Nearshore Wave Climatology of the New Jersey Shelf

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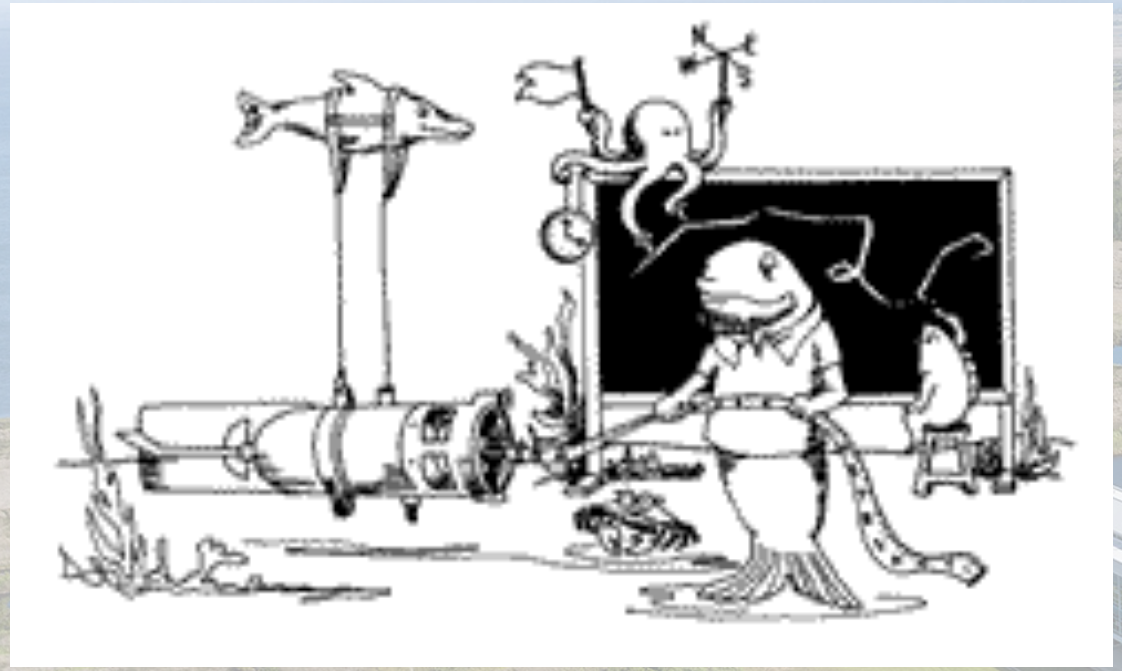
Currents, Waves and Turbulence Workshop



Abstracts: November 4, 2023
Meeting: March 18-20, 2024

Coastal Studies Institute
A Multi-Institutional Research Partnership

OES

CWTM 2024

March 18-20, North Carolina

https://cwtm2024.org/

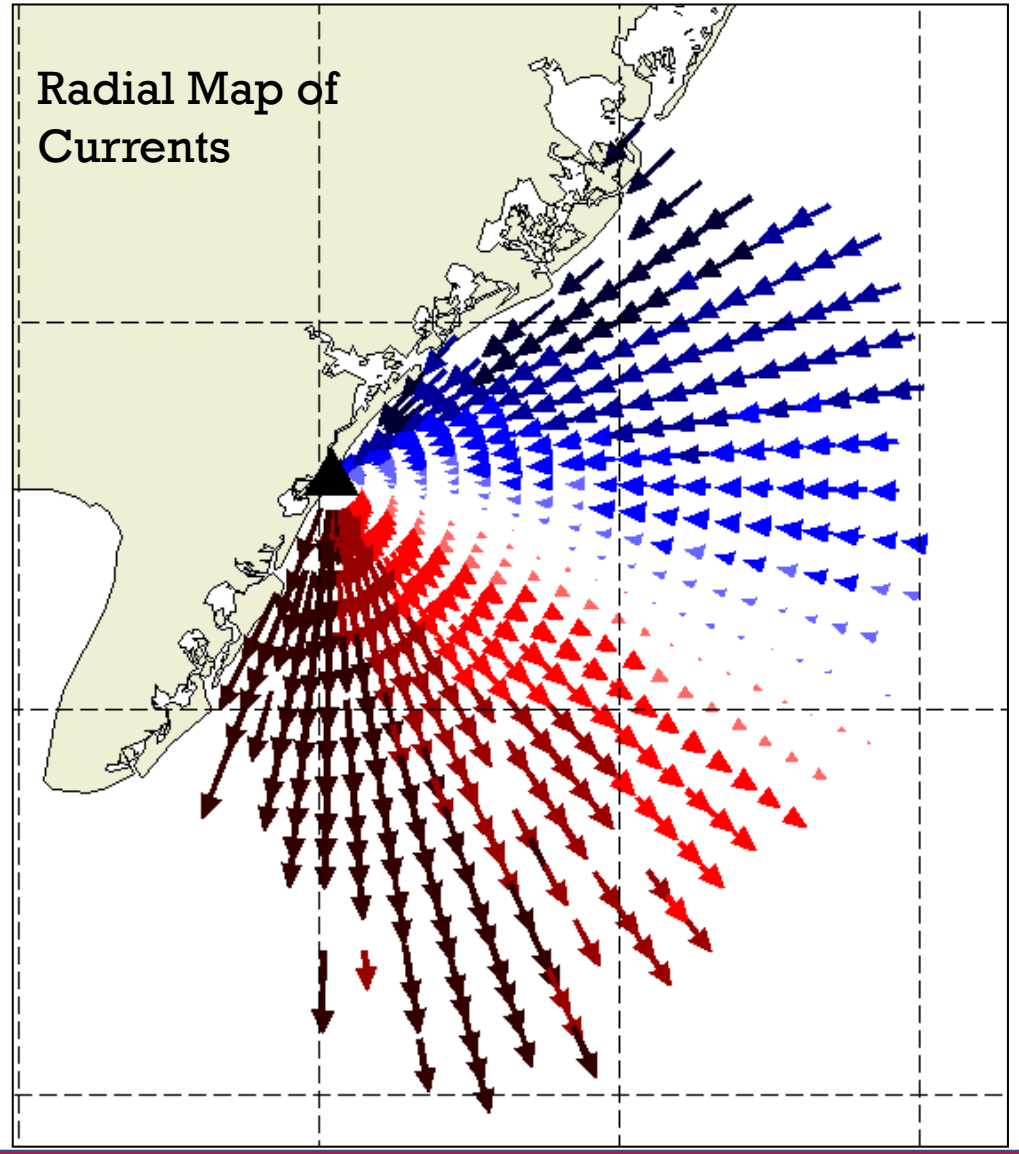
Outline

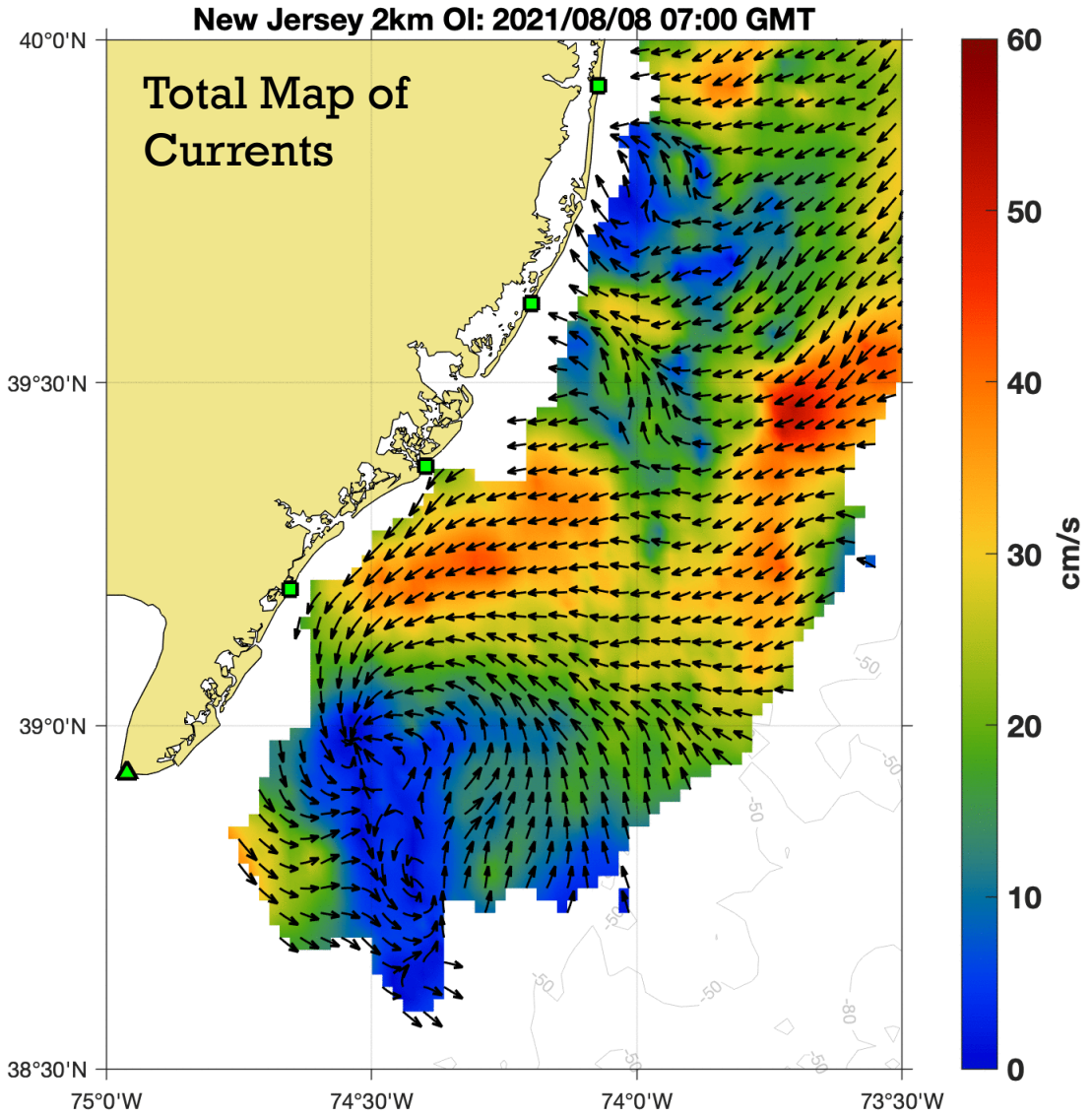
- Introduction to HF radar
- HFR wave measurements during Tropical Storm Ophelia 2023
- Long term wave statistics 2017-2023
- Month long comparisons

