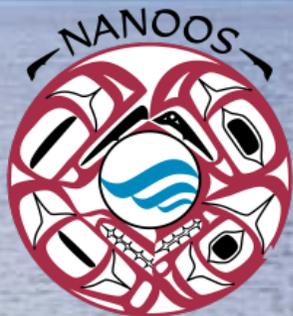


# NANOOS Visualization System (NVS)

## Boaters App

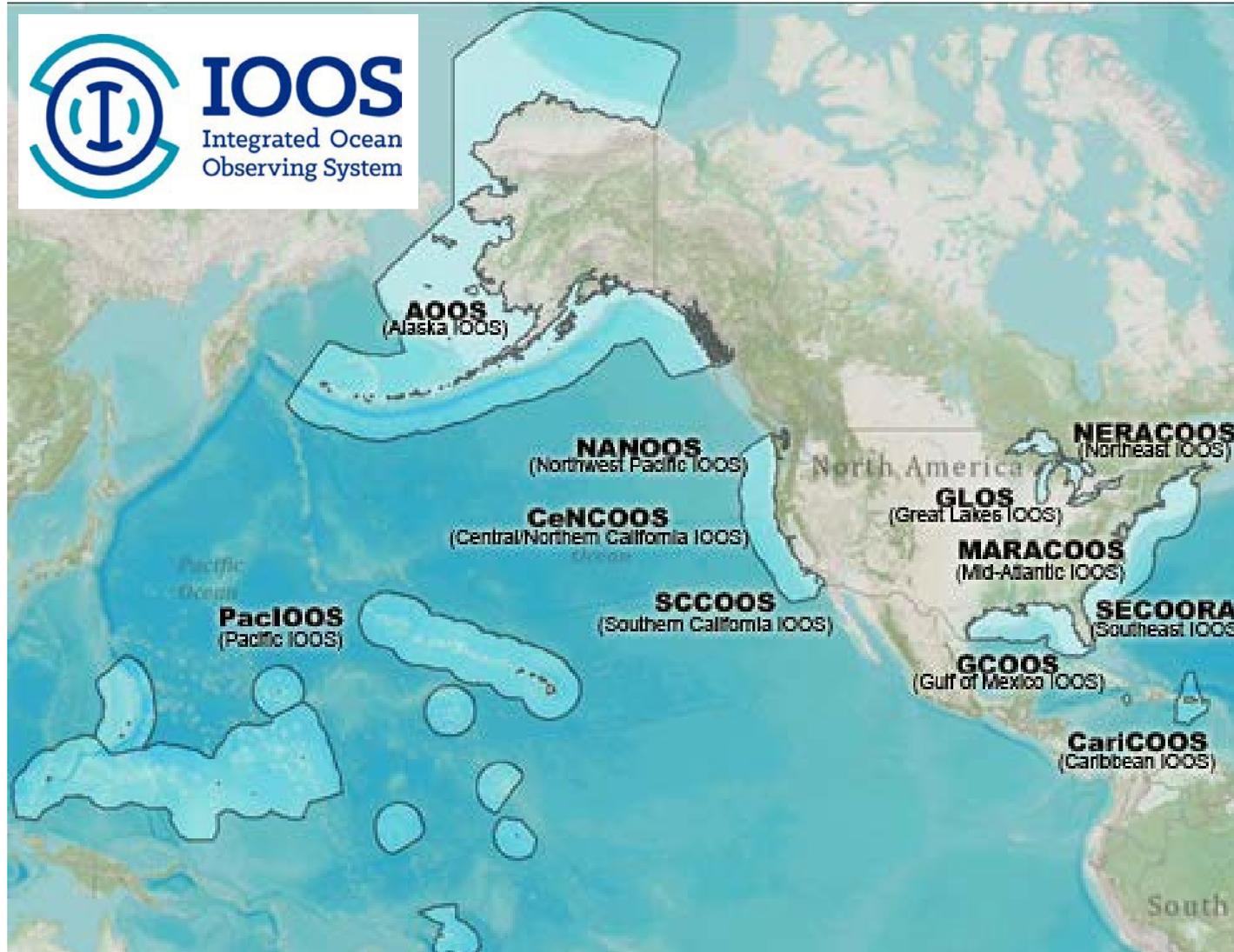
*Using Networked Ocean Observing  
Data to Plan a Safe Trip*

Rachel Wold  
*NANOOS Education  
and Outreach*



# Coastal IOOS:

17 Federal Agencies; 11 Regional Associations





# Northwest Association of Networked Ocean Observing Systems (NANOOS)

## Started by defining the region, the users, their needs:

### Coastal ocean:

Northern extent of California Current  
Winds, topography, freshwater input, ENSO & other climate cycles

### Major inland basins:

Puget Sound-Georgia Basin, Columbia River  
Urban centers, nearshore development, climate variation

### Coastal estuaries:

Willapa Bay, Grays Harbor, Yaquina Bay, Coos Bay, +20  
Resource extraction, development, climate

### Shorelines:

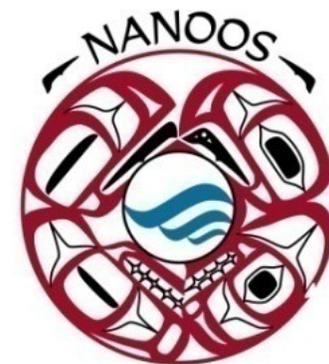
Rocky to sandy, dynamic: storms, erosion  
Winds, development, climate

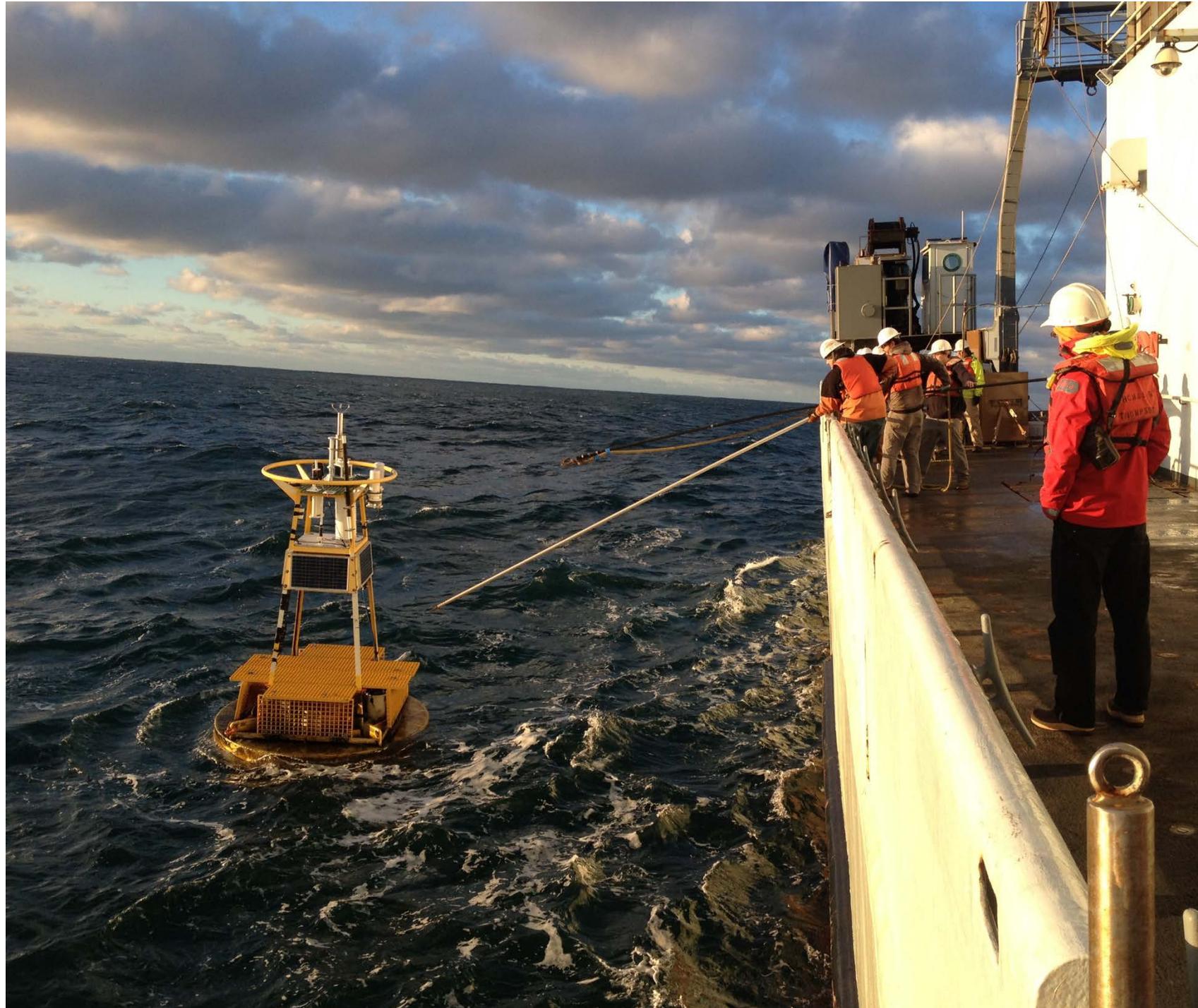
### Major rivers:

Columbia River (~75% FW input to Pacific from US WC)  
many rivers (e.g., Fraser, Skagit) via Strait Juan de Fuca  
Dredging, water regulation, climate change

### NANOOS Region User Groups:

Maritime: shipping, oil transport/spill remediation  
Fisheries: salmon, shellfish, crab, groundfish, aquaculture  
Environmental management: HABs, hypoxia  
Shoreline: erosion, inundation  
Hazards: Search and rescue, national security  
Educators: formal, informal, research  
Marine recreation: boating, surfing, diving

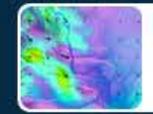






# NANOOS

Welcome to NANOOS, the Northwest Association of Networked Ocean Observing Systems. NANOOS is part of IOOS and provides information and products related to weather and ocean data.



## NANOOS Visualization System

NVS provides easy access to observations, forecasts, data, and visualizations.

[Demo](#)

- Home
- About
- News
- Join
- Contact
- Disclaimer
- Site Map
- NVS
- Products
- Education
- Merchandise
- Log In
- New Account



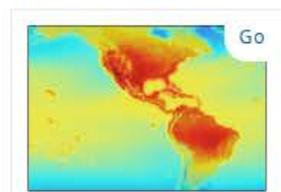
## Boating Season is Here!

Plan your next trip using the NVS Boaters App, which offers features like current sea and weather conditions, tide and currents forecasts, and marina information to keep you informed before you go out. Use the new routing capability over NOAA nautical charts to safely plot your course, then log in to save your routes for another time.

Check out the following article from Three Sheets Northwest which highlights some of these features.

[Visit the NVS Boaters App](#)

[Three Sheets Northwest Article](#)



Climate Indices Now Available on NVS



Boating Season is Here!



