



RHODE ISLANDVIEW 2018 - 2019



RHODE ISLANDVIEW HISTORY AND SUCCESSES

Rhode IslandView fosters local applications of drone-based technologies in Rhode Island. Drones have an unmatched capability to quickly and inexpensively capture detailed aerial photographs of small areas. Upon joining AmericaView in 2014, we have focused on facilitating online access to remote sensing data and promoting the use of small Unmanned Aerial Systems (sUAS). Our approach to this is largely through conducting demonstrations, providing undergraduate student training opportunities, and building data acquisition partnerships.

Remote sensing datasets of Rhode Island historically have been difficult to view by the general public. The computer file formats, complex software, and robust computer hardware used to efficiently access these types of data are not readily accessible by most. Rhode IslandView has created web-based map services in partnership with the Rhode Island Geographic Information System consortium (www.rigis.org). These services are used behind-the-scenes by Rhode IslandView and other online map application developers to directly connect our communities with remote sensing imagery and detailed lidar-based elevation models. These resources are actively used for K-16 education, municipal mapping websites, and statewide initiatives (including STORMTOOLS, the coastal inundation mapping tool developed by the RI Shoreline Change Special Area Management Plan). Rhode IslandView has built on these successes by offering presentations and workshops to local and national audiences.



Launching a DJI Phantom 4 Pro at Napatree Point Conservation Area. Credit: P. August



Rhode IslandView's collaborators have diverse interests that range from traditional land-use and land-cover mapping, to building Landsat-based decision support systems, producing new lidar-derived data products, monitoring sea surface temperature, modeling sea level rise scenarios, and designing sensors for undersea and even interplanetary exploration. With AmericaView's support, Rhode IslandView is the only local organization that offers a platform to bring these shared remote sensing resources and skills together.

Flight operations center for a BirdsEyeView Aerobotics FireFLY6 Pro sUAS. Credit: G. Bonyng

Rhode IslandView 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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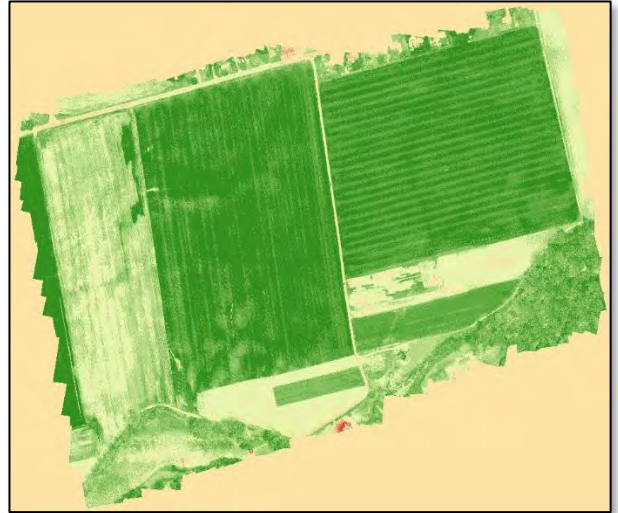
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RHODE ISLANDVIEW 2018 - 2019 ACTIVITIES

Rhode IslandView (RIView) is supporting undergraduate education opportunities, and developing new partnerships that introduce and support the use of drone-based aerial imaging.

In partnership with the University of Rhode Island (URI) Environmental Data Center, RIView funded an undergraduate research assistant during the Summer of 2019. This student was introduced to drone mission planning, operations, and equipment maintenance before shifting focus to perhaps the most challenging aspect of working with drones: data processing. The student was mentored on data management techniques the use of image processing software. Objectives for the summer included exploring how to streamline existing workflows by programming new image processing scripts, and venture into creating 3D renderings.



Normalized Difference Red Edge (NDRE) false color view of a commercial turf farm field. Credit: G. Bonyng

RIView further supported undergraduate education at URI by conducting real-time aerial reconnaissance for students participating in a Hazardous Waste Operations and Emergency Response (HAZWOPER) class final exercise.

Aerial orthophotographs were developed of Napatree Point Conservation Area in Westerly, RI, in partnership with the Watch Hill Conservancy. We initially attempted to fly the area with a fixed-wing drone but ultimately aborted due to weather and other environmental conditions. Follow-up flights were conducted with a quadcopter-style drone the collected extremely detailed true color imagery of the entire area. Extensive imagery was also collected of bluffs and a historical fort located at the extreme end of the peninsula for the purpose of building a 3D rendering. This imagery is extremely useful for the scientific team studying habitat and geomorphological change in this dynamic coastal area.

RIView partnered with researchers from the URI Department of Natural Resources Science and the Department of Ocean Engineering to test the functionality of a migratory bird tracking antenna array. This array monitors an area between Block Island and the neighboring wind farm, the first of its kind in the nation. RIView also assisted scientists from the URI Graduate School of Oceanography with evaluating the effectiveness of a new experimental migratory bird tracking system temporarily installed at the URI Narragansett Bay Campus. Also at URI, RIView gathered extensive imagery of a building at the URI Narragansett Bay Campus to learn how to build detailed 3D rendering, and evaluate the usefulness of the imagery for building inspection purposes by facilities management staff.



An aerial view of the Block Island Wind Farm, June 6, 2019. Credit: G. Bonyng

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