High Frequency Radar

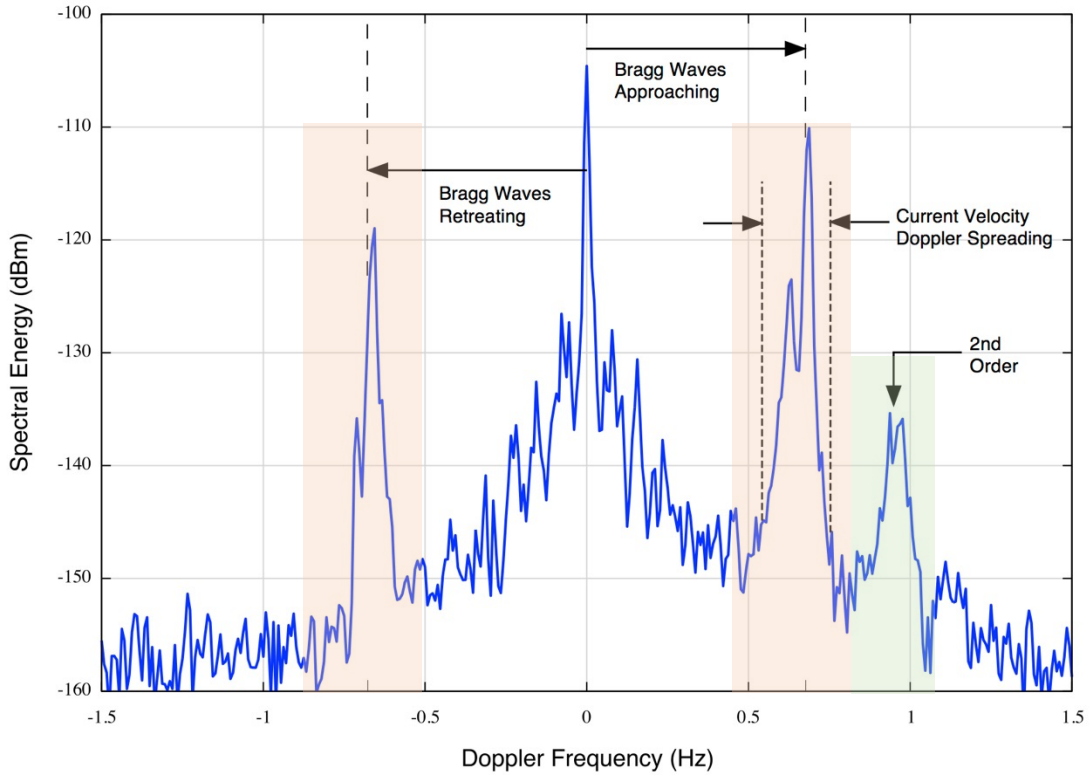
CODAR Tx/Rx Antenna
Lewes Beach, DE USA

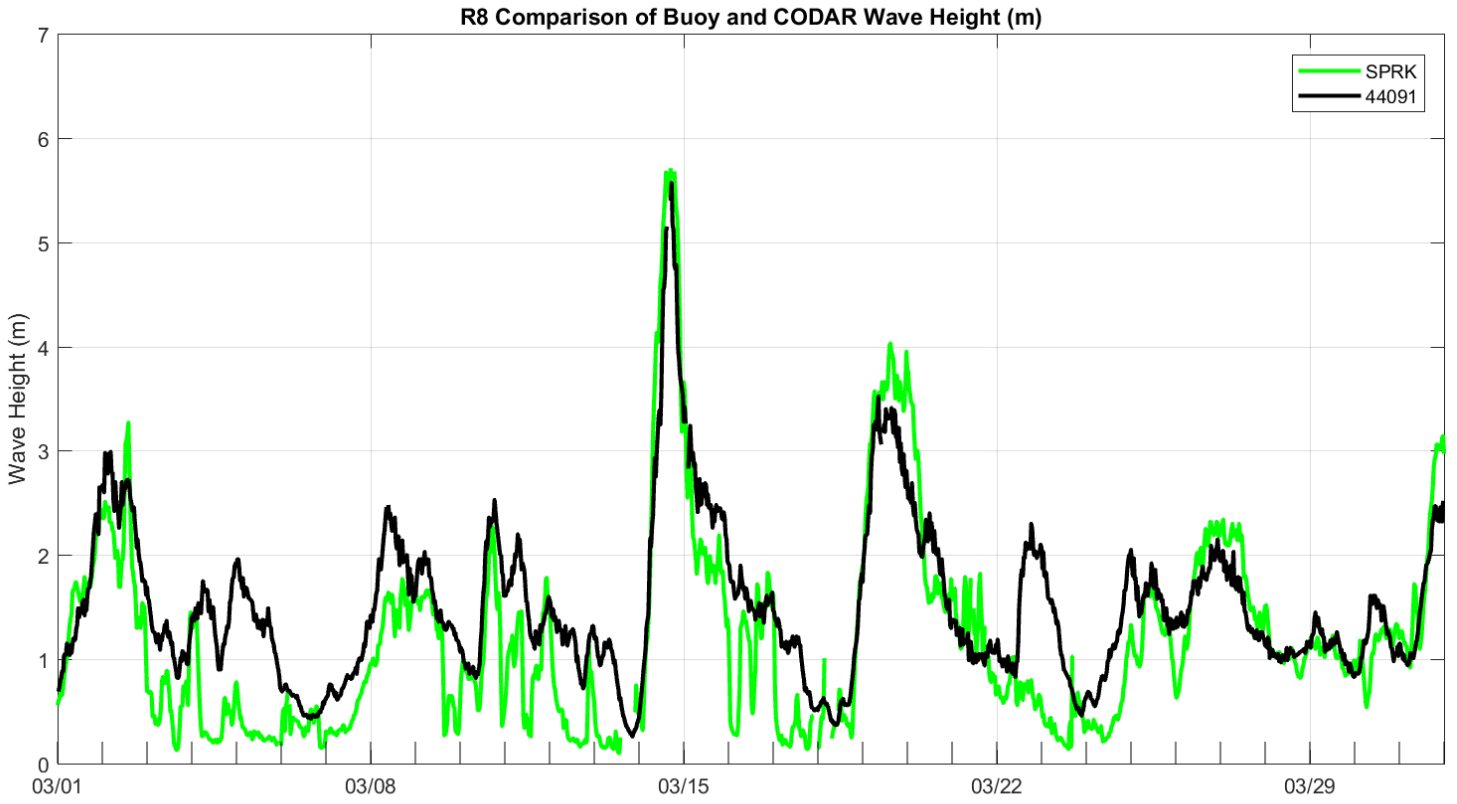
Surface Currents from SeaSonde HF Radar





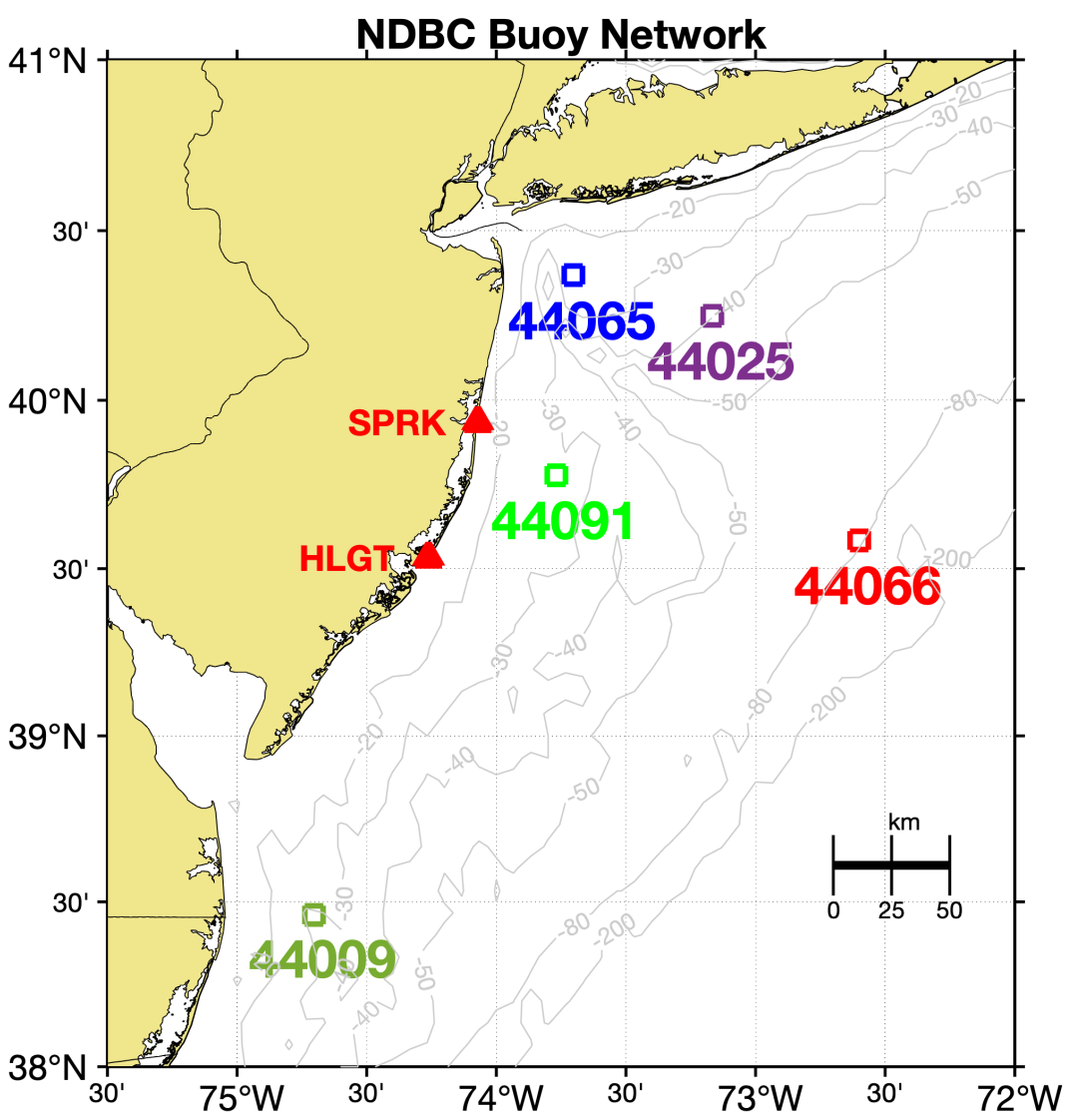