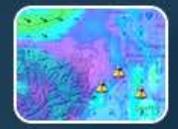
How Typical are Current Conditions?



NANOOS Participates in NOAA Hydrographic Services Review Panel



New Publications Feature NANOOS PIs, Data, and Information



Data Explorer



Tsunami Evacuation Zones



Boaters



Tuna Fishers



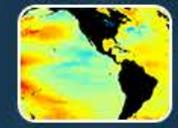
Shellfish Growers



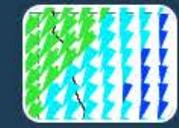
Beach and Shoreline Changes



Maritime Operations



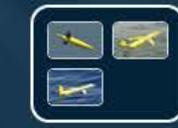
Climatology



High Frequency Radar



Cruises



Gliders



Help

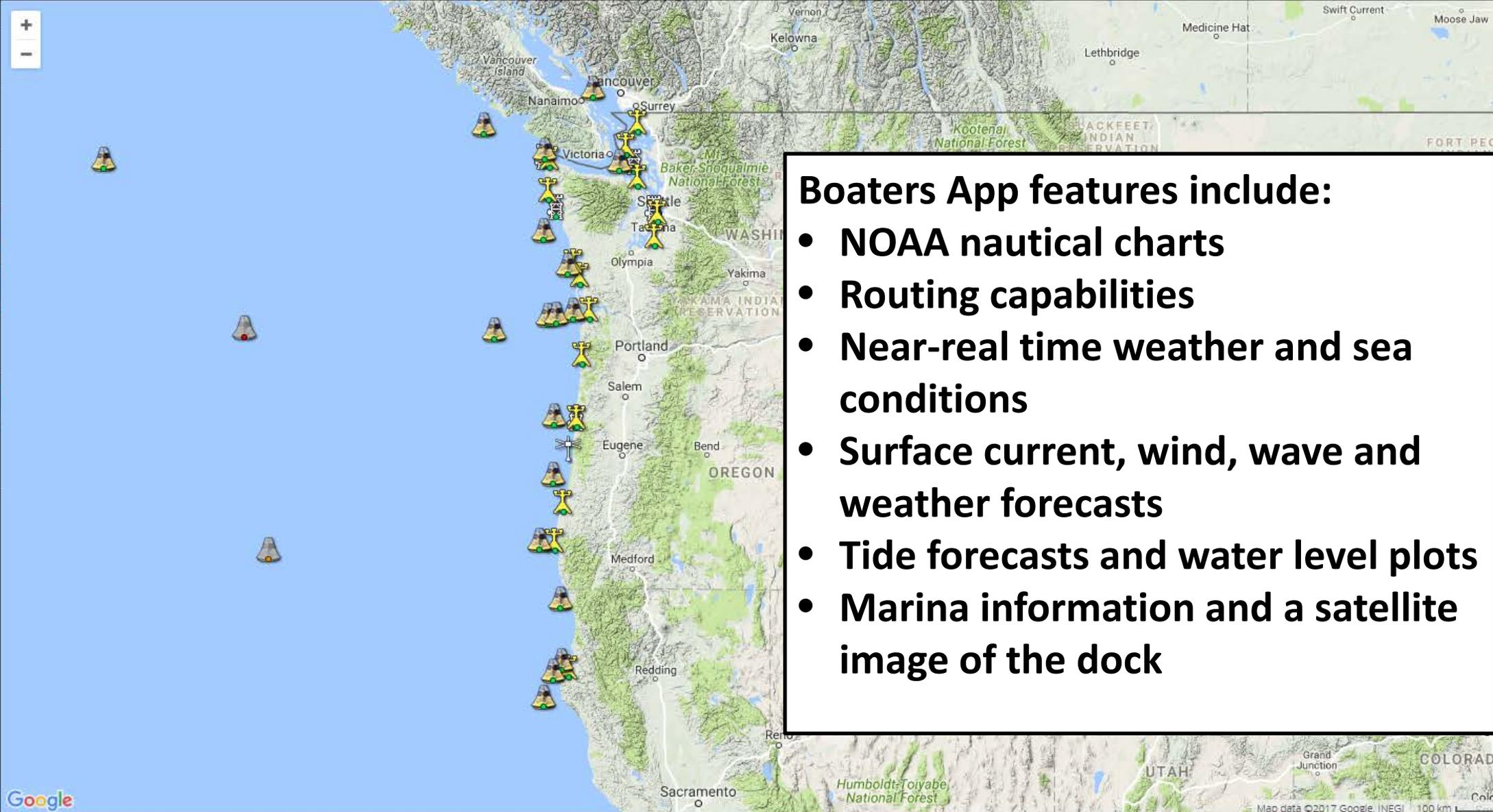
ADDITIONS & UPDATES

[View Last 3 Months](#)

- 
**STTI Port Susan**  
 Offline. Mooring is active but no longer has telemetry capability. Data are manually downloaded from logger twice a month. Data harvesting into NVS is discontinued until further notice. Updated on 18 May 2017 >>>
- 
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**NDBC Tillamook**  
 Buoy restored to service, and data released 5/11/2017. Wind sensors not active on this deployment. Buoy location was updated (previous deployment position was 45.908 N, 125.760 W). Updated on 15 May 2017 >>>

- Charts
- Regions
- Routes
- Current Conditions
- Fixed Platforms
- Remote Sensing
- Forecasts
- Markers
- Legend

Lat: 38.6169 Lon: -127.4854 Terrain



**Boaters App features include:**

- NOAA nautical charts
- Routing capabilities
- Near-real time weather and sea conditions
- Surface current, wind, wave and weather forecasts
- Tide forecasts and water level plots
- Marina information and a satellite image of the dock

**Let's plan a trip!**



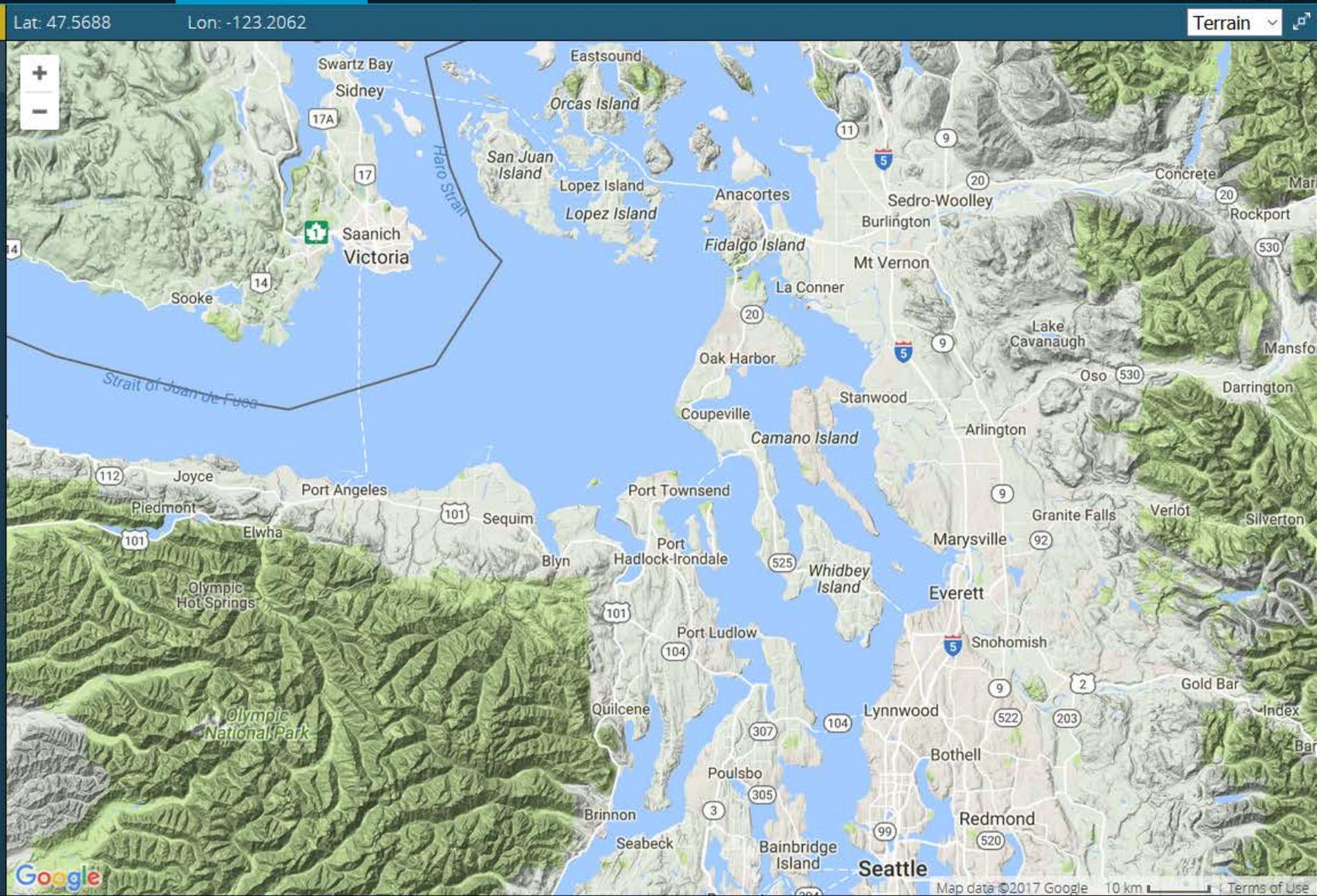
- Charts
- Regions
- Routes
- Current Conditions
- Fixed Platforms
- Remote Sensing
- Forecasts
- Markers
- Legend

**Routes** ✕

**+ New Route**

Click the 'New Route' button to start a new route.

If you sign in, route information will automatically be saved to your account.



