

“Revocable License Agreement for Use of City Property”

Between the City of Key West and The University Of South Florida/College of Marine Science (USF) for the installation and maintenance of a CODAR Ocean Current Monitoring Station (OCMS) at the eastern end of Smathers Beach



GULF RESEARCH PROGRAM



UNIVERSITY OF SOUTH FLORIDA
College of **MARINE SCIENCE**

Clifford Merz¹, Robert Weisberg, Yonggang Liu, Jeff Donovan
College of Marine Science, University of South Florida

Lynn K. (Nick) Shay
Department of Ocean Sciences, University of Miami/RSMAS

Scott Glenn, Michael Smith
Department of Marine and Coastal Sciences, Rutgers University

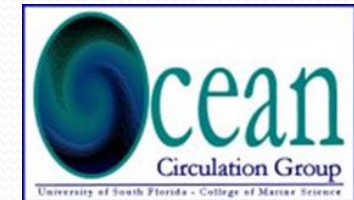


UNIVERSITY OF MIAMI

ROSENSTIEL
SCHOOL of MARINE & ATMOSPHERIC SCIENCE



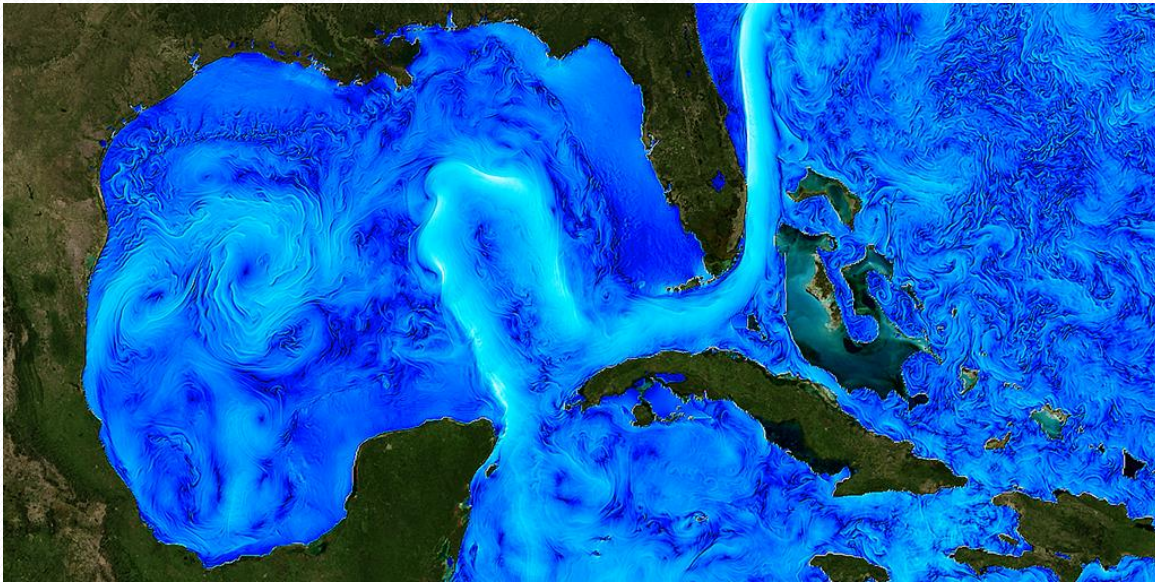
USF College of Marine Science¹
St. Petersburg, Florida 33701
Office: (727) 553-3729/Mobile: (727) 409-0770
Email: cmerz@usf.edu



Presented By: Dr. Clifford Merz
February 15, 2022
Location: City of Key West City Hall 5:00 pm EST

Brief Overview:

