

# *Sargassum* Watch from Space

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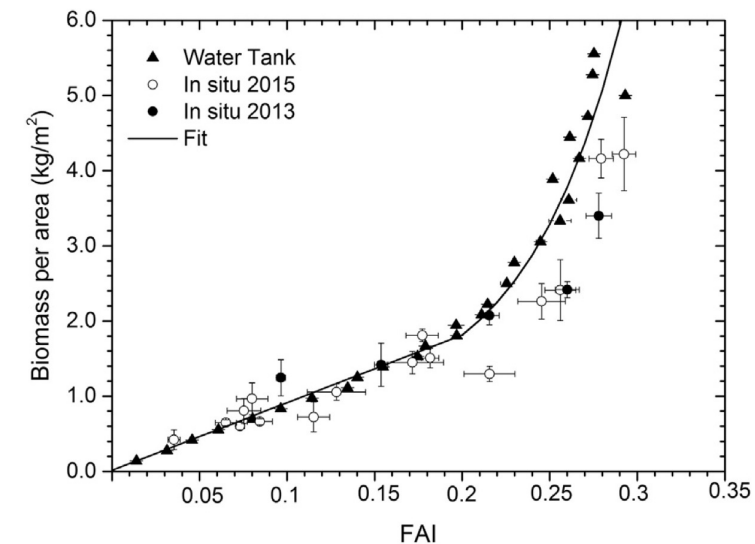
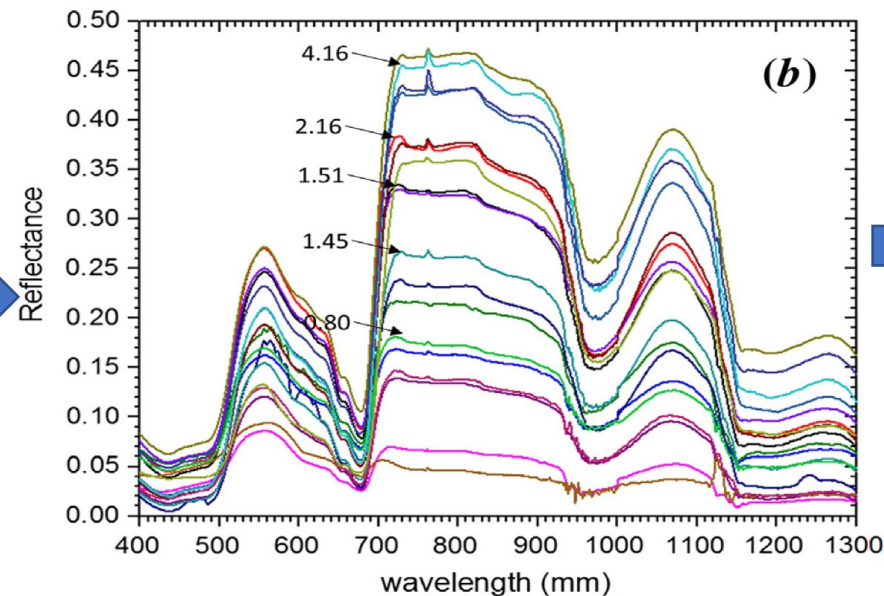
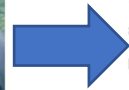
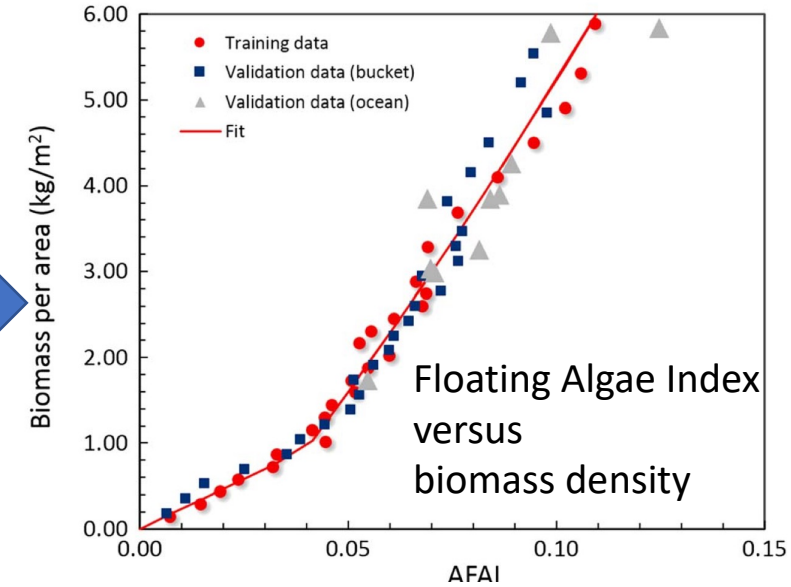
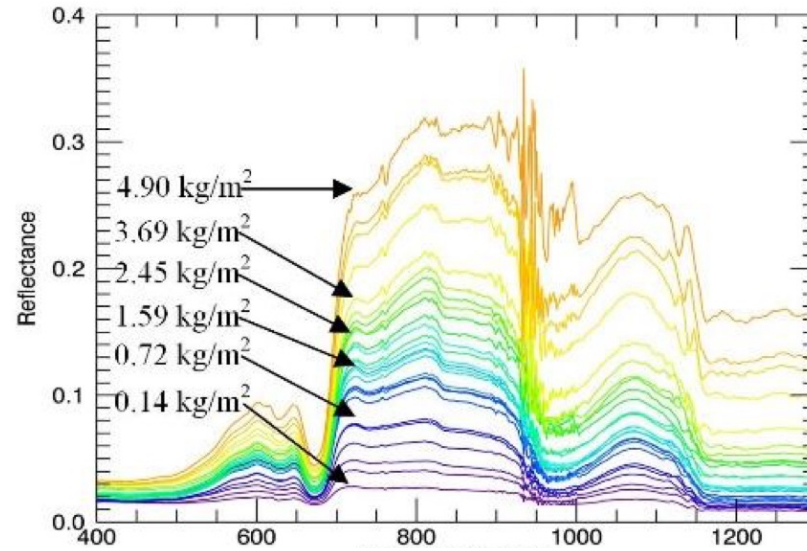
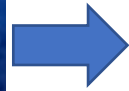
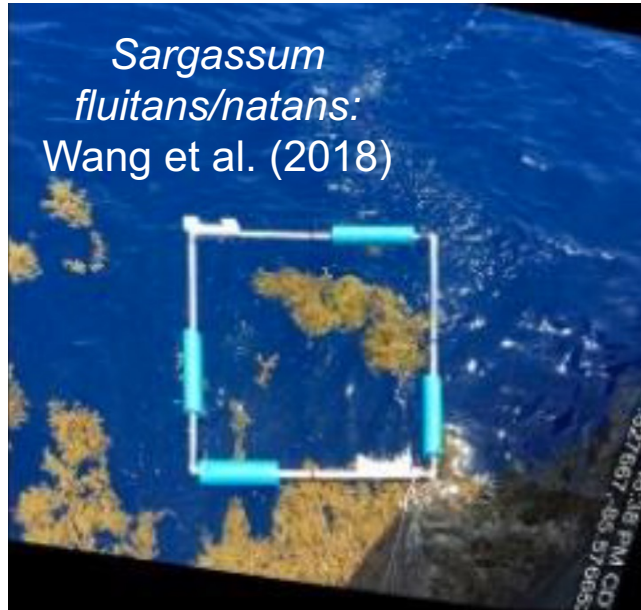
## Co-authors and collaborators:

Brian Barnes, Mengqiu Wang, Yuyuan Xie, Brock Murch, Shuai Zhang, Jennifer Cannizzaro, David English, Yingjun Zhang, Yonggang Liu, Brian Lapointe, Rachel Brewton, Joe Montoya, Lin Qi, Nathan Putman, Joaquin Trinanes, Gustavo Goni, Libby Johns, Lew Gramer, Frank Hernandez, James Frank, Donald Johnson, Frank Muller-Karger, Digna Rueda Roa, Amy Siuda, Jean-Philippe Marechal, Julio Morell, Rosa Rodríguez-Martínez, Tanya Harrison, Dennis McGillcuddy.....

