A COMMUNITY-DRIVEN APPROACH TO SARGASSUM MONITORING

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INTRODUCTION
My favorite part of my time in Puerto Rico was the beautiful coastline. I especially enjoyed my time at La Playuela Beach near Cabo Rojo. The white sandy beaches and turquoise waters attract tourists and locals alike. However, there is a major nuisance in the form of Sargassum spp., a brown seaweed. It has been accumulating in thick mats making it difficult to wade in the water, increasing turbidity, and results in an unpleasant odor. While the presence of Sargassum in the Caribbean is natural, the increase in frequency and volume on the coast in recent years has increased likely due to climate change. Current Sargassum removal is labor-intensive and costly, and alternative uses for this seaweed are still under development.

The project explores the potential of satellite remote sensing to improve Sargassum monitoring and forecasting in Puerto Rico. By leveraging data from Sentinel-2 and the newly launched PACE satellite, we can provide valuable information for beachgoers and resource managers, allowing them to anticipate Sargassum events and allocate cleanup efforts more effectively.

PROJECT OBJECTIVES

Objective 1: Utilize PACE satellite's hyperspectral imaging to improve classification of mats and measure density.

Objective 2: Develop accurate Sargassum forecasting models integrating PACE data, ocean currents, and weather patterns.

Objective 3: Create a public-facing data platform/app to share real-time Sargassum information with coastal communities.

IDEAS

Project 1: Collaboration with scientists from NOAA and University of Puerto Rico Mayaguez Geographical and Environmental Remote Sensing Lab analyzing PACE data for Sargassum signatures.

Project 2: Working with oceanographers/meteorologists to incorporate Sargassum tracking data into existing forecasting models.

COMMUNITY INVOLVEMENT

Citizen Science initiatives: Train volunteers to do beach surveys, ground-truth satellite data.

Workshops to educate the community on identifying Sargassum, reporting sightings, and accessing the information platform.

Teach youth valuable skills in obtaining, processing, and analyzing data from PACE.

CONCLUSIONS & REFLECTION

While the threat of the implications of climate change continue to be broad and encompassing, it also presents opportunities to foster values of resilience within communities. The newly launched PACE satellite presents opportunities for Puerto Rico's youth to engage in cutting-edge science that not only has a positive community impact, but also equips them with valuable transferable STEM skills in coding, data analysis, and statistics.

This project can further unite the community by fostering a deeper understanding of Sargassum patterns and the natural systems at play, increased awareness of climate change's impact on our beaches, and inspire actions of environmental stewardship. Prior to this trip, I expected the coasts of Puerto Rico to be more degraded due to the tourism, but I was pleasantly surprised to see how pristine the coastlines were. It makes me excited for the opportunity to bring community together and leverage the best tools available to foster a more intimate relationship between the people of Puerto Rico and the sea.

RESEARCH POSTER PRESENTATION DESIGN © 2019

OUTLOOK

Education: Increased public understanding of HABs, ocean health.


Future Objectives: Expanding the project to other Caribbean islands.

SOURCES


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