

Geospatial Capabilities of PacIOOS: Information, Tools, and Services

PacIOOS | <https://pacioos.org>

NOAA CoastWatch/PacIOOS Satellite & Ocean Data Training Course

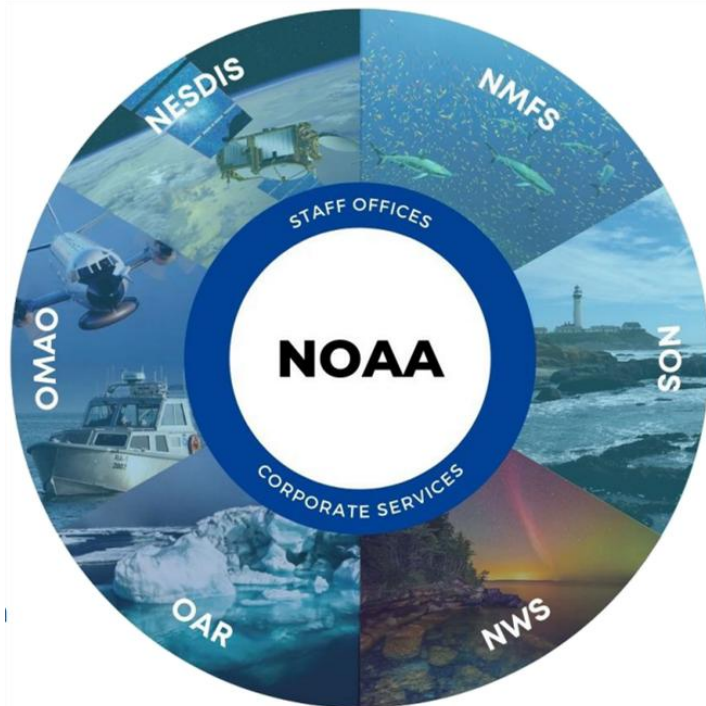
10 February, 2026 (9:00 AM FJT)



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 & Aviation Ops
- **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 MANOA



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

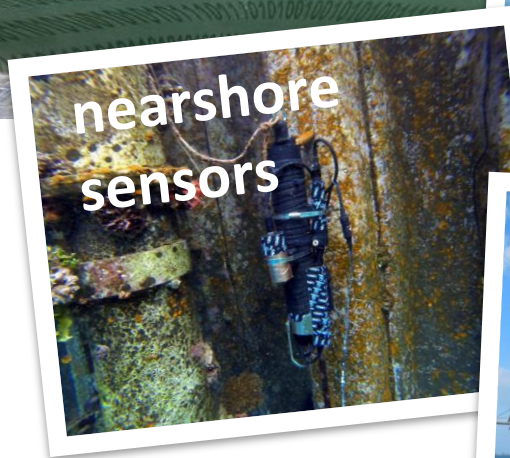


PacIOOS Data Services



Transforming raw data and making it user-friendly

- Different types of data
- Standardized formats & services
- Products for end users



OBSERVATIONS



Data
Management



Information
Creation



Information
Management



USERS





EQUIPMENT

- Wave Buoys
- Gliders
- Fish Tagging



MONITORING

- Water Quality
- Ciguatera Network



SYNTHESIZED DATA

- Modeling and Forecasting
(weather, waves, surge, high sea level, flooding, circulation, etc.)

An aerial photograph of a rugged coastline. A prominent, dark, layered cliff extends into the ocean. The water is a deep blue, with white foam from waves crashing against the shore. The foreground shows rocky terrain with sparse green vegetation. The sky is overcast with grey clouds.

