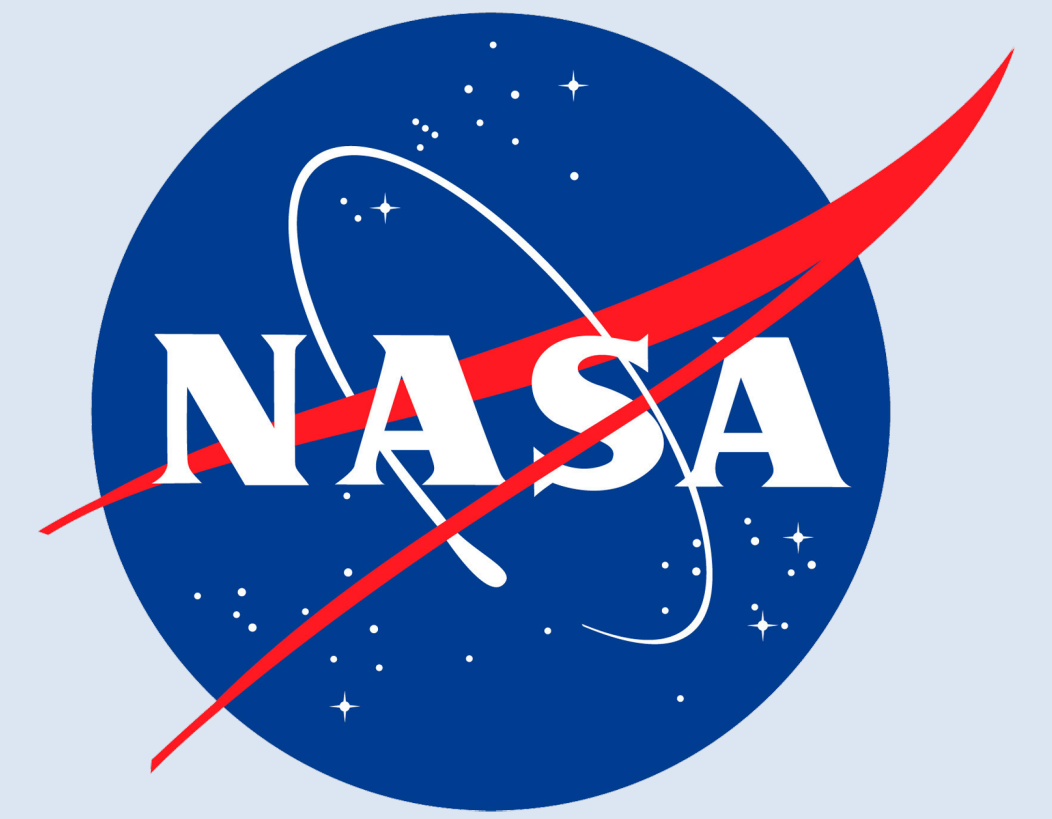




# Kite Systems for Local Scale Remote Sensing



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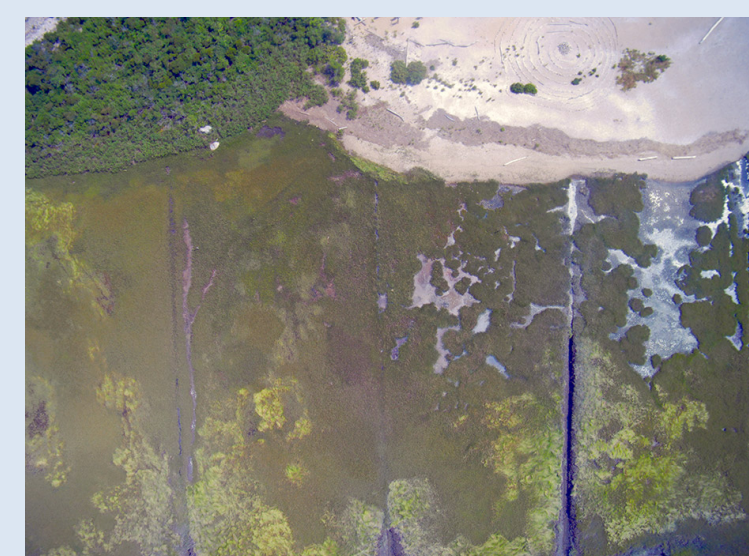
<sup>1</sup>NASA Goddard Space Flight Center Wallops Flight Facility <sup>2</sup>Wayne Regional Education Service Agencies