Surface Waves from SeaSonde HF Radar

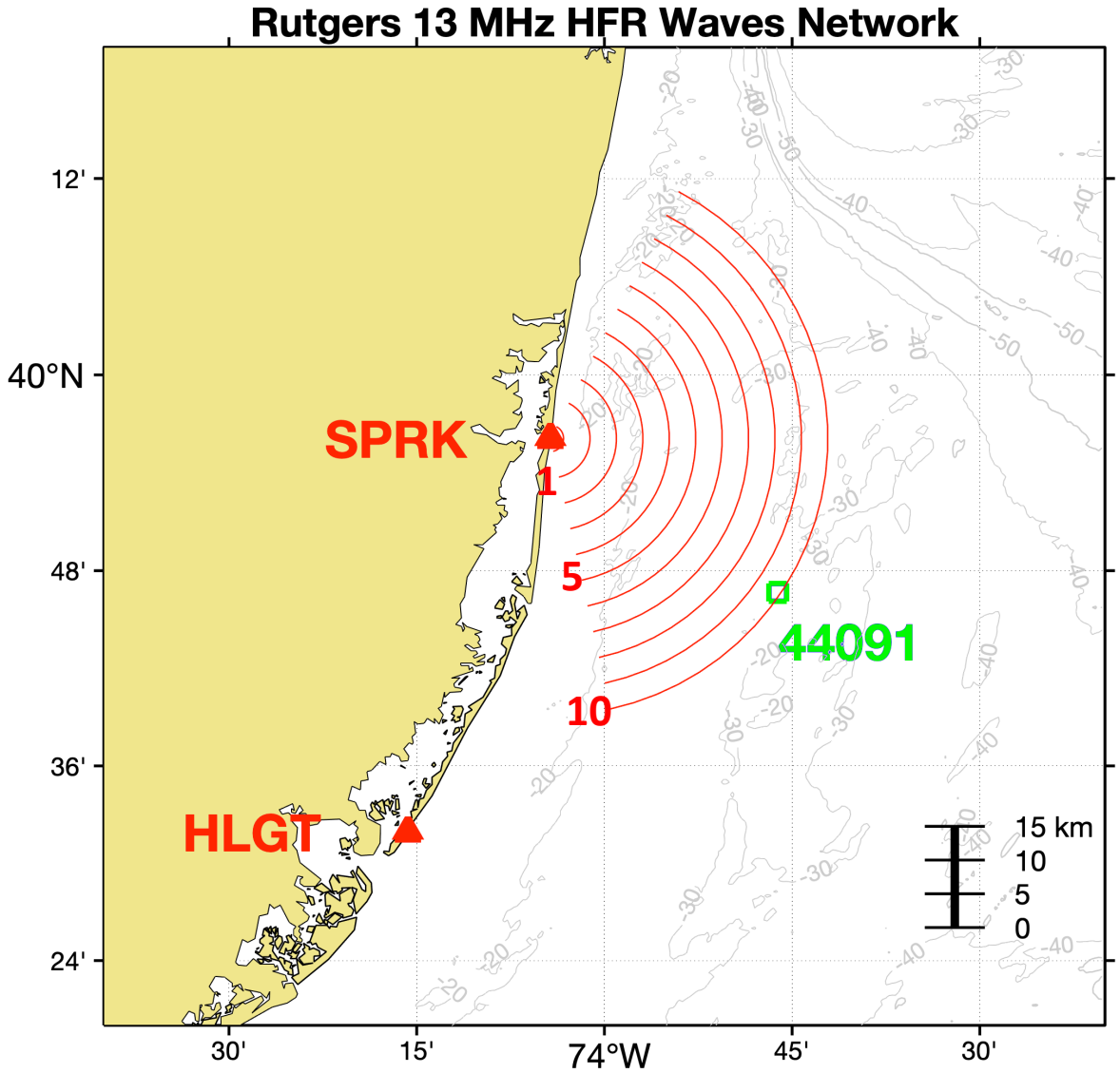




March 2017

Study Area

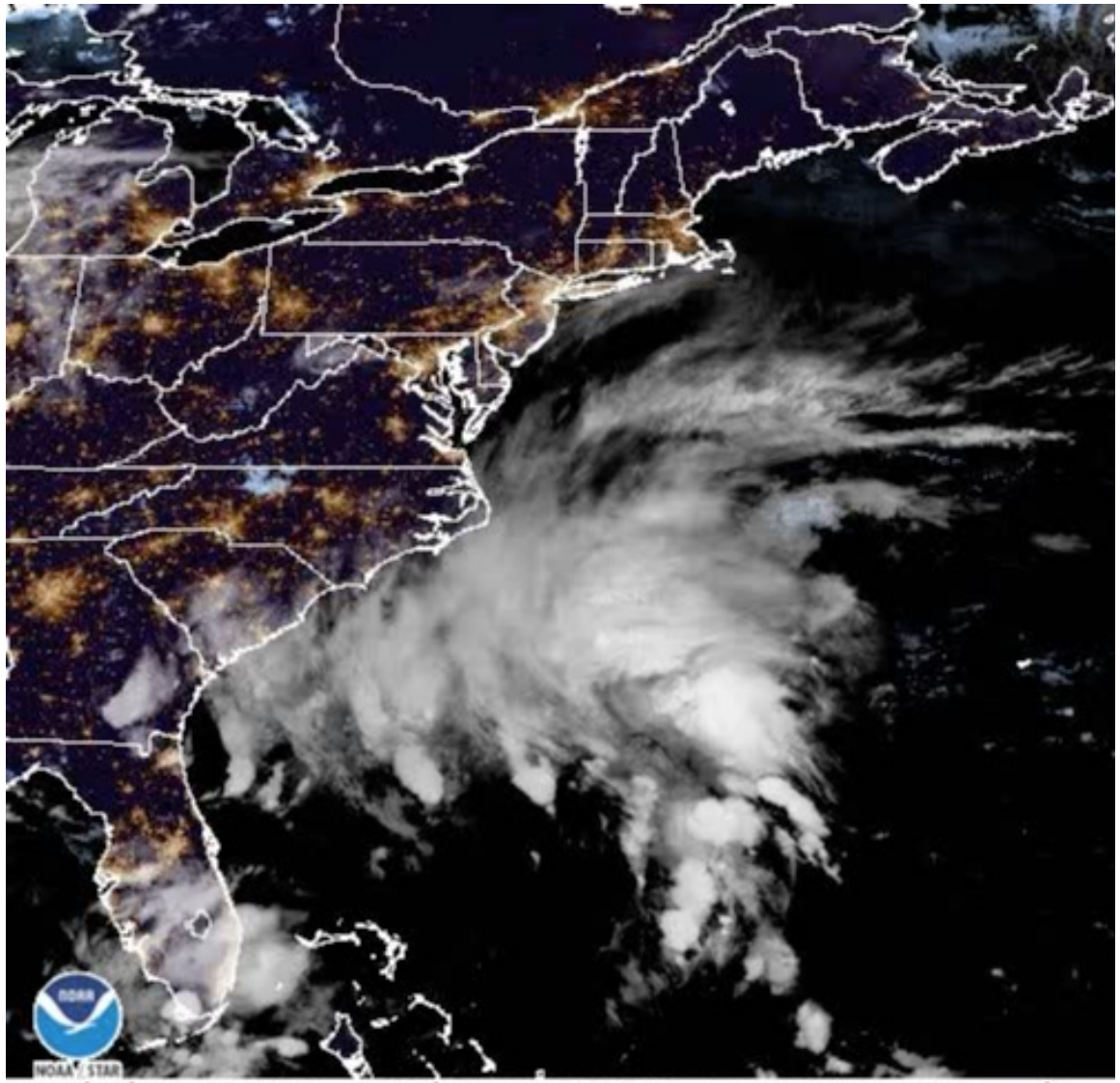

NDBC Buoy Network
41°N
30'
40°N
30'
39°N
30'
38°N
30'
75°W
30'
74°W