- Charts
- Regions
- Routes**
- Current Conditions
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- Legend

**Routes** ✕

Lat: 47.5632 Lon: -123.0661

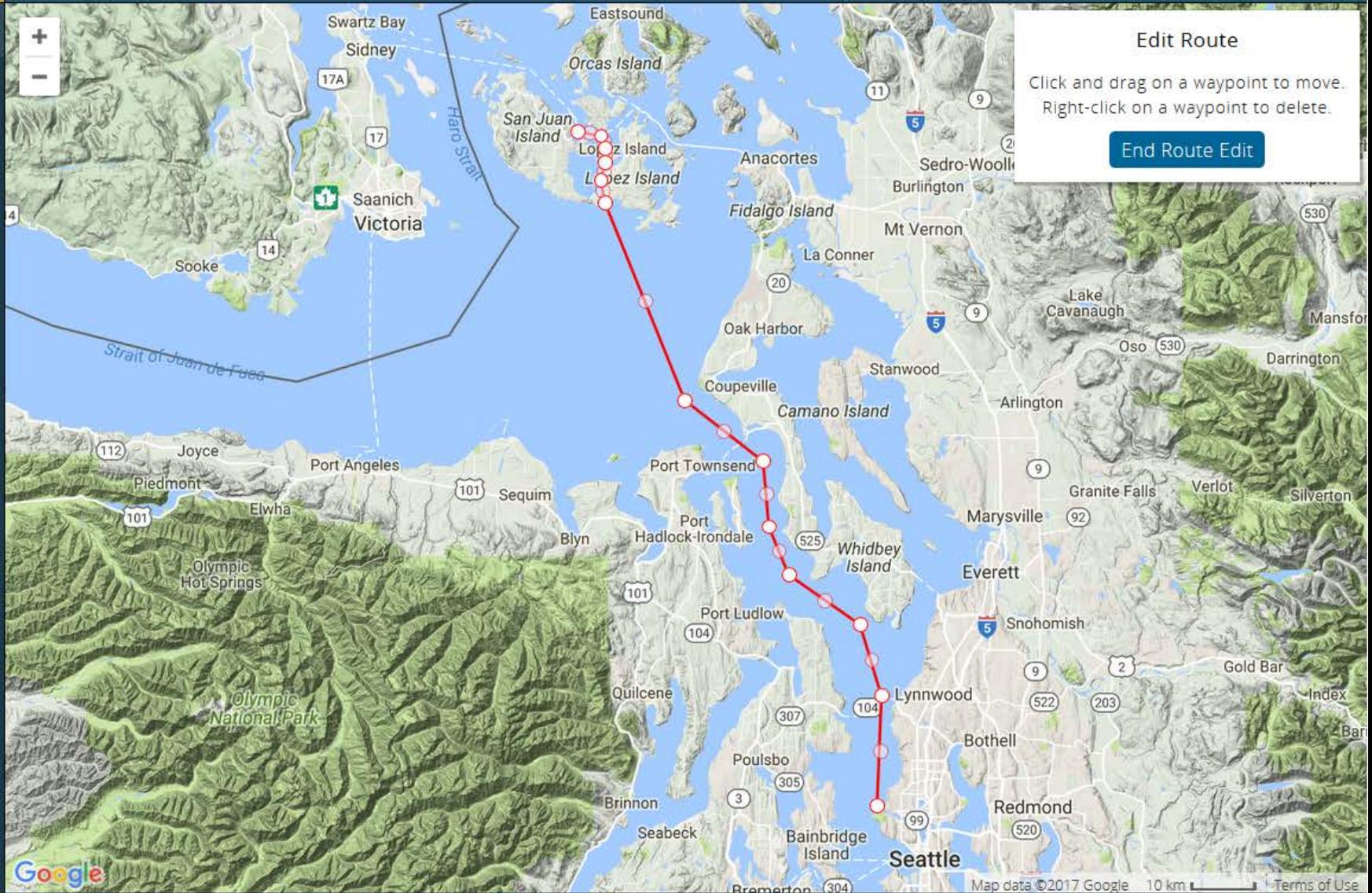
[+ New Route](#)

Seattle/Friday Hbr ✎ ✖

	Latitude	Longitude	
1	47.67618	-122.42340	✕
2	47.81838	-122.41516	✕
3	47.91051	-122.45636	✕
4	47.97491	-122.59369	✕
5	48.03739	-122.63214	✕
6	48.12180	-122.64313	✕
7	48.20057	-122.79419	✕
8	48.45532	-122.94868	✕
9	48.48354	-122.95624	✕
10	48.50493	-122.94731	✕
11	48.52403	-122.94731	✕
12	48.54063	-122.95555	✕
13	48.54585	-123.00019	✕

Total Route Length: 70.8 miles

[Download Route](#)



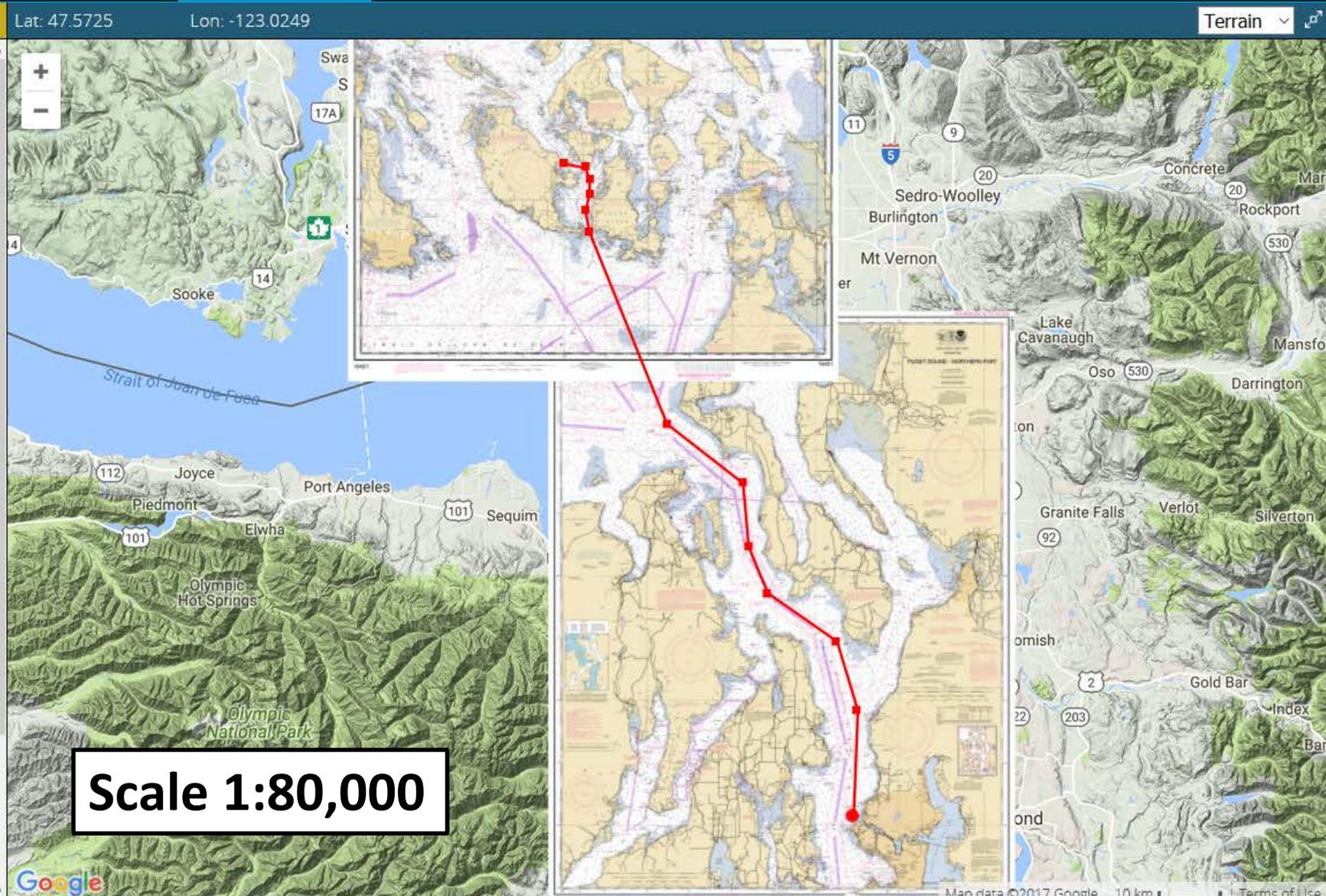
**Edit Route**

Click and drag on a waypoint to move.  
Right-click on a waypoint to delete.

[End Route Edit](#)

- Charts
- Regions
- Routes
- Current Conditions
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- Legend

- Charts
- Seamless Nautical Charts
  - NOAA Nautical Charts
  - Washington Nautical Charts
  - Bellingham - Everett
  - Cape Flattery
  - Columbia River - Destruction Isl.
  - Columbia River (Entrance)
  - Columbia River (West)
  - Grays Harbor
  - Possession Sound
  - Puget Sound (South)
  - Puget Sound (North)
  - San Juan Islands & Vicinity
  - Strait of Juan de Fuca (East)
  - Strait of Juan de Fuca (Entrance)
  - Straits of Georgia - Juan de Fuca

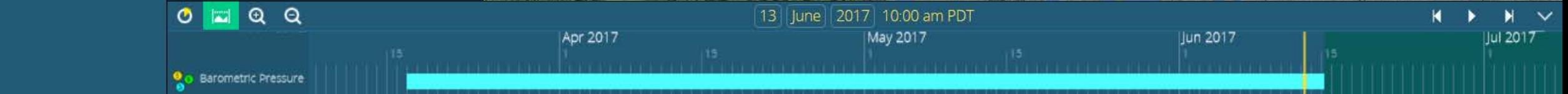
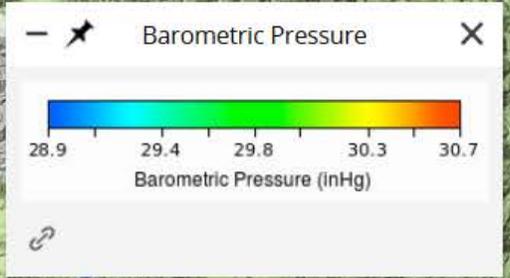
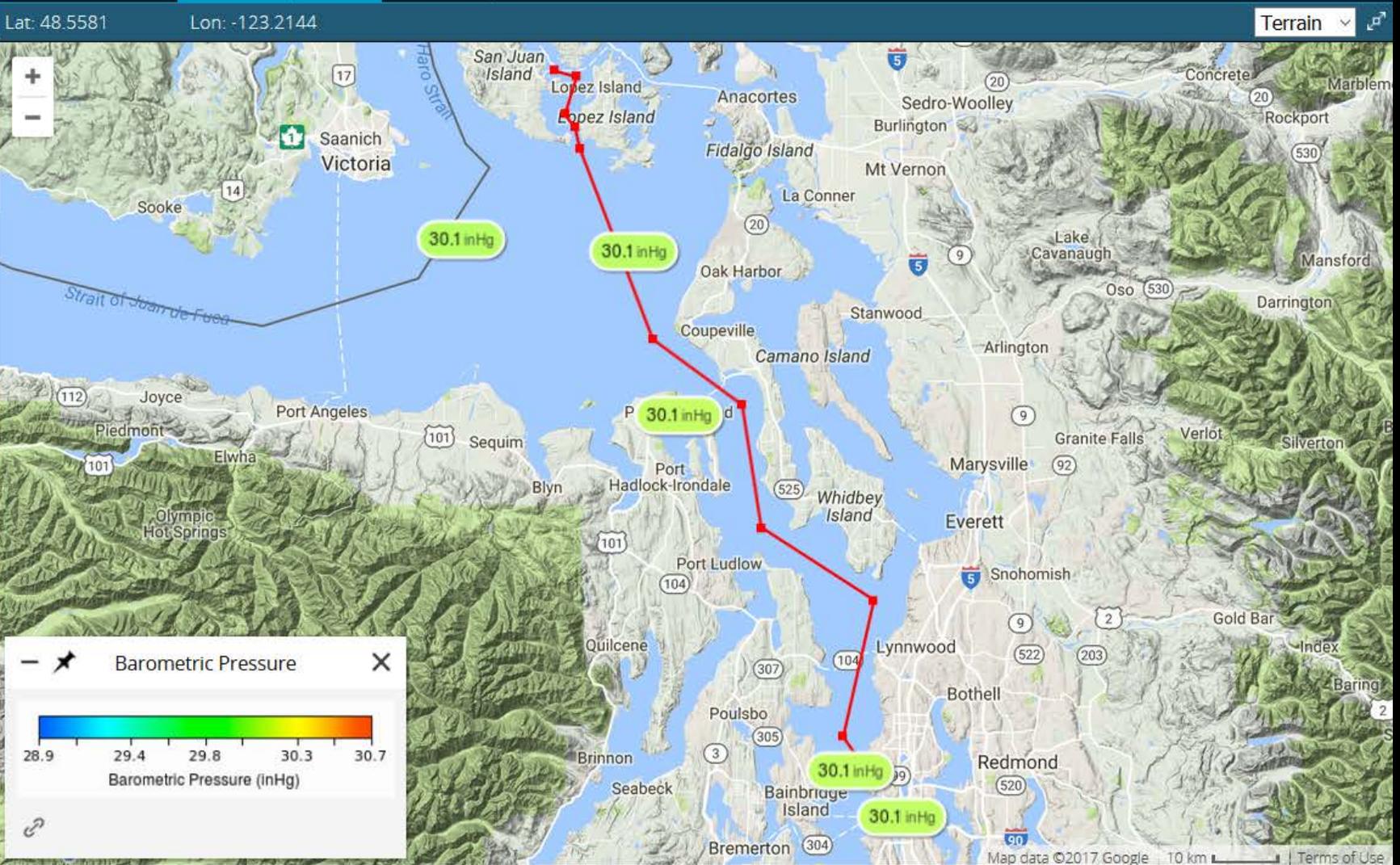