<sup>3</sup>Univeristy of Maryland Eastern Shore \*Global Science and Technology, Inc. +Zinger Enterprizes

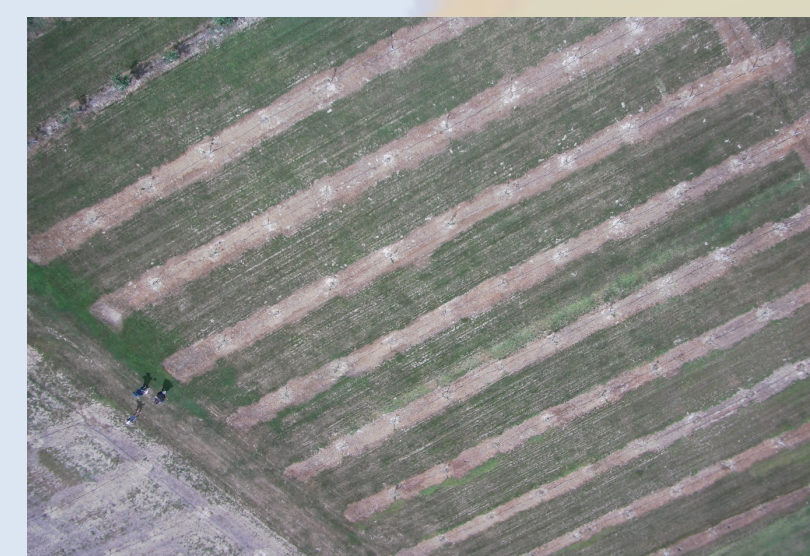


## 1. MonoCam

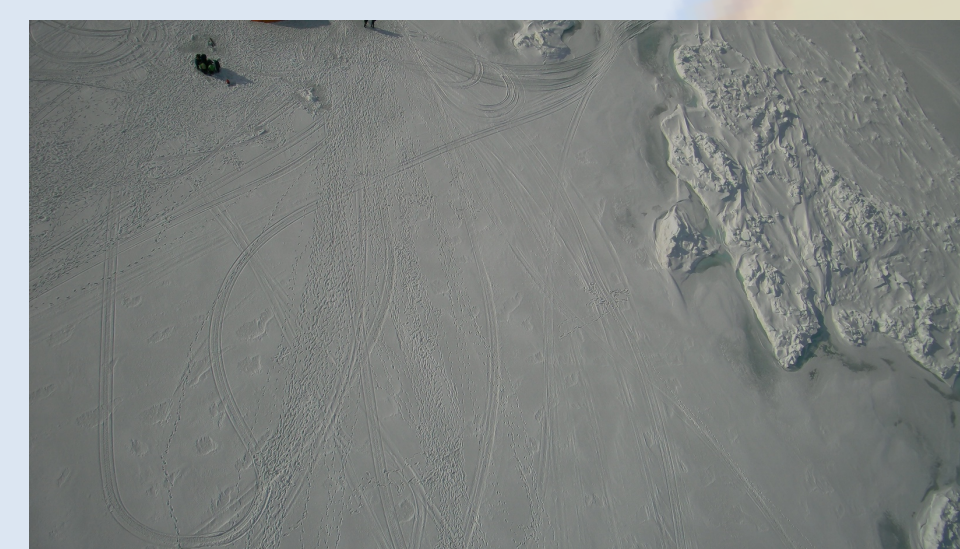
*MonoCams* take a timeseries of images from an altitude of between 100-500 ft. These images provide an aerial perspective of a wide variety of study regions for use in agriculture, beach erosion, etc.