30'
73°W
30'
72°W
44065
44025
SPRK
44091
HLGT
44066
44009
km
0
25
50

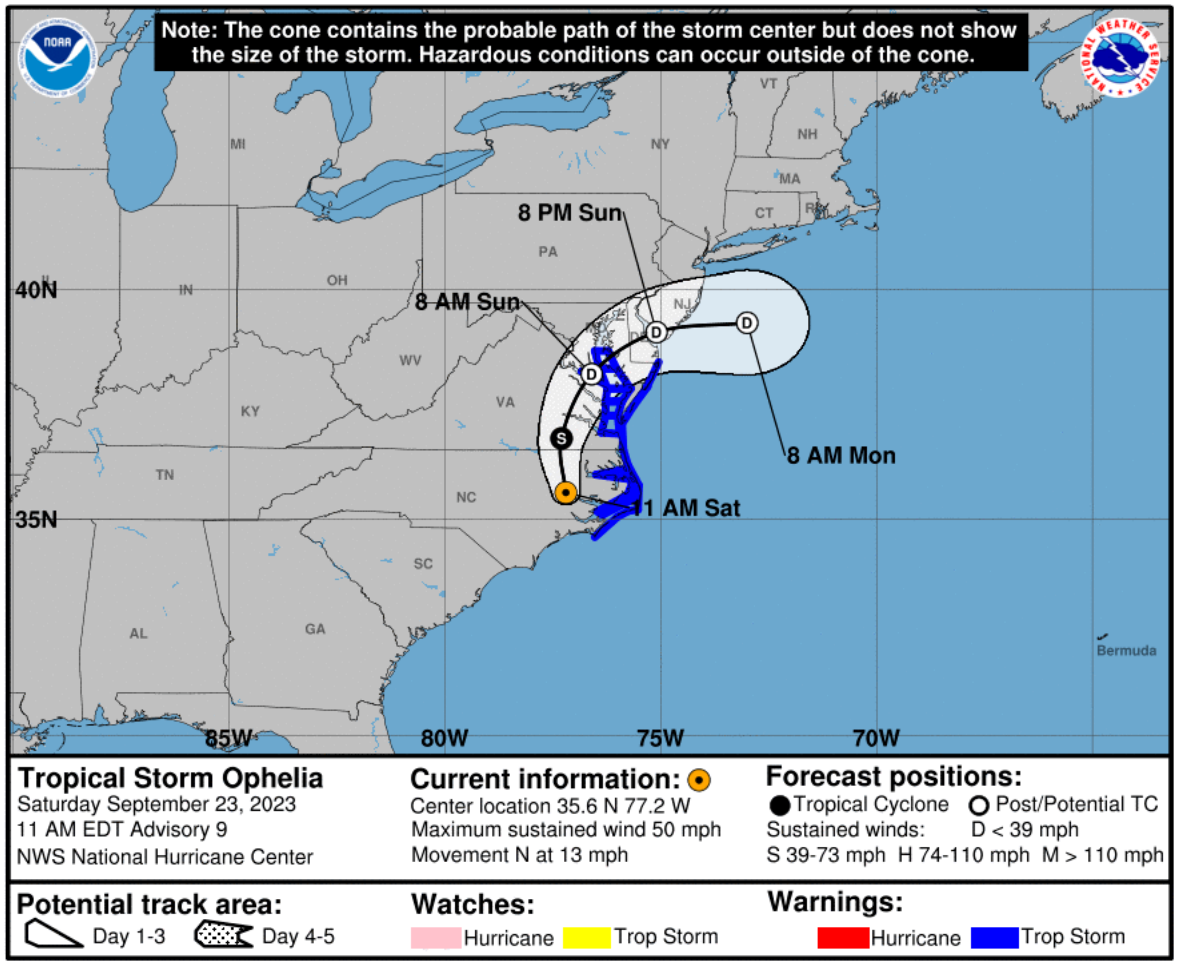

Rutgers 13 MHz HFR Waves Network
12'
40°N
48'
36'
24'
30'
15'
74°W
45'
30'
SPRK
1
5
10
44091
HLGT
15 km
10
5
0

