



NORTH DAKOTAVIEW 2019 - 2020



NORTH DAKOTAVIEW 2019 - 2020 ACTIVITIES

North DakotaView provided important remote sensing skills training so that students can be successful in their future careers.

- **Training on use and analysis of UAS data for mapping Earth Systems.** Students were introduced to drone flight planning and image acquisition of a tributary of the Turtle River. Students worked with several software packages for the flight planning, combining all the images into a georeferenced mosaic, and creating a 3D digital elevation model of the area.
- **Training on creation of 3D models of river bank erosion using imagery and Structure from Motion (StFM).** Students collected overlapping images of streambank erosion along the Turtle River. They then used a GPS to measure the location of ground control points so that the images could be georeferenced and combined. Students were able to create a 3D model of the streambank that could be used to analyze the erosion and predict continued bank change.
- **Scholarships for student training and research.** Competitive grants were awarded to three students to further their training in remote sensing skills, and support their graduate research.

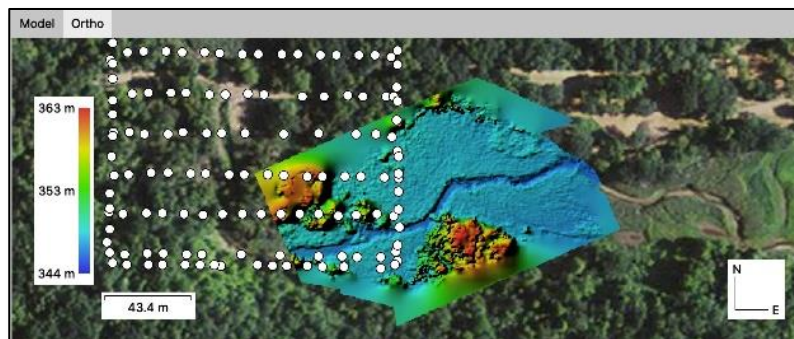


Dr. Mbuh demonstrating flight planning for drone data collection training at University of North Dakota.



Collection of streambank erosion data for developing 3D models.

The funded projects include a study to detect birds near wind farm towers using drones, and a spatial study of animal movements along highways in the state. The bird study ran almost 500 drone flights to acquire images, and is working with neural network image classifiers to detect the birds in the images. The second study of animal movements looked at landscape versus DNA sequencing to see how animals tracked on roadways are related to one another.



Drone flight planning map and elevation model from imagery.

North DakotaView 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 NORTH DAKOTA

- NDView led education workshops on remote sensing at Valley Middle School and the Nathan Twining Elementary and Middle School. More than **150** students participated in these events, using an augmented reality sand table to link landforms to computer generated topographic maps.
- NDView and the Department of Geography & GISc. at the University of ND led demonstrations in remote sensing as part of the Northern Valley Career Fair Expo in 2019, in Grand Forks. More than **1,800** students from regional high schools participated in the career fair.
- NDView provided remote sensing-related assignments and resources to area teachers after the Corona virus pandemic forced area students online.
- NDView has funded thousands of dollars for the purchase of remote sensing software for students and faculty at the University of North Dakota to assist in training and research.



Students at Northern Valley Career Fair learning about remote sensing and watersheds.



Geospatial Analysis and Remote Sensing Lab at University of ND with NDView-funded software.

NORTH DAKOTAVIEW CONSORTIUM MEMBERSHIP

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UND NORTH DAKOTA.



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