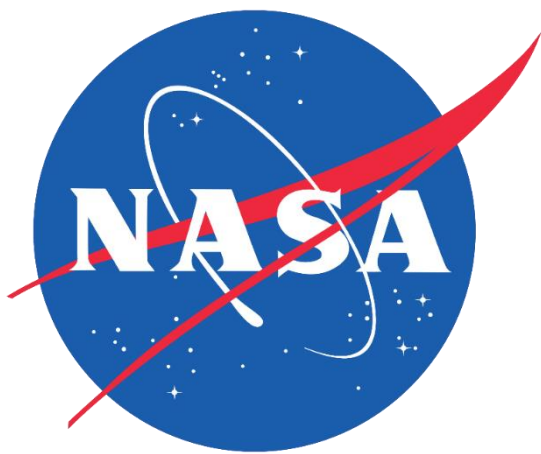


Nevada Wildland Fires



Mapping Historical Burned Areas and Identifying Drivers of Fuel Load Growth to Inform Desert Tortoise Habitat Management in Southern Nevada

Background



The **desert tortoise** (*Gopherus agassizii*) is a keystone species vital to the Mojave desert ecosystem

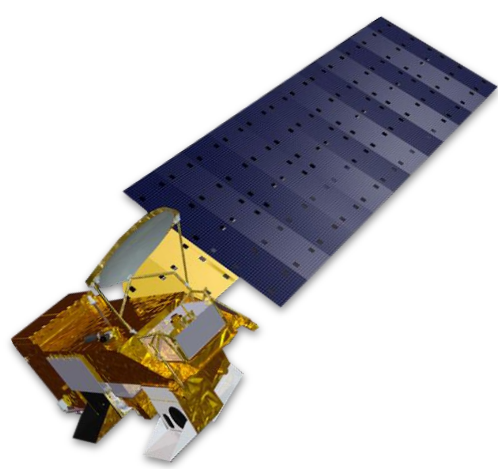


Increasing fire frequency is **reducing** desert tortoise habitat

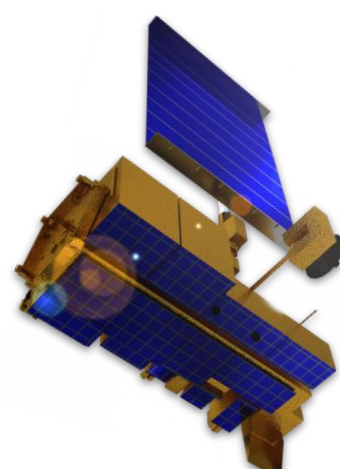


Fire rates are increasing because of **invasive vegetation** such as cheatgrass and red brome

The **Bureau of Land Management** seeks to protect desert tortoise habitat by managing invasive vegetation. **Earth observations can help.**