Tropical Storm Ophelia 2023

Tropical Storm Ophelia

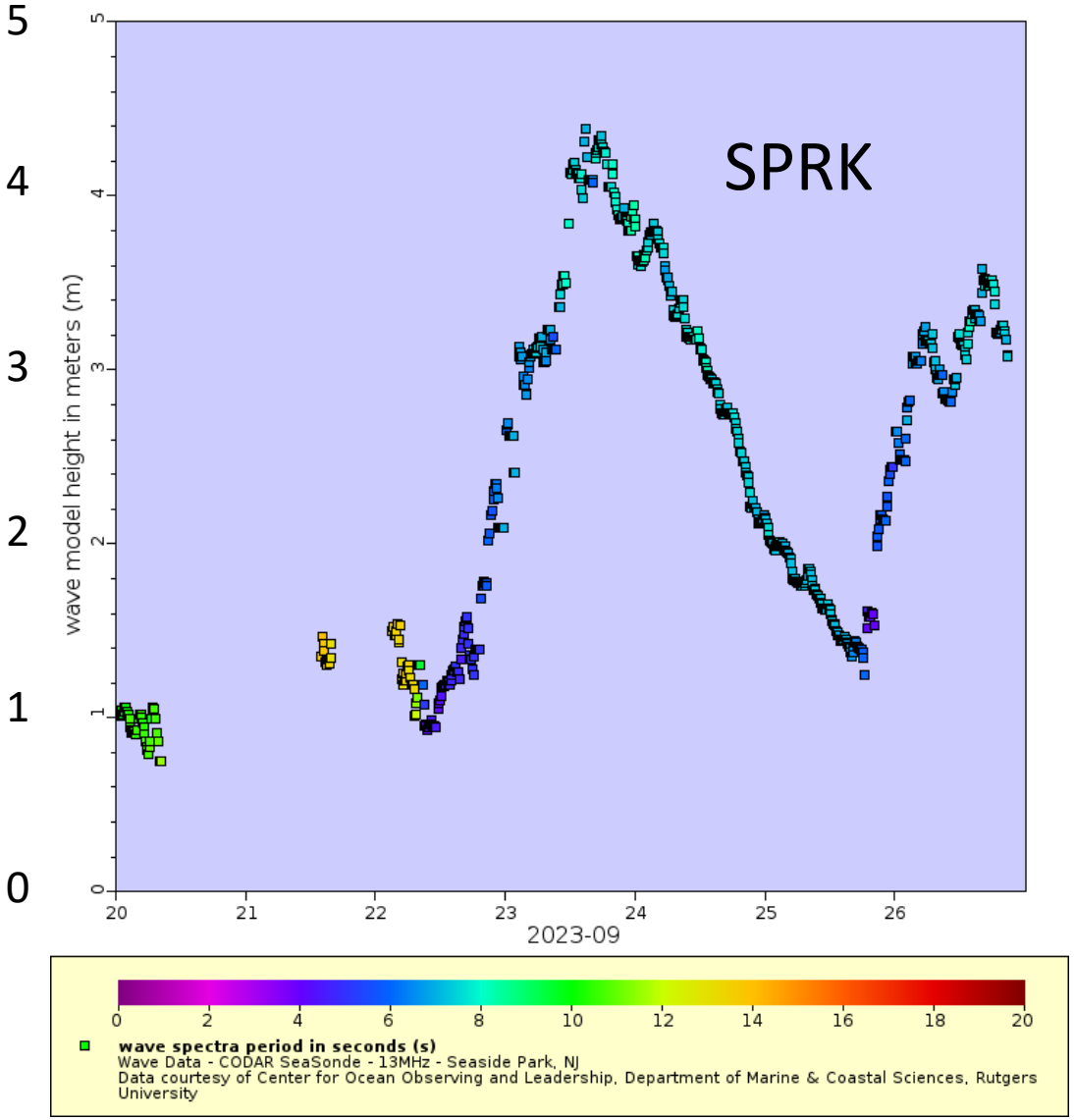
Sep 22-25, 2023

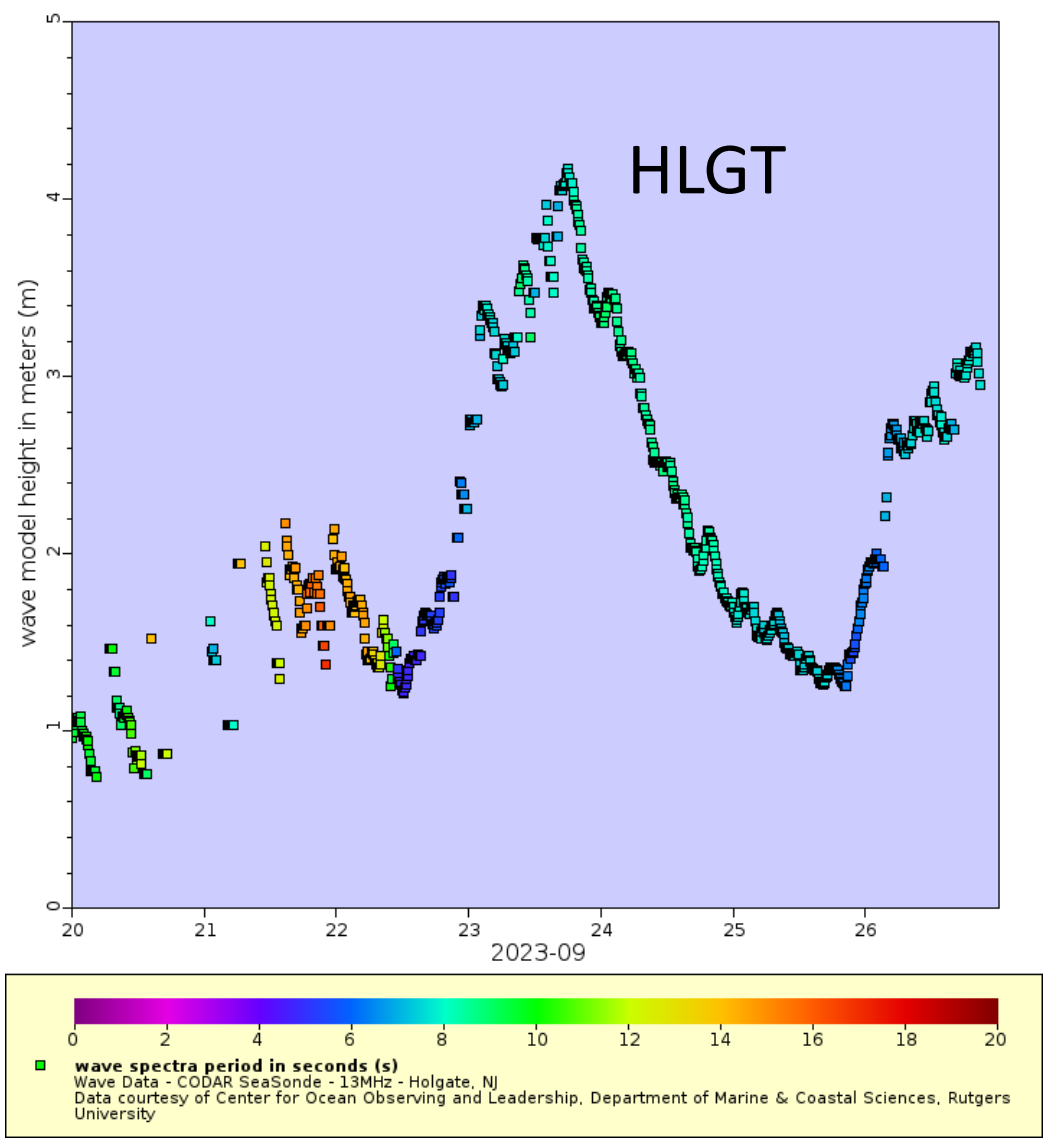




Wave Heights from NDBC Buoys

