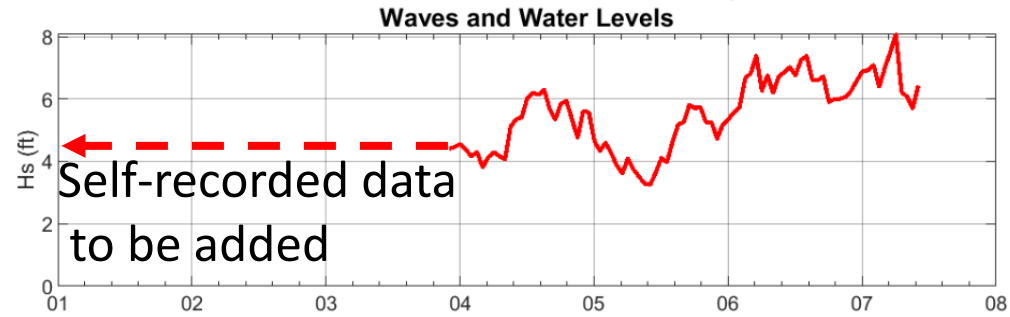


Sheepshead Damage

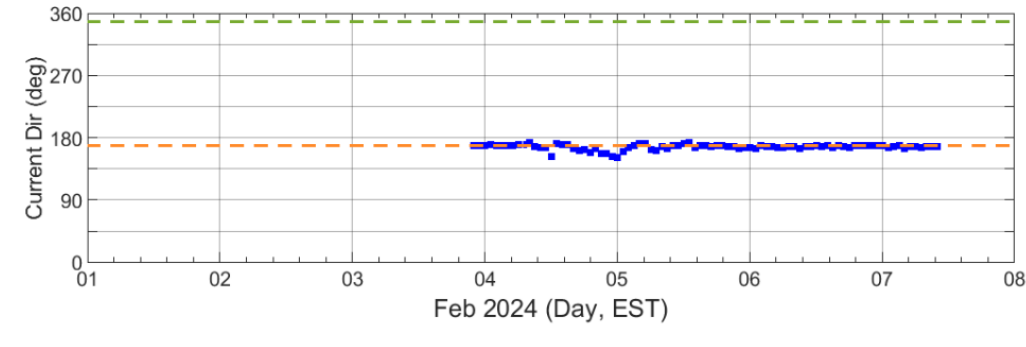
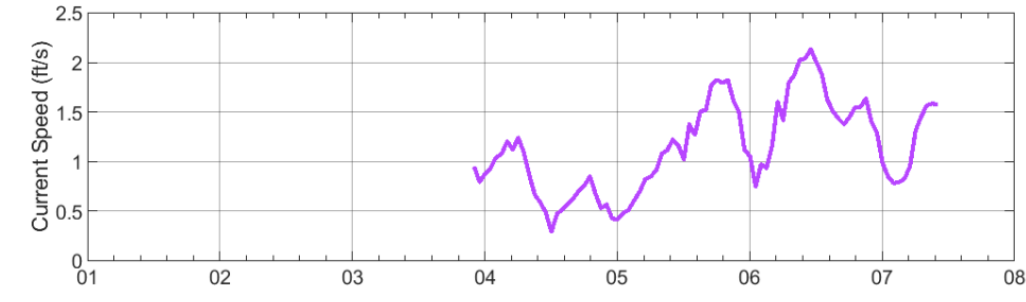
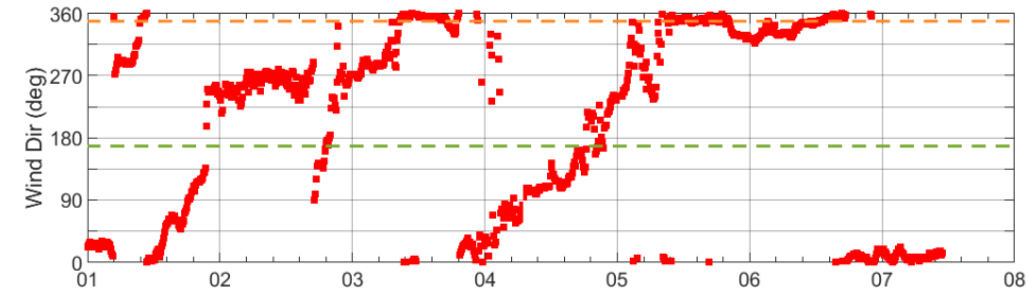
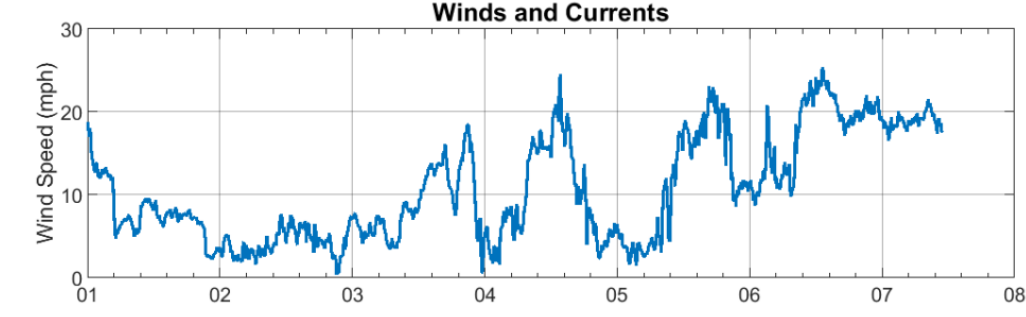


