



NEW YORKVIEW 2018 – 2019



NEW YORKVIEW HISTORY AND SUCCESSES

New YorkView (NYView) has been supporting the application of remote sensing data and products to solve challenges faced by New York State citizens as part of the AmericaView Consortium since 2009. Remotely sensed imagery provides a unique opportunity to observe the ground surface from above. This imagery is used for a wide range of applications in New York State including analyzing land use and land cover change, characterizing vegetation dynamics, planning or monitoring urban growth, and supporting response to a wide range of emergency situations.

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 used Landsat change pairs from sites across the state to demonstrate remote sensing applications for hundreds of visitors at the New York State Fair. NYView has also performed research that explored the integration of airborne lidar and Landsat data to quantify forest aboveground biomass as well as investigating the utility of remote sensing and spatial analysis to assess trends in vegetation extent and vigor along riparian corridors.

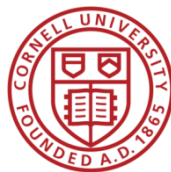


Rich Lake from Goodnow Mountain at the Adirondack Ecological Center in Newcomb, NY, September 2018.



The reservoir of the Mount Morris Dam in the Genesee River in Letchworth State Park, July 2018.

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, SUNY Fredonia, and SUNY Plattsburgh. NYView aims to continue to support 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



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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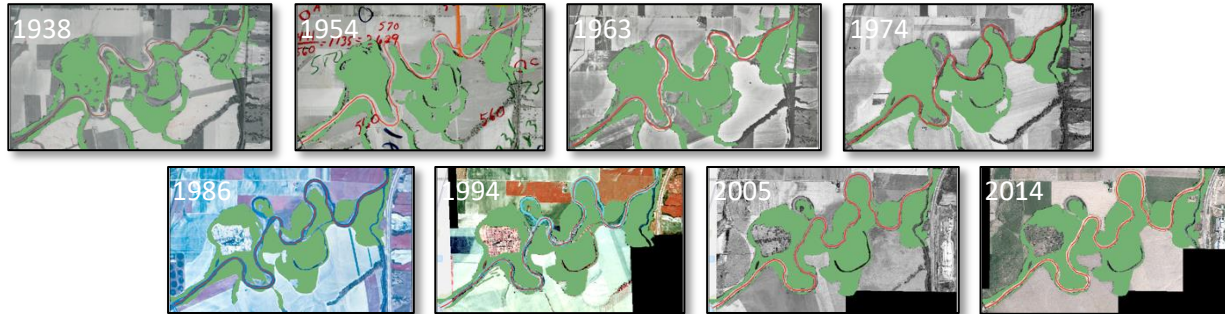
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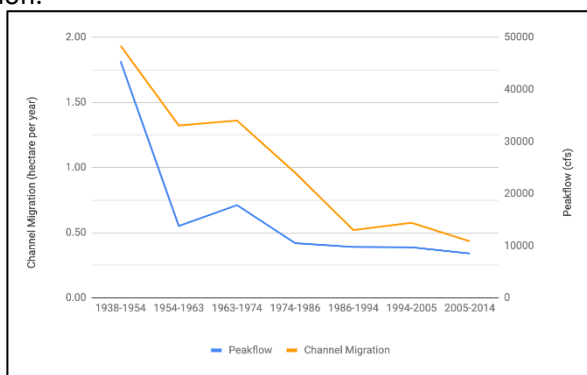
NEW YORKVIEW 2018 – 2019 ACTIVITIES

Water quality is a priority issue in New York State and this was the primary focus for NYView during the 2018–2019 grant period. NYView continued developing strategic partnerships within the state, promoting growth of remote sensing skills for graduate and undergraduate students, and sought to improve communication between state and federal agencies. However, these efforts were framed within a broader context of better understanding the types of data and information needed by communities within New York. NYView activities this grant year focused on applying remotely sensed data to answer questions about land cover condition and change in critical zones that are known to impact water quality, in particular, focusing on channel migration zones.

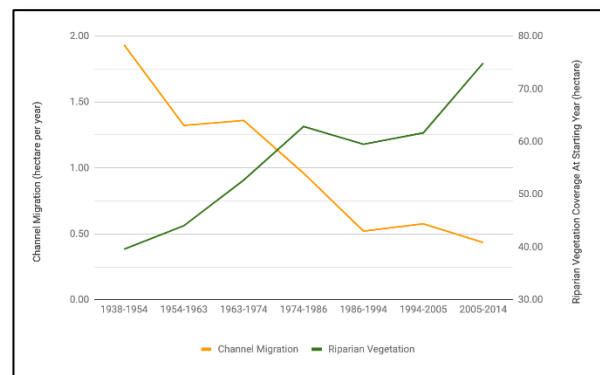


Time series of channel migration and riparian vegetation change along a section of the Genesee River near Mount Morris, NY. Eight aerial photos acquired from 1938–2014 were utilized to delineate channel centerline and vegetation coverage within the selected study site.

NYView selected a study area covering approximately 7 kilometers of the Genesee River near Mount Morris, in western NY to study changes in channel migration. This area is located in an intensive agriculture region, and researchers have long observed bank erosion and channel meandering. For the selected site, a graduate student collected eight aerial images spanning 1938–2014 from US Geological Survey, US Department of Agriculture, ESF, Syracuse University, and New York State Department of Transportation archives. The student used the aerial images to manually delineate channel boundaries and document channel migration, and also to map riparian vegetation within 100 meters of the river. This analysis showed that channel migration exceeded 10 meters/year in some sections, with a total change in area ranging from 0.5–2 hectares/year. The figure on the left below shows that temporal variations of channel migration are generally decreasing, likely corresponding to a reduction of annual peak flow through control structures. The figure on the right below shows that as channel migration rate decreases, riparian vegetation extents within the buffer zone have increased. Visual assessment suggests that the majority of channel migration occurs where no riparian vegetation is in place. Further research will focus on quantifying the benefits of vegetation in reducing bank erosion.



Annual peakflow is a large driver of the variation of river channel migration at the Genesee River site. Channel locations were produced using aerial photo interpretation. Peakflow information was recorded at USGS gage 04227500 near Mount Morris, NY.



As channel migration rates along the Genesee River decrease, riparian vegetation regrowth occurs, particularly on newly formed river banks. Channel locations and riparian vegetation extent were produced using aerial photo interpretations.

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<http://www.esf.edu/nyview>