- Charts
- Regions
- Routes
- Current Conditions**
- Fixed Platforms
- Remote Sensing
- Forecasts
- Markers
- Legend

**Current Conditions** ✕

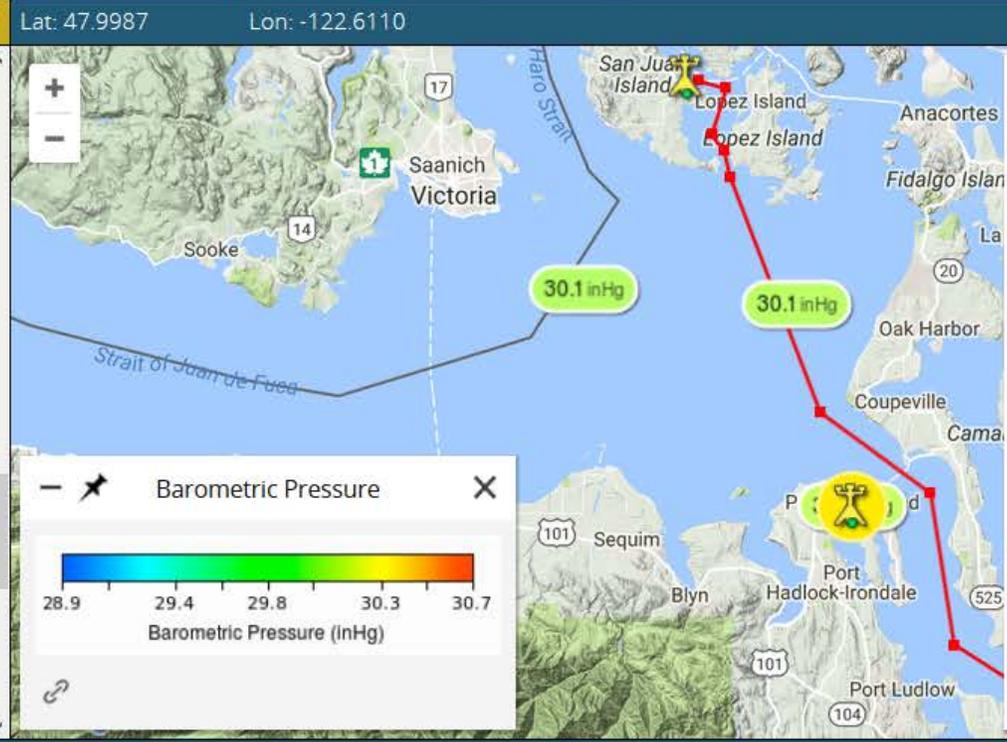
Auto Hide Platforms

- Air Temperature
- Barometric Pressure
- Water Temperature (Surface)
- Waves
- Winds



- Charts
- Regions
- Routes
- Current Conditions
- Fixed Platforms**
- Remote Sensing
- Forecasts
- Markers
- Legend

- ### Fixed Platforms
- NOS Garibaldi
  - NOS La Push
  - NOS Neah Bay
  - NOS North Spit
  - NOS Port Orford
  - NOS Port Townsend**
  - NOS Seattle
  - NOS South Beach
  - NOS Tacoma



### Station 9444900 - Port Townsend

Observations Forecasts Comparator Details

**Data Updated:** 15 Jun 2017 8:24 PDT **Provider:** NOS/CO-OP

#### ATMOSPHERIC

Air Temperature (10 ft)	54.3 °F	Download	Refresh
Baro. Pressure (15 ft)	29.9 inHg	Download	Refresh
Wind Direction (39 ft)	111 deg (from)	Download	Refresh
Wind Gust (39 ft)	5.8 knots	Download	Refresh
<b>Wind Speed (39 ft)</b>	<b>3.3 knots</b>	Download	Refresh

#### HYDROGRAPHIC

Water Level (0 ft)	6.2 ft	Download	Refresh
Water Temperature (0 ft)	51.4 °F	Download	Refresh

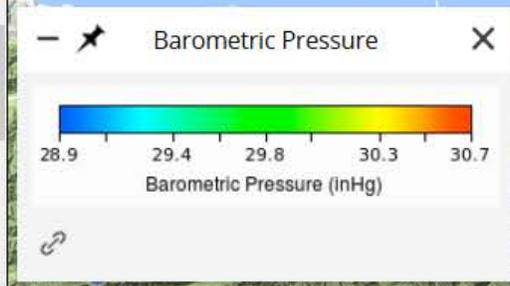
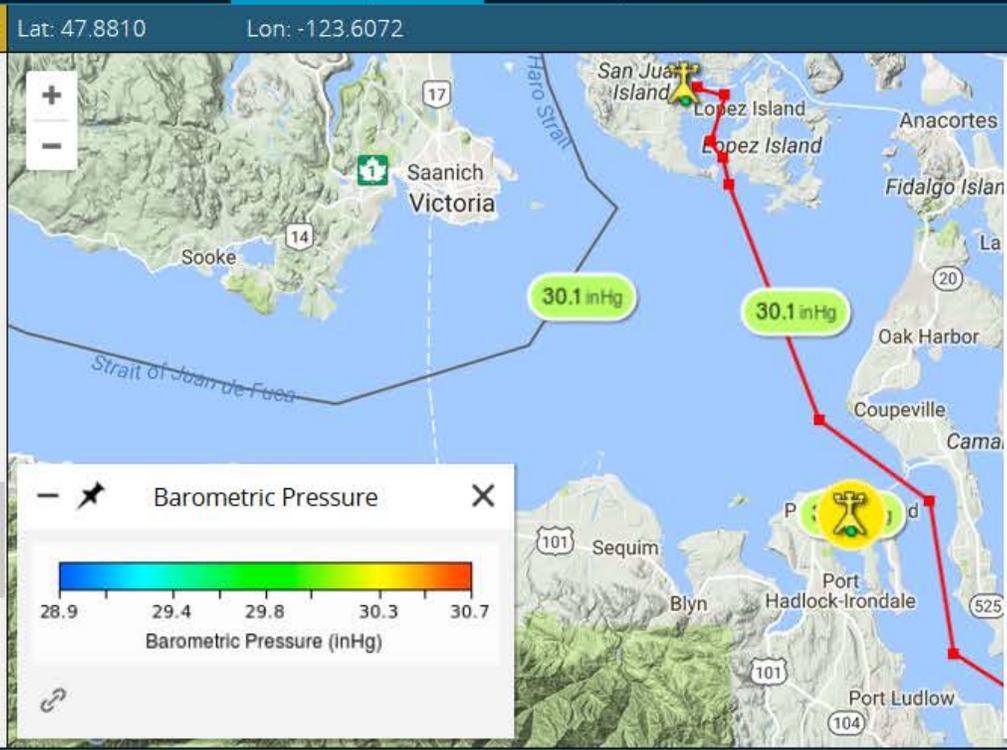
[Link](#)

13 June 2017 10:00 am PDT



- Charts
- Regions
- Routes
- Current Conditions
- Fixed Platforms**
- Remote Sensing
- Forecasts
- Markers
- Legend

- Fixed Platforms
- NOS Garibaldi
  - NOS La Push
  - NOS Neah Bay
  - NOS North Spit
  - NOS Port Orford
  - NOS Port Townsend**
  - NOS Seattle
  - NOS South Beach
  - NOS Tacoma