Funding support: NASA, NOAA, SECOORA, GCOOS

# Observing macroalgae from space: how?

Measure reflectance and biomass density, and determine their relationship

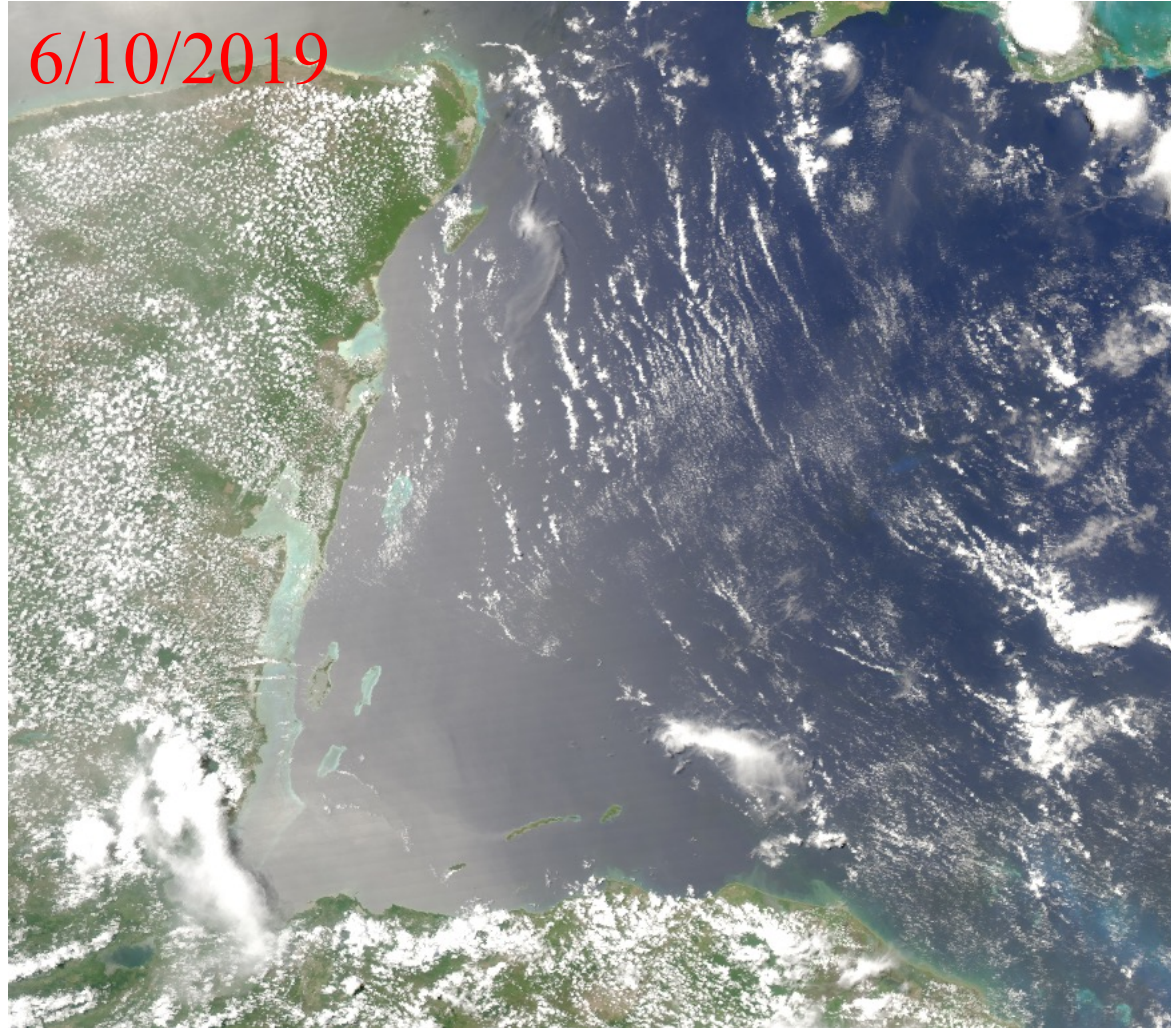




# Observing macroalgae from space: how?

Application to satellite imagery

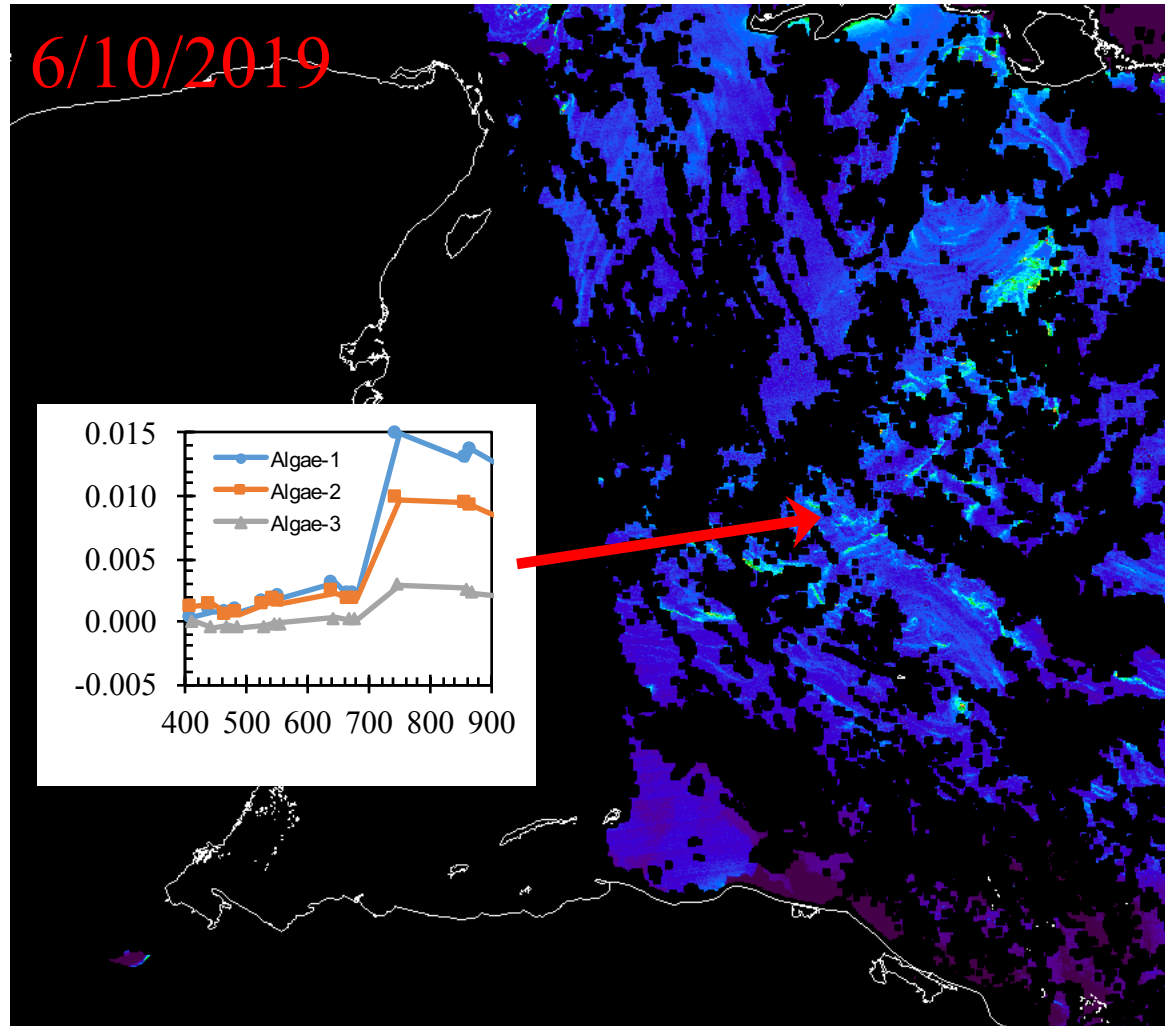
Individual image  
raw data



# Observing macroalgae from space: how?

Application to satellite imagery

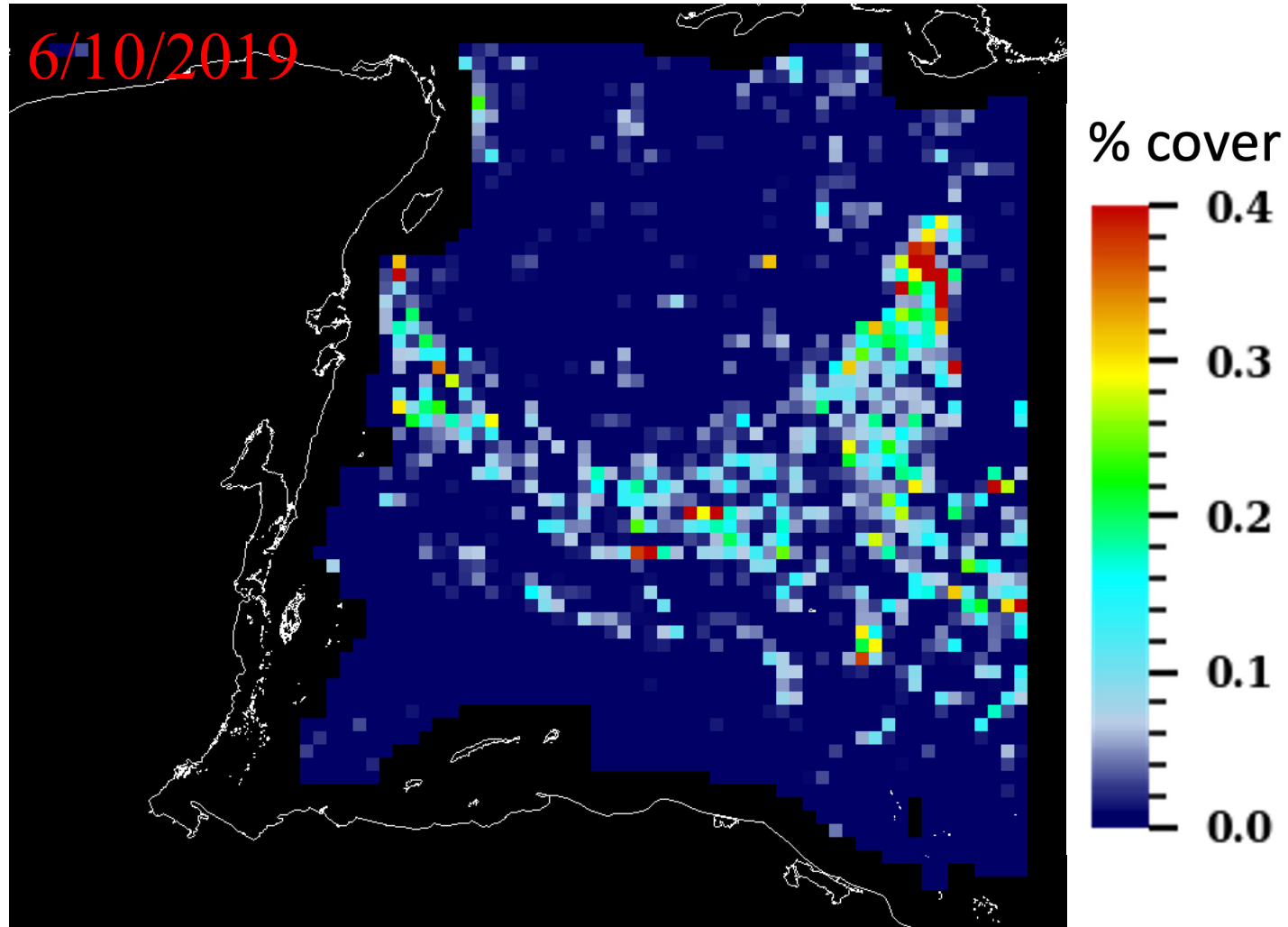
Individual image  
AFAI map



# Observing macroalgae from space: how?

Application to satellite imagery

Composite image  
Algae density

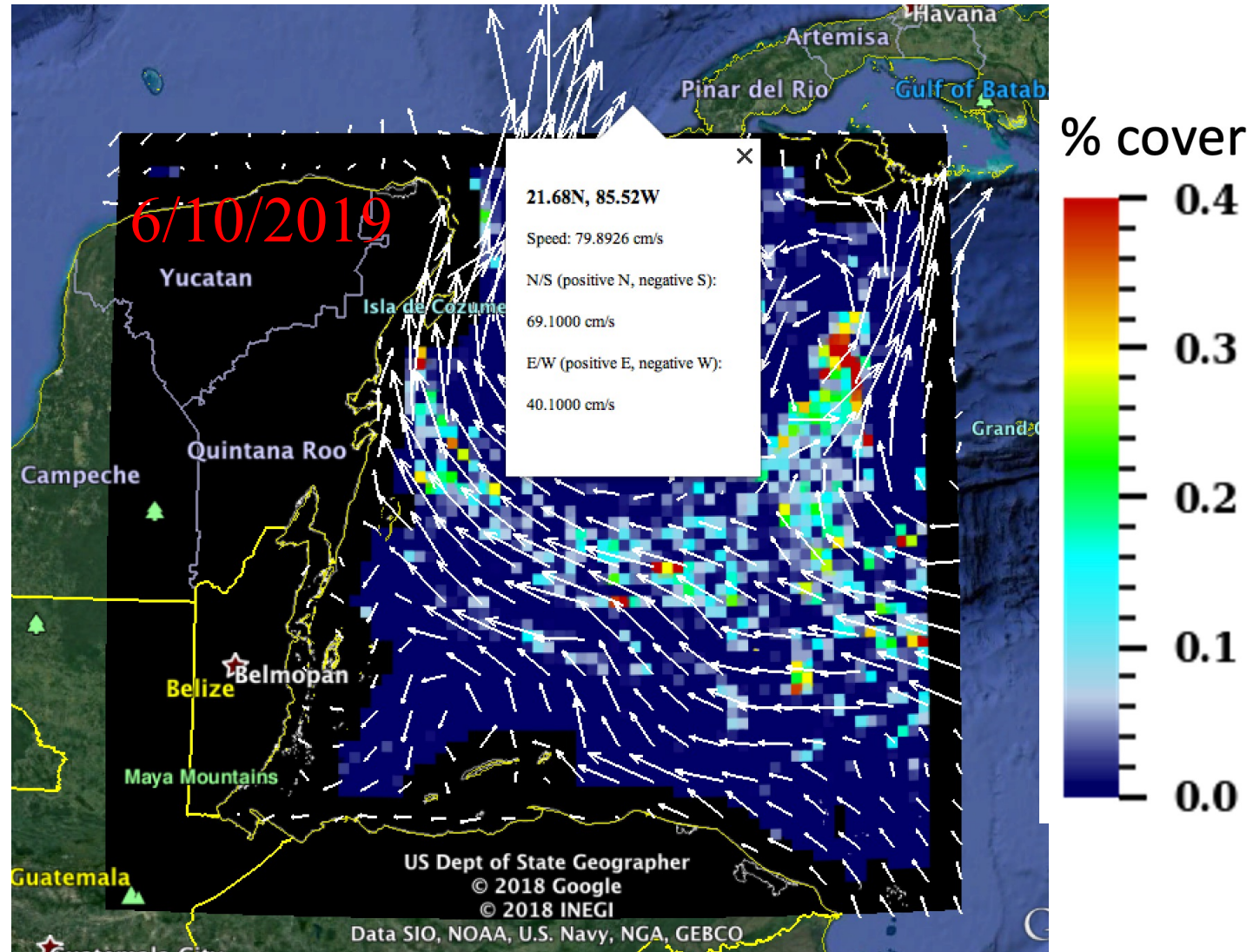




