PICOGRAM - PREDICTION OF INDIVIDUAL CORAL GROWTH, RECRUITMENT, & MORTALITY

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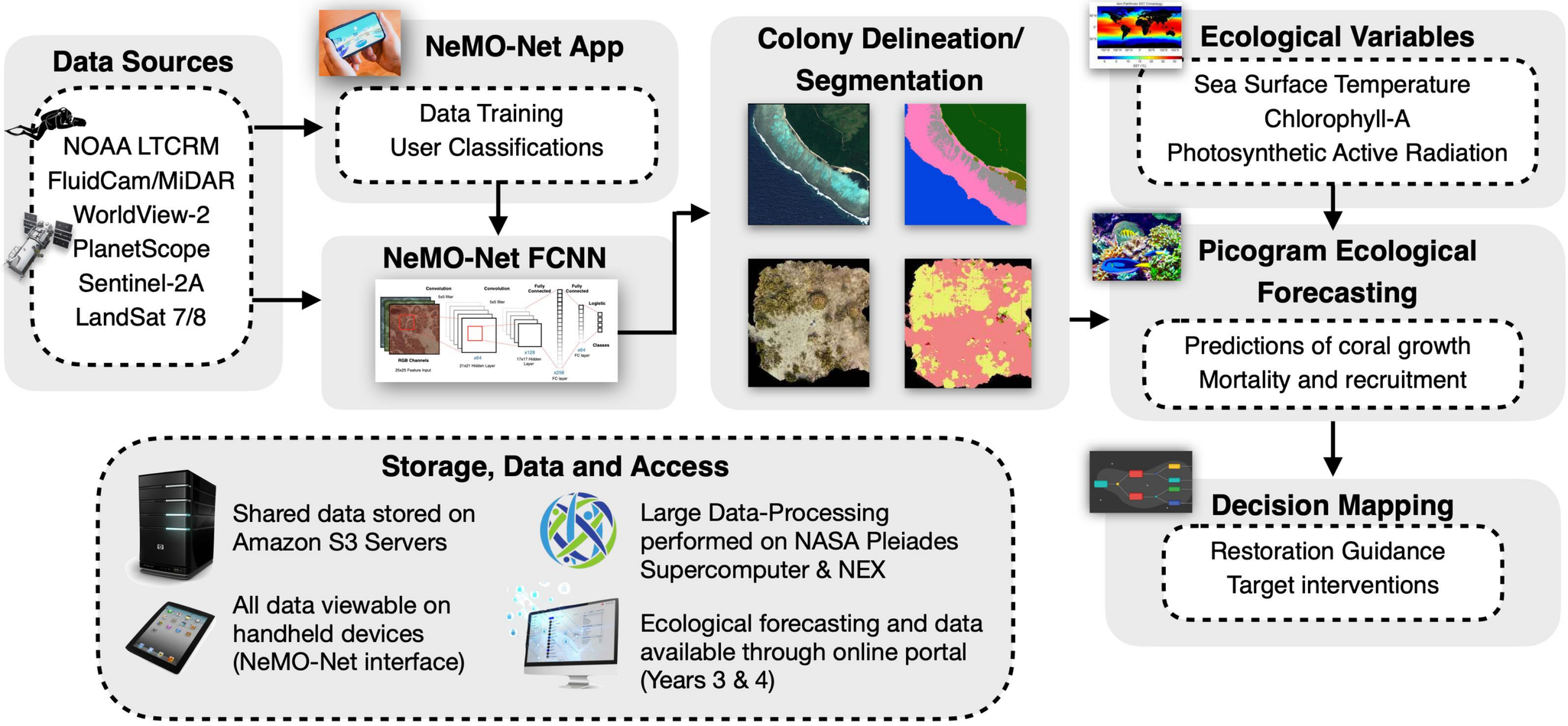
PICOGRAM GOAL