Cable diagnostics & repair required the stars to align a total of 5 times...

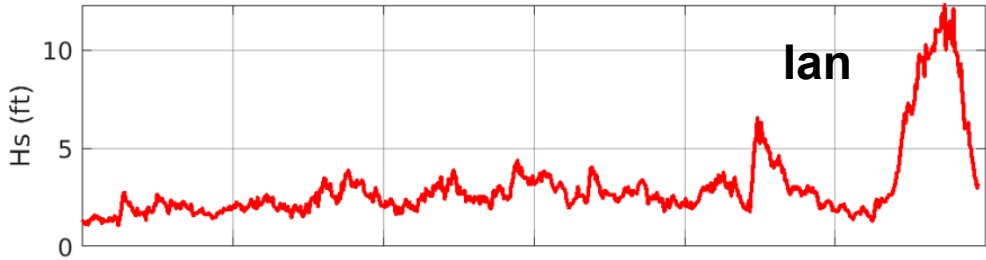
- a) **weather**: “performing brain surgery during an earthquake”
- b) sufficient **manpower**: academic obligations of students and P.I.
- c) custom-made **new parts** delivered
- d) **instrument** availability (self recorders deployed twice)



**Previous
7 days**

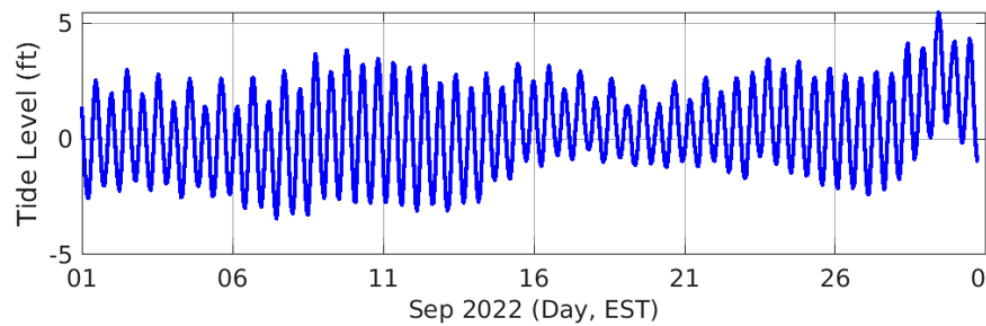
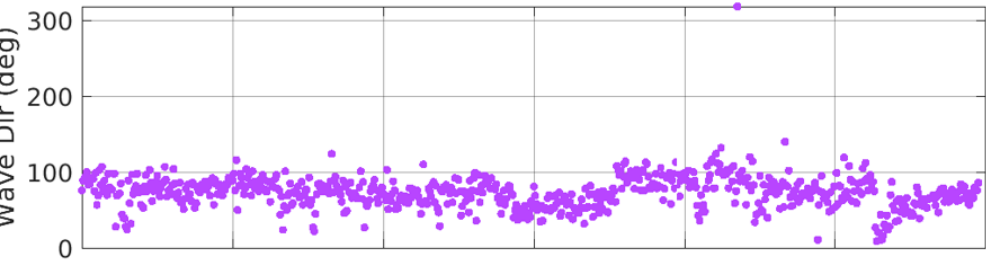
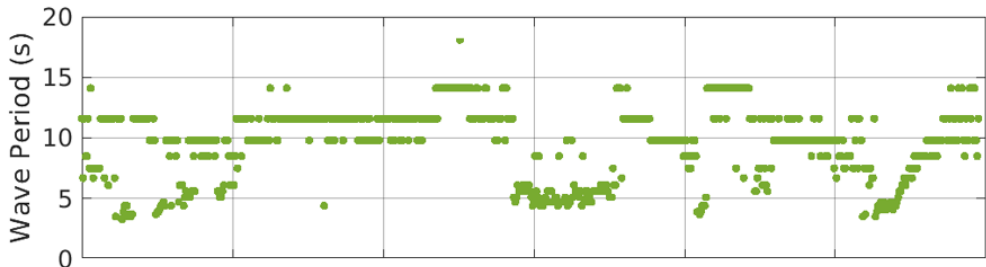