# Observing macroalgae from space: how?

Incorporate numerical models for short-term tracking

Incorporate surface  
currents in Google Earth



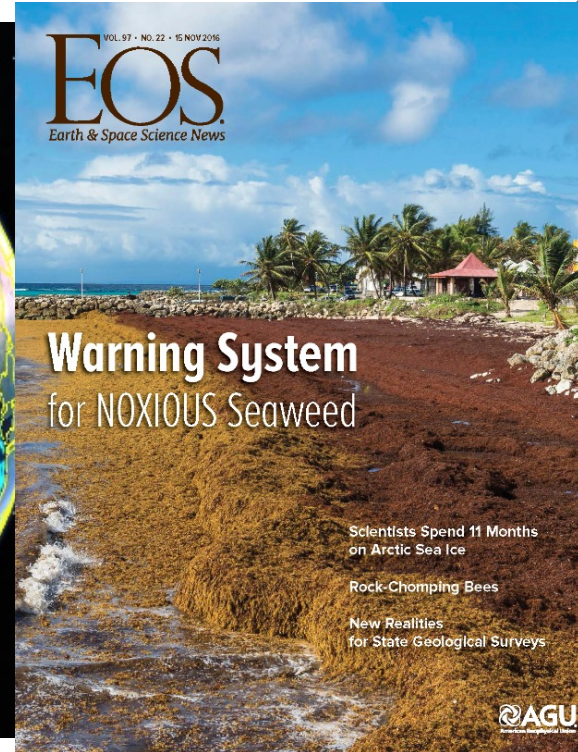
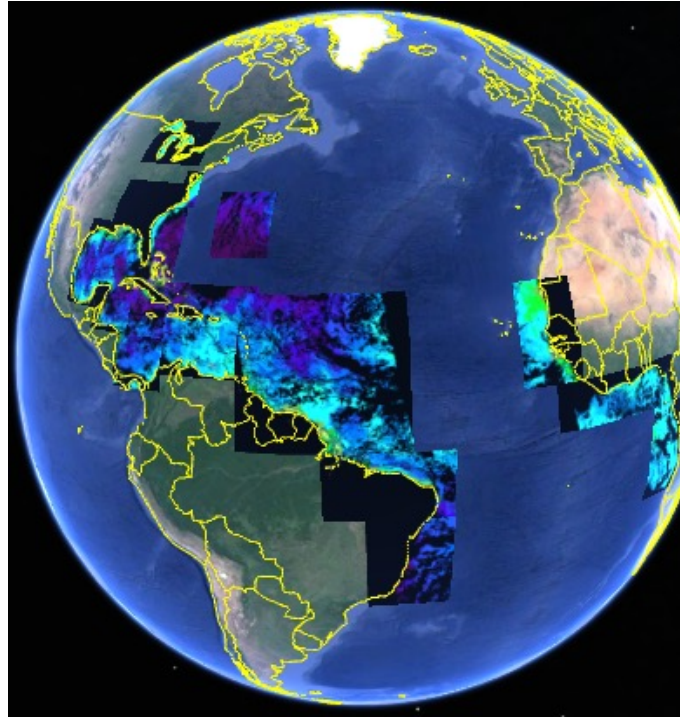
# Sargassum Watch from Space (SaWS)

<https://optics.marine.usf.edu/projects/saws.html>

Daily updates from:

- MODIS/Terra
- MODIS/Aqua
- VIIRS/SNPP
- OLCI/Sentinel-3A
- OLCI/Sentinel-3B

Operated since 2016



Eastern Caribbean Data — Colle X

<https://optics.marine.usf.edu/cgi-bin/optic>

**USF UNIVERSITY OF SOUTH FLORIDA**

**College of Marine Science**

Eastern Caribbean Region & Data Description ? Tips Animate