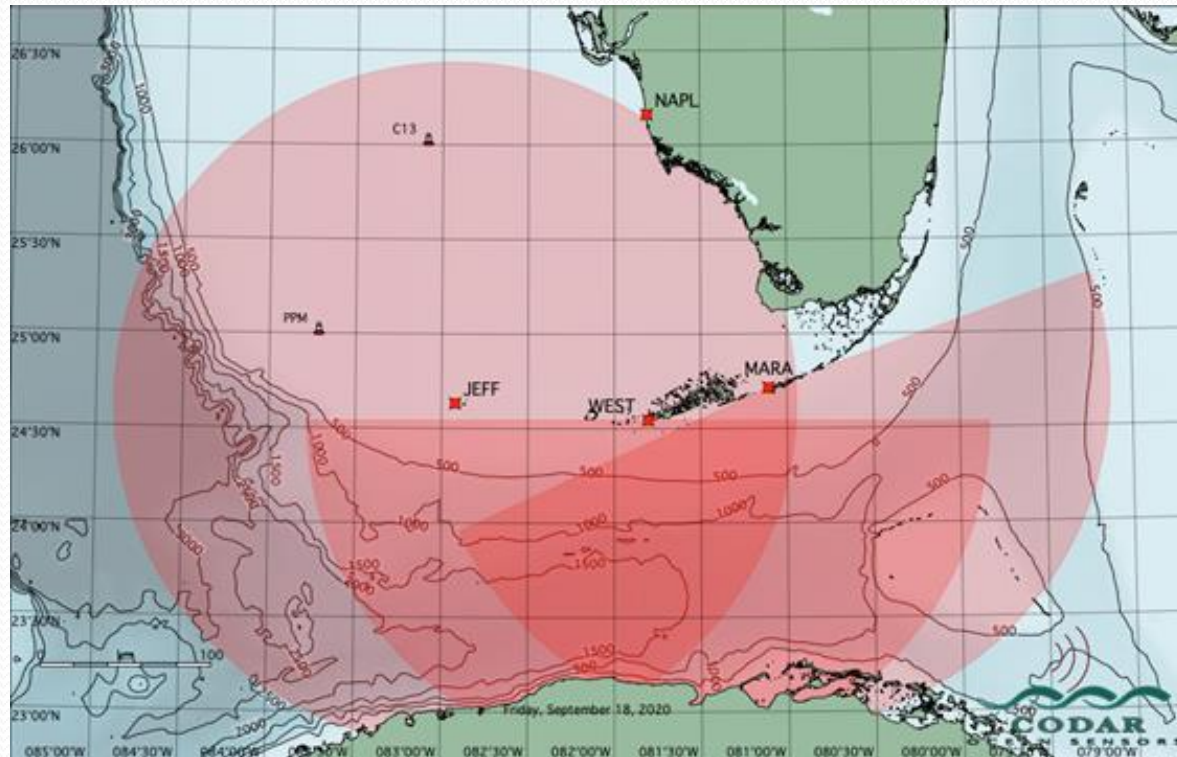
Dry Tortugas and Lower Keys Ocean Current Monitoring Station (OCMS)



- Response to RFA Topic 1: which calls for the procurement, installation, and operation of three (3) new CODAR, 5 MHz Seasonde OCMS systems covering the Straits of Florida region from the Florida Keys to Cuba.
- The requirement for these additional OCMS systems stem from knowledge gaps in understanding the controls on the Loop Current System (LCS) and the need for real-time surface current data for numerical models of the GOM and its inflow and outflow regions.
- Our particular task encompasses 3 new CODAR OCMS systems specific to the outflow region. Specifically to be located at:
 - Dry Tortugas/Ft Jefferson National Park (JEFF);
 - Key West, Florida (WEST);
 - Marathon, Florida (MARA)
- operational mid-Dec 2019.



OCMS Site Data Integration and Benefit



- OCMS radials from the Key West (WEST) site will combine with those from the existing Marathon (MARA) site, as well as with the yet to be deployed Dry Tortugas (JEFF) site, to increase the existing surface current measurement within the Straits of Florida and the lower Gulf of Mexico Loop Current System regions.
- OCMS radials from our existing Naples (NAPL) site will combine with those from the new JEFF site and possibly from the WEST, and MARA sites to increase the existing surface current for the southern portion of the West Florida Shelf (WFS) “inclusive” of the hypothesized Loop Current controlling “pressure point” region.

Intended Audience/Users of the Work

- Data from the anticipated WEST OCMS site:
 - Will be displayed along with data from our existing 6 OCMS sites for use by the general public from our COMPS Ocean Circulation Laboratory OCMS web page at:
http://ocgweb.marine.usf.edu/hfradar/hfr_index.html
 - Will be provided in near real-time to the IOOS National Backbone at the Coastal Observing Research and Development Center (CORDC) where it is ultimately integrated into ocean models supporting various uses such as:
 - U.S. Coast Guard Search and Rescue Operations (SAR),
 - Oil tracking within the Gulf of Mexico,
 - Harmful Algal Bloom tracking along the West Florida Coast,
 - Sea level rise,
 - Improved boater safety.
 - Will be provided to Rutgers personnel for post delay-mode quality control, archive and decimation to NCEI and GulfHub data portal as well as to the NASEM modeling team.
- Additionally, being that flows driven by the LCS and its associated eddies also play important roles in the water properties and ecological influences of the Northwest Florida Bay region and the Florida Keys reef track, these observations will also benefit studies pertaining to the Everglades.

Progress Made

- Marathon (MARA) OCMS Site: Curry Hammock State Park
 - 2020-present site operation with >96% real-time data transfer to CORDC at:

<https://hfrnet.ucsd.edu/diagnostics/?p=sta&sta=MARA>

Besides the high operational throughput experienced over the year and a busy hurricane season, much good will was developed with the Park Ranger and staff, Keys Marine Lab staff, as well as various local small business in the area.