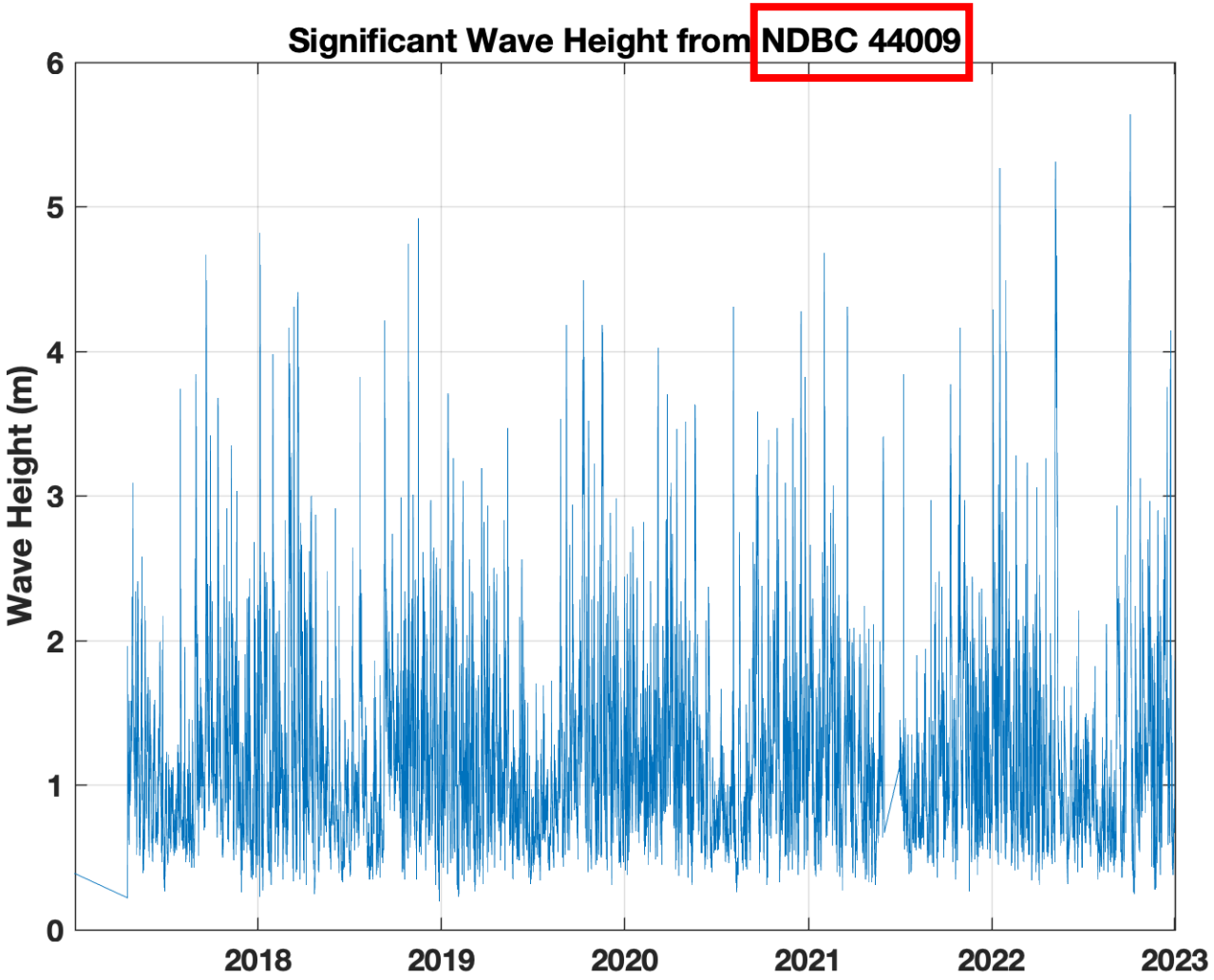
Wave Heights (m) from HFR Stations

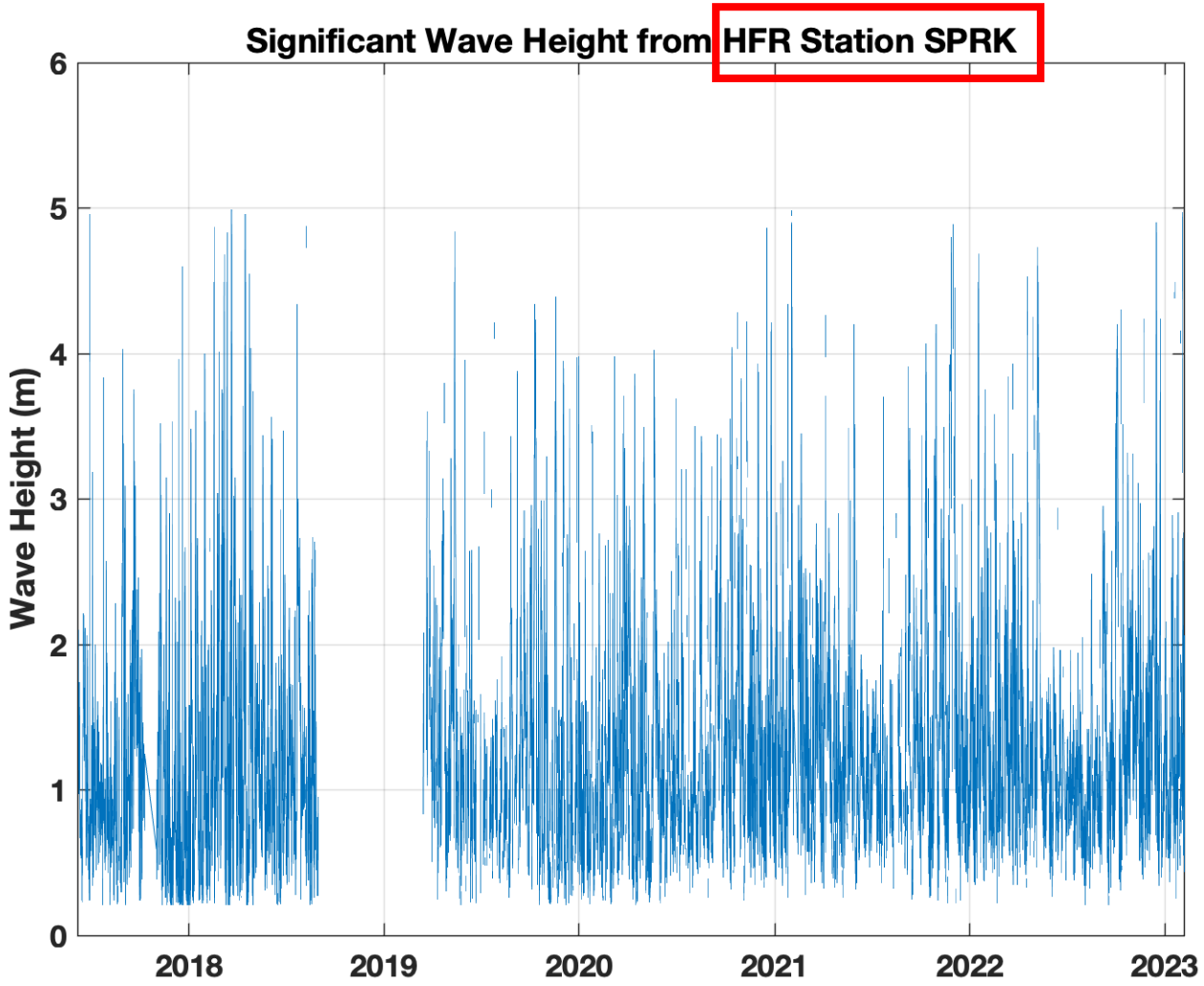




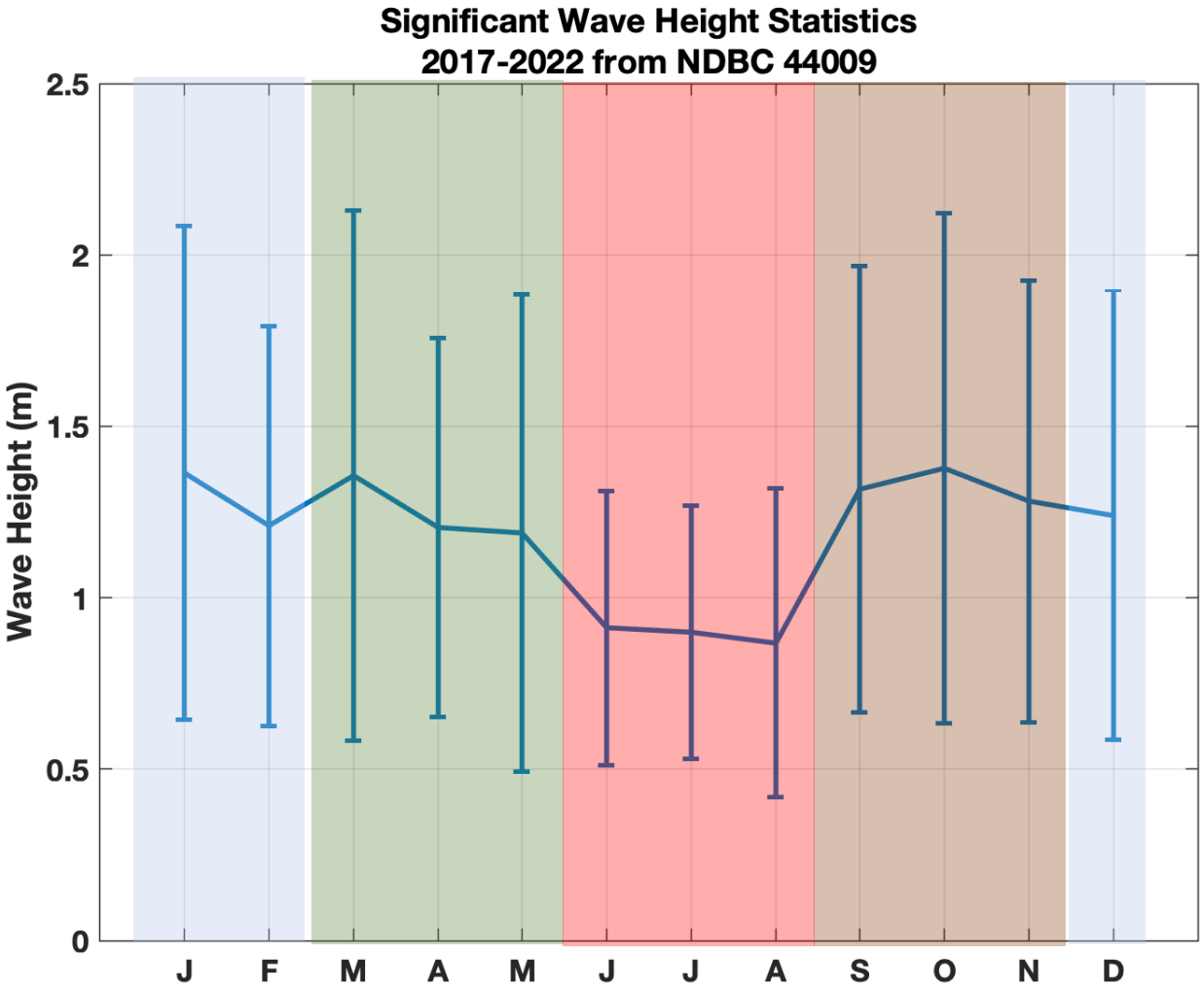
Wave Height Statistics 2017-2023