Station 9444900 - Port Townsend

Observations Forecasts **Comparator** Details

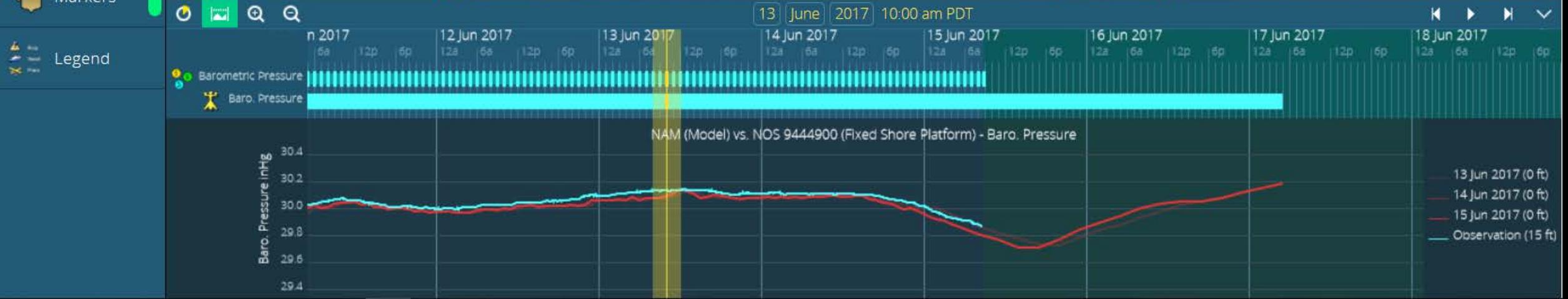
NAM NOS Tideforecast

Provider: NOAA-NCEP Data Source: OSU

ATMOSPHERIC

- Air Temp.
- Baro. Pressure**
- Wind Direction
- Wind Gust
- Wind Speed

Link

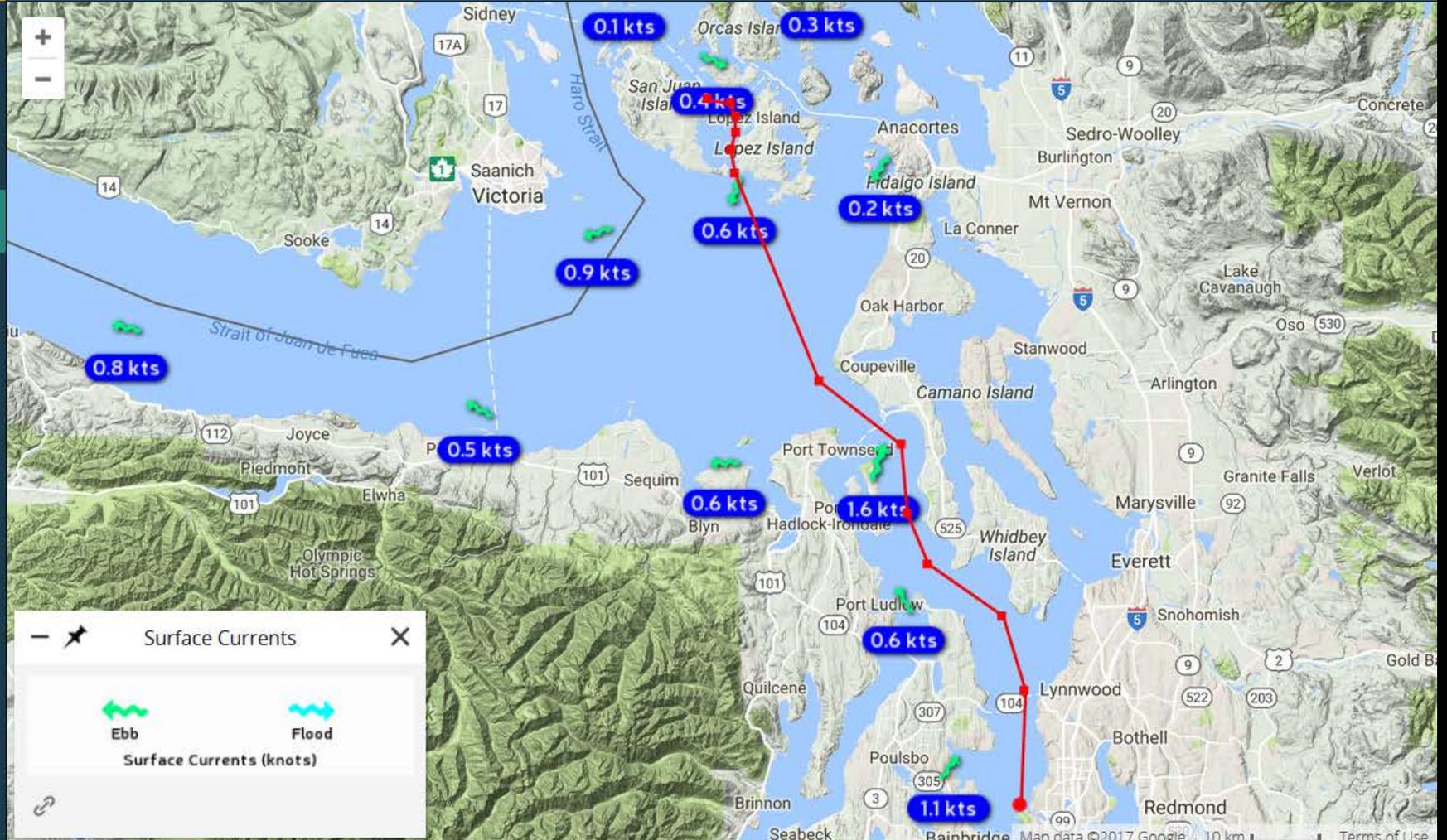


- Charts
- Regions
- Routes
- Current Conditions
- Fixed Platforms
- Remote Sensing
- Forecasts**
- Markers
- Legend

### Forecasts

- Air Temperature
- Barometric Pressure
- Dom. Wave Period
- Surface Currents**
- Tides
- Waves - Offshore
- Wind Gust
- Winds

Lat: 47.9510 Lon: -124.1345 Terrain



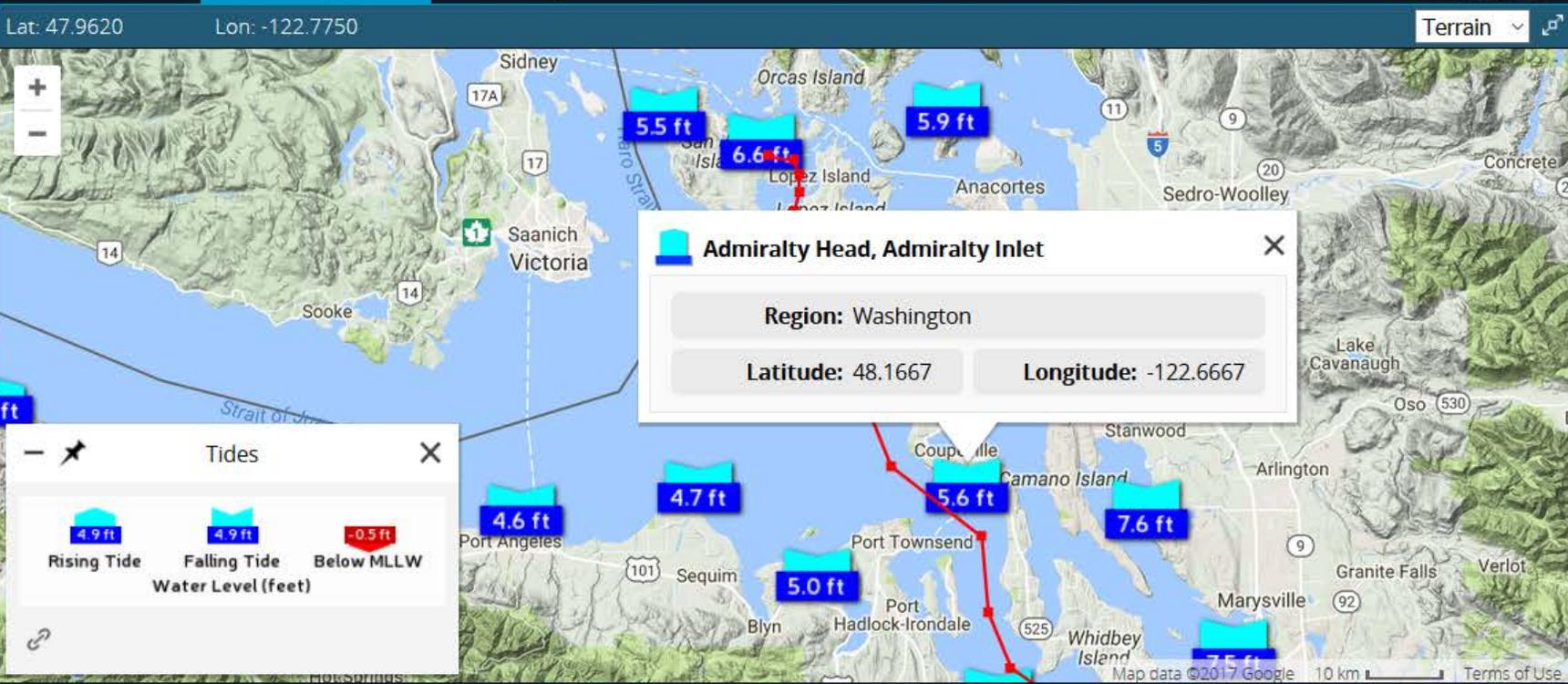
Surface Currents

Ebb Flood

Surface Currents (knots)

- Charts
- Regions
- Routes
- Current Conditions
- Fixed Platforms
- Remote Sensing
- Forecasts**
- Markers
- Legend

- Forecasts
- Air Temperature
  - Barometric Pressure
  - Dom. Wave Period
  - Surface Currents
  - Tides**
  - Waves - Offshore
  - Wind Gust
  - Winds







Username  
or Full Name

Password

Log In

Create a New Account

I Forgot my Password

**Continue up the  
Inside Passage**





Data Explorer



Tsunami Evacuation Zones



Boaters



Tuna Fishers



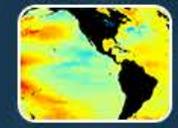
Shellfish Growers



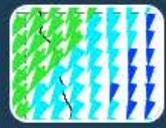
Beach and Shoreline Changes



Maritime Operations



Climatology



High Frequency Radar



Cruises



Gliders



Help

ADDITIONS & UPDATES

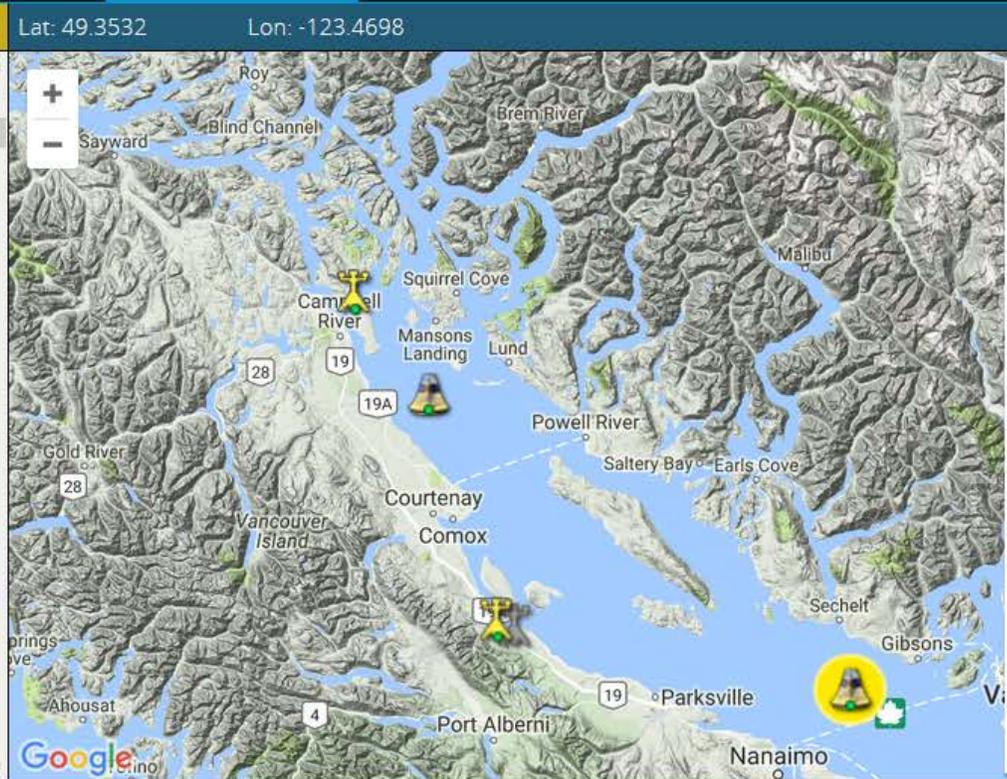
View Last 3 Months

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**STTI Port Susan**  
 Offline. Mooring is active but no longer has telemetry capability. Data are manually downloaded from logger twice a month. Data harvesting into NVS is discontinued until further notice. Updated on 18 May 2017
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# NVS DATA EXPLORER