Waves and Water Levels

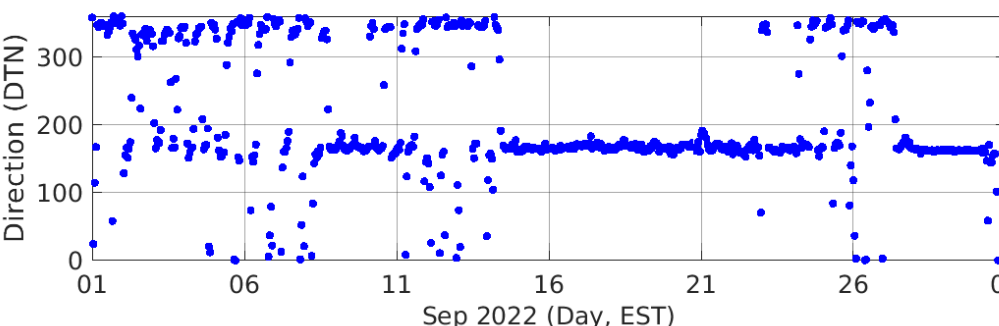
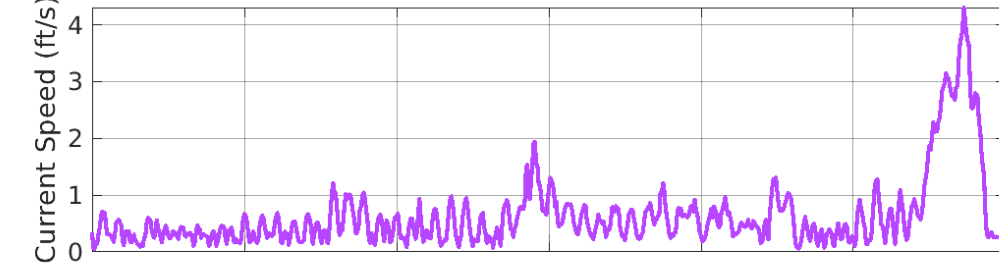
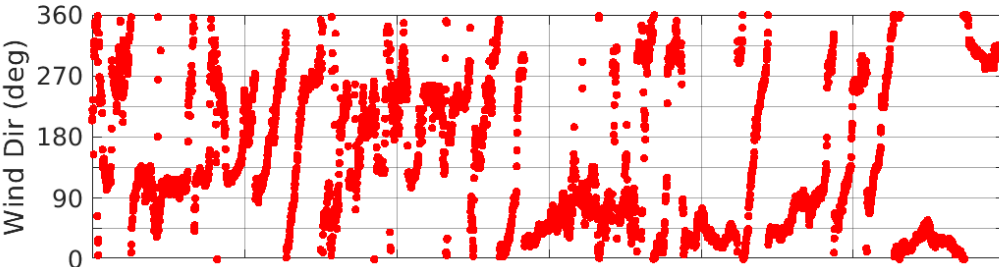
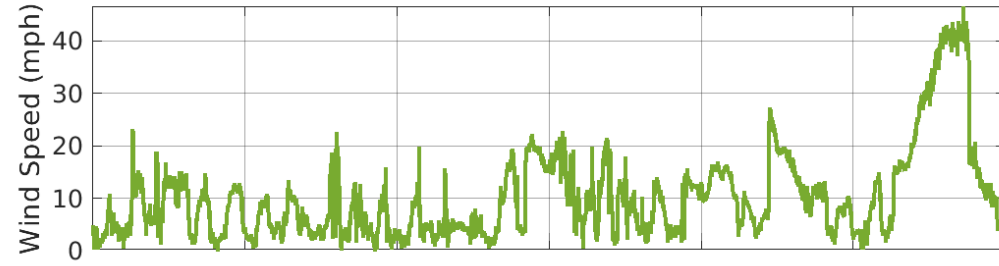