Apr 2022

Su	Mo	Tu	We	Th	Fr	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

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OLCI3A 13:09 GMT OLCI3B 14:11 GMT

VIIRS 18:30 GMT Composite DOY 092

FA\_DENSITY 7DAY Information  
Get Link Here GE

This site is compatible with Firefox, Chrome and Safari and has been validated as XHTML 1.0 Strict  
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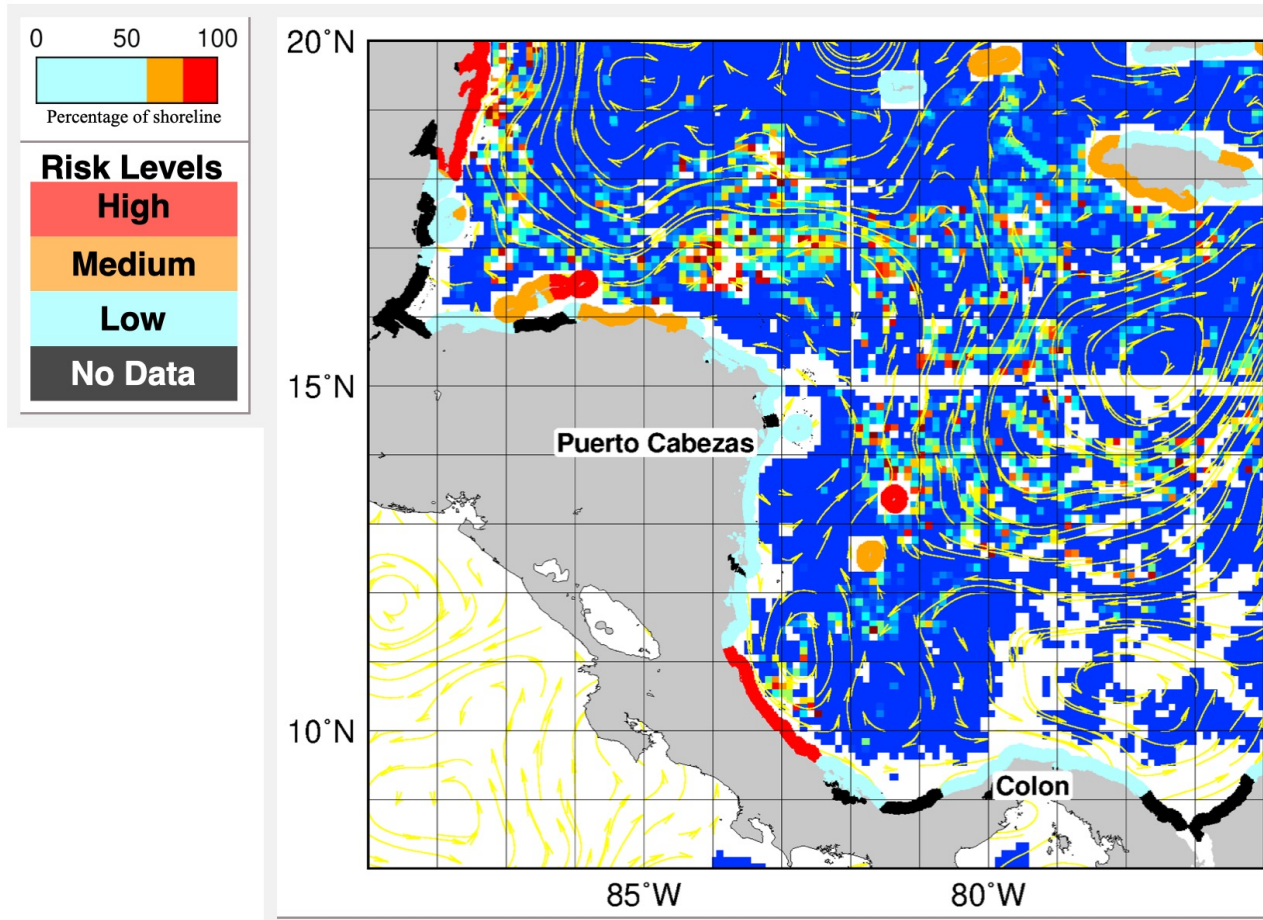


# SaWS application – *Sargassum* Inundation Report

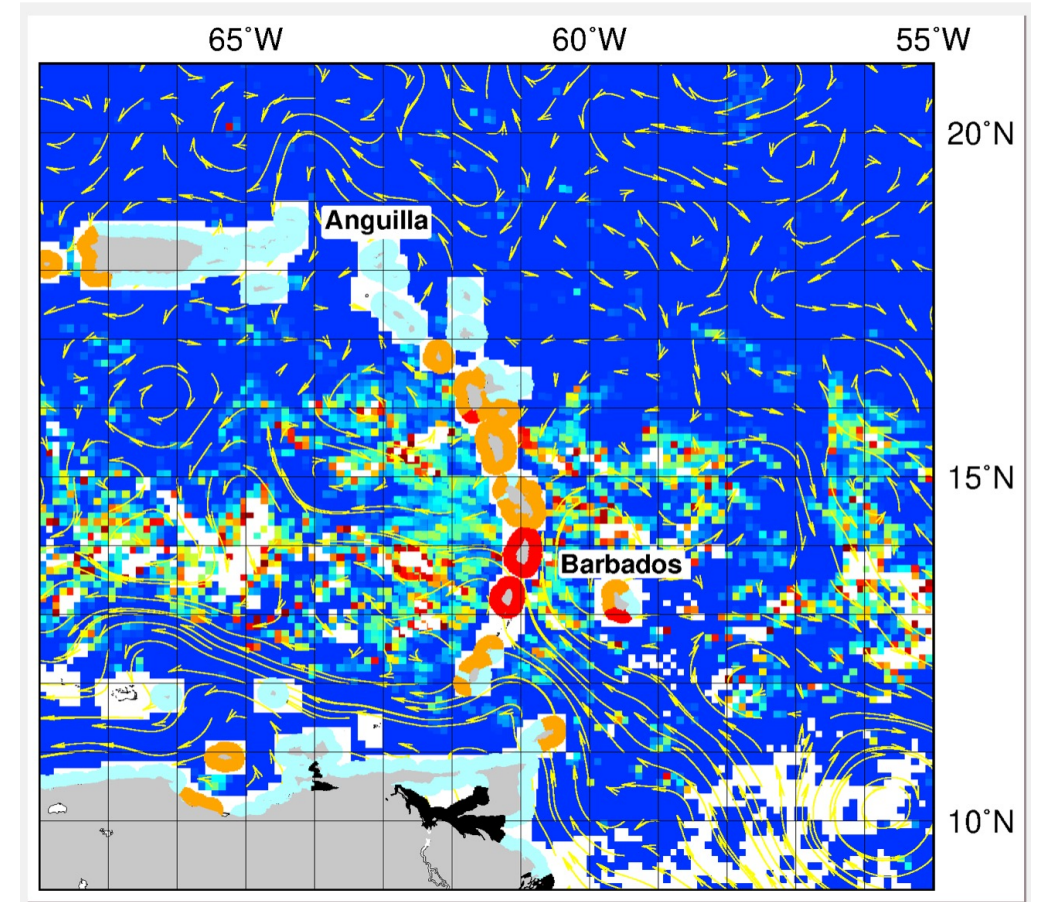
NOAA/AOML CoastWatch (Trinanes et al., 2021)