- Regions
- Filters
- Routes
- Current Conditions
- Fixed Platforms**
- Mobile Platforms
- Remote Sensing
- Models
- Retired Platforms
- Legend

- Fixed Platforms
- CMOP Saturn07
  - CMOP Saturn08
  - CMOP Saturn02
  - EC 46036
  - EC 46131
  - EC 46132
  - EC 46146**
  - EC 46206
  - KC PTWILLIAMS



**Station 46146 - Halibut Bank**

Observations Forecasts Comparator Details History

Data Updated: 15 Jun 2017 8:00 PDT Provider: Env. Canada

ATMOSPHERIC		
Air Temperature (13 ft)	55.6 °F	[Download] [Refresh]
<b>Baro. Pressure (13 ft)</b>	<b>29.8 inHg</b>	[Download] [Refresh]
Wind Direction (16 ft)	100 deg (from)	[Download] [Refresh]
Wind Gust (16 ft)	27.2 knots	[Download] [Refresh]
Wind Speed (16 ft)	23.3 knots	[Download] [Refresh]

HYDROGRAPHIC		
Dom. Wave Period (0 ft)	3 sec	[Download] [Refresh]
Water Temperature (-2 ft)	59.9 °F	[Download] [Refresh]

[Link](#)

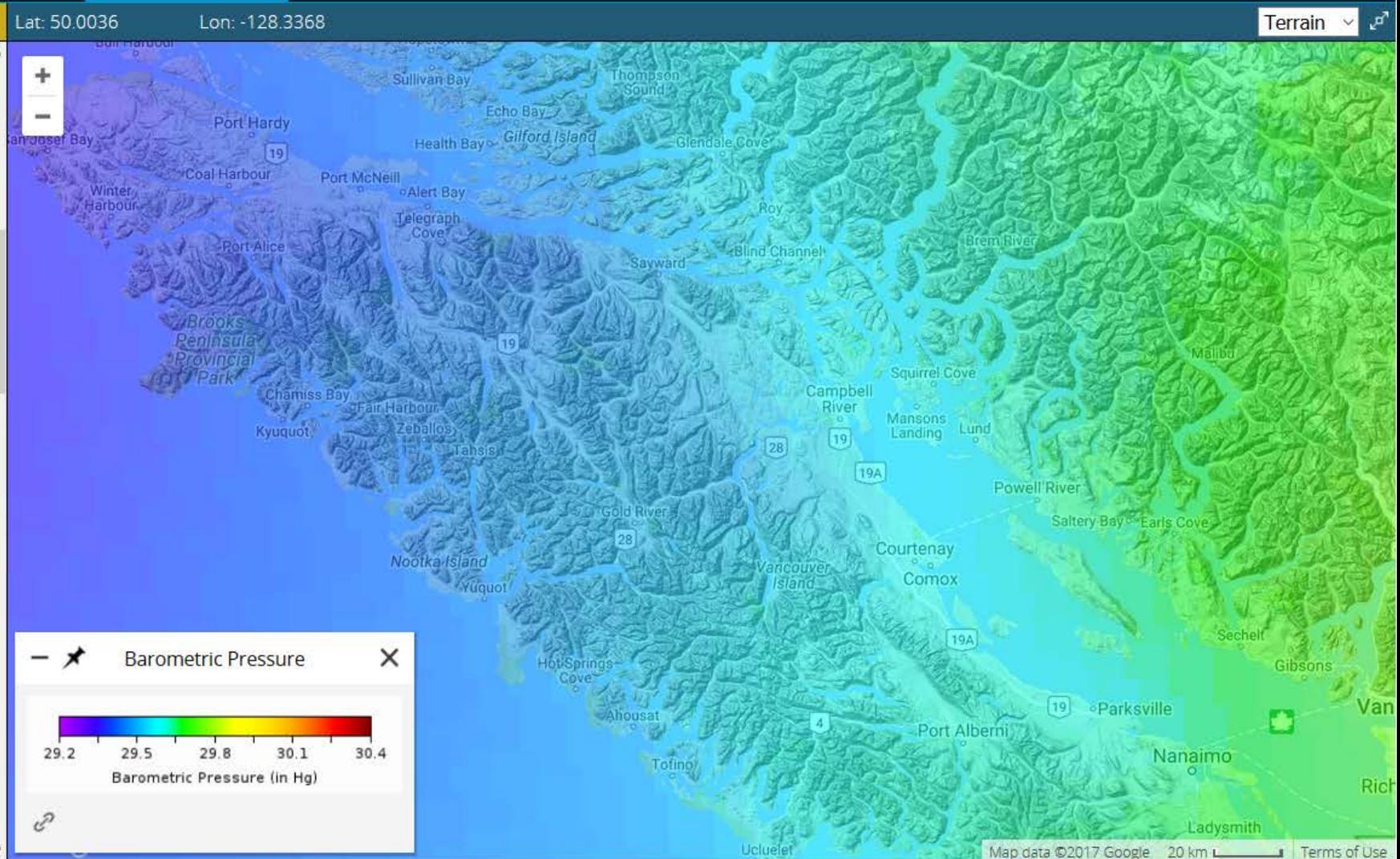


# NVS DATA EXPLORER

Powered by Vizer

- Regions
- Filters
- Routes
- Current Conditions
- Fixed Platforms
- Mobile Platforms
- Remote Sensing
- Models**
- Retired Platforms
- Legend

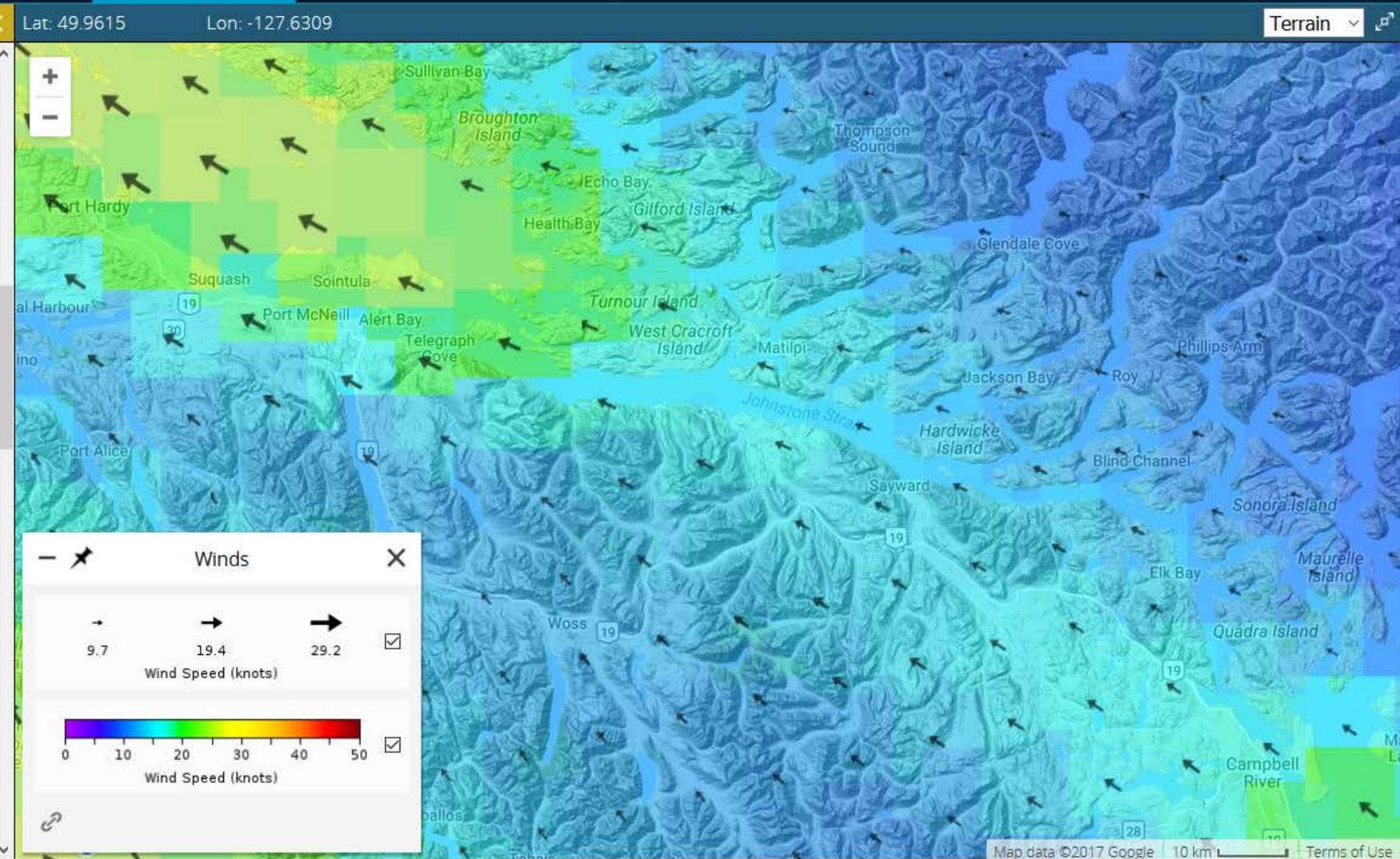
- Models
- pH
  - Phytoplankton
  - Salinity
  - Water Temperature
  - N. Amer. Mesoscale (NAM)
  - Air Temperature
  - Barometric Pressure
  - Relative Humidity
  - Wind Gust
  - Winds
  - NOS/CO-OPS Tides
  - NW WRF Forecasts
  - Air Temperature



# NVS DATA EXPLORER

- Regions
- Filters
- Routes
- Current Conditions
- Fixed Platforms
- Mobile Platforms
- Remote Sensing
- Models**
- Retired Platforms
- Legend

- Models
- N. Amer. Mesoscale (NAM)
  - Air Temperature
  - Barometric Pressure
  - Relative Humidity
  - Wind Gust
  - Winds
  - NOS/CO-OPS Tides
  - NW WRF Forecasts
  - Air Temperature
  - Barometric Pressure
  - Specific Humidity
  - Winds
  - OSU ROMS

