

Footage from a Miami, FL camera installed as part of the WebCOOS pilot project.

Join the Community Web Camera Observation Network

Web cameras or webcams are a low-cost coastal observing platform transforming how community environmental monitoring is conducted. Webcams can address significant gaps in the nation's ability to monitor and accurately forecast various weather, ocean, ecological, and public health hazards.

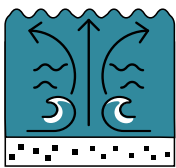
The Webcam Coastal Observation System (WebCOOS) is a community supported low-cost webcam coastal observing network, which provides valuable imagery and tools for scientists, communities, and local coastal managers to make decisions.



WebCOOS webcam located in Folly Beach, SC, installed by University of South Carolina.

How can web camera data help your community?

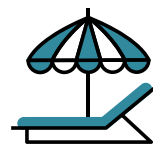
Below are a few examples of how webcam data is transforming coastal monitoring.



Identify Rip Currents



Study Beach Erosion



Monitor Beach Usage



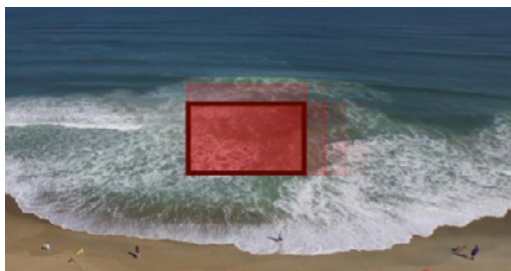
Flood Monitoring

Partnership Opportunity

There is strength in numbers! With more webcams, higher quality information can be provided to users. Communities can partner with SECOORA to either provide existing webcam streams or install a webcam in their chosen location and receive the imagery and data personalized for their needs.

A team will work with each community to help access the data available already or to determine the appropriate webcams, locations and installation. Customized products can be created for those that want alerts of interest to the community.

How are webcam data being used?



Identify Rip Currents

Machine learning can identify rip currents from webcam imagery.

This information can be used to inform the public of rip current dangers and improve NOAA rip current forecasts.



Study Beach Erosion

Algorithms have been developed to identify shoreline positions from webcam imagery.

This information can identify potential dune erosion or overwash events, infrastructure risk, and limitations to beach access.



Monitor Beach Usage

Machine learning tools can count objects in a given area - including beach activities such as number of visitors.

This allows coastal managers to see how busy a location is during different times of the day, season, or year for planning and safety purposes.



Flood Monitoring

Public access to webcam imagery provides real-time monitoring and visualization of coastal flooding.

This helps to document flooding impacts and provide real-time information for local communities.



Next Steps

Interested in getting involved? Need a question answered? Contact us today!

Email: webcoos@secoora.org

Website: <https://webcoos.org/>



SECOORA
S O U T H E A S T
C O A S T A L O C E A N O B S E R V I N G
R E G I O N A L A S S O C I A T I O N

*This is a SECOORA funded program.
This project is funded by the NOAA
Integrated Ocean Observing System
(IOOS) through the Ocean Technology
Transition grant program.*

My community would like a webcam.

What is next?



Location Identification

Communities should work with the WebCOOS team and their local IOOS Regional Association to identify a location for webcams based on community needs. The project team will advise on products, views, and camera placement.



On-Going Communication

Once the webcam is installed, community partners will be requested to work with the team to ensure continuing data flow and help define product needs for the community.

General Webcam Characteristics

Webcam Features: Streaming video is generally preferred since it can benefit the greatest range of uses. Snapshot cams (i.e. image stills) are useful and may be preferred for some use cases such as object detection and flooding.

Webcam Elevation: Higher elevation is better for most use cases. The precise elevation needed will depend on the use case of interest, and the distance of the camera to the area of interest.

Webcam Angle: The area of interest should be towards the center of the viewing area. Avoid obstructions – fences, trees, buildings, and paths where people or cars may obstruct the view. Lighting conditions, e.g. glare or shadows over the course of a day, should be considered.

Webcam Pan-Tilt-Zoom (PTZ): Less webcam movement is better and zooming should be minimized. Data is collected at 10-minute videos for each preset view.

Webcam Characteristics to Consider for Specific Use Cases



Rip current detection algorithms work best with video data from as high an elevation as possible and as close as possible to the surf zone. Stationary cams are preferred, if PTZ, ideally hold for at least 10 minutes in any one position.



For **studying beach erosion**, video is most useful, though snapshots can potentially provide some information. High elevation stationary webcams generally pointed alongshore to maximize the view of the surf zone and beach/dune are preferred.



For **monitoring beach use** (people, vehicle, or animal counting) high elevation stationary webcams are acceptable, though PTZ cams may be preferred to maximize coverage. As detection algorithms will only recognize objects within a ~100 yard range (or where the outline is more than 30 pixels large), placement close to the beach activity to be monitored is required.



Flood monitoring applications can use snapshot or video and higher elevations are preferred. Ideally, if the webcam is PTZ, it should hold for at least 10 minutes in any one position.

I have a webcam that I want to integrate into the WebCOOS Network.

We are excited to work with you to determine if your webcam can be included as part of the network. While the ideal webcam is dependent on the use case, most webcam footage can be helpful and useful to stream and store via the network.

Sharing your video or image feed is how we build the WebCOOS Network.

In order to properly incorporate your data into the project network, we need to ensure the following high-level data requirements:

- Regular access to streaming video feed or to video or snapshot files.
- Video or snapshots should be in non-proprietary formats such as h.264/h.265 mp4 for video and jpg for snapshots.



Your video and images* can be uploaded into WebCOOS through one of the following methods:

Option 1

(Preferred method)

Give WebCOOS access to your live RTSP feed.

Option 2

1. Upload standardized video files to WebCOOS regularly through an API (ftp, S3, etc.).
2. Provide WebCOOS access to video footage files that we can download periodically (http, ftp, S3, etc.).
3. Upload files via a website.

*Note: in order to catalog and share the files, a robust metadata record will be created to describe the data. As long as you adhere to the naming conventions your data and products can be available through WebCOOS. The project team can help!

Questions?

If you have questions, we are here to help. We will walk through the process with you. Contact us today!

Email: webcoos@secoora.org

Website: <https://webcoos.org/>



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