[https://www.aoml.noaa.gov/phod/sargassum\\_inundation\\_report/](https://www.aoml.noaa.gov/phod/sargassum_inundation_report/)

Central America

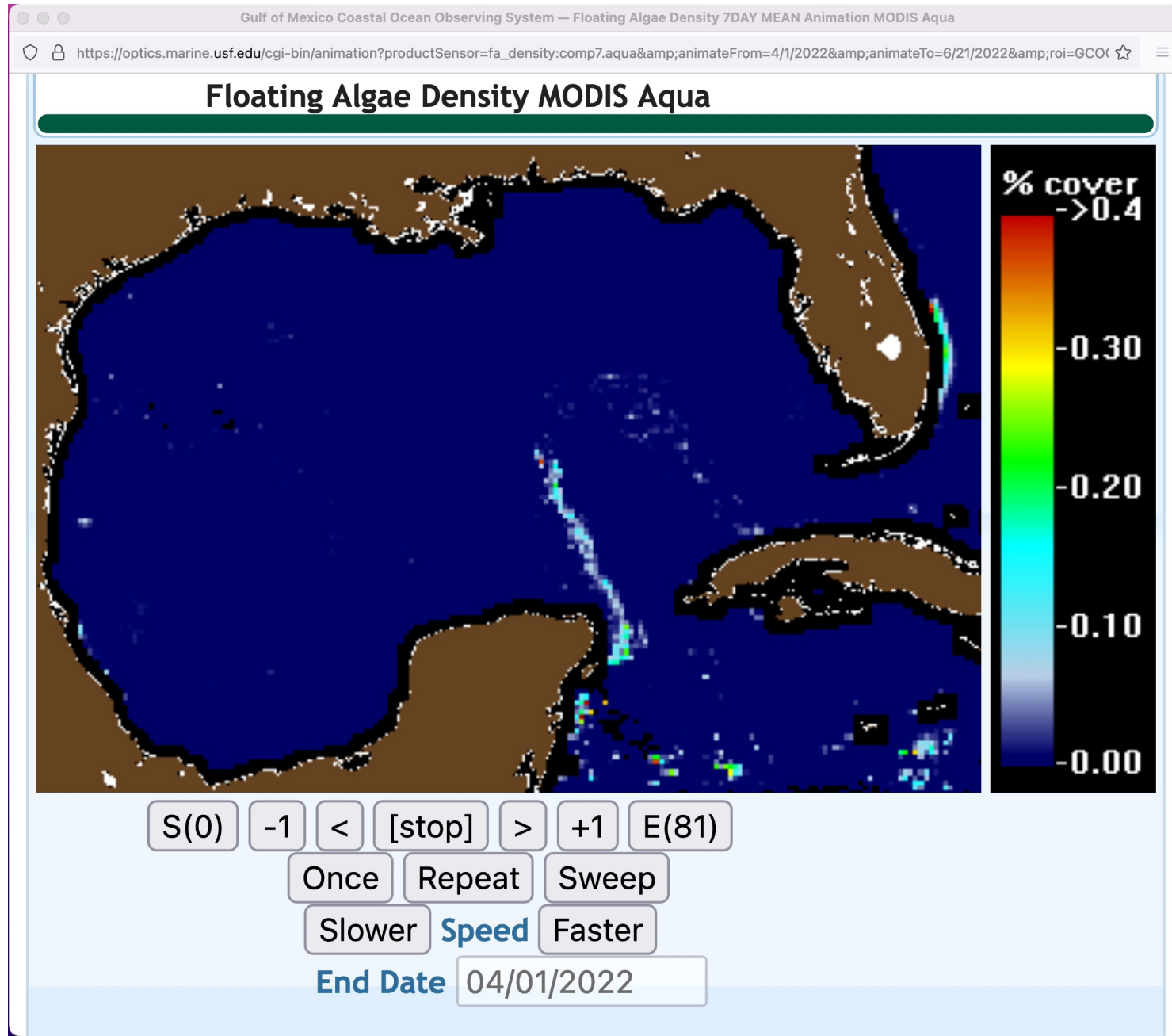


Lesser Antilles

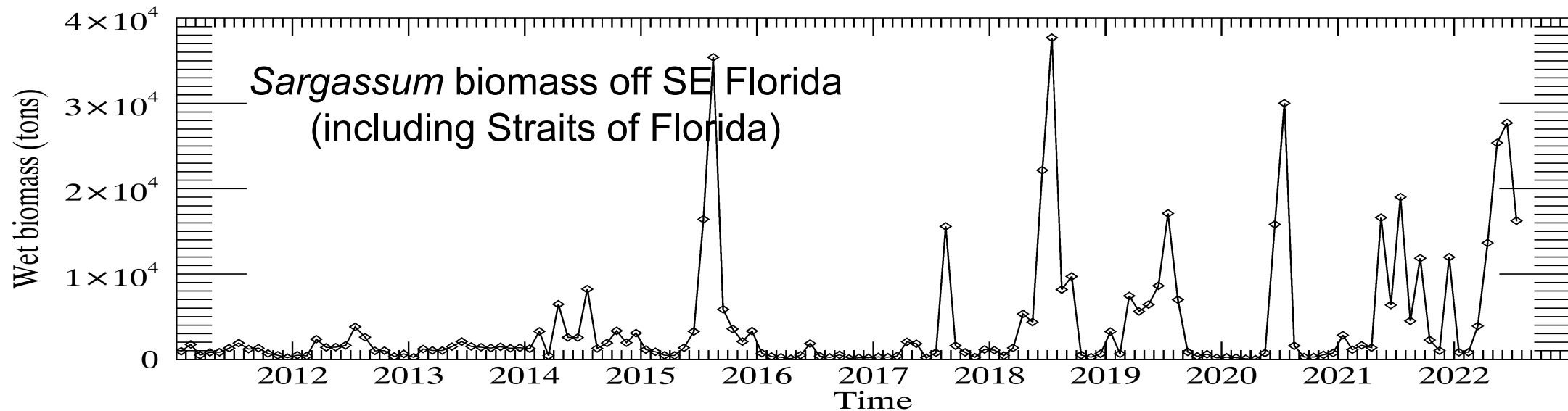
