

NOAA CoastWatch & PacIOOS:
Training Course to Access and Use Data for
Ocean and Coastal Applications

PacIOOS | <https://pacioos.org>

2024 Pacific Islands GIS & Remote Sensing User Conference

26 November, 2024



PacIOOS

PACIFIC ISLANDS OCEAN OBSERVING SYSTEM

Geospatial Capabilities of PacIOOS: Information, Tools, and Services

PacIOOS | <https://pacioos.org>

2024 Pacific Islands GIS & Remote Sensing User Conference

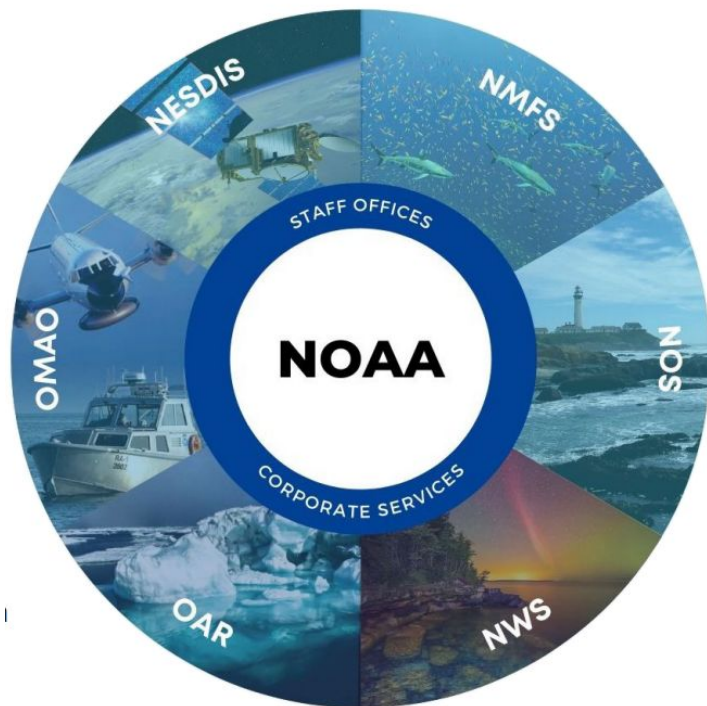
26 November, 2024



PacIOOS

PACIFIC ISLANDS OCEAN OBSERVING SYSTEM

Regional Associations



U.S. National Oceanic & Atmospheric Administration

- National Weather Service
- National Marine Fisheries Service
- Oceanic & Atmospheric Research
- National Satellite Service
- Office of Marine and Aviation Operations
- **National Ocean Service**



Regional Associations



- U.S. IOOS
- 11 Regional Associations
- Stakeholder Driven
- Science Based
- Policy Neutral

PACIFIC ISLANDS OCEAN OBSERVING SYSTEM



SCHOOL OF OCEAN AND EARTH SCIENCE AND TECHNOLOGY
UNIVERSITY OF HAWAII AT HONOLULU

Mission and Components

PacIOOS empowers ocean users and stakeholders throughout the Pacific Islands by providing accurate and reliable coastal and ocean information, tools, and services