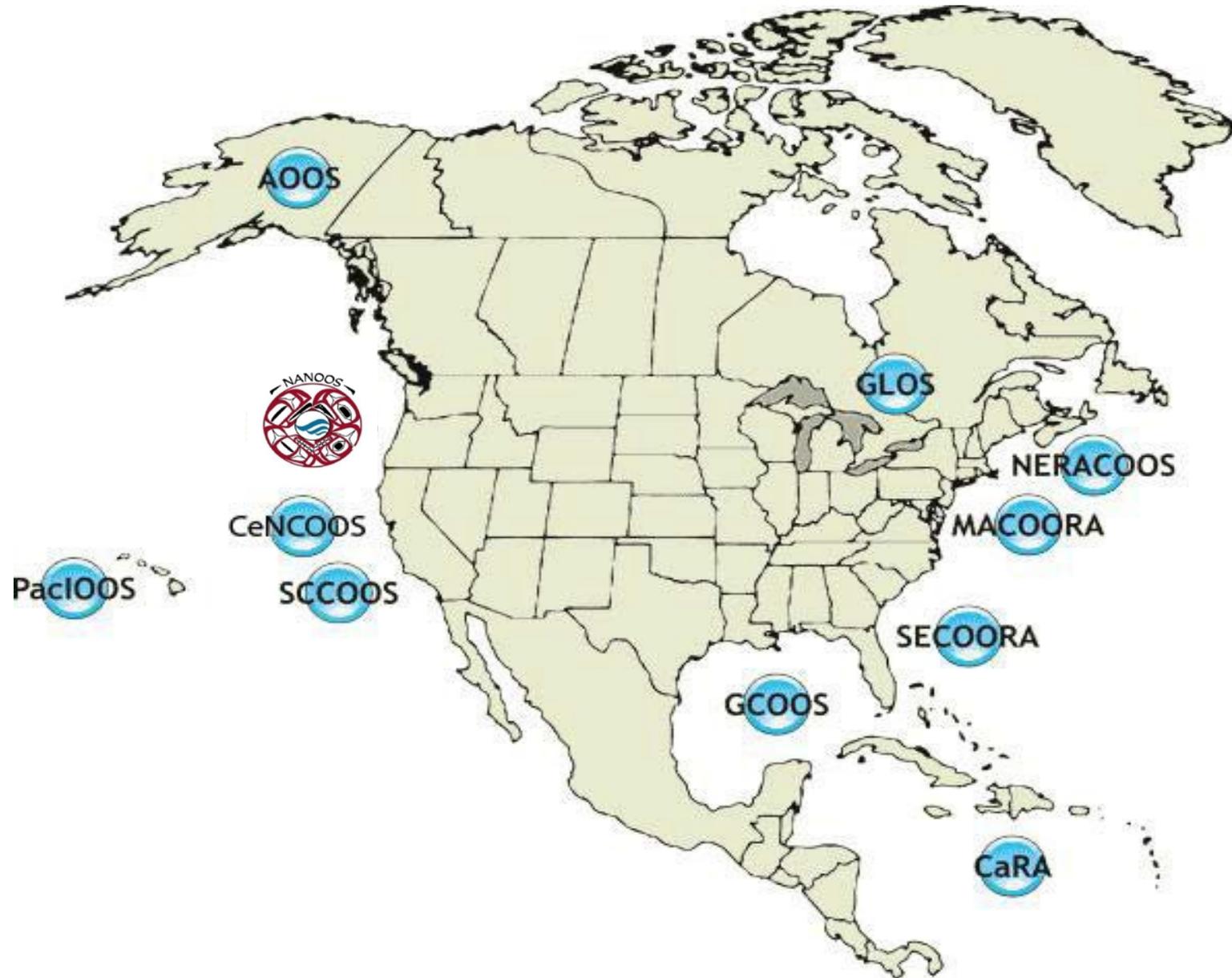


15 June 2017 11:00 am PDT

7	3 Jun 2017	4 Jun 2017	5 Jun 2017	6 Jun 2017	7 Jun 2017	8 Jun 2017	9 Jun 2017	10 Jun 2017	11 Jun 2017	12 Jun 2017	13 Jun 2017	14 Jun 2017	15 Jun 2017	16 Jun 2017	17 Jun 2017	18 Jun 2017
	12a 12p	12a 12p	12a 12p	12a 12p	12a 12p	12a 12p	12a 12p	12a 12p	12a 12p							

Winds

# IOOS Regional Associations

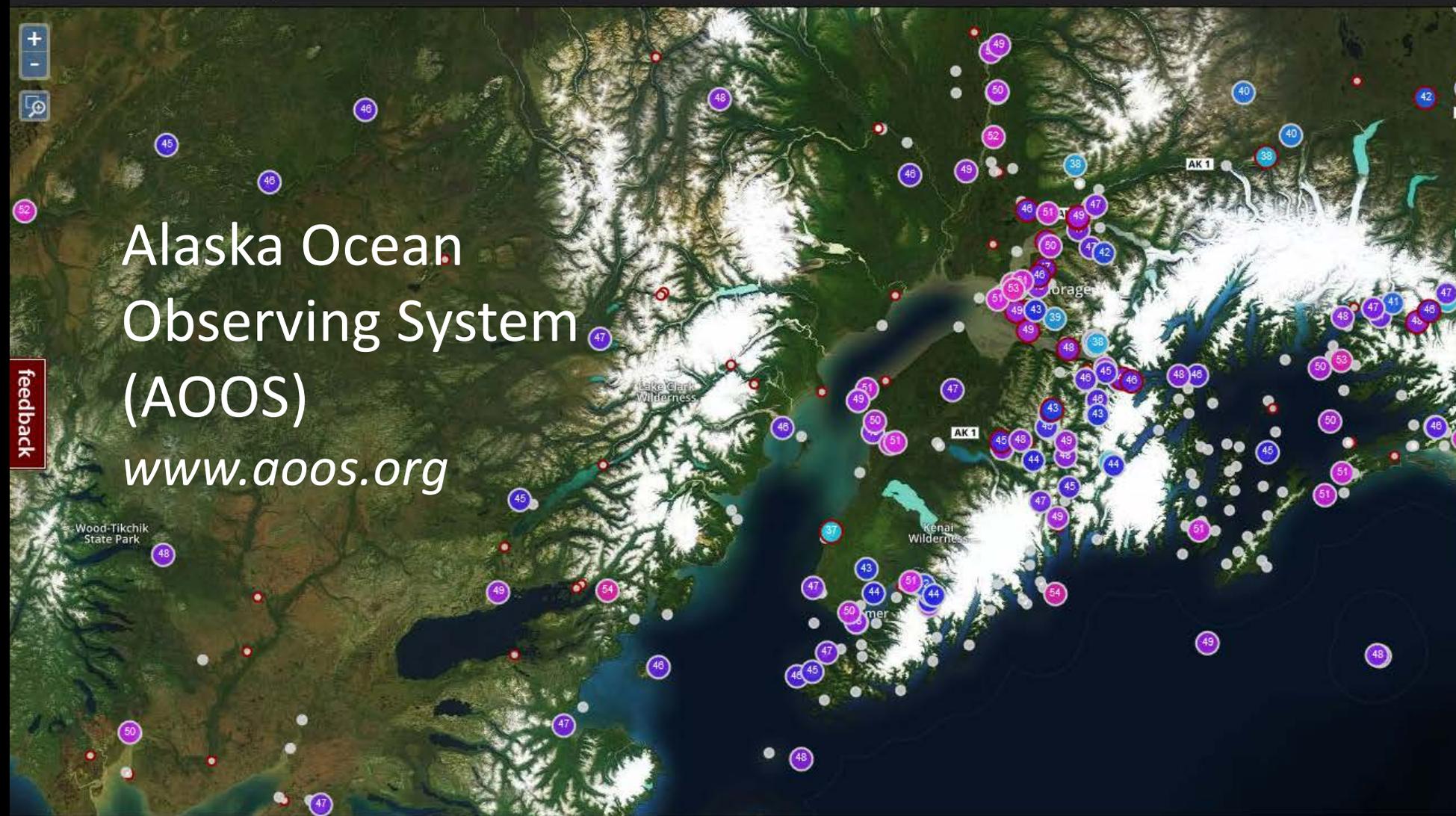




feedback

# Alaska Ocean Observing System (AOOS)

www.aoots.org



**Legend**

**Real-time sensors**

36 42 48 53 59 No real-time data

**Currently streaming: Air Temperature (°F)**  
 Last update: Jun 14 10:43:25 AM PST

Visualize real time sensor data collected within the past 4 hours. Use sensor filter to change streaming variable.

**Filter stations**

Sensors: All sensors

\* Sensor not available for streaming, click station for data

Sources: All sources

Platforms: All platforms

Cluster data: Auto

Turning off clustering can lead to poor map performance

1929 stations / 448 stations in view

62.2950, -151.8379



**Sensor streaming statistical overview for on screen stations**

Air Temperature 48,851 measurements at 160 stations



**And along the  
coast**



- Charts
- Regions
- Routes
- Current Conditions
- Fixed Platforms
- Remote Sensing
- Forecasts**
- Markers
- Legend

## Forecasts

- Air Temperature
- Barometric Pressure
- Dom. Wave Period
- Surface Currents
- Tides
- Waves - Offshore
- Wind Gust
- Winds**

Lat: 41.3411 Lon: -127.3975

12 kts

**Winds**

9.7    19.4    29.2

Wind Speed (knots)

0 10 20 30 40 50

Wind Speed (knots)