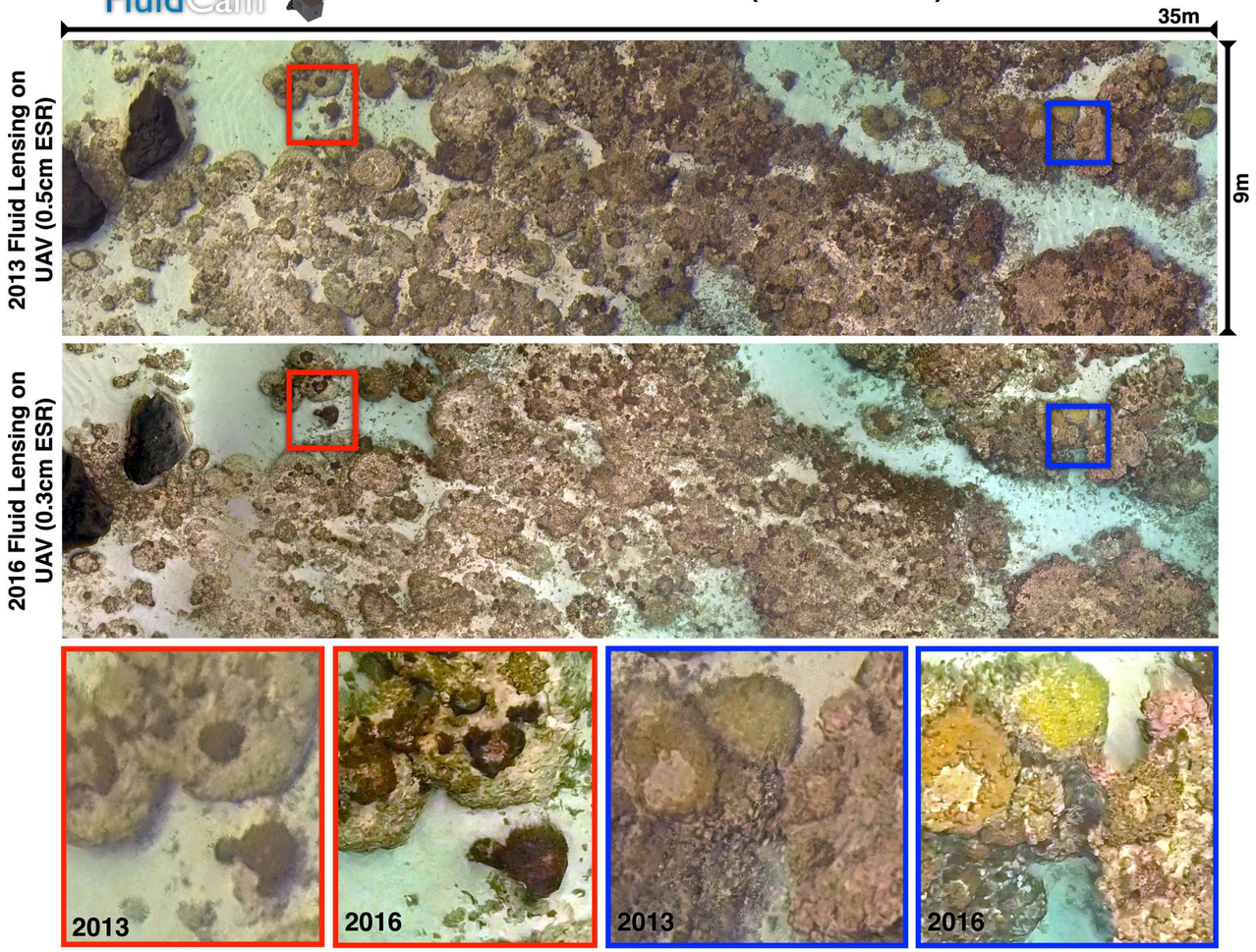
- We are adapting and operationalizing NASA's successful NeMO-Net marine habitat mapping software and FluidCam/MiDAR instruments for NOAA's coral reef program and decision making activities.



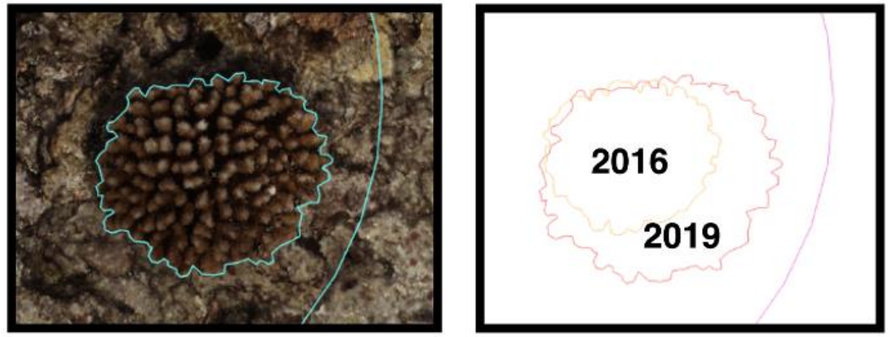
ENABLES CM-SCALE EARLY DETECTION OF CHANGE

