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# SUMMER RESEARCH POSTER SESSION

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**Eyes on Earth: Evaluating the utility of Landsat satellite imagery for detecting forest management impacts on drought resilience in Stanislaus National Forest, California**

Forests around the world are experiencing record levels of mortality and stress due to the increasing temperature and extreme weather events caused by climate change. Specifically in the western United States, the past century of fire suppression has disrupted the natural fire regimes and resulted in much denser and cluttered forests. Researchers have been employing forest management strategies including thinning and prescribed burning to return forests to their historical state and increase their resiliency to stressors like drought. The LANDSAT satellite offers a potential method to quickly and easily measure the impacts of forest management and other researchers have used it successfully to that end. We used data from the Stanislaus National Forest in California where researchers recently (2011) conducted a controlled experiment using different kinds of forest management over a total of 250 acres. As part of that study, they found that thinning significantly increased drought resiliency. Using Google Earth Engine, we accessed LANDSAT imagery over that study area for the months of July, August, and September every year from 2008 to 2022. We then calculated the normalized difference moisture index (NDMI) and normalized difference vegetation index (NDVI) for each image to create a time series dataset for a total of 94 images. We find that LANDSAT based NDMI and NDVI do not detect the increased drought resilience that thinned plots experienced and seem to be more closely related to the vegetation cover of the plots rather than moisture content or vegetation health. Our results differ dramatically from similar studies in drier forest types and suggest that the LANDSAT NDMI and NDVI do not detect fine scale impacts of forest management in the wet forest cover types that make up the Stanislaus National Forest.