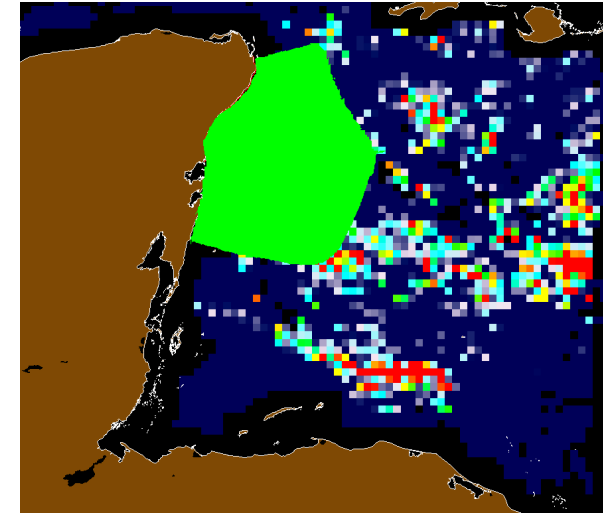
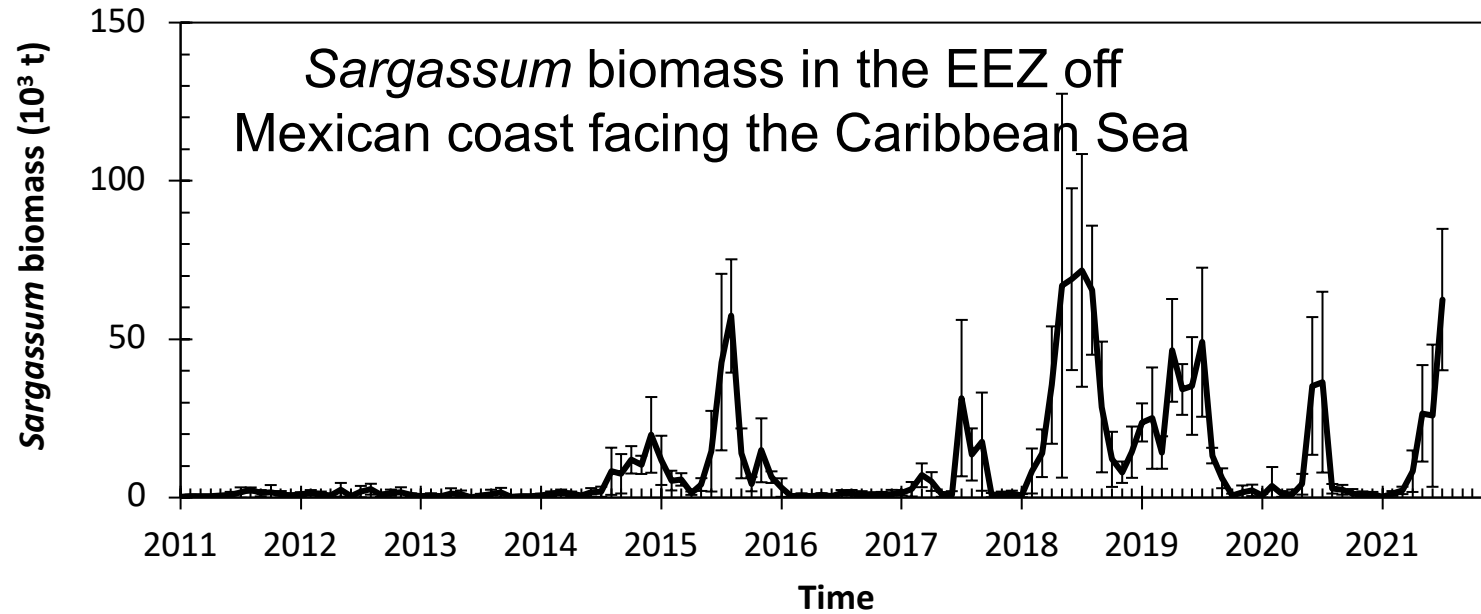




# SaWS application – near real-time tracking



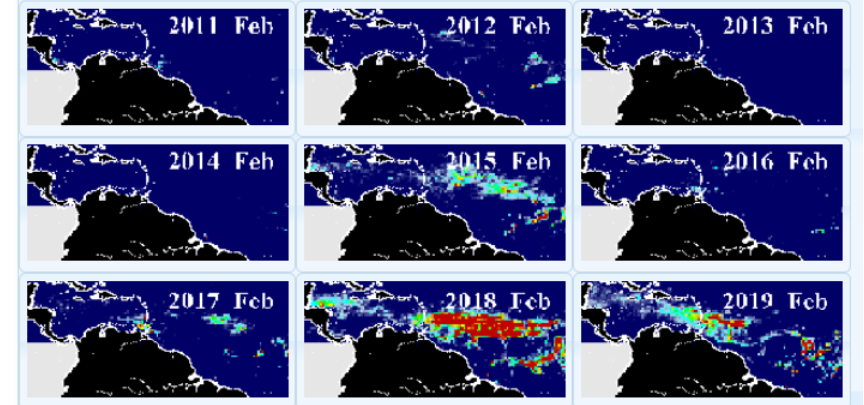
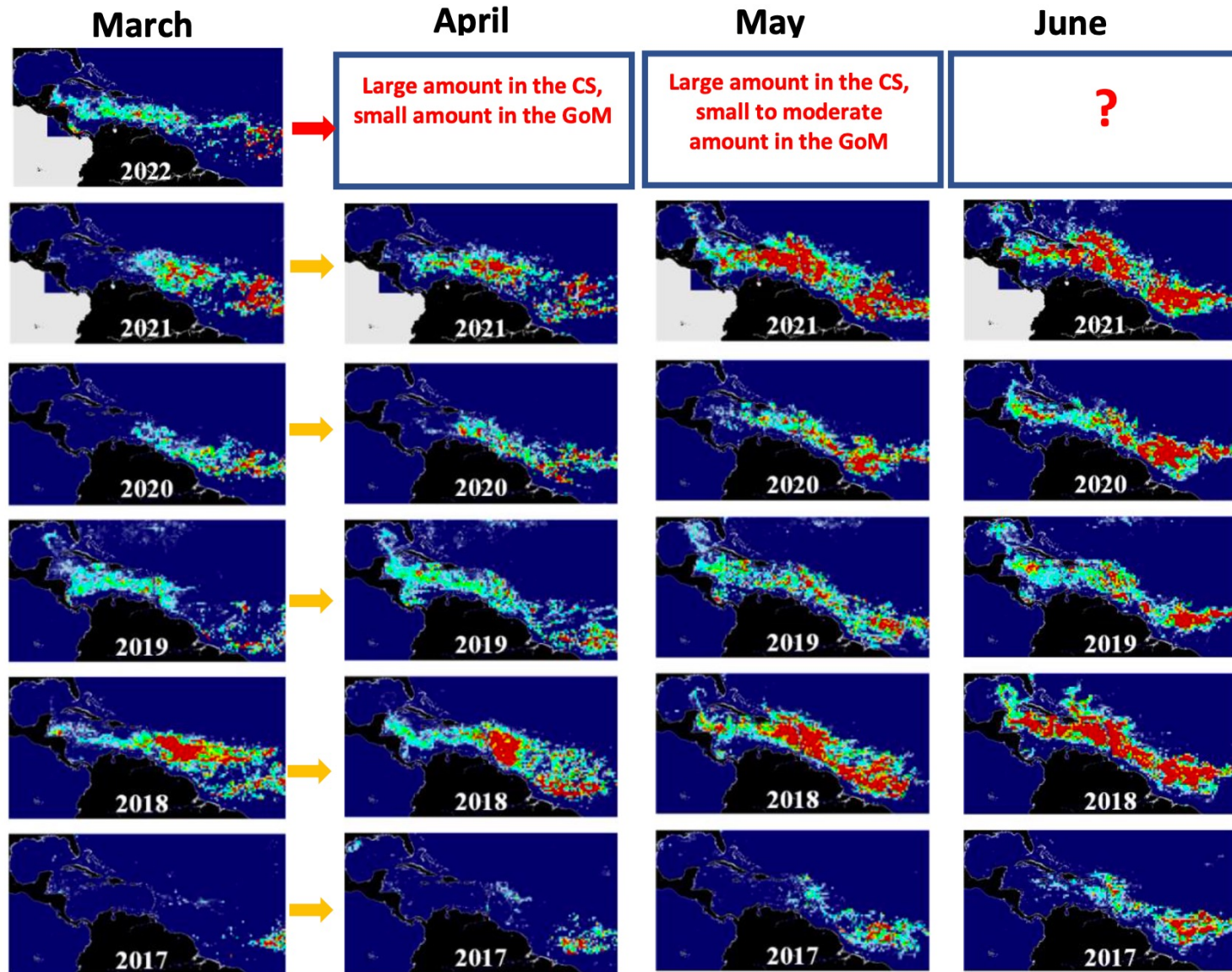
# SaWS application – Regional assessment