Observations
Model Outputs
Forecasts
Partner Data



Data
Management



Data Access & Visualization

Thematic Areas



Marine Operations



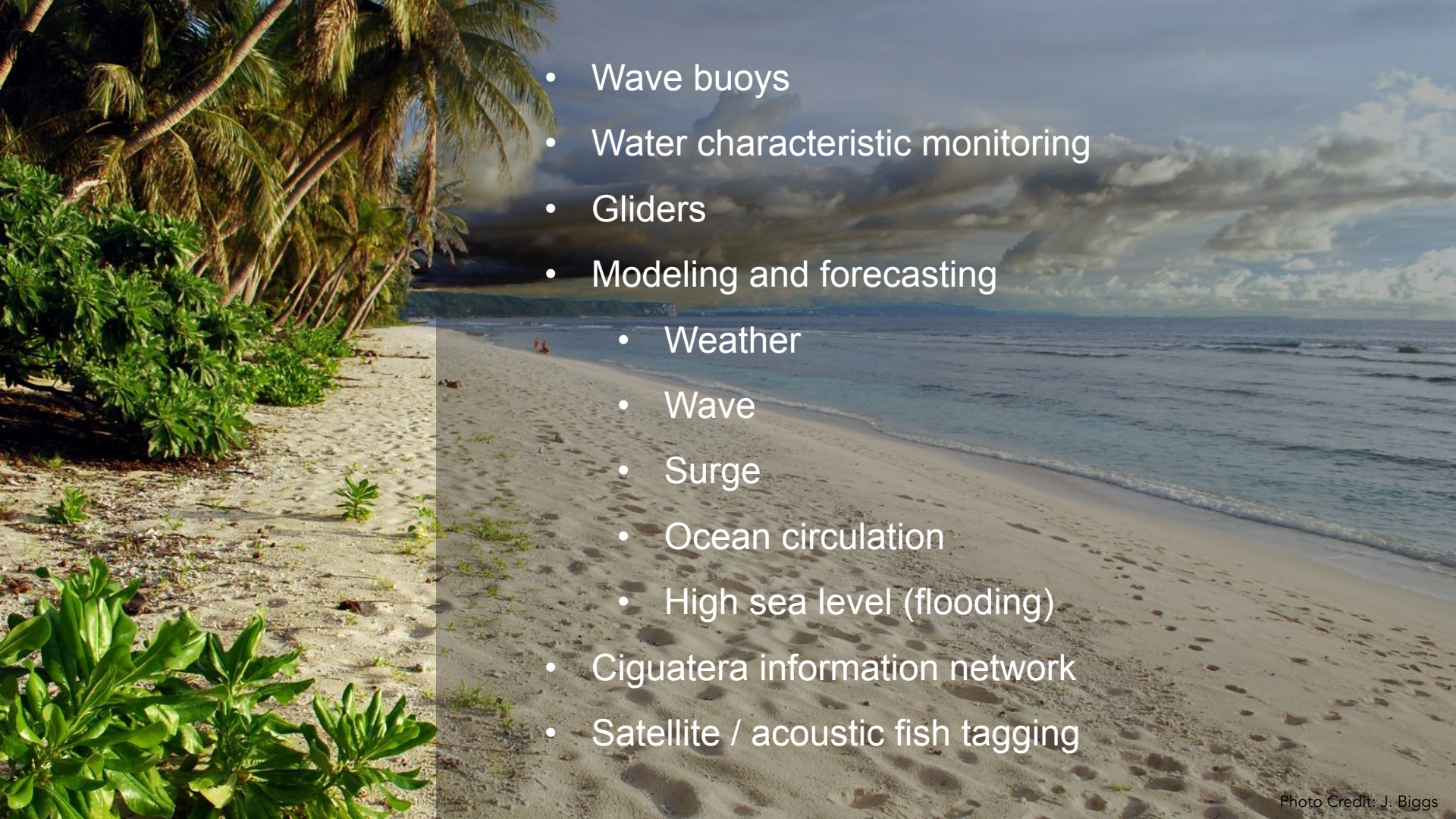
Coastal Hazards



Water Quality



Living Marine Resources



- Wave buoys
- Water characteristic monitoring
- Gliders
- Modeling and forecasting
 - Weather
 - Wave
 - Surge
 - Ocean circulation
 - High sea level (flooding)
- Ciguatera information network
- Satellite / acoustic fish tagging

A large school of striped snappers (Lutjanus fulviflamma) swimming over a coral reef in clear blue water. The fish are densely packed and move in a coordinated pattern. The reef below is covered in various types of coral, including a prominent brain coral in the foreground. The water is a deep, clear blue, and the overall scene is vibrant and healthy.

GEOSPATIAL DATA & VISUALIZATION

PacIOOS Website

Data Services | Education Resources



▶ Waves ▶ Currents ▶ Shoreline Impacts ▶ Water Characteristics ▶ Projects



- Kaua'i
- O'ahu
- Maui County
- Hawai'i Island
- Marshall Islands
- FSM
- Guam & CNMI
- Palau
- American Samoa

<https://pacioos.org>



scan to visit

by obs
PacIOOS empowers ocean users and stakeholders in the Pacific Islands by providing accurate and reliable coastal and ocean information, tools, and services that are easy to access and use.