MeadsPoint, CT

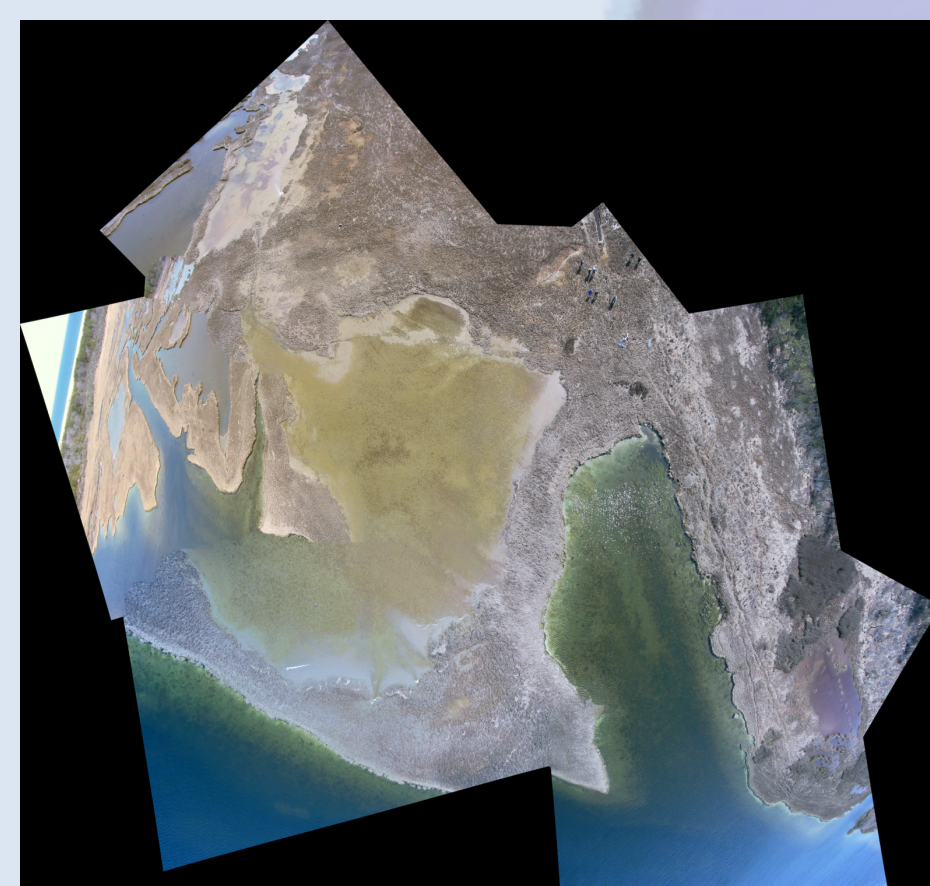


Orchards at UMES



Sea ice survey Utqiagvik, Alaska

Images from *MonoCams* can be stitched together to create maps over larger areas. Another application requires the manufacturer lens to be altered and replaced with a color filter to capture images that can be used to create classified images.