# SaWS application – Monthly outlook bulletins

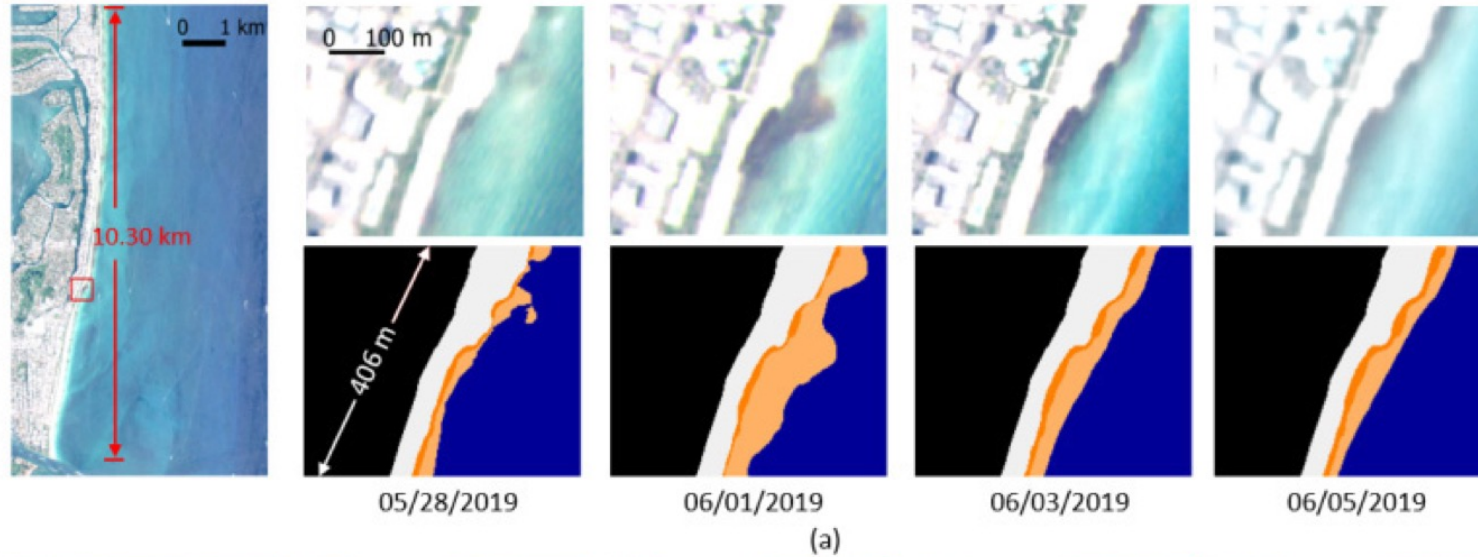
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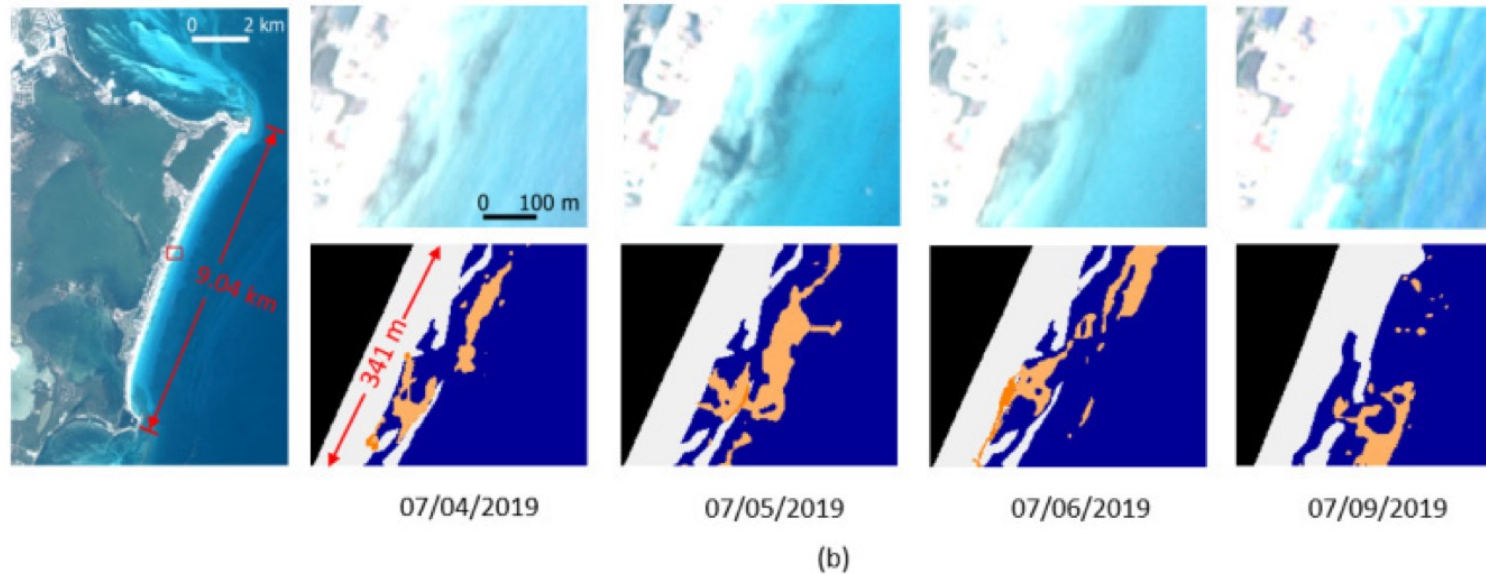
Sargassum Outlook Bulletin, February 2019  
Sargassum Outlook Bulletin, January 2019  
Sargassum Outlook Bulletin, December 2018  
Sargassum Outlook Bulletin, November 2018  
Sargassum Outlook Bulletin, October 2018  
Sargassum Outlook Bulletin, September 2018  
Sargassum Outlook Bulletin, August 2018  
Sargassum Outlook Bulletin, July 2018  
Sargassum Outlook Bulletin, June 2018  
Sargassum Outlook Bulletin, May 2018  
Sargassum Outlook Bulletin, April 2018  
Sargassum Outlook Bulletin, March 2018  
Sargassum Outlook Bulletin, February 2018  
Sargassum Outlook Bulletin, January 2018

