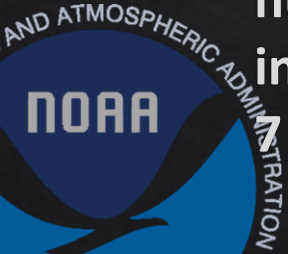# Chesapeake Bay Interpretive Buoy System

Collecting Climate Data

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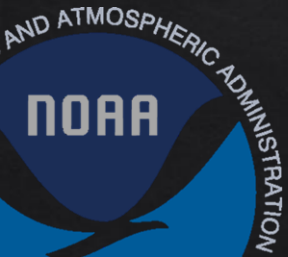
What is CBIBS?

The National Oceanic and Atmospheric Administration's (NOAA) Chesapeake Bay Interpretive Buoy System (CBIBS) is a network of observing platforms (buoys) that collect meteorological, oceanographic, and water-quality data and relay that information using wireless technology to a variety of users. The number of stations has fluctuated since its inception in 2007 and currently consists of 7 locations.

CBIBS Mission

- Deliver real-time data on
  - weather
  - sea state
  - water quality
- Support high-quality science education and enhance the delivery of experiential outdoor education
- Interpret points along the Captain John Smith Chesapeake National Historic Trail and enhance the experience of trail users.

Buoy Locations

Current Station Deployments:

- ◈ Annapolis (Severn River)
- ◇ Gooses Reef (Choptank River)
- ◈ Point Lookout (Potomac River)
- ◈ Stingray Point (Rappahanock)
- ◈ York Spit (York River)
- ◇ Jamestown (James River)
- ◇ First Landing

Data Parameters collected by CBIBS

◈ Meteorological
  ⬚ Air Temperature and Humidity (Rotronic MP101/Airmar 200WX)
  ⬚ Wind Speed and Direction (RM Young Marine Wind Monitor/Airmar 200WX)
  ⬚ Barometric Pressure (Vaisala PTB 110/Airmar 200WX)
◈ Oceanographic
  ⬚ Wave magnitude, period and direction (Seaview Systems SVS-603)
  ⬚ Current magnitude and direction (Nortek ADCP)
◈ Water Quality
 ⬚ Surface Temp, Conductivity, Salinity (WET Labs WQM)
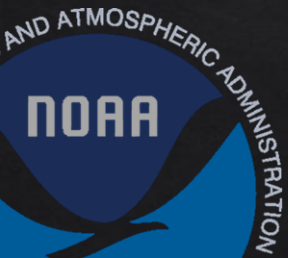
Data Collection

- Data is collected continuously and recorded in real time.
  - Data is aggregated at 6/10/60 minute intervals
  - Wave data is collected once an hour at the top of the hour
  - Raw data averaging is completed onboard the buoy computer
- Data is sent over 4G modem
- Servers collect and store the information.
- There is a real time quality control flag applied.

Accessing CBIBS data

- CBIBS Web Site: **www.buoybay.noaa.gov**
    - **View data**
    - **plot data**
    - **download data**
- **Mobile apps**
    - **android**
        - https://play.google.com/store/apps/details?id=gov.noaa.ncbo.SmartBuoys&hl=en_us
    - **iOS**
        - https://apps.apple.com/app/smart-buoys/id439920948
- **Programmatic API**
- **NDBC**
    - www.ndbc.noaa.gov
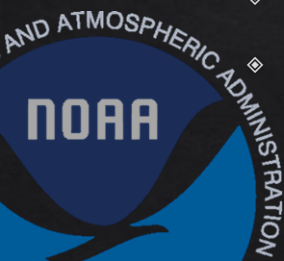
Android (NOAA Smart Buoys)
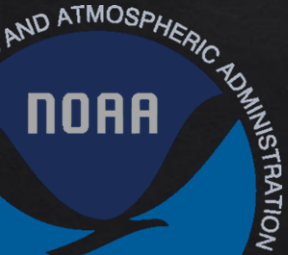
iOS (Smart Buoys)

CBIBS - API

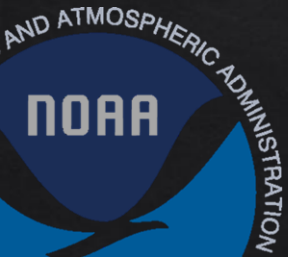Quick view of the latest measurements

JSON

https://mw.buoybay.noaa.gov/api/v1/json/station/FL?key=e824512c1a763440b7fd909ffac81705f76b213e

XML

https://mw.buoybay.noaa.gov/api/v1/xml/station/FL?key=e824512c1a763440b7fd909ffac81705f76b213e

XSLT stylesheet

Active/Non Active stations

CBIBS - API

Query based on time and station

### JSON Example: SR, water salinity, 04/01/2019 12-20

https://mw.buoybay.noaa.gov/api/v1/json/query/SR?key=e824512c1a763440b7fd909ffac81705f76b213e&sd=2019-04-01T12:00:00z&ed=2019-04-01T20:00:00z&var=sea_water_salinity

Can use online tools to clean up the output

https://jsonlint.com/?json=

XML Example: AN, water temperature, 04/01/2020 10-20

https://mw.buoybay.noaa.gov/api/v1/xml/query/AN?key=e824512c1a763440b7fd909ffac81705f76b213e&sd=2020-04-01T10:00:00z&ed=2020-04-01T20:00:00z&var=sea_water_temperature
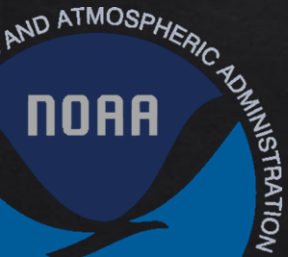
NDBC

CBIBS is published on the NDBC web site. select IOOS partners and zoom in over the bay to find stations on a map. CBIBS stations also have a station id

SR: https://www.ndbc.noaa.gov/station_page.php?station=44058