Stitched image  
Assateague, MD marsh

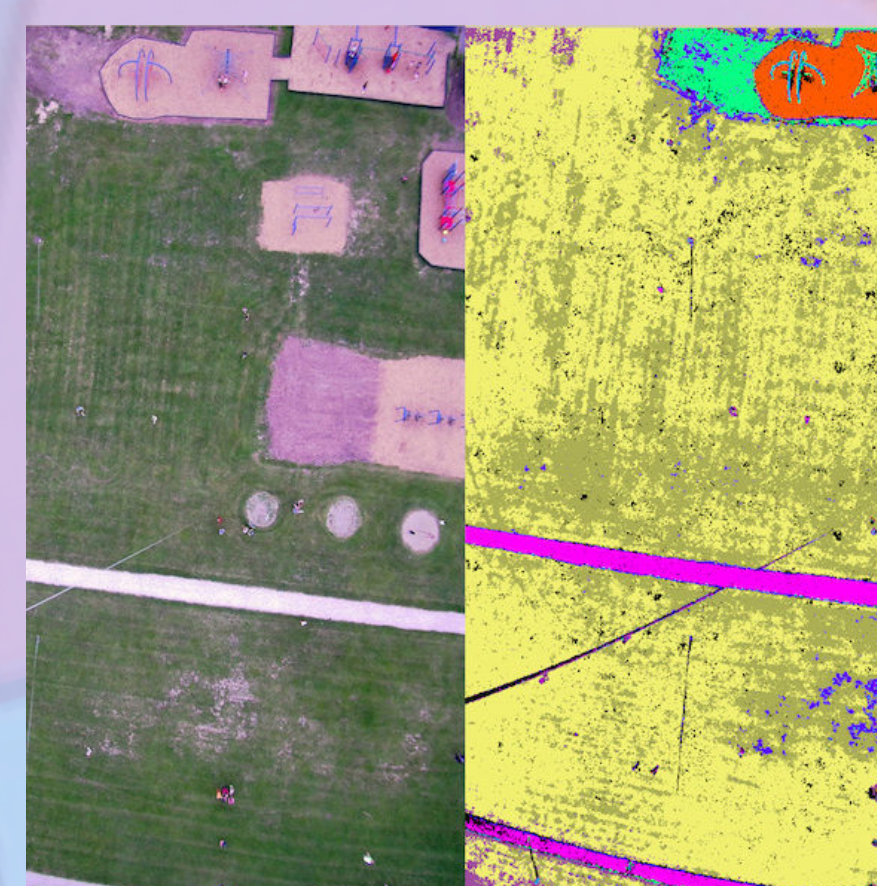


Image Classification At  
Cooper Elementary

## Picavet

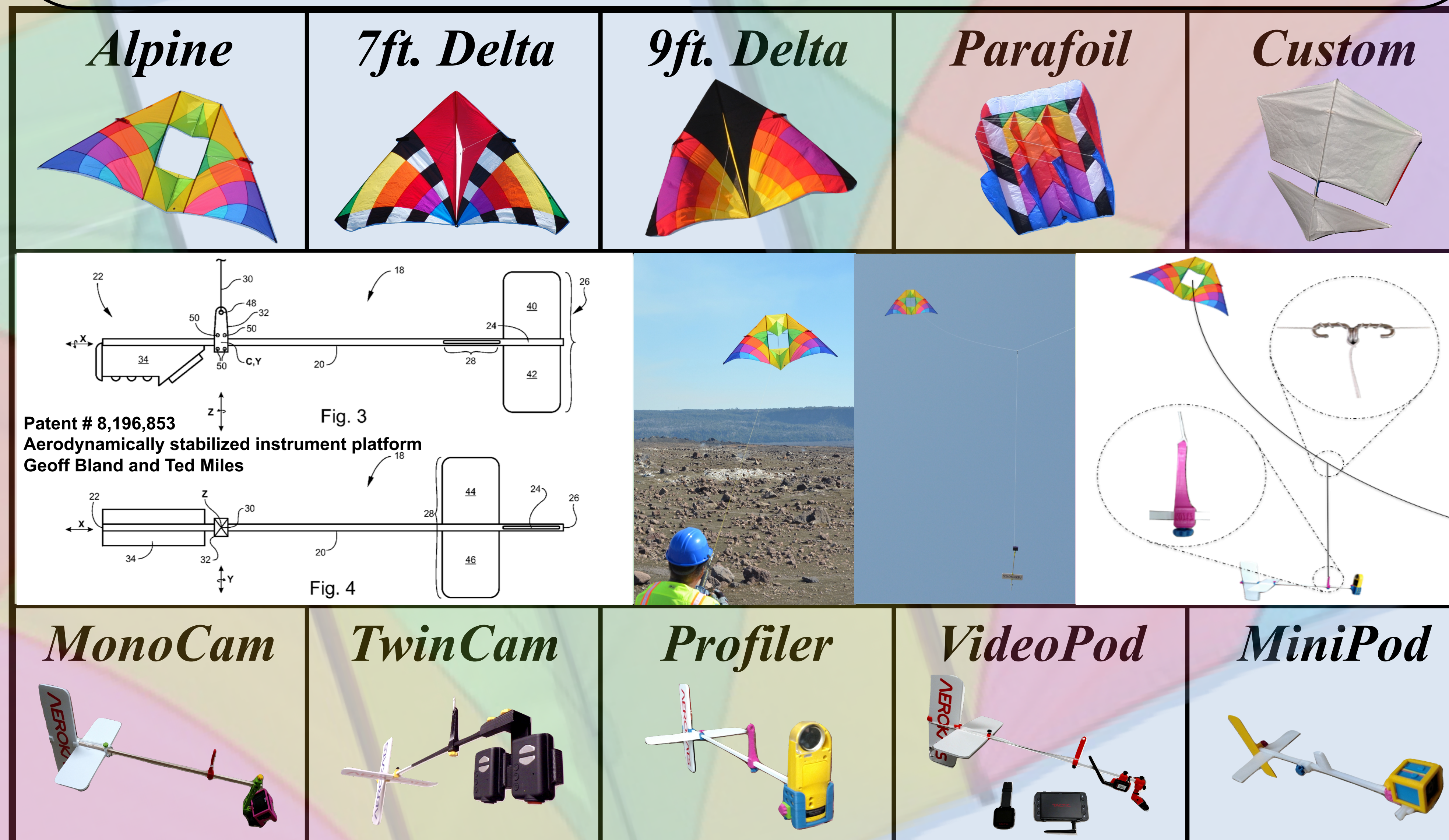
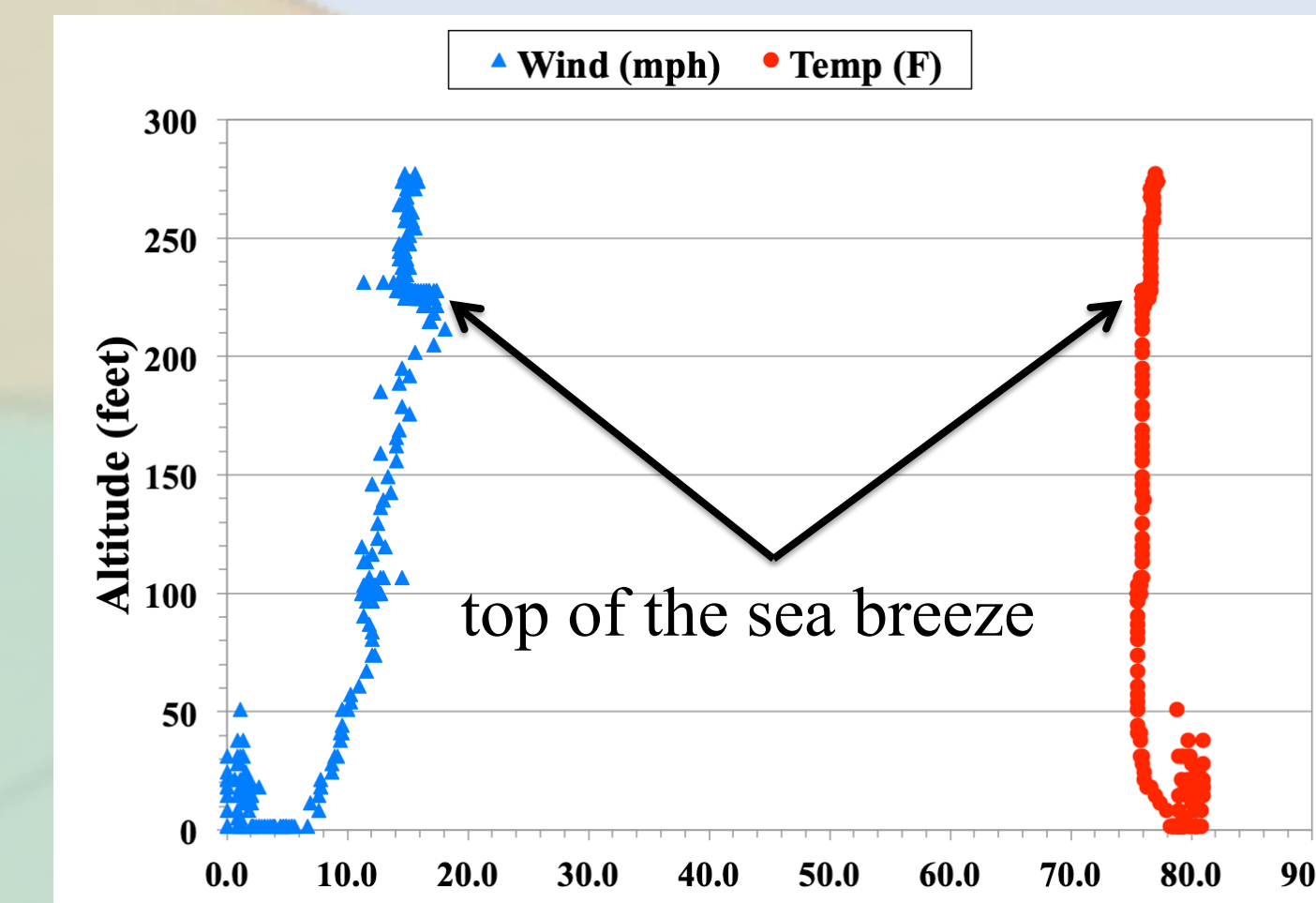
The increase in international interest requires a different approach that incorporates preexisting technologies with a modern adaptation. The Picavet mount can be used with a kite to carry instruments for remote sensing.



Credit: Public Lab

## 2. Profiler

The *Profiler* collects a wide variety of weather data in flight. We are able to see how the various readings change with altitude and observe a variety of natural phenomenon. The following *Profiler* data shows the boundary line of the sea breeze. Sea breeze is a localized phenomenon that is caused by the difference in temperature and pressure between large bodies of water and adjacent land areas.



