

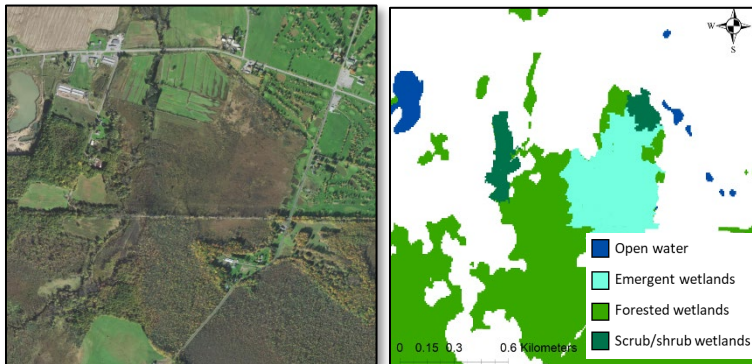


NEW YORKVIEW 2021 – 2022

AmericaViewSM
Empowering Earth Observation Education
americaview.org

NEW YORKVIEW 2021 – 2022 ACTIVITIES

New YorkView (NYView) continues to perform research focused on water-related themes including spatial and temporal characterization of wetlands in New York State (NYS). Wetlands provide a wide range of ecosystem services including recharging groundwater aquifers, supporting biodiversity, and protecting shorelines. During GY21 a graduate student classified types of wetlands in NYS using a range of input data types, including both spectral and spatial data from Landsat and Sentinel sensors and features derived from those data such as multi-spectral indices and texture. The research also explored the value of including forest height metrics derived by a team of researchers from the



Study site in Central New York shown with National Agricultural Image Program (NAIP) imagery (right) and corresponding wetland classification

NYView is supporting the NYS Department of Environmental Conservation (DEC) in an ongoing project aimed at using satellite imagery to monitor harmful algal blooms in NYS lakes. NYS uses a Citizens Statewide Lake Assessment Program (CSLAP) to complement agency evaluation of water quality in lakes across the state. Trained CSLAP volunteers collected data at more than 200 lakes across the state, but this still thousands of lakes aren't regularly assessed. The DEC wants to develop an operational lake-water assessment tool for monitoring. A graduate student funded by



Faculty and graduate students from ESF talking with community members at the New York State Fair.

NYView and DEC is using the relationship between in-situ CSLAP data and Sentinel-2 imagery to establish a model that could use remote sensing data to target lakes for ground observations.

Faculty, staff, and graduate students from the SUNY College of Environmental Science and Forestry (ESF) supported NYView's remote sensing education efforts at the New York State Fair in September 2022. ESF personnel used a STELLA (Science and Technology Education for Land/Life Assessment) device to demonstrate the spectral response of different samples. The STELLA was built by staff at ESF using directions developed by researchers at NASA GSFC.

National Aeronautical and Space Administration Goddard Space Flight Center (NASA GSFC) and the University of Maryland from Global Ecosystem Dynamics Investigation (GEDI) and Landsat data. GEDI is a laser ranging mission operating from the International Space Station. The student found that adding GEDI-derived height within an object-based classification improved separation of the vegetated wetland classes. The image to the left shows an example of the classification results for a study site in Central NY.



Algal bloom on Owasco Lake, Cayuga County NY.

New YorkView is a member of the AmericaView Consortium, a nationally coordinated network of academic, agency, non-profit, and industry partners and cooperators that share the vision of promoting and supporting the use of remote sensing data and technology within each state. AmericaView is funded by USGS grant agreement G18AP00077.

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BENEFITS TO NEW YORK STATE

As part of the AmericaView Consortium, NYView has supported the application of remote sensing data and products to solve challenges in New York State (NYS) since 2009. Remotely sensed imagery provides a unique viewpoint to observe the ground. This imagery supports a wide range of applications in NYS including analyzing land use and land cover change, quantifying water quality, characterizing vegetation dynamics, planning or monitoring urban growth, and supporting emergency response.

NYView initially focused on facilitating access to diverse remote sensing data and products, and supporting collaborative research, teaching, and outreach among consortium members. Since becoming a full member of AmericaView in 2014, NYView has supported training of high school teachers, undergraduate and graduate students, and demonstrated applications of remote sensing data for visitors at the New York State Fair using Landsat change pairs from sites across the state and using a handheld spectrometer to perform observations. NYView has also developed video modules and lab

exercises to support use of the cloud-based Google Earth Engine platform.

In addition to the important education focus described above, NYView has explored integration of airborne lidar and Landsat data for quantifying forest aboveground biomass and investigated remote sensing and spatial analysis for assessing vegetation trends along riparian corridors. Ongoing research projects focus on using remote sensing data to support assessment of water quality in lakes and characterizing change in wetlands over time.



Rich Lake from Goodnow Mountain at the Adirondack Ecological Center in Newcomb, NY.



The reservoir of the Mount Morris Dam in the Genesee River in Letchworth State Park.

NEW YORKVIEW CONSORTIUM MEMBERSHIP

Current NYView consortium members include the State University of New York (SUNY) College of Environmental Science and Forestry (ESF), the Institute for Resource Information Sciences (IRIS) at Cornell University, and SUNY Fredonia. NYView also has collaborators at other institutions of higher education and agencies within NYS as we seek to encourage collaboration and enhance remote sensing activities across the state. Interested researchers and users of remote sensing data should visit the NYView webpage (www.esf.edu/nyview) or contact the NYView Principal Investigator for more information.



Cornell University



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