GEOSPATIAL DATA & SERVICES

PacIOOS Website

Data Services | Education Resources



Waves | Currents | Shoreline Impacts | Water Characteristics

Regions

- Kauai
- Oahu
- 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

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

SHARK TRACKING

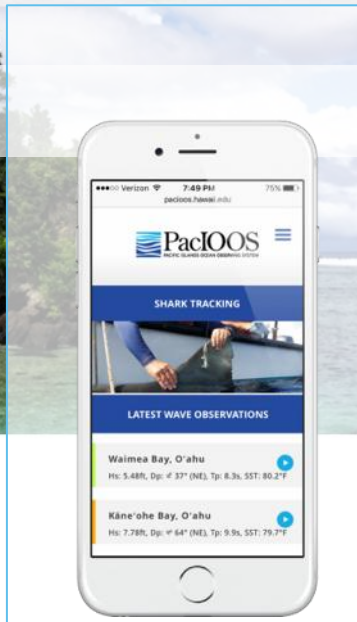
Tiger Shark Tracking

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

FEATURED TOOL

Weather Observations

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





Example Regional Data

Home / Regions / American Samoa

SHARE     

American Samoa

 American Samoa • *Talofa!* •  about

[expand all](#) [collapse all](#)

Waves

Wave Observations

AUNU'U



KING-POLOA, TUTUILA



Wave Forecast

SAMOA



TUTUILA



MANU'A ISLANDS



Data Categories

- Waves
- Currents
- Shoreline Impacts
- Water Characteristics
- Weather
- Other



▶ 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



▶ Waves

▶ Currents

▶ Shoreline Impacts

▶ **Water Characteristics**

▶ Weather

▶ Projects

Water Characteristics

Nearshore Sensor Observations

Hawai'i Yacht Club, O'ahu
Atlantis Submarine Dock, O'ahu
Waikiki Aquarium, O'ahu
Maunalua Bay, O'ahu
Kalama Beach Park, Maui
Majuro, RMI
Pohnpei, FSM
Pago Bay, Guam
Pago Pago, American Samoa
Archive Sites

Water Temperature Buoy Observations

Hanalei, Kaua'i
Waimea Bay, O'ahu
Kāne'ohe Bay, O'ahu
Kāne'ohe WETS, O'ahu
Mōkapu, O'ahu
Kalaeloa Barbers Point, O'ahu
Pearl Harbor Entrance, O'ahu
Pauwela, Maui
Lāna'i Southwest
Hilo, Hawai'i Island
Majuro, RMI
Rumung, Yap, FSM
North Point, Pohnpei, FSM
Utwe, Kosrae, FSM
Ritidian Point, Guam
Ipan, Guam
Tanapag, CNMI

Water Quality Buoy Observations

Po'ipū, Kaua'i
Kāne'ohe CRIMP2, O'ahu
Olowalu, Maui
Hilo Bay, Hawai'i Island
Pelekane Bay, Hawai'i Island
Ma'ihi Bay, Hawai'i Island
Fagatele Bay, American Samoa
Archive Sites

Salinity Forecast

Hawai'i
O'ahu
South Shore, O'ahu
Waikiki, O'ahu
Kāne'ohe, O'ahu
Western North Pacific
Mariana Islands

Water Temperature Forecast

Hawai'i
O'ahu
South Shore, O'ahu
Waikiki, O'ahu
Kāne'ohe, O'ahu
Western North Pacific
Mariana Islands
Samoa

Turbidity Plume Forecast

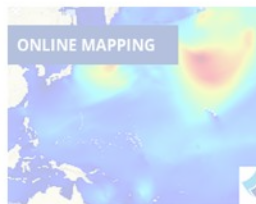
Ala Wai, O'ahu

PacIOOS Data Services

Data Services

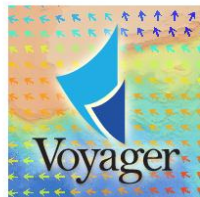
Education Resources

Regions



PacIOOS Voyager

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



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 Data Search

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](#).

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](#) [↗](#).

text: american samoa wave buoy

4 results • [modify search](#) • [new search](#) ▶

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](#) [OGCM](#) [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](#)

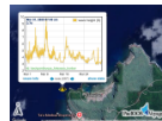
▶ [Spatial](#)

▶ [Temporal](#)

▶ [Access Methods](#)

Backyard Buoy: Faleasao Harbor, Tau, American Samoa

id: backyardbuoys_faleasao_harbor



Surface wave and water conditions, collected as part of the Backyard Buoys program. This Sofar Spotter buoy is located approximately 100 meters offshore of Utumanua Point and 500 meters west of Faleasao Harbor on the northwestern coast of Tau island of the Manua Islands in America Samoa.