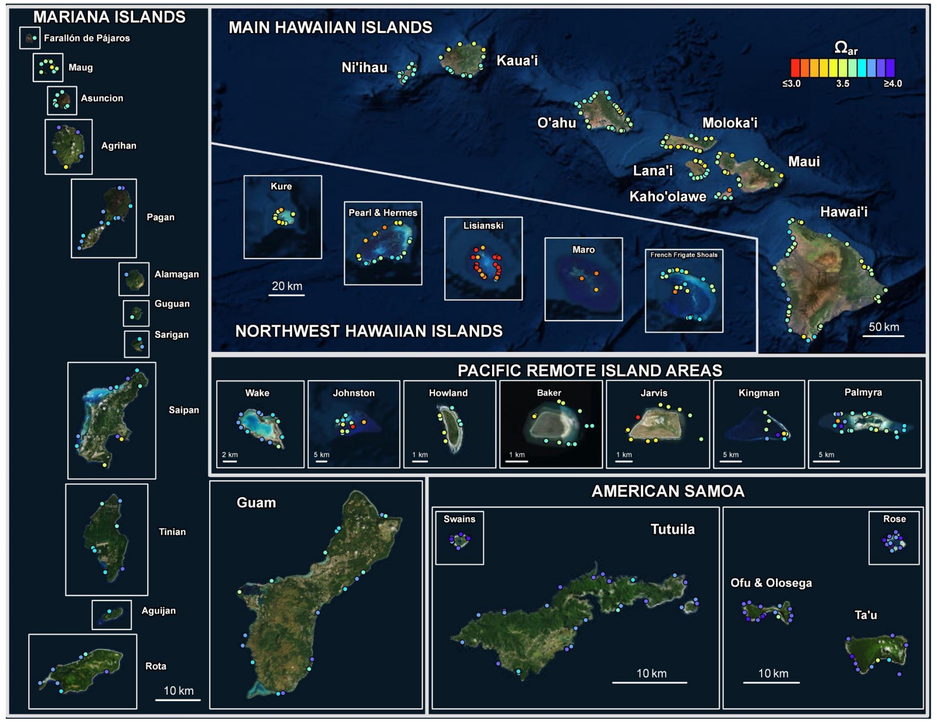
FluidCam

Coral Colony cm-scale Change Detection with NASA FluidCam (2013 vs 2016)



NOAA Coral Colony mm-scale Change Detection (In-Situ)

