

WYOMINGVIEW 2019 - 2020 ACTIVITIES

WyomingView conducted educational outreach activities and trained four interns (University of Wyoming students).

Sixth graders are learning the connections between Earth's 4 spheres (atmosphere, hydrosphere, geosphere, and biospheres), and how changes in one can influence the rest of the spheres. WyomingView PI presented how diverting the water flowing into Aral Sea (*hydrosphere*) influenced the fishes, birds, and animals (*biosphere*), and created the earth's newest desert (*geosphere*). Historical satellite images of Aral Sea generated by the USGS and NASA were used as the primary visual aids in this educational outreach activity. (*Number of students reached: 254 – 12 sections*).

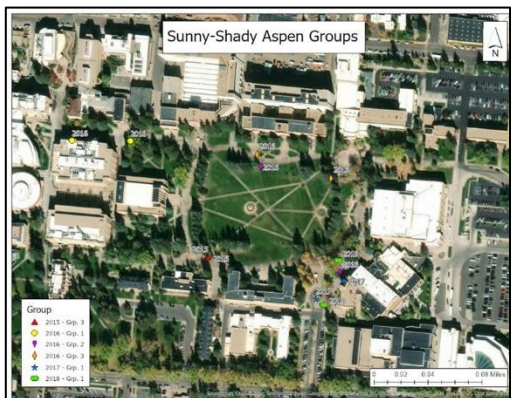
Eighth graders learned the relationship between leaf conditions (live versus dead) and spectral reflectance. Students used ALTA II Spectrometer and measured reflection in 11 regions of the electromagnetic spectrum. Plot of spectral reflectance highlighted the value of infrared measurements. Following this activity, WyomingView PI described how infrared measurements obtained by sensors onboard Landsat and other satellites can be used for monitoring vegetation and water conditions around the world. This multiday activity was conducted over 6 days. (*Number of students reached: 245 – 12 sections*).



Landsat images showing changes in Aral Sea because of the diversion of two rivers flowing into once the fourth largest inland lake in the world. Place: Laramie Middle School. Date: Jan 23, 2020.



Students are measuring the difference in the spectral reflection of live and dead leaves using ALTA II spectrometer. Place: Laramie Middle School. Date: Jan 7, 8, 10, 14, 15, & 17, 2020.



Phenology of aspen trees that were growing under sunny and shady conditions in Laramie, WY.

Sarah Weidler analyzed fall 2015-2018 phenology data of aspen trees recorded by students enrolled in a UW applied remote sensing course. She presented following findings in the 2020 ASPRS conference:

- Aspen trees exposed to less sunlight in spring & summer, changed color and lost their leaves quickly than those that received more sunlight,
- This pattern was consistent for all 4 years under different weather conditions (varying temperature and precipitation), &
- Citizen Science data forms must collect data on the differences in sunlight received by individual Aspen trees.

The proceedings paper was published in ISPRS archives (<https://doi.org/10.5194/isprs-archives-XLIV-M-2-2020-105-2020>).

BENEFITS TO WYOMING



Jacob Disney (WyView intern) analyzing vegetation regrowth in a 40-acre ranch owned by his parents. Term: Spring 2019.

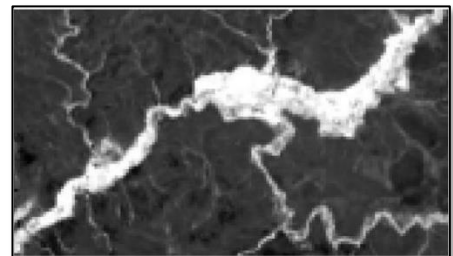
- Past WyomingView interns are currently working federal, state, and local government agencies
- Some interns have confirmed the value of the training they received as part of the internship
Analyzing satellite images, extracting information, and presenting them in conferences were identified as important skills
- 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).

WYOMINGVIEW CONSORTIUM MEMBERSHIP

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

- 2019-20, WyomingView intern Logan Heward worked with 2 farmers in SE Wyoming and obtained crop production or yield data for their fields.
- Heward obtained Landsat NDVI images for the corresponding years from USGS EarthExplorer. These dates corresponded to the peak crop growth on the ground.
- Heward compared the average NDVI values with the crop yield data and found statistically significant relationship for few but not all years.

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.



Relationship between Landsat NDVI images (bottom) and crop yield data were analyzed by WyView intern Logan Heward.

WyView Principal Investigator:

NAME HERE Ramesh Sivanpillai
INSTITUTION University of Wyoming
PHONE HERE 307 766 2721
EMAIL HERE sivan@uwyo.edu



<http://www.uwyo.edu/wyview>



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