## Education and Partnerships

The AEROKATS program partners with educators and researchers to provide a kite based science platform for introducing learners to remote sensing and equipping researchers with a low cost means of collecting atmospheric data and aerial images.



NPS test flying an  
*Aeropod* on an ATV



AREN team at MO Headwaters



Cooper Elementary *MonoCam*



Steminst group at WFF

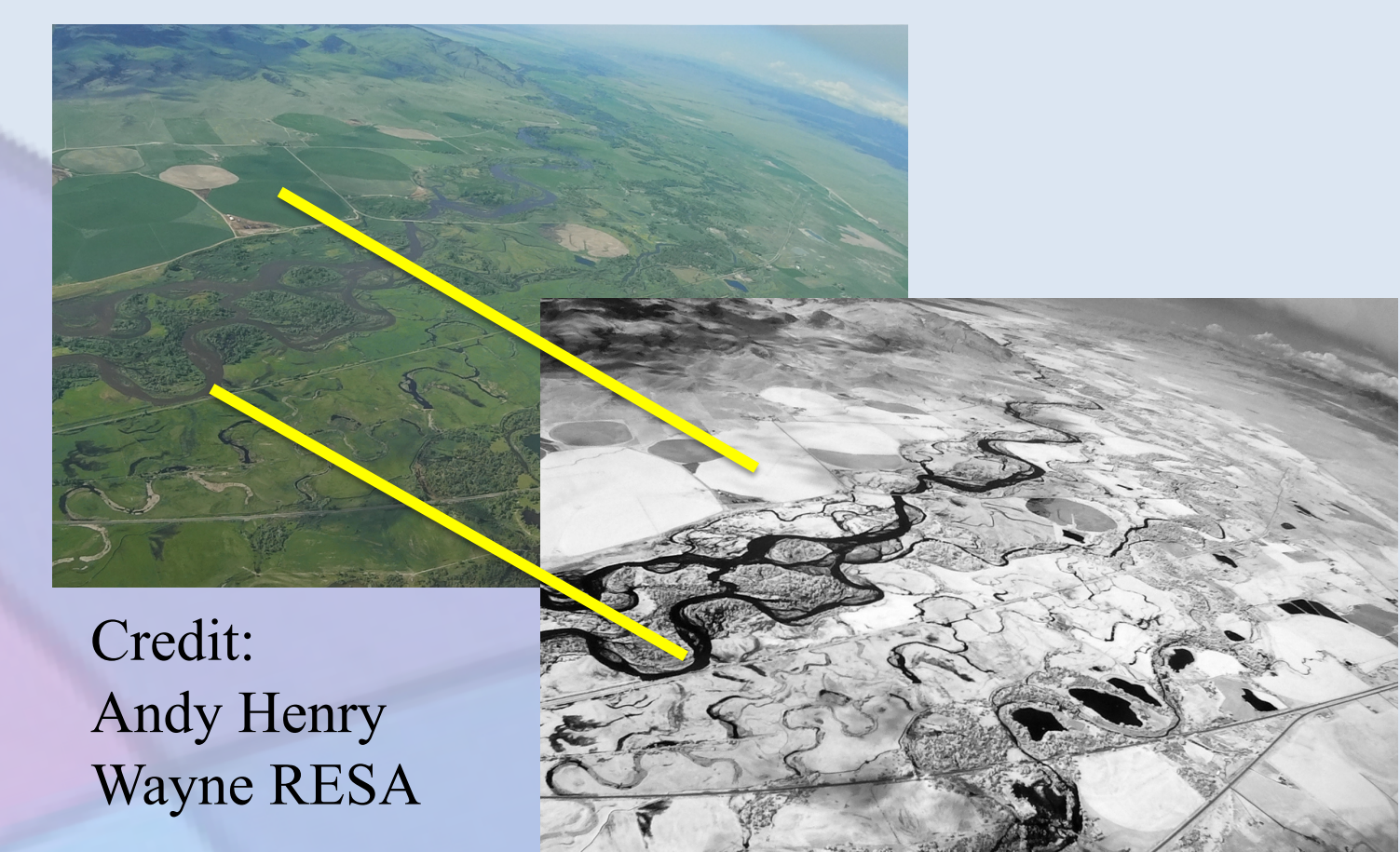


Launching a *Profiler* at UMES

## 3. TwinCam

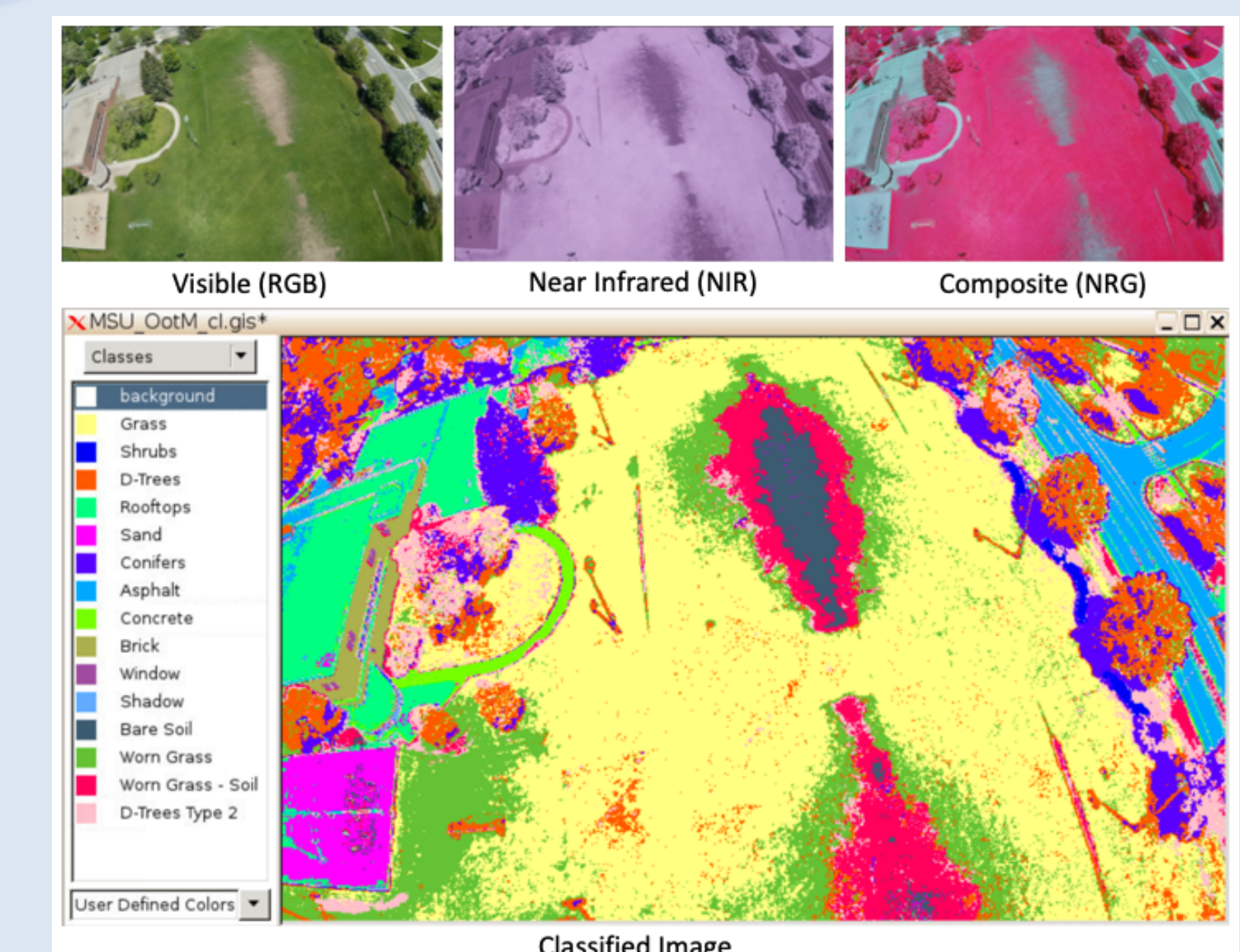
The *TwinCam* mounts a color camera and a near-IR camera side by side to capture near simultaneous images of the same study region. The images provide important information about vegetation.

Visible Image vs. Near IR image



Credit:  
Andy Henry  
Wayne RESA

During photosynthesis, plants absorb and reflect colors in different quantities. Because of the unique nature of plant light absorption, we are able to use the *TwinCam* and image software to create vegetation classification images. These images discern between different plant types and have applications in a variety of different fields, such as agriculture and invasive species management.



Credit: Andy Henry Wayne RESA, Odyssey of the Mind

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