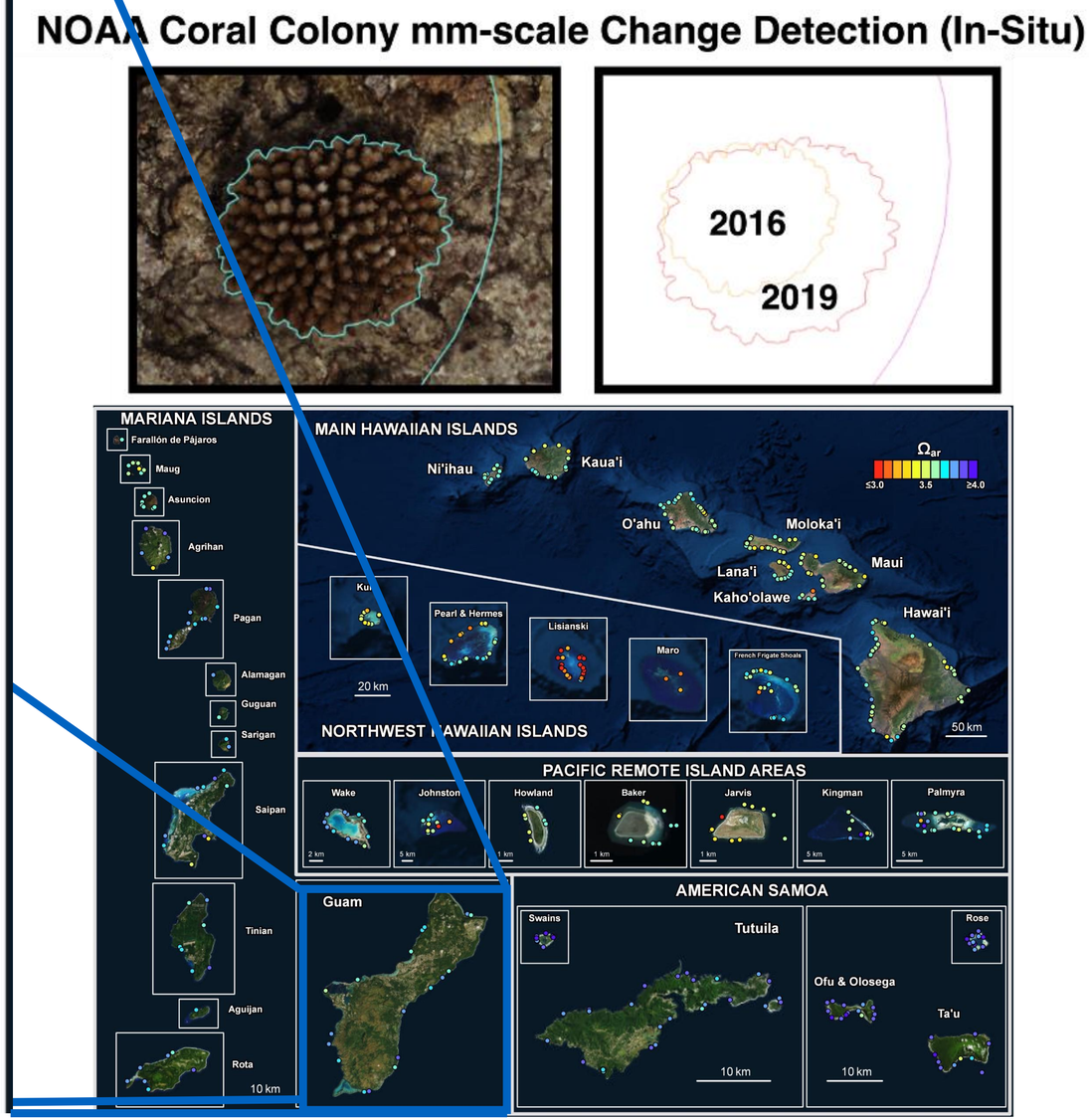




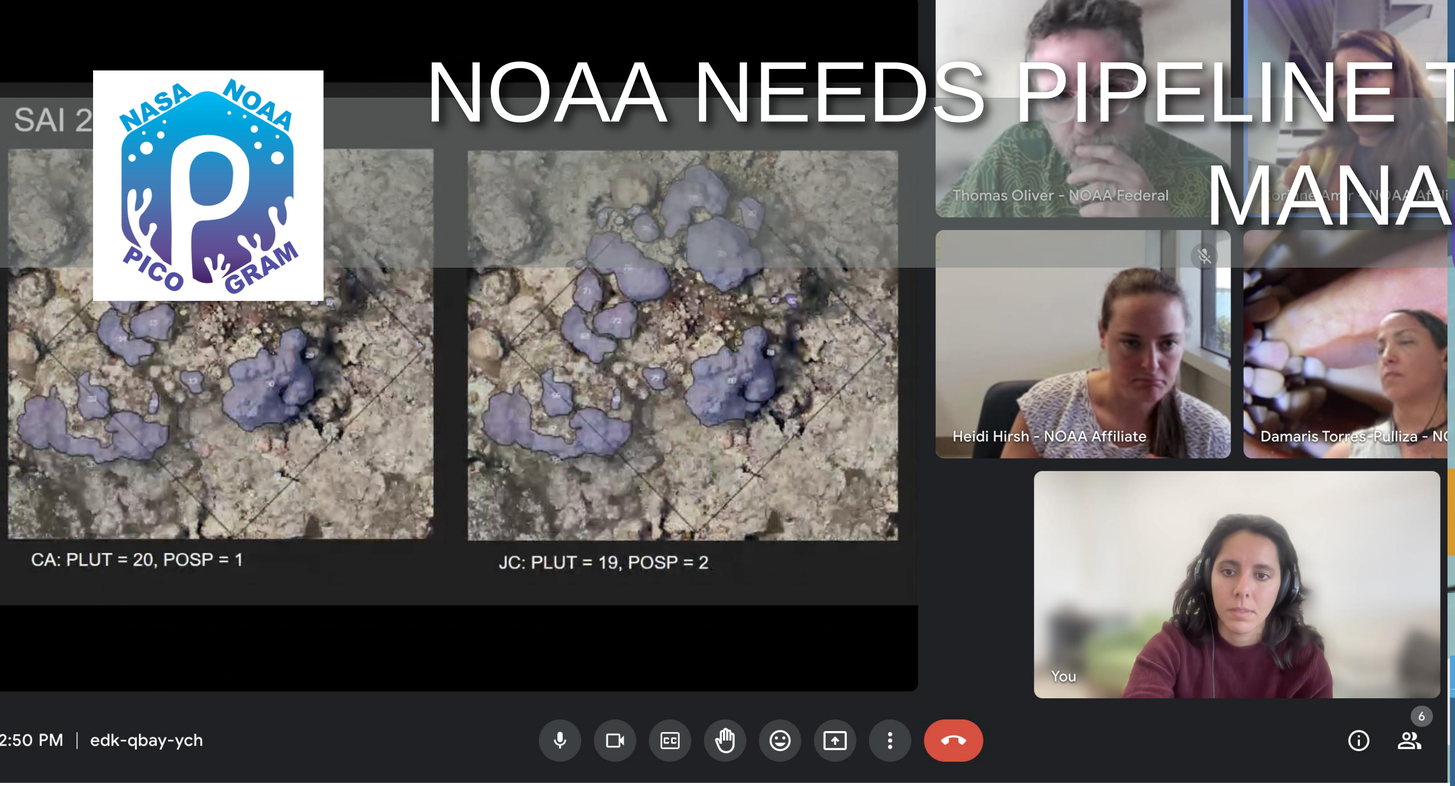
