

# Characterizing Climate Controls on Vegetation in the North American Southwest

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The North American southwest, extending from Colorado to southern Mexico and California to eastern Texas, encompasses a diversity of climates, elevations, and ecosystems. This region is expected to experience significant climate changes in the coming decades. The GIMMS normalized difference vegetation index (NDVI) data set (1981-2011) represents vegetation density and productivity worldwide. NDVI was compared to precipitation and temperature in the southwest over the past thirty years to better understand spatiotemporal variability of vegetation. Spatial variations in vegetation seasonality and peak NDVI are linked to spatial variability in the precipitation regimes across the southwest. Spring peak NDVI are linked to winter precipitation, while late summer and fall peaks are controlled by the North American Monsoon precipitation. Characterizing the climate controls on vegetation in this region provides a baseline for assessing the impacts of climate change.