WebCOOS: Webcam Coastal Observation System

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Image credit: Surfline, Inc.
Overview: Webcam Coastal Observation System

Developing an operational webcam coastal observing network

2017 WebCAT  ➔  2020 Launching WebCOOS  ➔  2023 National WebCOOS

Live streams
Active imagery
Archive

19 active cameras = 1.5M MP4 videos + 5.2M JPEG images = >83 TB total

Shoreline change

Dune line
& test points

Rip currents

Beach usage

Community flood monitoring

Animal counting
Accomplishments: past year

- Integrated 7 cameras:
  - Charleston Harbor, SC
  - Dorchester St., Charleston, SC (archived)
  - Beaufort, NC
  - Walton Lighthouse, CA
  - Horace Caldwell Pier, TX
  - Masonboro Inlet, NC
  - Cocoa Beach, FL
- Integrating AI/ML algorithms operationally: scaling to multiple cameras in the cloud in near real time
- Planning & prepping for next steps…

Coastal flooding on Dec 17, 2023 in Charleston, SC
WebCOOS imagery and NOAA water level data
Looking Ahead

- National WebCOOS: 60 cameras in 3 years
  - 6 cameras per IOOS RA
  - Finalizing contractor for installations & operations
  - Applying relevant AI/ML algorithms to new webcams
- 2 workshops: technical & applications
- Other collaborations
  - NOAA NOS: Additional NWLOON cameras
  - NOAA NWS: marine fog & sea state
  - USGS CoastCams: Madeira Beach, FL camera → WebCOOS
  - USACE ERDC CorpsCam
- Local lifeguarding, beach safety, public health, community development agencies & organizations