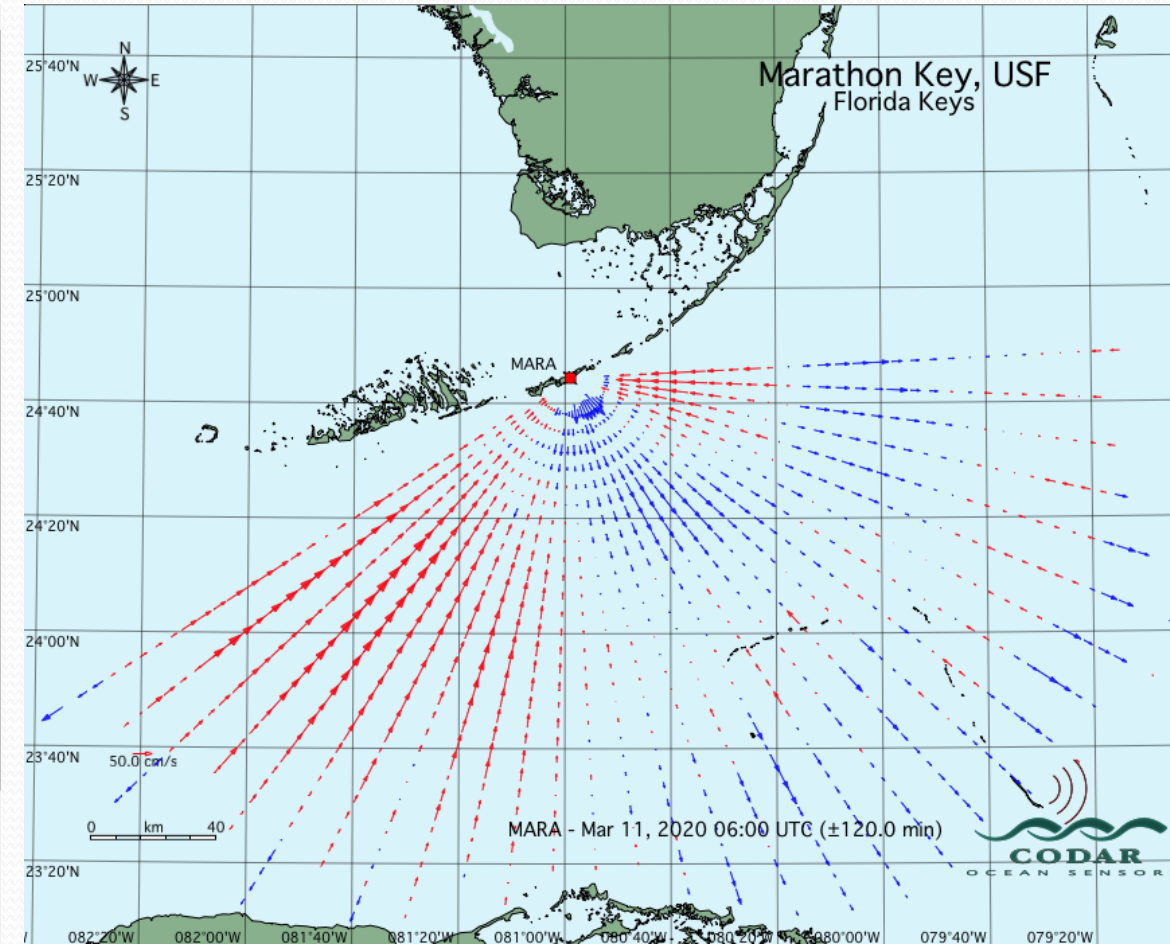
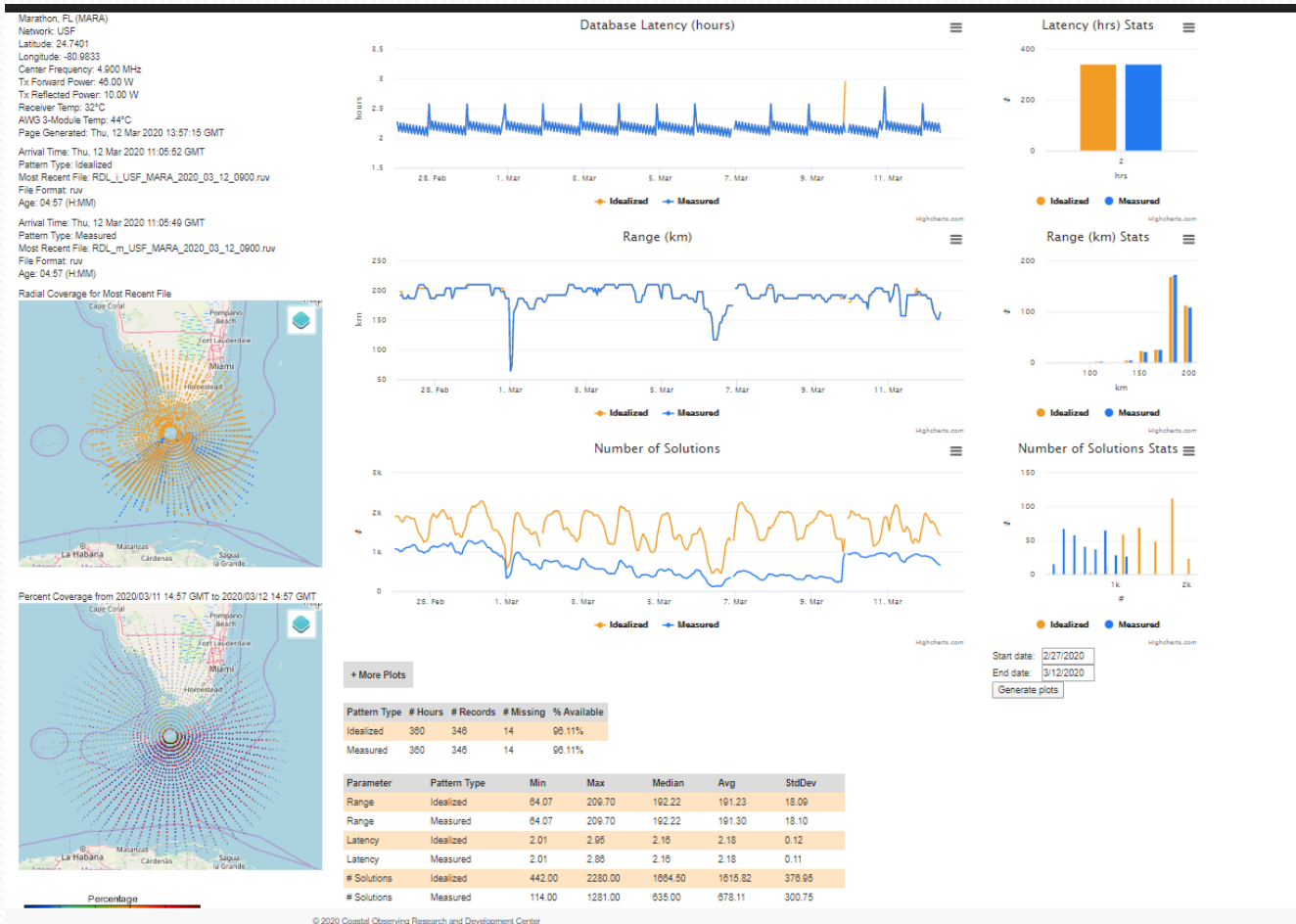
Per Curry Hammock State Park Ranger request, USF and SECOORA developed informational signage that was placed by the Park staff to educate the general public as to the purpose of the equipment and the societal benefits provided to them by the system. It is intended to place similar educational signage at the WEST and JEFF OCMS sites once deployed.