Flu

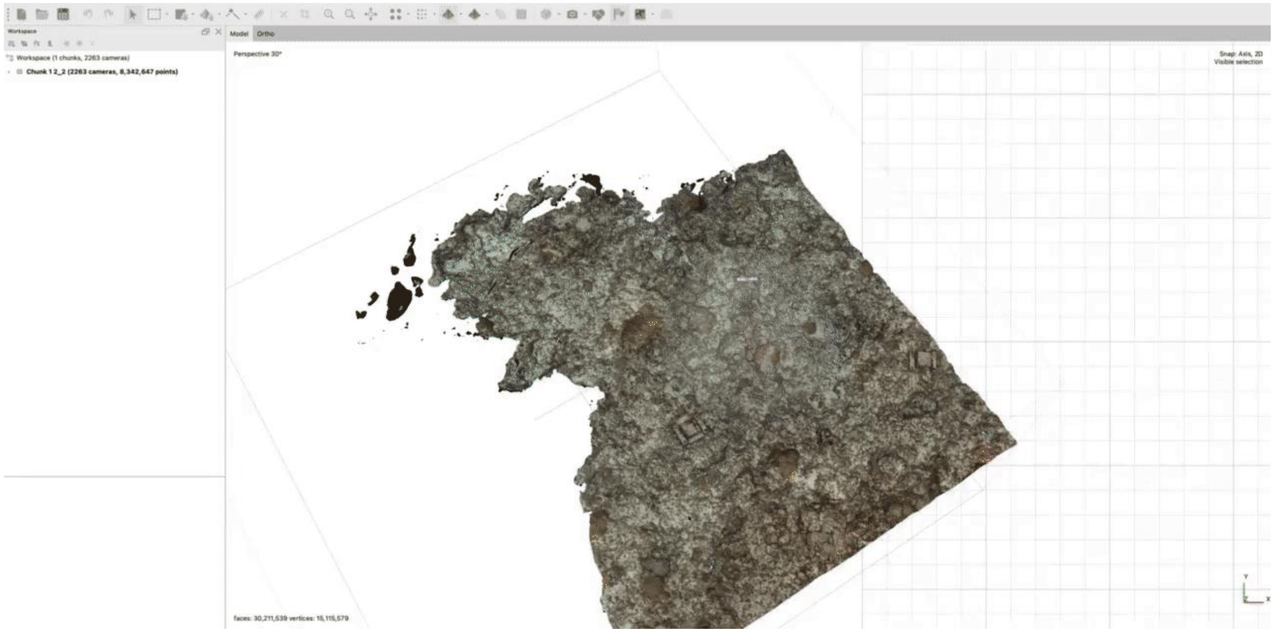
EARLY DETECTION OF ANGE

