Kite Systems for Local Scale Remote Sensing

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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.

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.

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 phenomena. 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.

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**

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. Theses images discern between different plant types and have applications in a variety of different fields, such as agriculture and invasive species management.

**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.

Education and Partnerships:

- Picavet
- MonoCam
- TwinCam
- Profiler
- VideoPod
- MiniPod

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