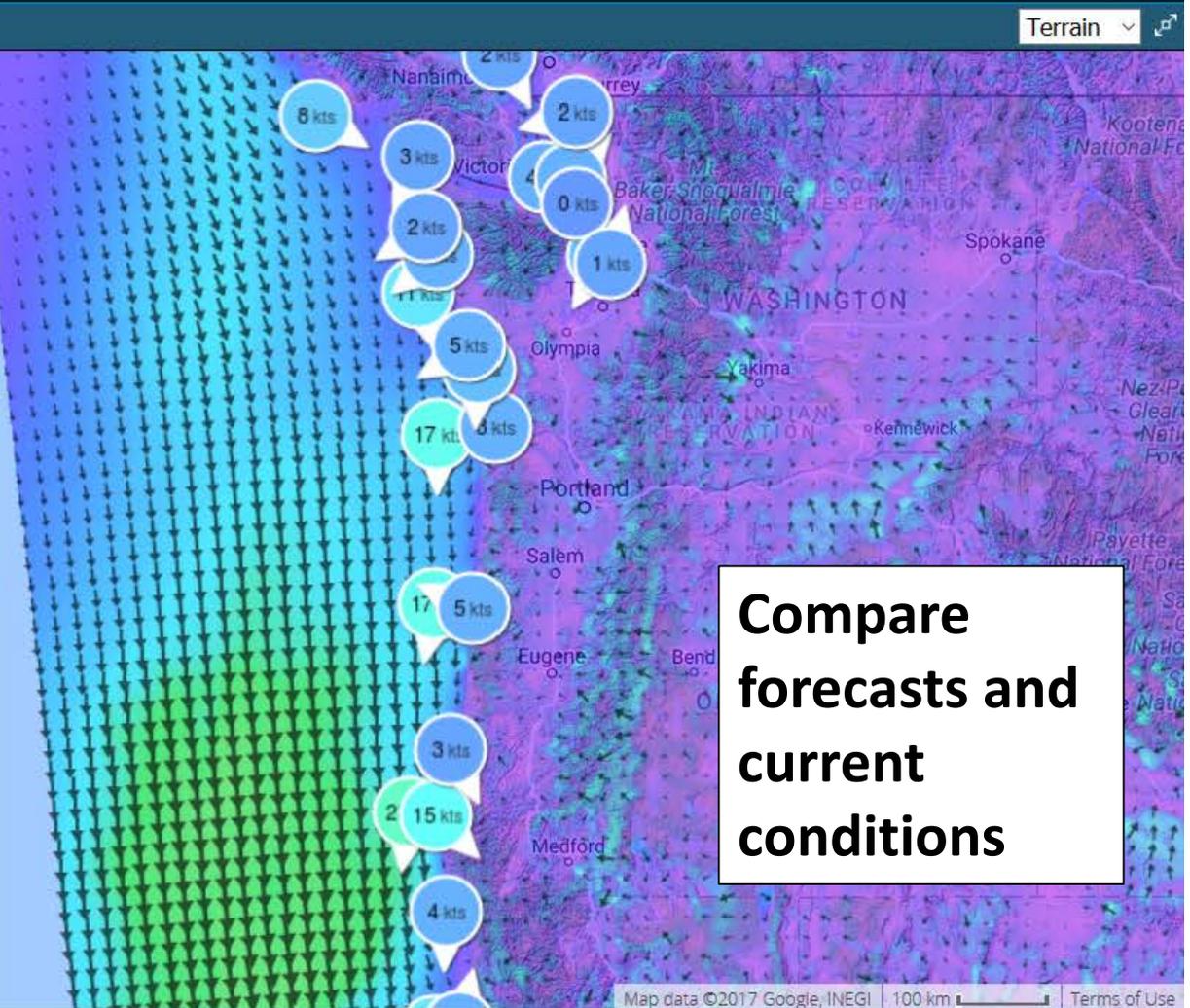
**Winds**

0 20 39 59 78

Wind Speed (knots)

North East South West

Wind Direction (to)



**Compare forecasts and current conditions**



Powered by Vizer

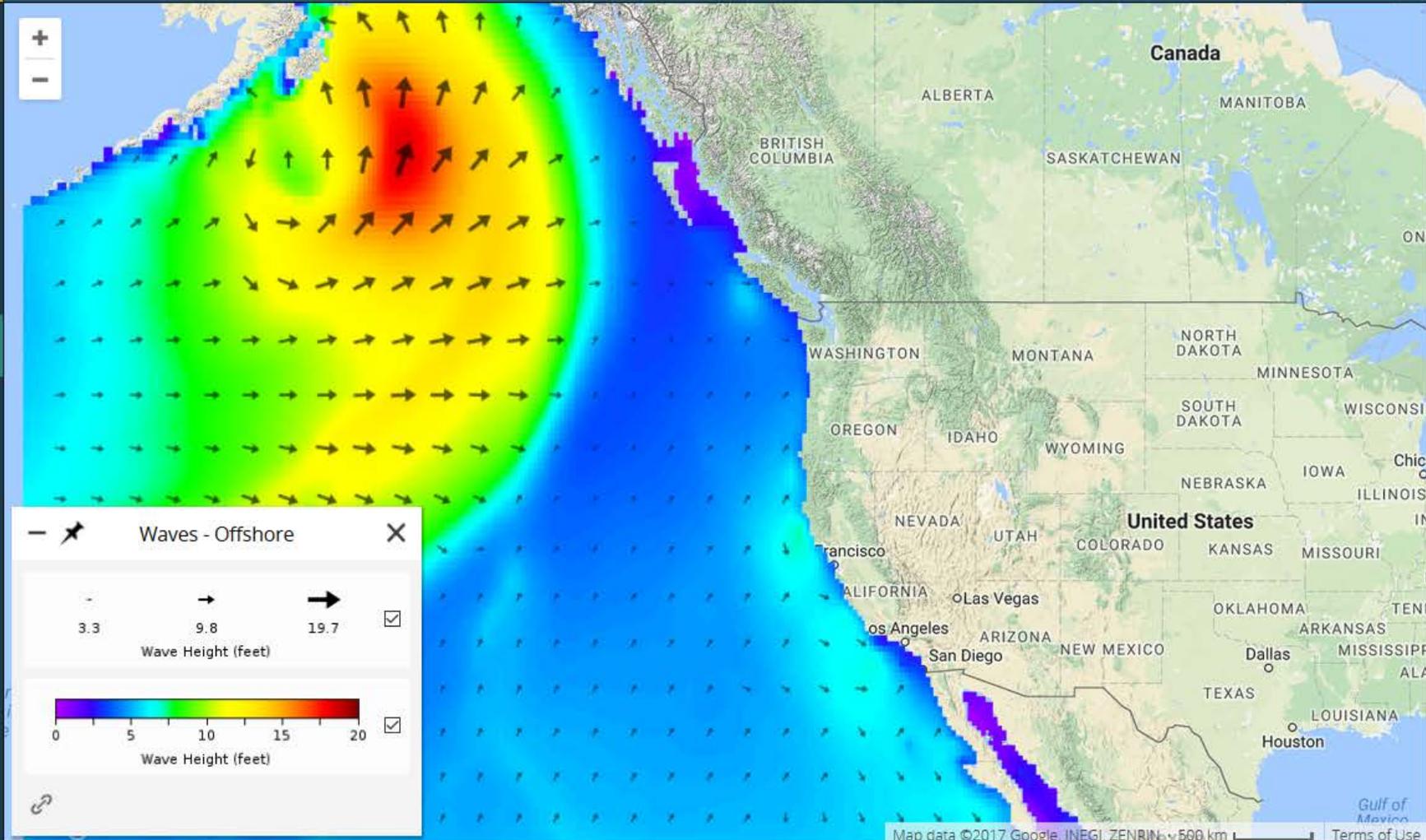
- Charts
- Regions
- Routes
- Current Conditions
- Fixed Platforms
- Remote Sensing
- Forecasts**
- Markers
- Legend

### Forecasts

- Air Temperature
- Barometric Pressure
- Dom. Wave Period
- Surface Currents
- Tides
- Waves - Offshore**
- Wind Gust
- Winds

Lat: 23.8724 Lon: -151.2598

Terrain



**Waves - Offshore**

Legend for Wave Height (feet):

- 3.3
- 9.8
- 19.7

Color scale for Wave Height (feet): 0 to 20



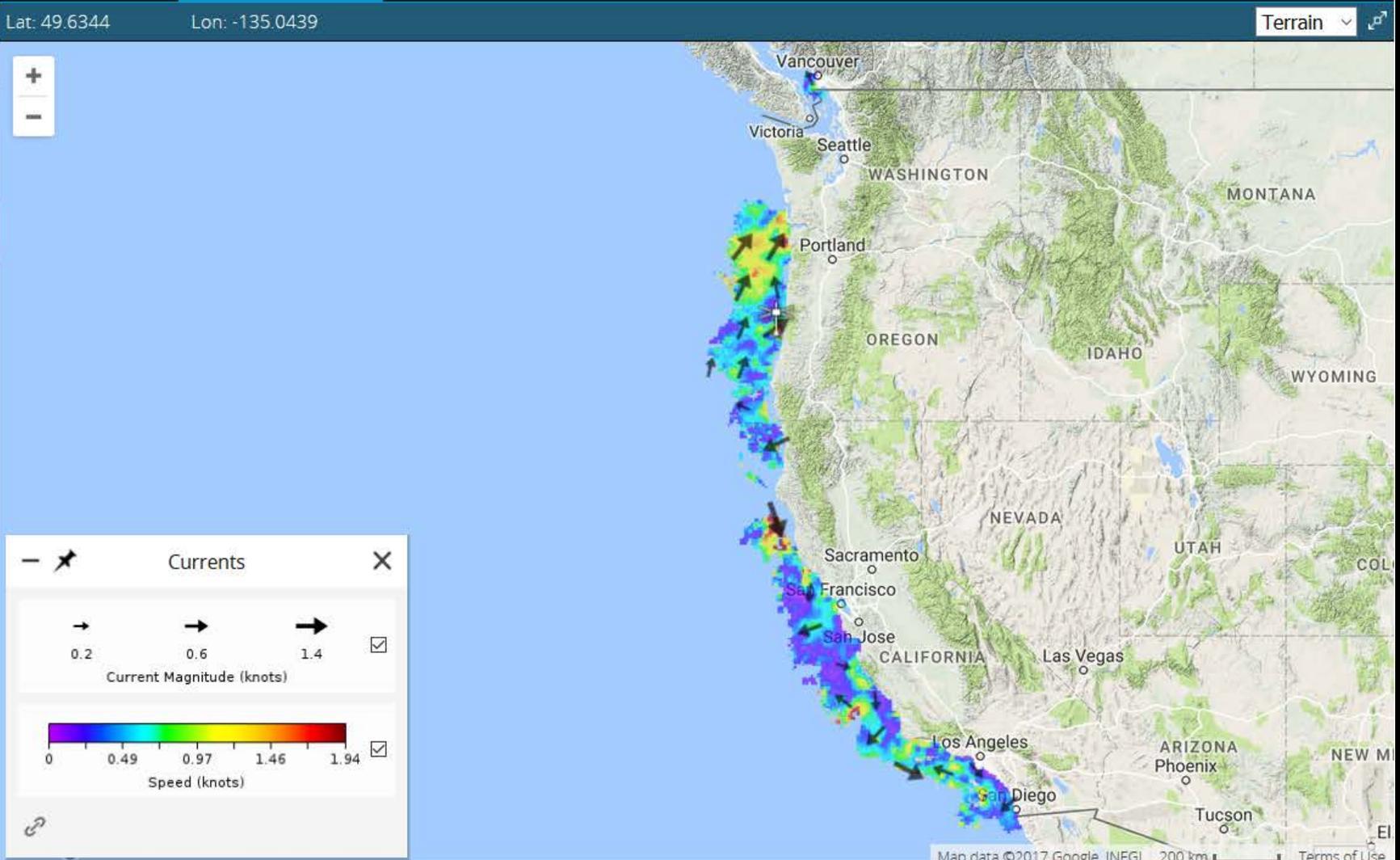
- Charts
- Regions
- Routes
- Current Conditions
- Fixed Platforms
- Remote Sensing**
- Forecasts
- Markers
- Legend

Remote Sensing

Expand All Collapse All

Radar

- HF Radar
- Currents (6km, 25-Hour Filter)**
- Currents (6km, Unfiltered)
- Currents (2km, 25-Hour Filter)
- Currents (2km, Unfiltered)



Currents

0.2 0.6 1.4

Current Magnitude (knots)

0 0.49 0.97 1.46 1.94

Speed (knots)



# Thank you!

We'd love your feedback...  
please visit us at  
[www.nanoos.org](http://www.nanoos.org)

[rwold@uw.edu](mailto:rwold@uw.edu)