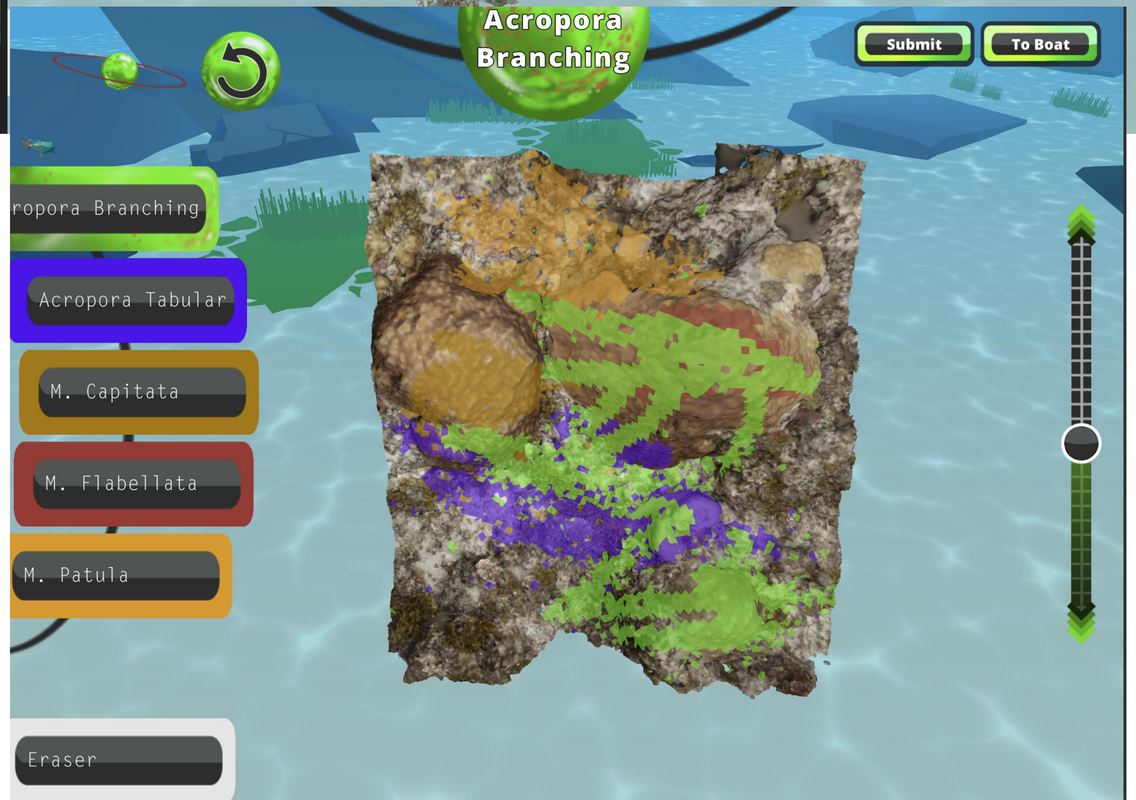
Credit: Hannah Barkley (NOAA PIFSC)



