

WYOMINGVIEW 2020 - 2021 ACTIVITIES

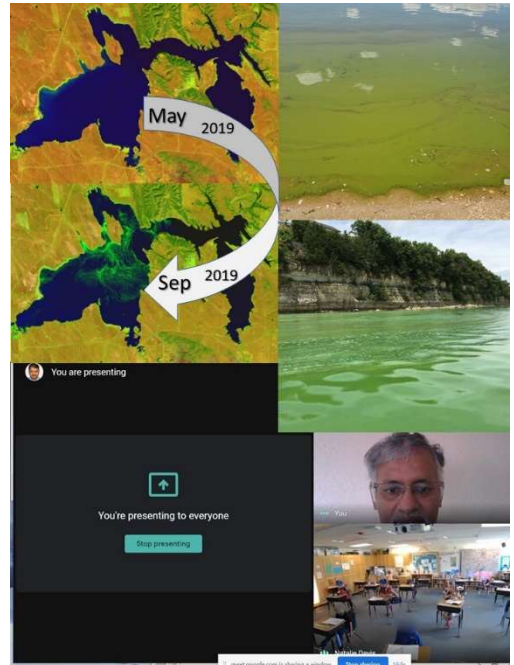
WyomingView conducted *five* educational outreach activities and virtually trained *seven* interns (University of Wyoming undergraduate students).

- All outreach activities were conducted virtually due to restrictions.
- Presenting online posed few challenges such as getting through school's internet firewall, audio and video issues, etc., but eventually all events were completed as scheduled (516 students participated).
- Reached out to high school students in Sheridan, Wyo. This is the first WyView outreach event outside Laramie.

WyomingView PI presented how Landsat and other satellite images are used for tracking algal blooms in waterbodies throughout the US. Aerial and satellite images provided by USGS, NASA, and several state environmental agencies were used for this outreach event (*Number of students: 19*).

Second and Sixth graders learned how diverting the water flowing into Aral Sea created the earth's newest desert. Satellite images of Aral Sea generated by the USGS, and NASA were used as the primary visual aids. (*Number of students: 215 in LMS and 57 Indian Paintbrush ES*).

Eighth graders at LMS, used the ALTA II Spectrometer for measuring reflection of 2 set of leaves in 11 regions of the electromagnetic spectrum. WyomingView PI described how sensors onboard Landsat and other satellites collect similar data that are used for monitoring changes on the Earth's surface (*Number of students: 199*).



Landsat images acquired in 2019 show algal blooms in Keyhole Res. Wyo. These blooms form under abundant sunlight, temperature, and nutrients. Place: Spring Creek Elementary School. Date: Sep 23, 2020.



Sample flood map generated with rapid flood mapping technique that identifies newly inundated areas, which will assist emergency management agencies to quickly locate areas that need assistance.

Three interns were trained on *rapid flood mapping* techniques using pre- and post-flood Landsat images. In GY 2019, WyView published a paper that described a method to identify newly inundated areas based on differencing water indices. This year, three interns worked with a new set of pre- and post-flood Landsat images to identify inundated areas. Goal for this year was to make improvements to the existing method and reduce the image processing time and generate inundation maps. Currently we are verifying the products and their accuracy and will be presenting these findings in a conference in 2022. Remaining interns were trained to classify waterbodies and complete literature survey on other rapid flood mapping techniques.

BENEFITS TO WYOMING

- Past WyomingView interns are currently working federal, state, and local government agencies & in private companies. Past interns have confirmed the value of the training they received as part of the internship
- New testimonials from past interns will be uploaded to: <https://wyomingview.blogspot.com/p/then-now.html>.
- WyomingView will continue to recruit and train more interns (future workforce development).

2ND NATIONAL IMAGERY SUMMIT: LANDSAT & SOCIETY

- WyomingView responded to the call from AmericaView/USGS to showcase applications and findings in the 2nd National Imagery Summit. WyomingView PI and three interns presented 4 talks in this event.
 - Two interns highlighted the value of no-cost Landsat images for monitoring vegetation establishment in Wyoming rangelands and their growth over time.
 - Third intern described the differences in phenology of aspen trees that were exposed to different amount of sun light during the growing season.
 - WyomingView PI talked about the selection and training of interns to process Landsat images for various applications.



WYOMINGVIEW CONSORTIUM MEMBERSHIP

WyomingView continues to work with farmers and ranchers to promote remote sensing applications:

- 2020-21, WyomingView was unable to reach out farmers or ranchers because all courses were taught online.
- Hence training interns in rapid flood and water mapping was the primary focus of the GY.
- Two of these interns are currently working for federal agencies in Wyoming and have expressed interest to assist with future disaster mapping efforts.
- Towards the end of this GY (start of fall 2021 semester), we identified students connected to a farmer and a rancher in MT and WY.

Working with farmers and ranchers allows WyomingView to reach out to non-technical users and showcase the benefits of Landsat and other remotely sensed data. Testimonials provided by farmers and ranchers are valued highly by AmericaView and USGS. WyomingView will continue to work with farmers and ranchers.



In this GY, WyomingView received the large format (12 x 13 feet) floor puzzle depicting Landsat mosaic of Wyoming (above). This puzzle will be used in upcoming EOD activities such as Women in STEM, Science Kitchen for high school students, and state GIS meetings. In these events, WyomingView will promote Landsat program and data.

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