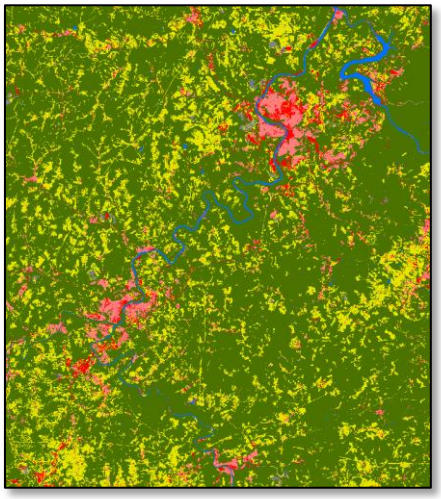
West Virginia View
2018 - 2019

West Virginia View History and Successes

West Virginia View is a consortium that promotes remote sensing and geospatial research, education, and outreach within West Virginia. Our primary objectives include:

- Establish the formal linking of, and cooperation between, the major remote sensing organizations in West Virginia, and promote community outreach by these organizations.
- Provide grants to students to enhance remote sensing-related educational experiences, including supporting graduate field research and conference travel.
- Provide access to remotely sensed data to support research and practical mapping projects.
- Foster the growth of remote sensing education. Outreach activities include licensing sharing, laboratory exercise production and exchanges, and even teaching classes at other institutions.



Example of high resolution land cover generated for the entire state

Past projects include:

1. Software licensing support for academic institutions in West Virginia
2. LiDAR data download web map: http://www.wvgis.wvu.edu/lidar/
3. Mapping urban quality of life using satellite imagery and citizen science
4. Mapping and delineating wetlands using imagery and terrain data
5. Mapping and delineating forest types using imagery and terrain data
6. High resolution land cover mapping across the entire state of West Virginia

Glenville State College

West Virginia University

Marshall University

West Virginia Wesleyan College

Alderson Broaddus University

NRAC

Davis & Elkins College

WV GIS TC

dep

USDA Forest Service

SkyTruth

Federal consortium members identified above do not receive funding from AmericaView.

West Virginia View 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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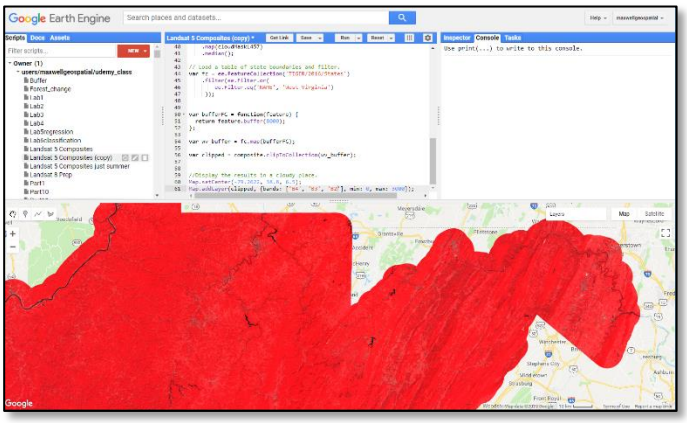
West Virginia View Current Activities

Large Area Mapping of Vegetation at the Landsat Scale

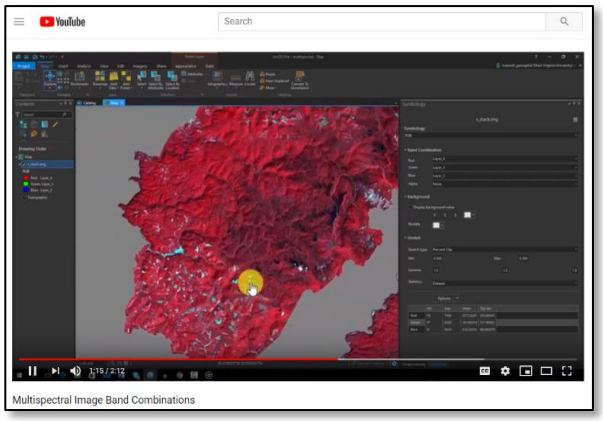
There is a need for state agencies, such as natural resource divisions and environmental protection agencies, and NGOs to have accurate statewide information on land surface conditions. This project focuses on the production of forest-type maps for the state of West Virginia using Landsat data and other ancillary geospatial data layers, such as digital terrain data. We are producing hard classifications and probabilistic predictions using machine learning. We are also making use of field data provided by the WV Division of Natural Resources Natural Heritage Vegetation Database to train and assess the outputs. This project is ongoing.

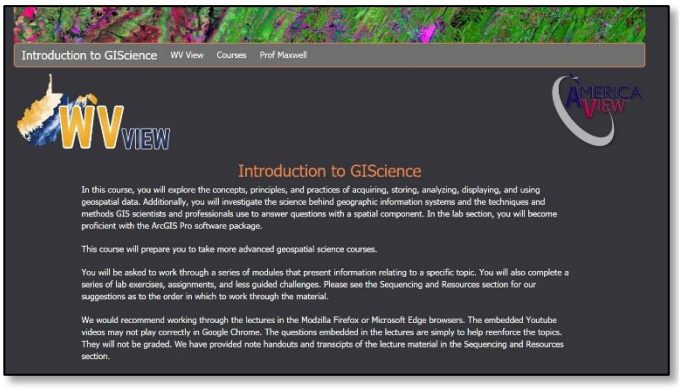


Screen capture from Google Earth Engine, which is being used to create temporal composites of seasonal Landsat data across the state.

Development of Free Geospatial Educational Resources

During the 2018 funding year we produced two online courses that are currently hosted on our website (http://www.wvview.org/). These courses are called *Digital Earth* and *Introduction to GIScience*. Course content includes videos, lectures, lab exercises, assignments, and challenges.





Example YouTube video and course page produced as part of the online courses.

Recent Publications

Maxwell, A.E., M.P. Strager, T.A. Warner, C.A. Ramezan, A.N. Morgan, and C.E. Pauley, 2019. Large-area, high spatial resolution land cover mapping using random forests, GEOBIA, and NAIP orthophotography: findings and recommendations, *Remote Sensing*, 11(12) 1409 1-27. https://doi.org/10.3390/rs11121409.

Maxwell, A.E., and T.A. Warner, 2019. Is high spatial resolution DEM data necessary for mapping palustrine wetlands?, *International Journal of Remote Sensing*, 40(1): 118-137.

Maxwell, A.E., T.A. Warner, and F. Fang, 2018. Implementation of machine learning classification in remote sensing: an applied review, *International Journal of Remote Sensing*, 39(9): 2784-2817.

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