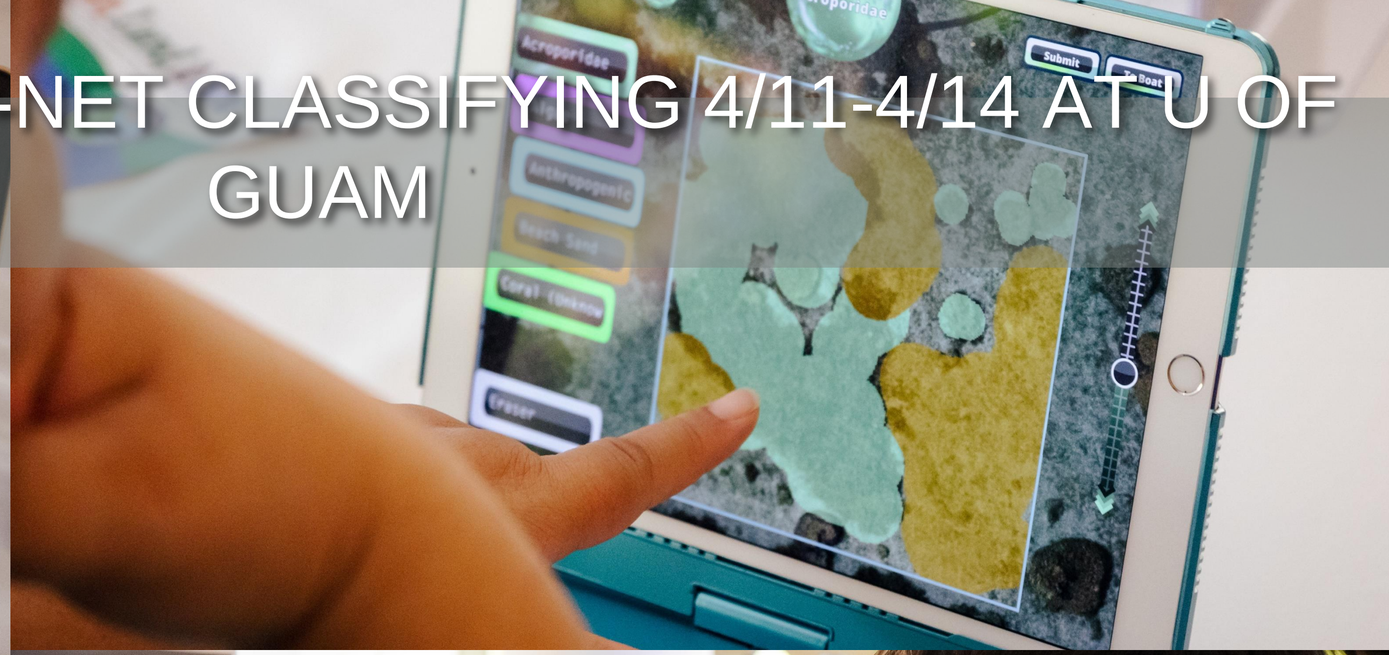
NOAA NEEDS PIPELINE TO BETTER SERVE REEF MANAGERS







TUMON BAY NEMO-NET CLASSIFYING 4/11-4/14 AT U OF GUAM




Airborne Fluid Lensing Dataset Viewer (Beta)
Select Fluid Lensing Campaign
Tumon Bay
Select Location...
Data Products and Biodiversity Predictions
Satellite
FL Image
FL Bathy/DEM
Rao's Q Index
Habitat Map
Shannon Index
Opacity: 100%
NASA NEMO NET
TUMON BAY PILOT: NEMONET.INFO/DATA-VIEWE
Airborne Fluid Lensing Campaigns are supported by the Aircraft Center for Earth Studies at the University of Miami and by grants from NASA's Earth Science Technology Office, Biodiversity, and Ecological Forecasting, and Applied Science Programs, as well as the National Fish and Wildlife Foundation (NFWF). Requests for datasets may be submitted at the ACES website.
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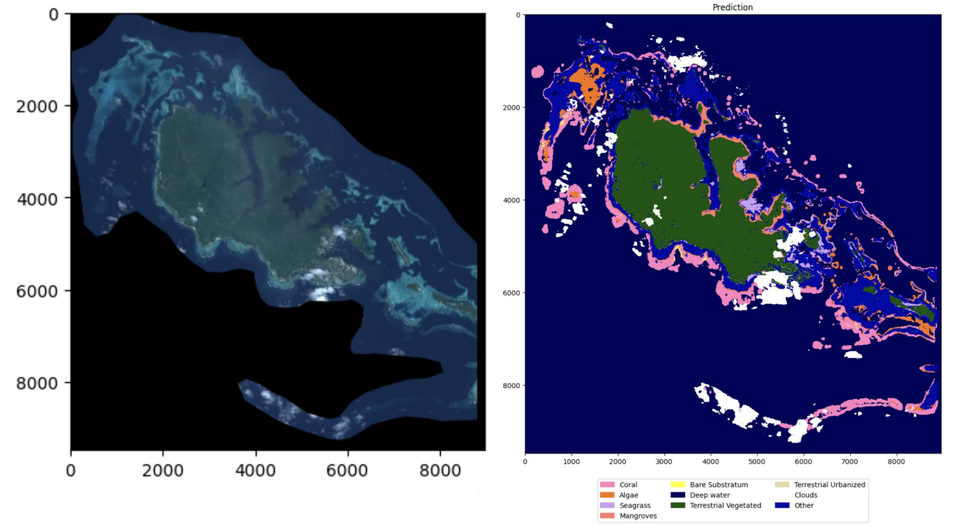
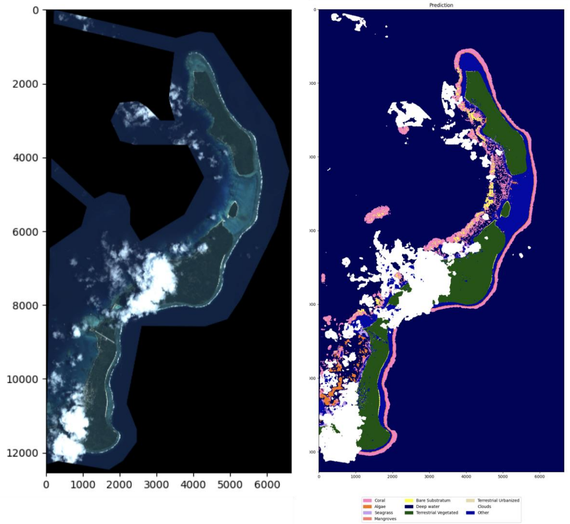
SATELLITE DATA: TOWARDS GLOBAL HABITAT MAPS