begin date: February 11, 2025 **end date:** now

keywords: [show](#) ▶

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

PacIOOS Wave Buoy 189: Aunuu, American Samoa

id: cdip_189



Wave buoy 189 measures wave height, wave direction, wave period, and water temperature in the vicinity of Aunuu, a small island off the eastern coast of Tutuila in American Samoa. Data are transmitted every half hour. Moored in water 55 meters deep, this Datawell Directional Waverider Mark III

PacIOOS Data Search

Data Services : Data Search

Search for datasets at PacIOOS. For more information on Web (CSW) and other metadata resources, click here. To s

Basic

Spatial

Temporal

Access Methods

Spatial

Click two corners of a bounding box on the following map...

Or select a preset bounds...

Or select a preset bounds...

Global

Pacific

PacIOOS Regions:

American Samoa

American Samoa EEZ

FSM

FSM EEZ

Guam

Hawai'i

Hawai'i EEZ

Hawai'i NWHI

Howland and Baker Islands

Jarvis Island

Johnston Atoll

Mariana Islands

Mariana Islands EEZ

Marshall Islands (RMI)

Marshall Islands (RMI) EEZ

Northern Mariana Islands (CNMI)

America i
Samoa

Keyboard shortcuts | Map data

cursor: -13.7191°, -170.9054°

show equator

max latitude:

-13.6059

min longitude:

-171.6998

clear bounds

min latitude:

-14.9819

Spatial

Temporal

after:

before:

submit search

Access Methods

- ERDDAP
- GeoServer
- NCSS
- OPeNDAP
- THREDDS
- Voyager
- WCS
- WFS
- WMS
- WMS-C

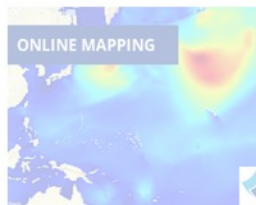
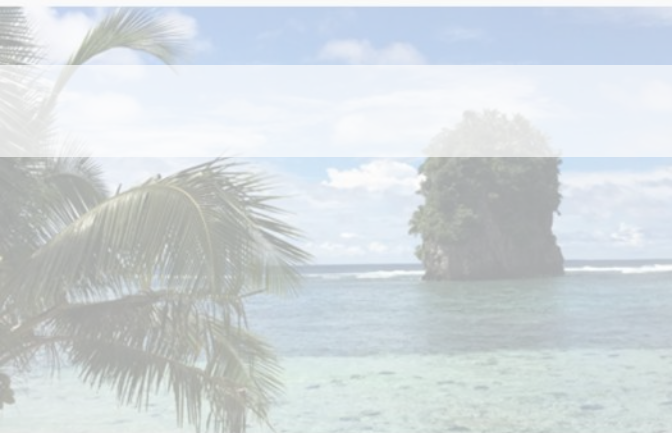
submit search

PacIOOS Data Services

Data Services

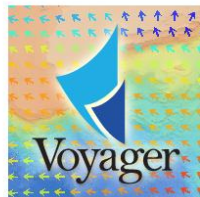
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ERDDAP

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 >](#)

101010100101

101010100101



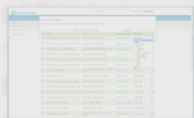
THREDDS

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

[See More >](#)

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GeoServer

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

[See More >](#)

101010100101

289 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](#)

PacIOOS Data Access

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739 Datasets Available!



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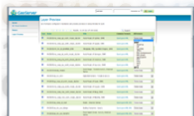
[See More >](#)



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[See More >](#)



About & Status

[About GeoServer](#)

Data





[Layer Preview](#)

Demos

Layer Preview

List of all layers configured in GeoServer and provides pre

<< < 1 2 3 4 5 > >> Results 1 to

Type	Title
	Marine Protected Areas - American Samoa
	Roads - American Samoa
	Building Footprints - Aunuu, American Samoa
	Flood Hazard Zones - Aunuu, American Samoa
	Shoreline - Aunuu, American Samoa

Lauren R. Kaiser,
lkaiser7@hawaii.edu
Data Management
Specialist

Visit us at <https://pacioos.org>
Email us at info@pacioos.org



Explore more data at
<https://pacioos.org/voyager>