

Climate Buoys on Lake Champlain

BUOY DATA HELP SCIENTISTS, ANGLERS AND MARINERS

Two data buoys are deployed seasonally on Lake Champlain to collect, store and relay real-time information on weather and water temperature from the surface to the lake's bottom.

The continuous data collected by the chain of temperature probes suspended below each buoy every 1-2 meters help us understand how the lake responds to weather events. These buoys, and five others that collect only temperature data, provide scientists with long-term observations to inform climate models. These data buoys also provide valuable information to anglers, sailors and others who recreate on Lake Champlain, keeping people safe, and saving them time and money.



LAKE CHAMPLAIN IS MIXING MORE THAN EXPECTED

In summer, lakes with sufficient depth in temperate climates experience temperature stratification, meaning that water temperatures are higher at the surface and cooler towards the bottom. Lakes that stratify usually mix, or “turn over,” twice per year — once in spring as ice melts and surface temperatures warm, and again in fall as surface temperatures cool and the colder, denser water sinks.

Stratification and mixing influence many lake processes, including the release of nutrients from the lake bottom, which, in turn, influences the presence of cyanobacteria blooms. Stratification also defines areas where oxygen levels are most suitable for fish and other aquatic life.

The data from these buoys suggest that Lake Champlain mixing is more complex than conventional wisdom suggests. It “turns over” far more often than semi-annually.

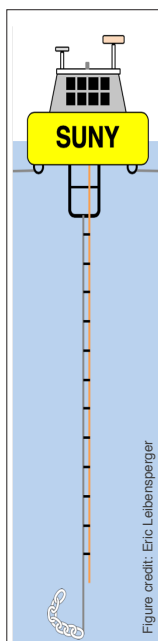


Figure credit: Eric Leibensperger

BUOY DATA HELP SCIENTISTS UNDERSTAND POTENTIAL IMPACTS OF CLIMATE CHANGE

The scientists leading the research with these buoys, SUNY Plattsburgh Associate Professor Eric Leibensperger, PhD, and Middlebury College Assistant Professor Thomas Manley, PhD, can now better model the lake's response to weather events at various locations and times. They are currently assessing the role that storm events have on lake circulation, biology and chemistry.



Photo credit: Mark Malchoff

They have observed that winds play an important role in Lake Champlain mixing events, especially those winds that run along the length of the lake's 120 miles.

Over an extended time, the data will inform models to predict changes in fish behavior, predator-prey interactions, or timing of cyanobacteria blooms expected under different climate scenarios.

BUOYS ARE DEPLOYED IN THE MAIN AND SOUTH LAKES

When deployed, one of the buoys is located in the main part of Lake Champlain, southeast of Valcour Island, NY, while the second one is deployed between Crown Point, NY, and Westport, NY.

VIEW THE BUOY DATA

Access the near real-time buoy data seasonally at: <http://bit.do/PlattsburghBuoy>



STATE UNIVERSITY OF NEW YORK
PLATTSBURGH



The University of Vermont