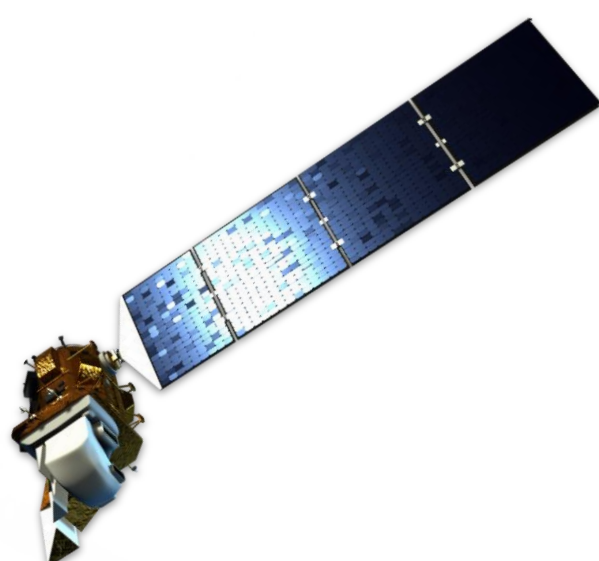
Aqua MODIS



Terra MODIS



Landsat 5 TM

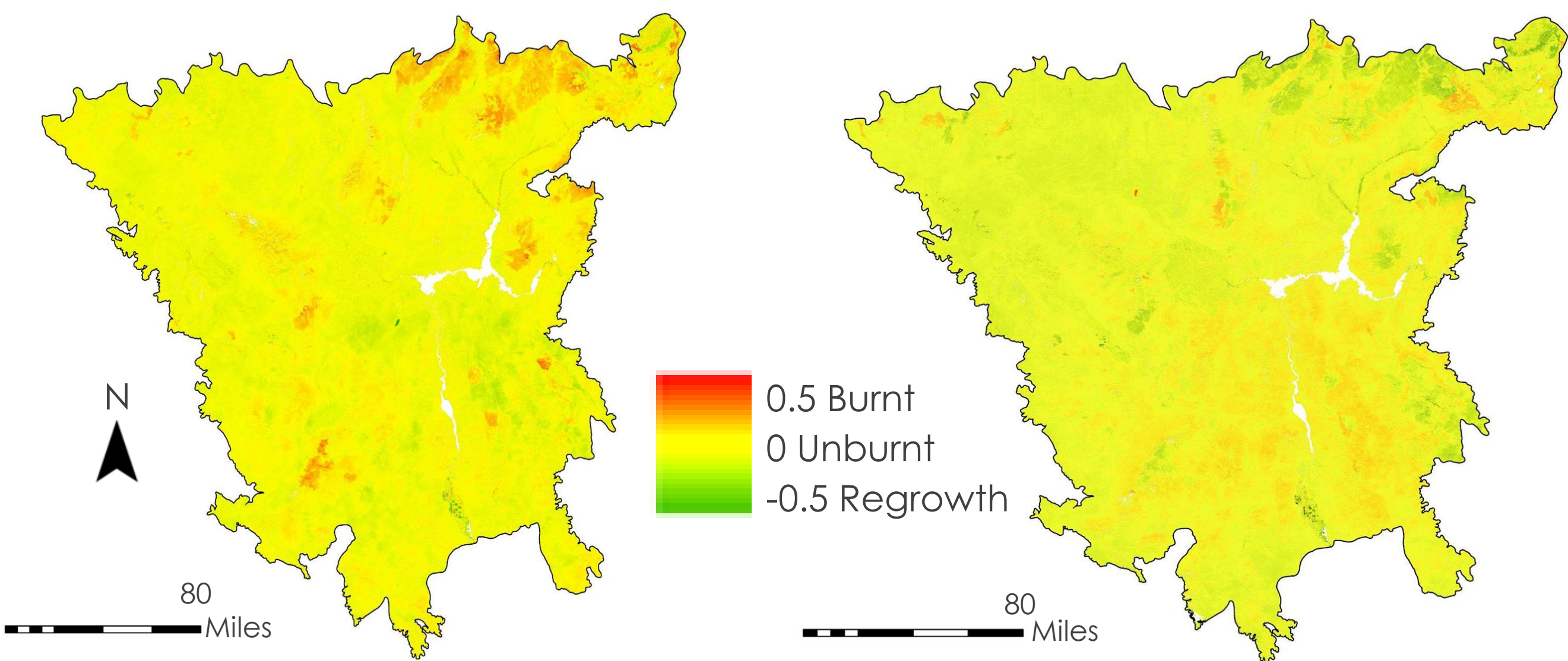


Landsat 8 OLI

What led to the 2005 fire season and how did vegetation regrow?