ONLINE MAPPING

PacIOOS Voyager is a free, interactive, online mapping experience. Explore

PacIOOS Voyager

PacIOOS Voyager is a free, interactive, online mapping experience. Explore

SHARK TRACKING

Tiger Shark Tracking

Check out recent tracks of Hawai'i tiger sharks who were fitted with the latest

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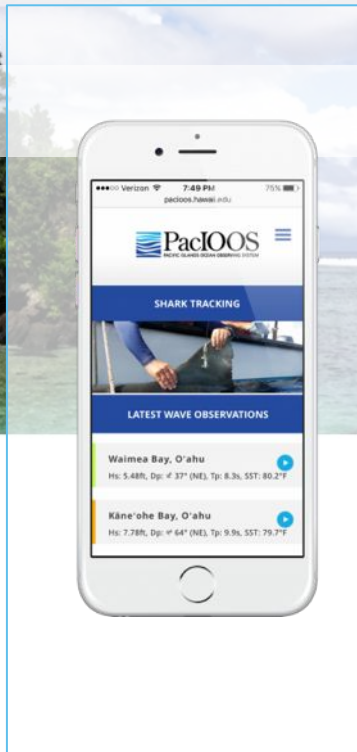
FEATURED TOOL

Weather Observations

Real-time weather observations from the HIMB weather station at Moku o Lo'e

Weather Observations

Real-time weather observations from the HIMB weather station at Moku o Lo'e





▶ Waves

▶ Currents

▶ **Shoreline Impacts**

▶ Water Characteristics

▶ Weather

▶ Projects

Shoreline Impacts

Wave Run-Up Forecast

Waikiki, O'ahu

North Shore, O'ahu

West Maui

Majuro, RMI

Kwajalein, RMI

Six-Day High Sea Level Forecast

Nāwiliwili, Kaua'i

Honolulu, O'ahu

Moku o Lo'e, O'ahu

Kahului, Maui

Kawaihae Harbor, Hawai'i Island

Hilo, Hawai'i Island

Apra Harbor, Guam

Malakal, Palau

Pago Pago, American Samoa

Harbor Surge Forecast

Hale'iwa, O'ahu

Beach Cameras

Archive Sites

Sea Level Rise

State of Hawai'i Sea Level Rise Viewer

Honolulu Sea Level Rise Inundation Risk

West Maui Wave Flooding with Sea Level Rise

American Samoa Sea Level Rise Viewer

PacIOOS Tools

Sea Level Rise : American Samoa Sea Level Rise Viewer

An Interactive Mapping Tool to Assess Future Sea Level Rise Scenarios

[view full-screen map](#)

High-Tide Flooding
2.0+
1.5
1.0
0.5
0.1
flood depth (m)

BASEMAPS
SEA LEVEL RISE

Projection
 scenarios
 1-ft increments

Scenario
Low Int High

Year & Water Level (m)
2030 2040 2050 2060 2070 2080 2090 2100
0.34 0.52 0.73 1.00 1.33 1.73 2.14 2.58

Flood Days Per Year
MHHW 50 20 1

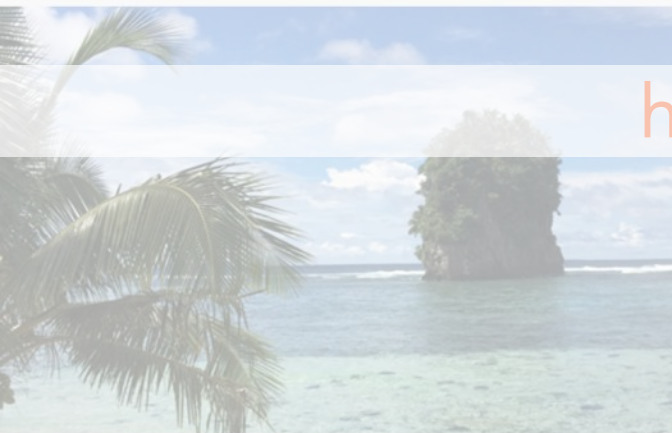
OTHER OVERLAYS
[expand](#) • [collapse](#) • [hide](#)

3 km
2 mi
Google
Map data ©2024 Google Terms

PacIOOS Website: Data Services

Data Services | Education Resources

Regions



PacIOOS Voyager

PacIOOS Voyager is a free, interactive, online mapping experience on the familiar Google Maps platform. View, combine, and download oceanographic data and beyond.

[See More >](#)



Data Access

PacIOOS supports a variety of data servers to provide easy and interoperable access to our data holdings, including ERDDAP, THREDDS, and GeoServer.

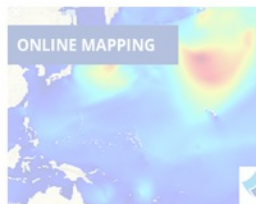
[See More >](#)



Data Search

Search for PacIOOS datasets by space, time, keyword, and access method using our OGC®-compliant Catalog Service for the Web (CSW).