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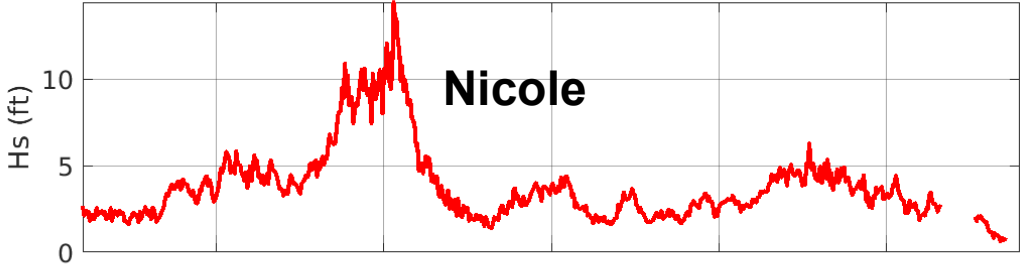
Monthly Data Archive Sep. 2022



Winds and Currents



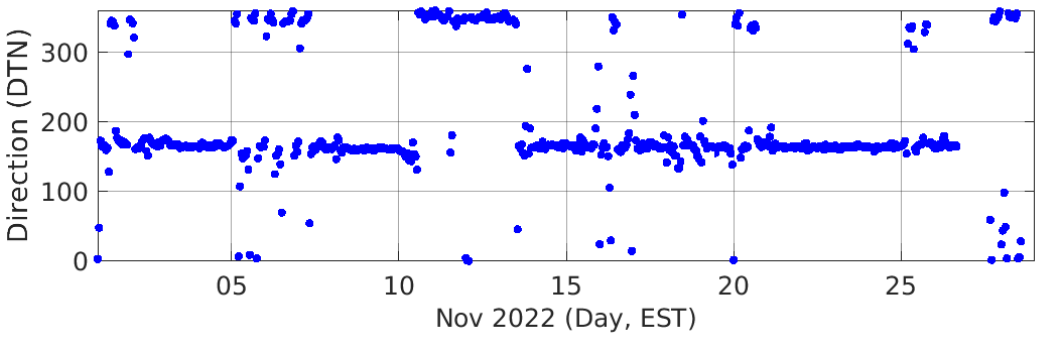
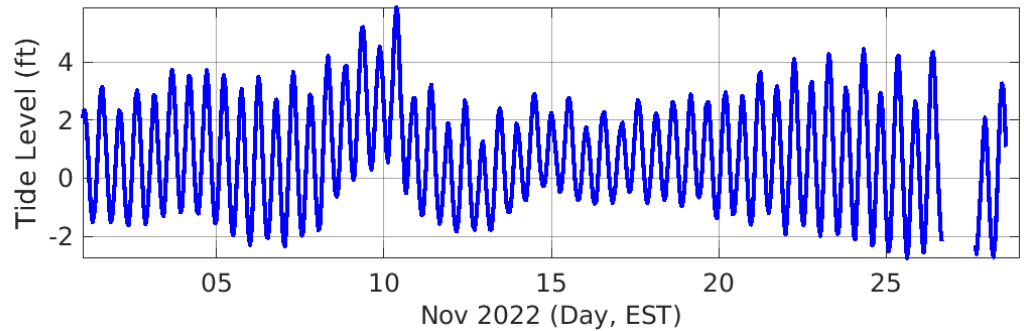
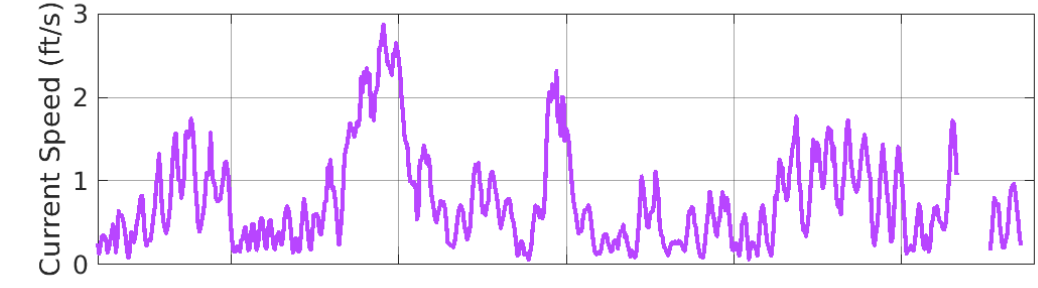
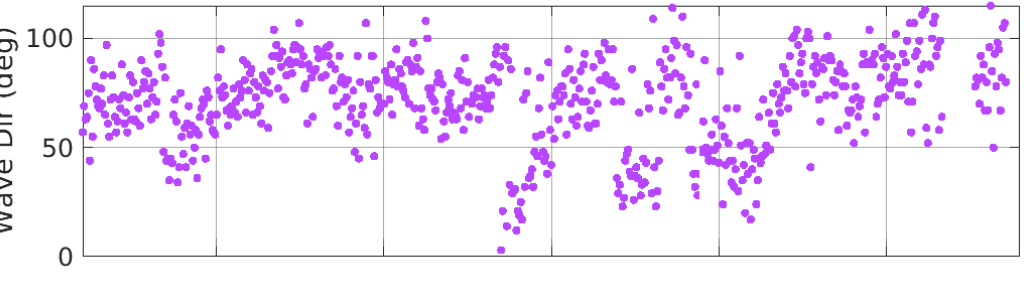