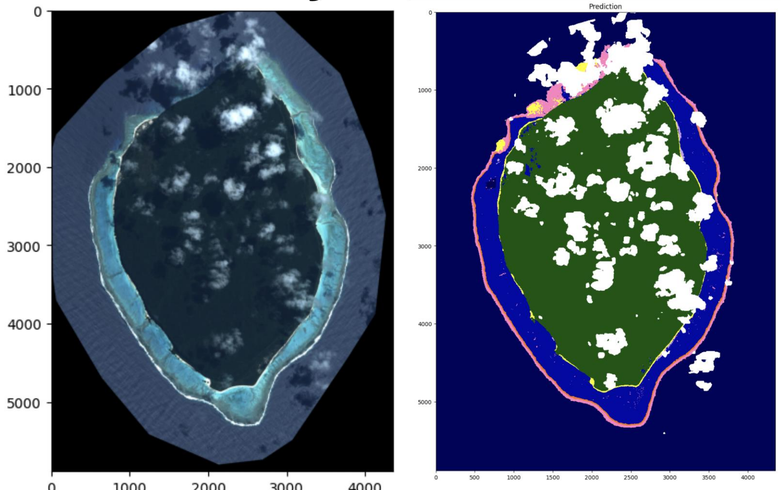
Global Outlook: Solomon Islands - Gizo



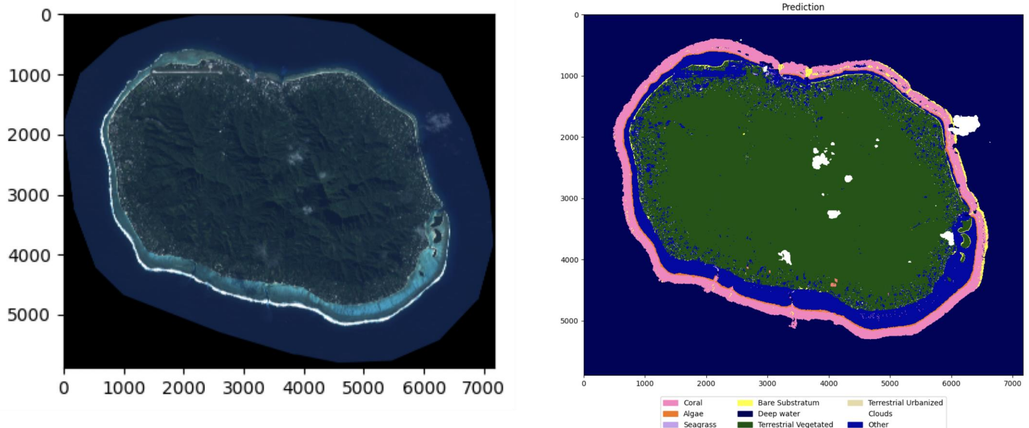
Global Outlook: Tonga - Haapai



Global Outlook: Fiji - Kobara

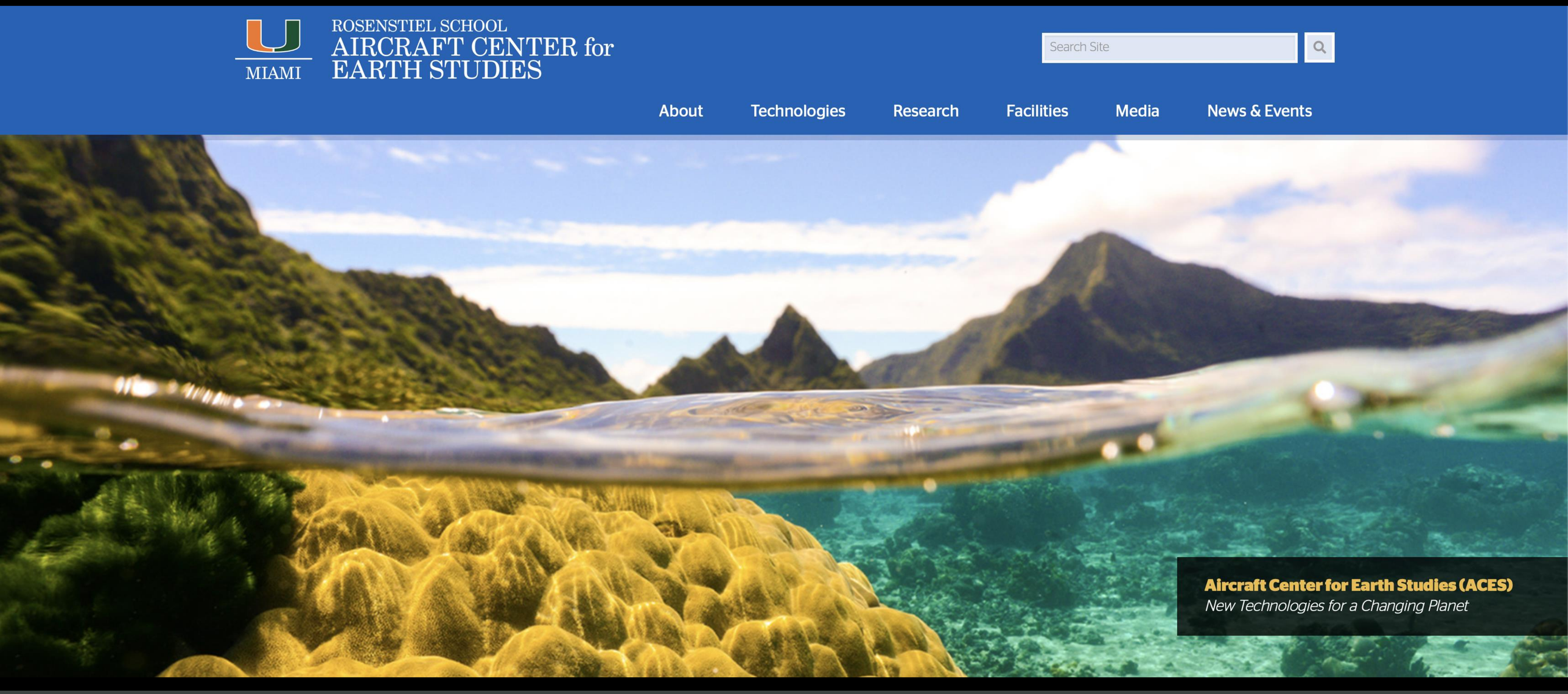


Global Outlook: Cook Islands - Rarotonga



NEW PUBLICATIONS

1) *Purkis, Sam, and Ved Chirayath. "Remote sensing the ocean biosphere." Annual Review of Environment and Resources 47 (2022).*
2) *Chirayath, V., E. Bagshaw, K. Craft, H. Dierssen, D. Kline, D. Lim, M. Malaska, O. Pizarro, S. Purkis, D. Schroeder, P. Sobron, S. Waller, and D. Winebrenner. 2022. Oceans across the solar system and the search for extraoceanic life: Technologies for remote sensing and in situ exploration. Oceanography 35(1):54–65.*
3) *van den Bergh, J., Chirayath, V., Li, A., Torres-Perez, J., Segal-Rozenhaimer, M. 2021. "NeMO-Net - Gamifying Coral Reef 3D Labelling with a Citizen Science Video Game for Automated Marine Habitat Mapping." Accepted. Special Issue, Frontiers in Marine Science.*
4) *Chirayath, V. and Purkis, S. 2021. "Remote Sensing of the Ocean Biosphere." In Press. Annual Reviews of Environment and Resources.*
5) *Chirayath, V. 2020. "System and method for imaging underwater environments using fluid lensing." United States Patent and Trade Office No. 16/393,569, 2020.*
6) *Li, Alan S., Chirayath, V., et al. 2020. "NASA NeMO-Net's Convolutional Neural Network: Mapping Marine Habitats with Spectrally Heterogeneous Remote Sensing Imagery." IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing 13 (2020): 5115-5133.*
7) *Chirayath, V. et al. 2020. "NASA NeMO-Net – A Neural Multimodal Observation & Training Network for Marine Ecosystem Mapping at Diverse Spatiotemporal Scales." IEEE Geoscience and Remote Sensing Society. In press.*
8) *Asanjan, A., Das, K., Li, A., Chirayath, V., Torres- Perez, J., and Sorooshian, S.*



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