[See More >](#)



PacIOOS Voyager

PacIOOS Voyager is a free, interact
online mapping experience. Explor

DATA

PacIOOS

Zoom to: Regi

Select overlay :: collapse • clear • set

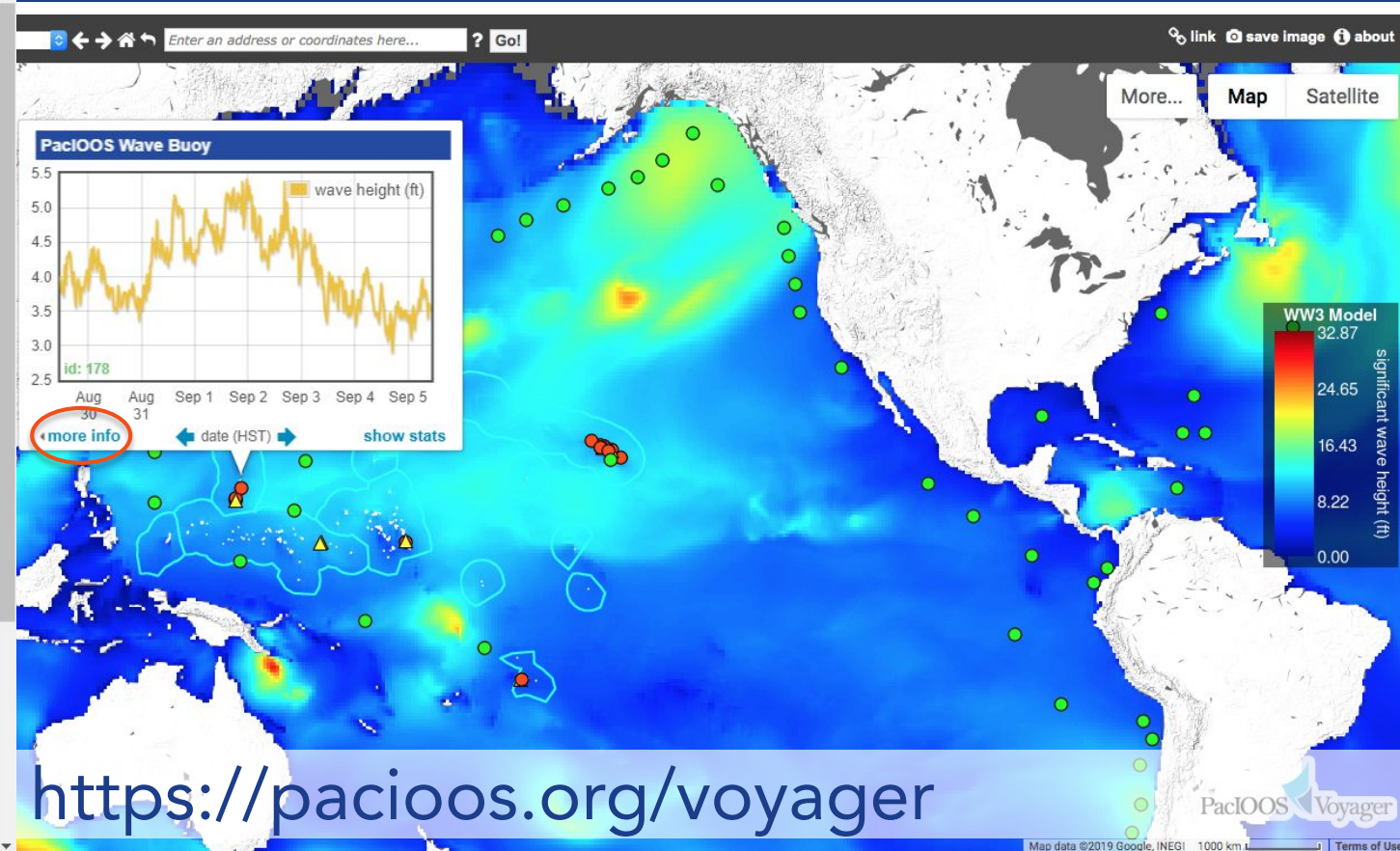
Search overlay s...