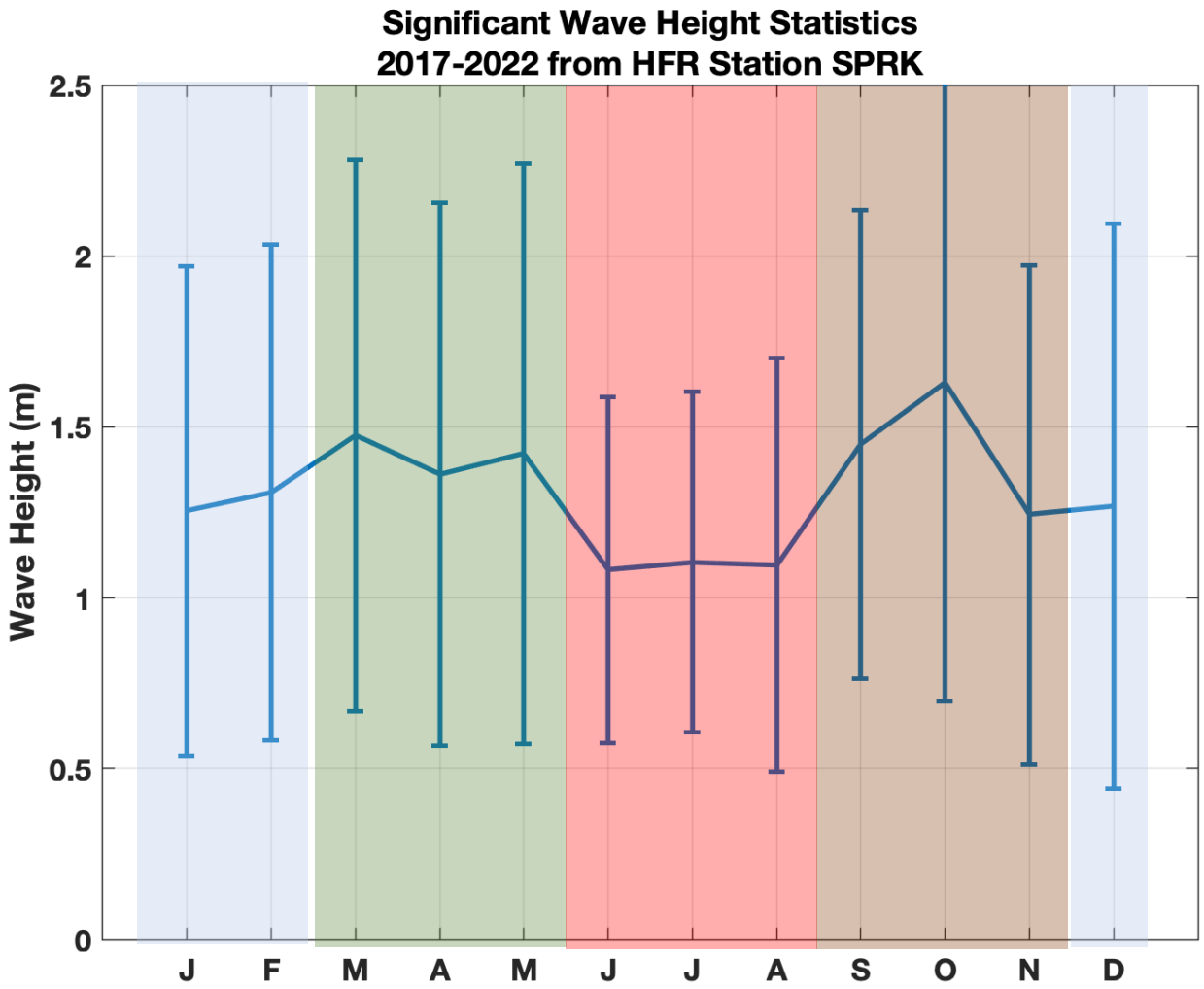
Wave Measurements 2017-2023, Raw Data





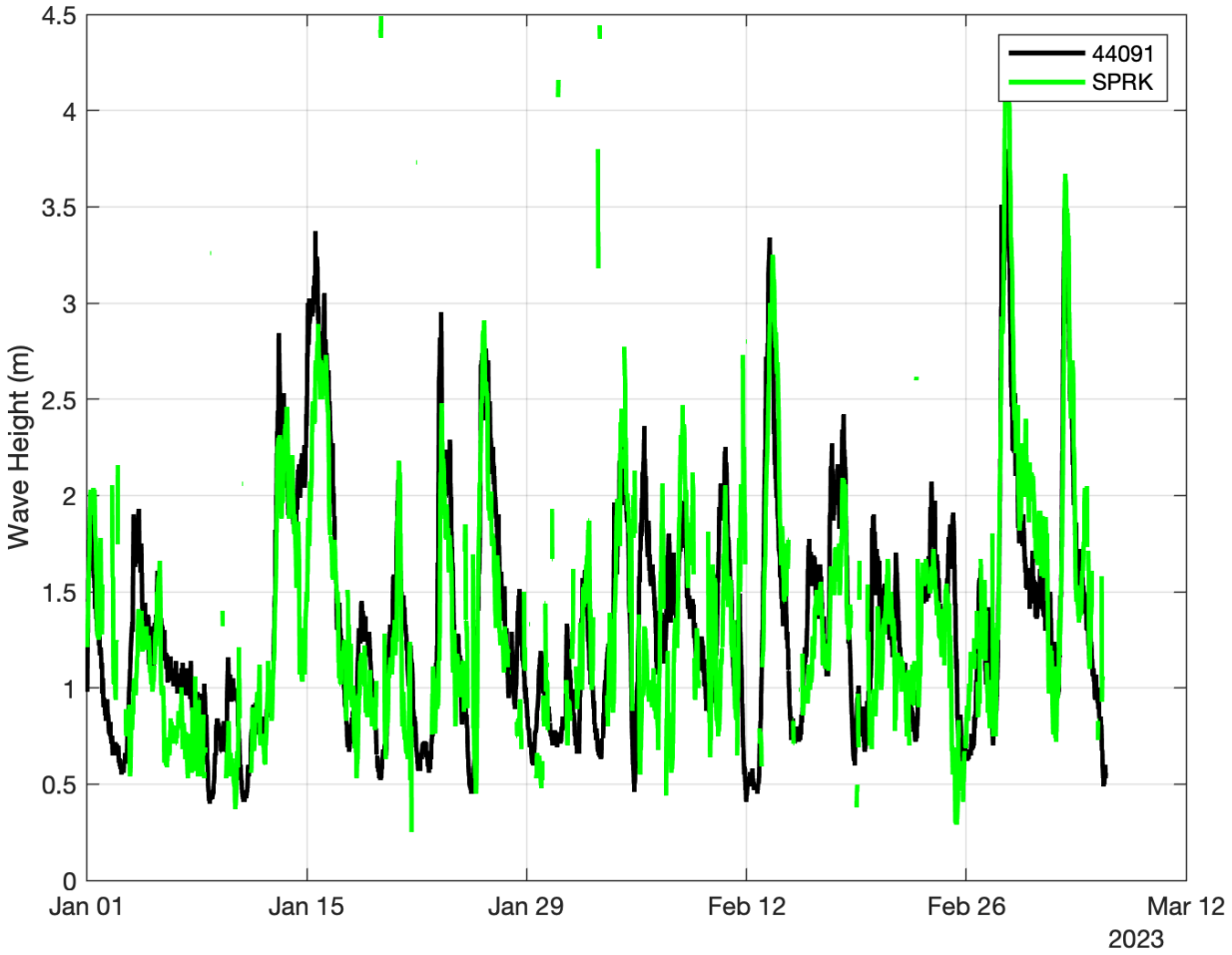
Wave Measurements 2017-2023, Monthly Statistics