2005

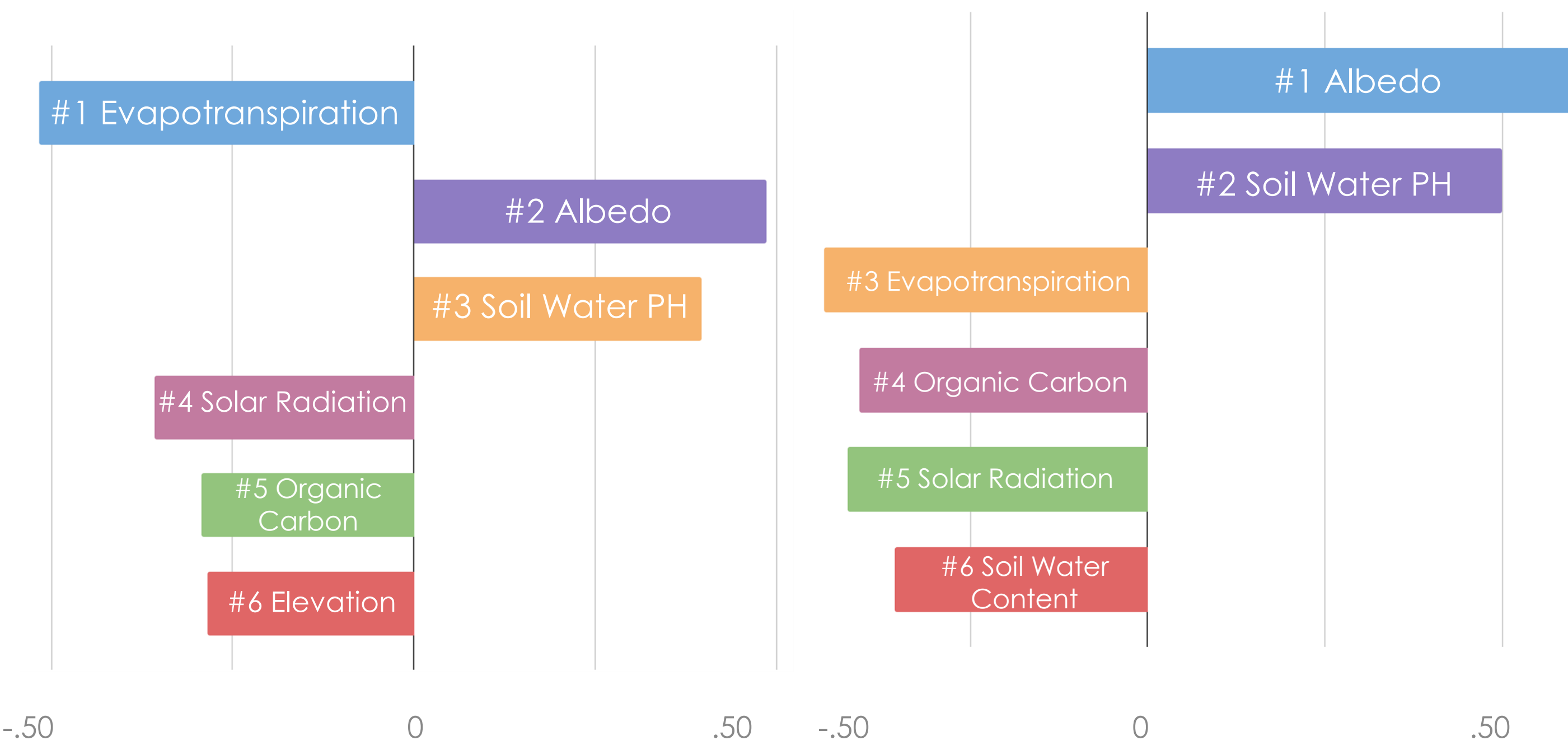
2006



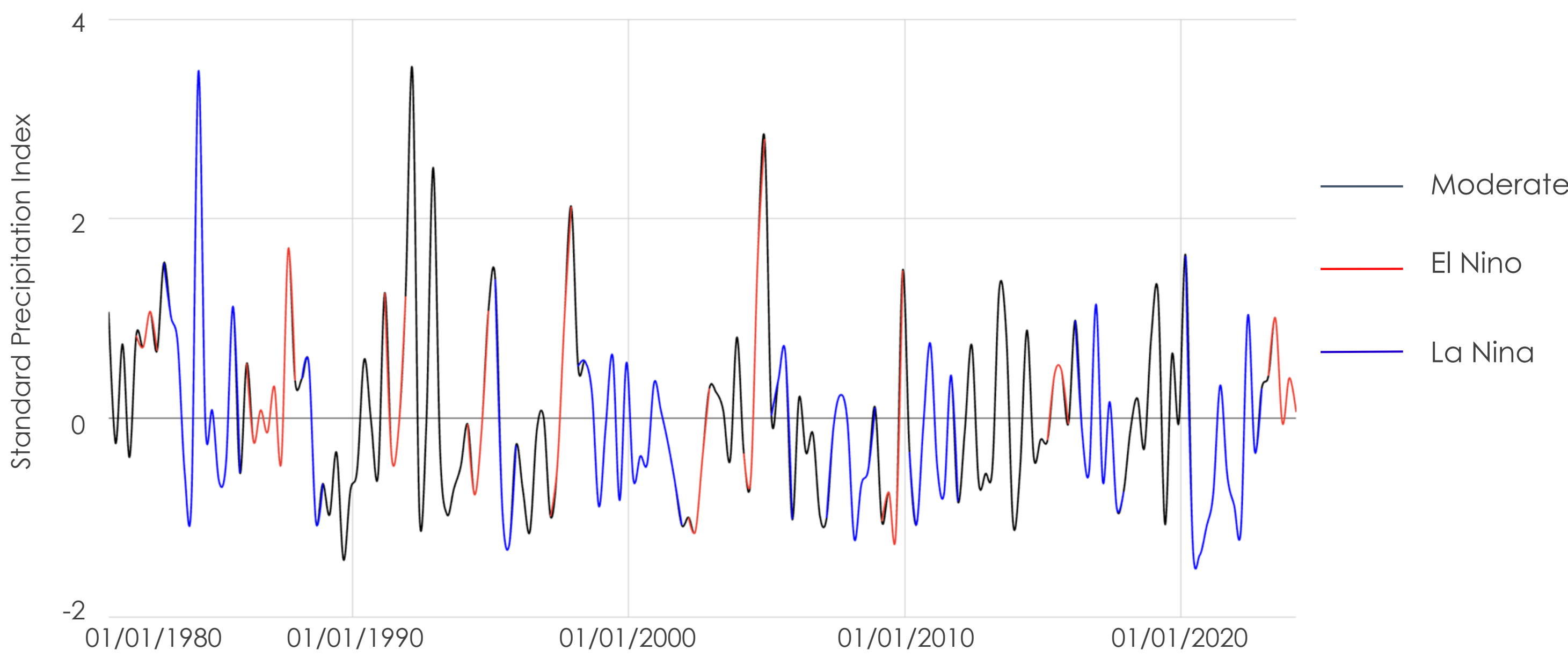
What drove vegetation growth during the 2005 fire season?

Pre-Fire Drivers

Post-Fire Drivers



Relation of El Niño-Southern Oscillation (ENSO) events to Precipitation Anomalies from 1980 to 2024 within Southern Nevada



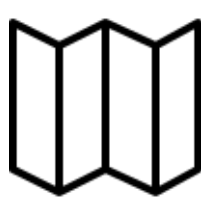
Takeaways



El Niño years bring **increased precipitation** and **fuel load growth** in the American southwest, **coinciding** with heavy **fire** years.



Climatic factors, including **Evapotranspiration**, **Soil Water Content**, etc., are **highly correlated** with vegetation growth. Other factors such as **Temperature** and **Snowpack** seem to have little effect.



NASA Earth observations can be leveraged to create historical burn maps for **tracking burn scars** and **vegetation regrowth**.

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Project Partners

- ▶ Bureau of Land Management, Southern Nevada District Office
- ▶ USDA, US Forest Service, Rocky Mountain Research Station
- ▶ USDA, Agricultural Research Service, Arid Lands Ecology Lab

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