- hazard
 - hazards: observed
 - hazards: forecasts
 - hazards: basemaps
- observations
 - wave
 - tide and water level
 - water quality
 - water resources
 - ocean acidification
 - ocean gliders
 - ocean observatories
- remote sensing
 - doppler
 - surface currents (HF)
 - satellite data
- forecasts
 - weather forecast
 - surf forecast
 - tide forecast
 - ocean forecast

lat/lon • range • distance
[change units • clear]

show map or sensi

INSTRUMENT & VISUALIZATION

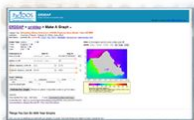


PacIOOS Data Access

Data Access

PacIOOS supports a variety of data servers to provide easy and interoperable access to our data holdings, including ERDDAP, THREDDS, and GeoServer.

101010100101



ERDDAP

Access data in a wide variety of output formats including plain text, HTML, JSON, MATLAB, and NetCDF. Generate basic maps and plots. Simple to use.

[See More >](#)

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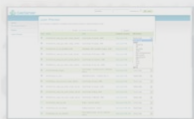


THREDDS

Access gridded data via OPeNDAP, NetCDF Subset Service, Web Map Service (WMS), and other data services.

[See More >](#)

101010100101



GeoServer

Access GIS layers via Open Geospatial Consortium (OGC) web services (WMS, WFS, WCS). Search and map layers in GeoExplorer data viewer.

[See More >](#)

279 Datasets Available!



ERDDAP
Easier access to scientific data

Start Using ERDDAP:
Search for Interesting Datasets

- Do a Full Text Search for Datasets

- View a List of All 279 Datasets

- Search for Datasets by Category

Datasets can be categorized in different ways by the values of various metadata attributes. Click on an attribute (`cdm_data_type`, `institution`, `ioos_category`, `keywords`, `long_name`, `standard_name`, `variableName`) to see a list of categories (values) for that attribute. Then, you can click on a category to see a list of relevant datasets.

- Search for Datasets with **Advanced Search** 

Data Services : Data Search

Search for datasets at PacIOOS. For more information on our OGC®-compliant Catalog Service for the Web (CSW) and other metadata resources, click here. To search all U.S. IOOS® datasets, click here [↗](#).

Basic

 Or click a keyword below...

Aquatic Assemblages **Atmosphere** Bathymetry Biological Biology **Biosphere** Boundaries
Census Cetaceans **Chemistry** Chlorophyll **Circulation** Classification Coastal
Conductivity Coral Currents Direction Doppler Ecology Ecosystems Environmental Fish
Fisheries Forecast Global Guam Habitat **Hawaii** Height Hilo Honolulu Human
Humidity Kauai Lanai Landforms Longwave Mammals Mariana Marshall Maui Micronesia
Models Molokai Monitoring **Oahu** **Oceans** OGCX Oxygen Pago Palau Period
Polynesia Precipitation **Pressure** Quality Radar Radio Rain Reef Saipan **Salinity**
Samoa Sea Seafloor Shorelines Shortwave **Surface Temperature** Topography
Turbidity Vapor Vertebrates Waikiki **Wave** Weather Winds Zoology

▸ Spatial

▸ Temporal

▸ Access Methods

Data Services : Data Search Results

Search for datasets at PacIOOS. Powered by pycsw [↗](#). For more information on our OGC® compliant Catalog Service for the Web (CSW) and other metadata resources, click here.

text: wave forecast

Showing 20 of 245 results • [modify search](#) • [new search](#) ▶

Page 1 of 13 ▶▶

PacIOOS Wave Buoy 098: Mokapu Point, Oahu, Hawaii

id: cdip_098



Wave buoy 098 measures wave height, wave direction, wave period, and water temperature in the vicinity of Mokapu Point on the windward (eastern) coast of Oahu in the State of Hawaii. Data are transmitted every half hour. Moored in water 82 meters deep, this Datawell Directional Waverider Mark III (DWR-MkIII) buoy is equipped with three accelerometers measuring north/south, east/west, and vertical displacements, allowing it to measure both wave direction and wave energy. The temperature sensor is located at the base of the 0.9 meter spherical buoy, approximately 45 cm or 18 inches below the ocean surface. Wave buoys are useful tools for forecasting local waves and are used by recreational and professional ocean users alike.

begin date: August 9, 2000 **end date:** now

keywords: [show](#) ▶

access methods: [HTML](#) • [Voyager](#) • [Other](#) • [Other](#)

Visit Our Website
pacioos.org



Explore PacIOOS Voyager
pacioos.org/voyager





Mahalo!

Melissa Iwamoto, Director
Jordan Watson, Deputy Director
Lauren R. Kaiser, Data Management Specialist

<https://pacioos.org>