# What's happening on my beach?

Miami Beach



Cancun Beach

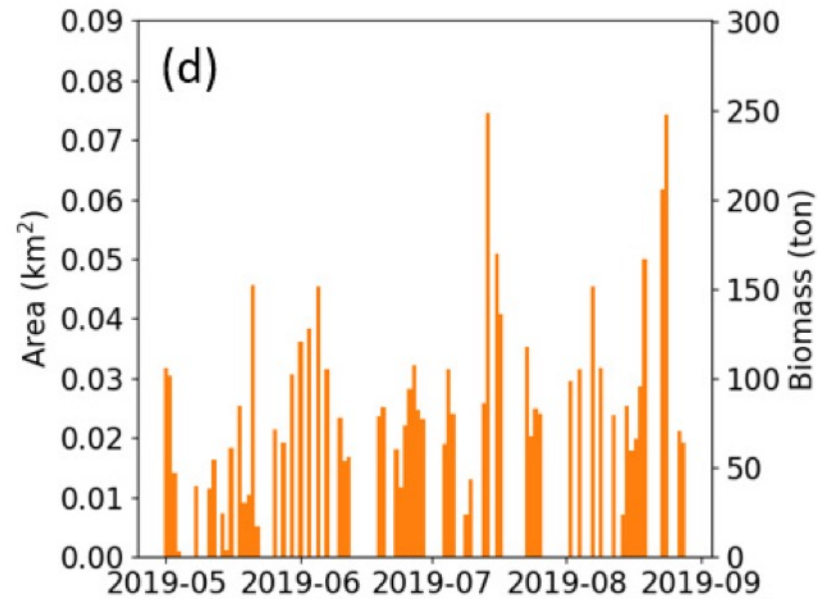
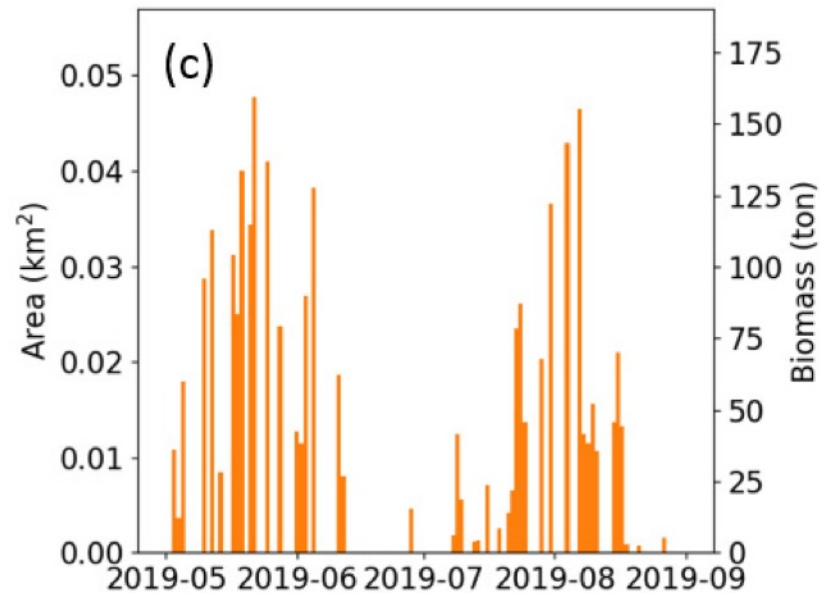
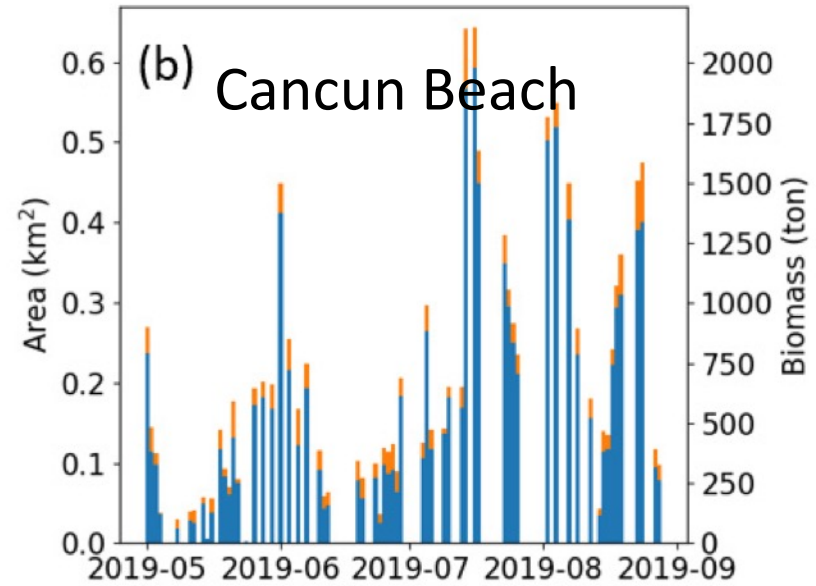
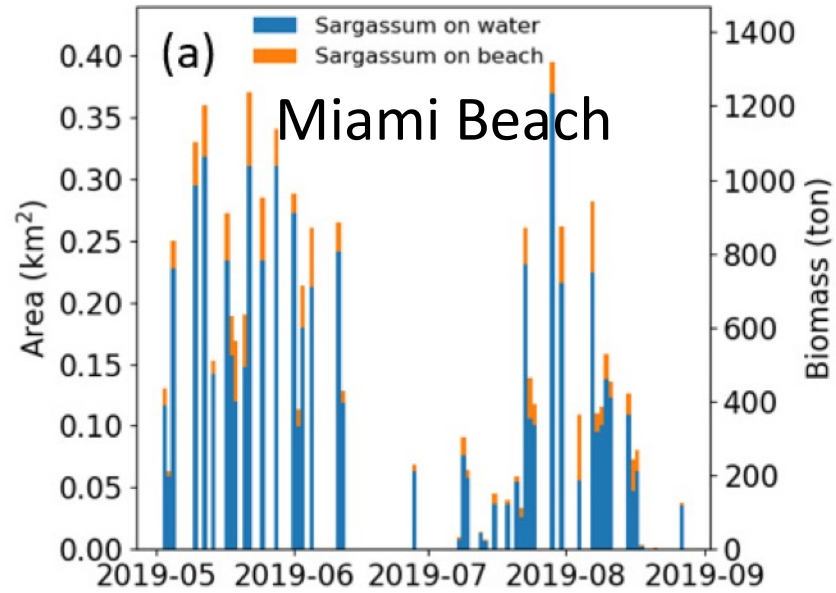


water land beach Sargassum on beach Sargassum on water

From Zhang  
et al. (2022)

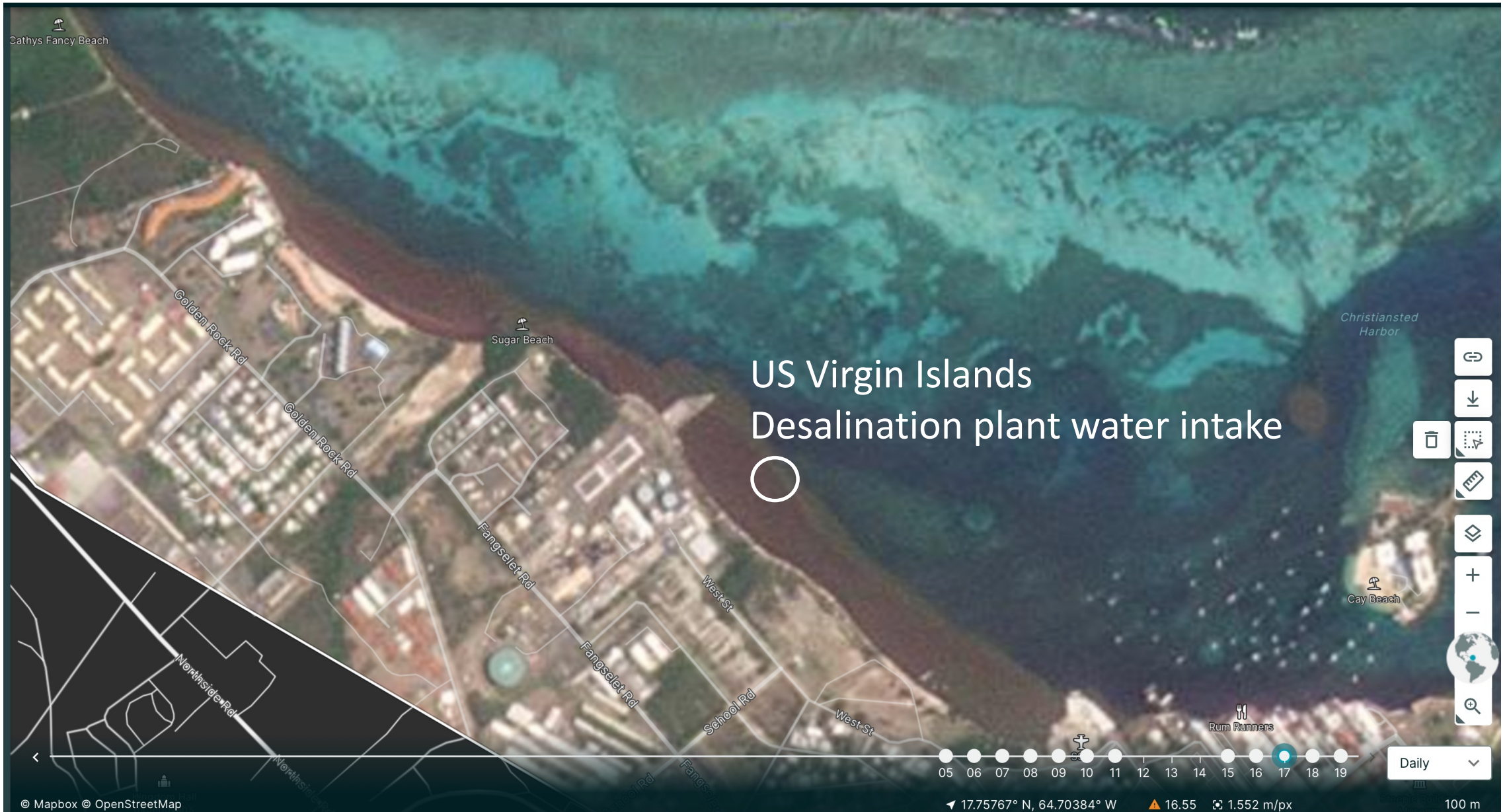


# What's happening on my beach?



From Zhang  
et al. (2022)

# What's happening on my beach?





# Summary

- *Sargassum* Watch System (SaWS) has been operated since 2016, with customized data products and maps from multiple sensors to serve the community
- Monthly *Sargassum* outlook bulletins have been distributed to subscribers since January 2018
- Multi-sensor high-resolution imagery show potentials in monitoring beaches and adjacent waters, yet implementation for operational use still requires work