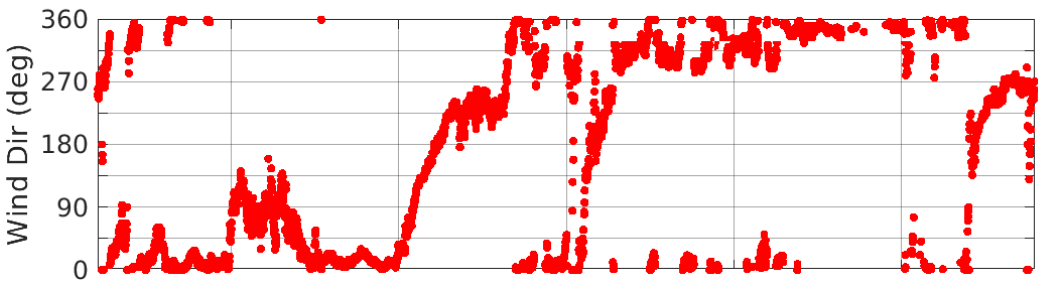
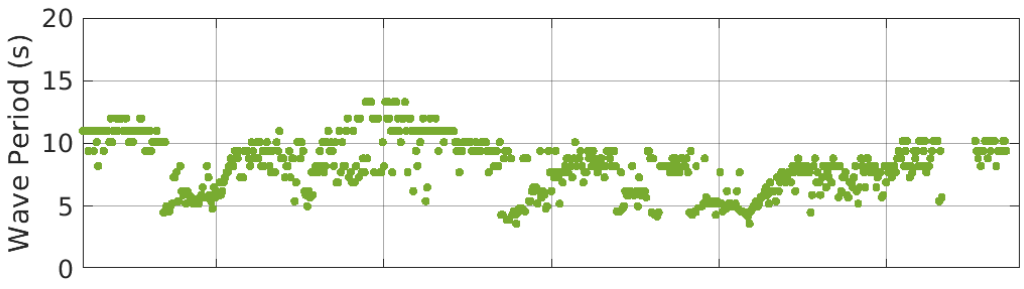
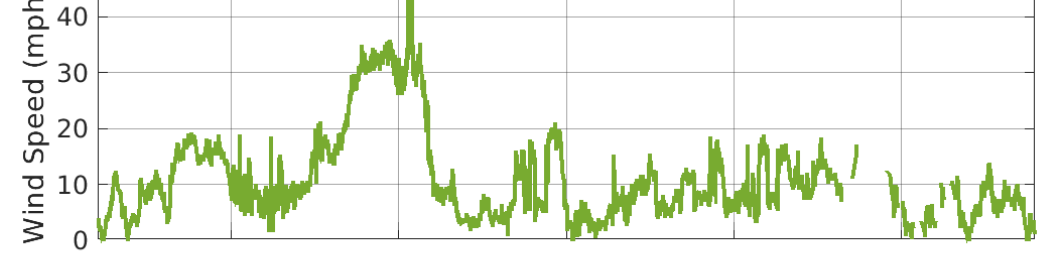
Waves and Water Levels



Nicole

Monthly Data Archive Nov. 2022

Winds and Currents



https://surfbreakengineering.com/gtm-nerr_bdcf.html

Thank You!