- In addition, a project related news story designed to educate and inform interested stakeholders about the Marathon OCMS installation and overall NASEM program was issued on April 6, 2020 by NOAA-IOOS Regional Association SECOORA. This news story can be accessed at:

<https://secoora.org/new-high-frequency-radar-in-marathon-florida-deployed-by-university-of-south-florida/>



Progress Made – MARA – CORDC Diagnostic Page Snapshot



Next Steps

- Continued operation and maintenance of MARA (Marathon) OCMS site.
- Continued discussions with various personnel at future anticipated deployment site locations. Details include:
 - City of Key West (WEST) – Smathers Beach: Currently awaiting next level approval.
 - Fort Jefferson (JEFF): Updated site permit application submitted with initial review round completed. Awaiting site visit and compliance review.
- Site installation at WEST and JEFF once final authorization is received.
- Continue data evaluation currently underway as additional OCMS data/sites become available.

USF OCMS Location At Smathers Beach

USF OCMS Location

Located at the far eastern edge of Smathers Beach.

0.66 miles to closest point of 1800 Atlantic - All Florida Keys.

0.25 miles to closest point to Key West By the Sea Association, Inc.



Legend

- ★ Feature 1
- 📍 Feature 2
- 🏟️ Key West High Athletic Track
- ↔️ Line Measure
- ↔️ Line Measure
- 🏠 Margaritaville Beach House Key West
- 🏖️ Smathers Beach
- 🏪 Store
- 🌳 The Key West Nature Preserve

USF OCMS Location At Smathers Beach

Close-Up of Location in Far Eastern Part of Park



Looking North



USF OCMS Location At Smathers Beach

Looking West



Looking East



Questions?

*Thank you for
your time and
Consideration!*