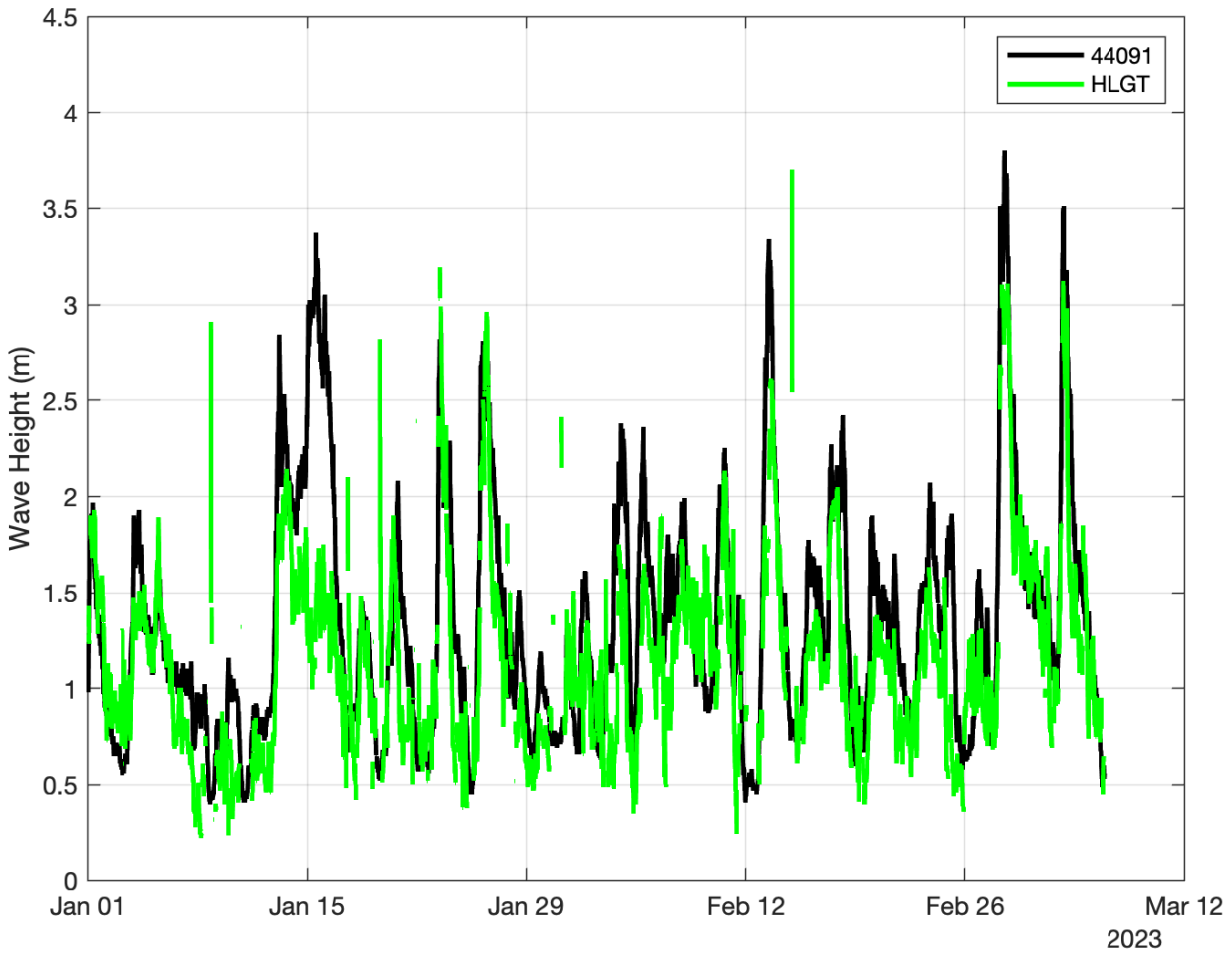




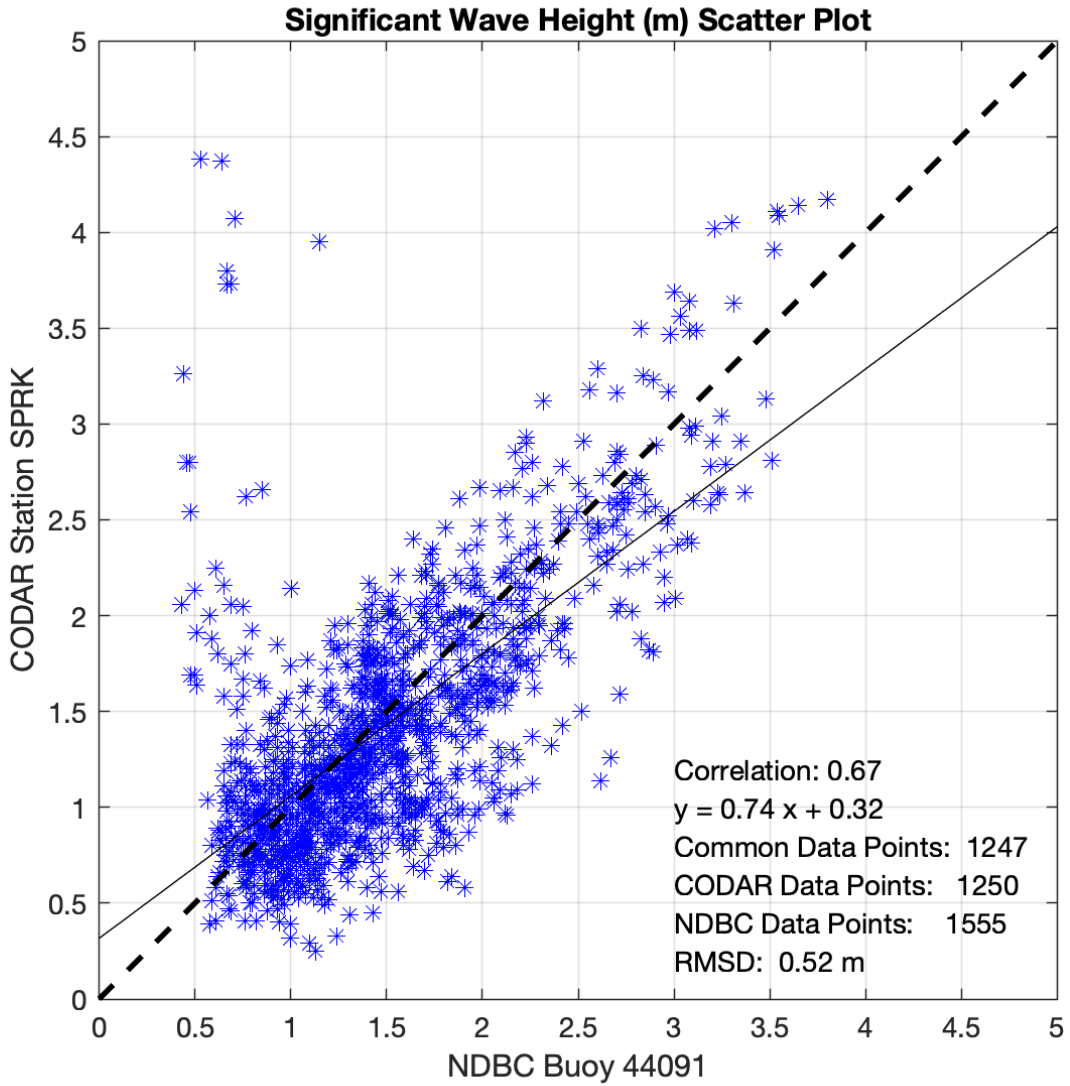
Wave Height Statistics
January - March 2023

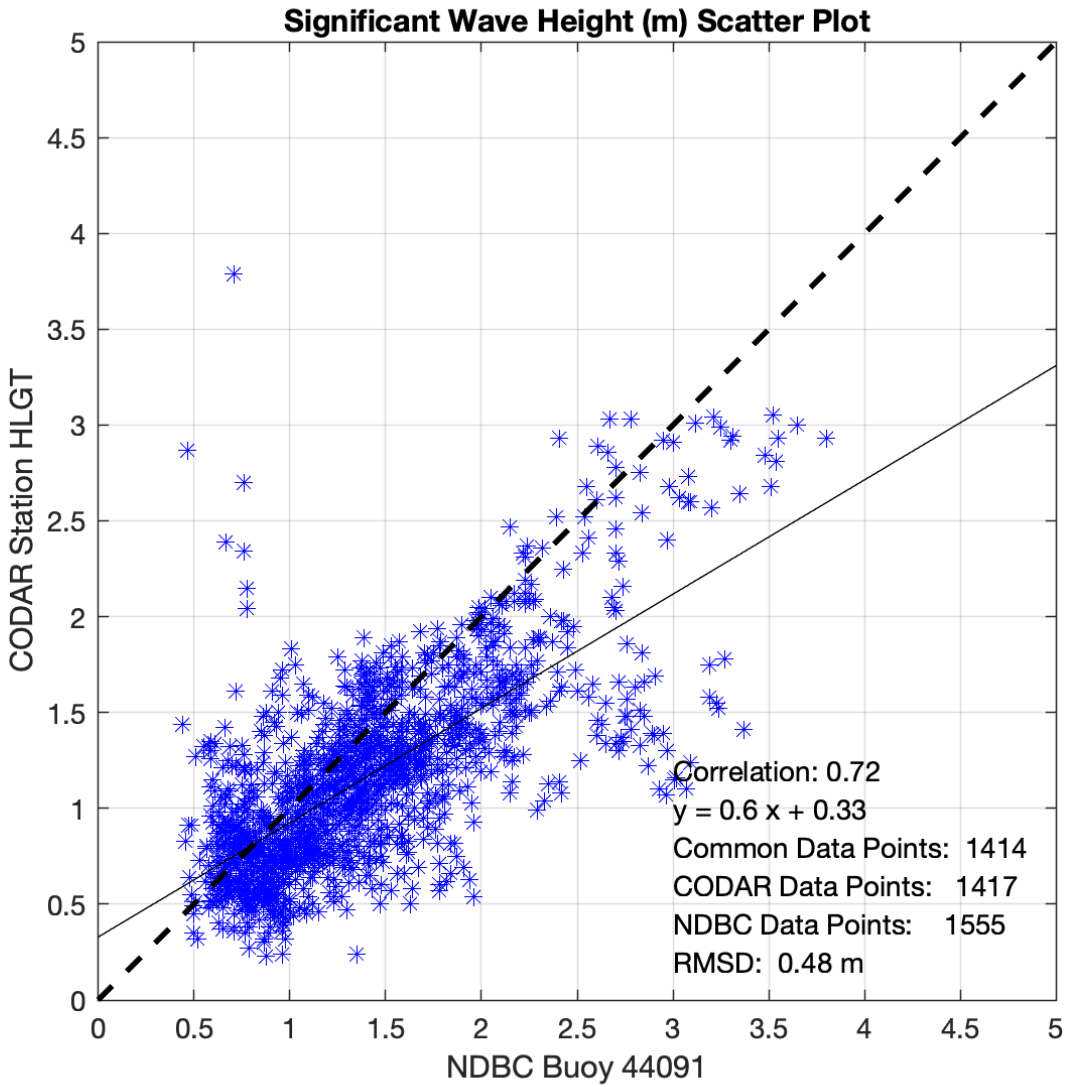
Wave Comparison Jan-Mar 2023





Wave Comparison Jan-Mar 2023





Conclusions

- Provided introduction to HF radar
- Rutgers 13 MHz HF radar stations are providing real time current and wave information
- 5 year climatology of wave height from HFR is comparable to nearby buoy 44009

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Thanks

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