

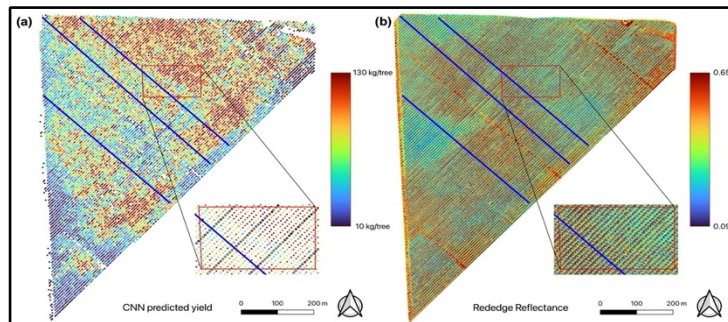


# CALIFORNIAVIEW 2021 - 2022

**AmericaView**<sup>SM</sup>  
Empowering Earth Observation Education  
[americaview.org](http://americaview.org)

## CALIFORNIAVIEW 2021-2022 ACTIVITIES

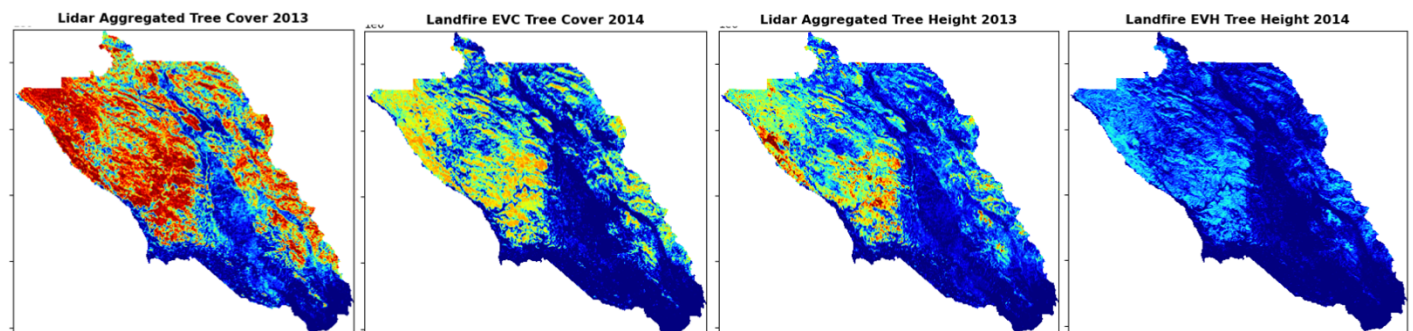
CaliforniaView's vision is to promote and advance remote sensing education within the state of California utilizing predominantly USGS Landsat data sets to solve societal problems. It has become the state's go-to remote sensing educational resource since 2012. In GY 2021, CaliforniaView focused on developing and promoting the synergistic use of the remote sensing imagery from different sensors to inform and enable adaptive management at finer scales. Other activities have also advanced remote sensing education across multiple disciplines.



(a) CNN model predicted within-field yield distributions and (b) red edge reflectance from CERES multispectral imagery.

**Advancing near real-time tree crop monitoring with multi-scale data fusion and deep learning.** CaliforniaView trained a master student to develop feature level fusion to integrate NAIP and UAV super high spatial resolution imagery with Planet satellite imagery for almond tree monitoring and yield estimation. A Convolutional Neural Network model was developed to take the multi-spectral imagery directly as input for almond fresh weight estimation. This study demonstrates the power of deep learning to optimize data-driven resource management.

**Improved fuel characterization within the Wildland-Urban Interface (WUI) areas.** CaliforniaView supported a pilot study in Sonoma county to assess the existing maps of fuel types and structures. Aerial lidar data was used to generate percentage tree cover and tree height products across the whole County at ~1m resolution. The Lidar based fuels maps captured well the fine scale composition and structure of fuels in the heterogeneous WUI landscapes.



**Public engagement with remote sensing technology.** CaliforniaView hosted exhibitions at the annual University Open House (Picnic Day) with more than 30,000 visitors. One booth was set up to display and introduce drone platforms and cameras. Example UAV applications were showcased by poster presentations. Another photo booth attracted many visitors to take thermal photos with plants and foil hats, demonstrating the concept of thermal signals.



CaliforniaView 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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AmericaView Website:  
[www.AmericaView.org](http://www.AmericaView.org)  
Christopher McGinty, Executive Director:  
[chris.mcginity@americaview.org](mailto:chris.mcginity@americaview.org)  
Lisa Wirth, Program Director:  
[lisa.wirth@americaview.org](mailto:lisa.wirth@americaview.org)  
John McGee, Board Chair:  
[jmcg@vt.edu](mailto:jmcg@vt.edu)

## BENEFITS TO CALIFORNIA

California's landscape is ecologically and climatological diverse, vulnerable to warming, drought, and wildfires. As a most productive agricultural state, it also faces the challenge of minimizing water and N use while maximizing the yield. CaliforniaView has been contributing to cost-effective monitoring across scales with remote sensing technology and facilitate data-driven adaptive management for sustainable natural resource and agriculture. Our research, education and outreach activities have benefited a broad range of stakeholders by

- Demonstrating and providing support to state agencies and the specialty crop industry on satellite and UAV remote sensing technology and AI.
- Training students from multiple disciplines via targeted curriculum development, mini project mentoring, and workshops to equip next generation workforce with remote sensing foundation and tools.
- Educating broader audience about the benefits and recent advancements of remote sensing and AI applications.
- Showcasing and sharing multi-scale remote sensing framework and workflow for upscaling drone-based sensing with high resolution satellite imagery, to support better-informed decision making across scales under a changing climate.



AI enabled advancement in agricultural monitoring and prediction with remote sensing observations

Yufang Jin  
Remote Sensing and Ecosystem Change Lab  
Dept. of Land, Air and Water Resources, UC Davis



### Remote Sensing with LP DAAC: Data Assets and Cloud Processing

Part 1. Introduction to NASA's remote sensing datasets and tools for data discovery (May 17: 12pm - 2pm PDT)

Part 2. Introduction to cloud-based remote sensing data access and processing with Python (May 20: 10am - 12pm PDT)



## CALIFORNIAVIEW CONSORTIUM MEMBERSHIP



*Federal consortium members identified above do not receive funding from AmericaView.*

CaliforniaView Principal Investigator:

Dr. Yufang Jin  
University of California, Davis  
(530) 219 4429  
yujin@ucdavis.edu



<http://www.calview.ucdavis.edu>

Facebook.com/CalView

@CalView