

# Exploring Climate Change Through Dendroclimatology

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Artist's view of a U.S. Landsat satellite. Credits: NASA.

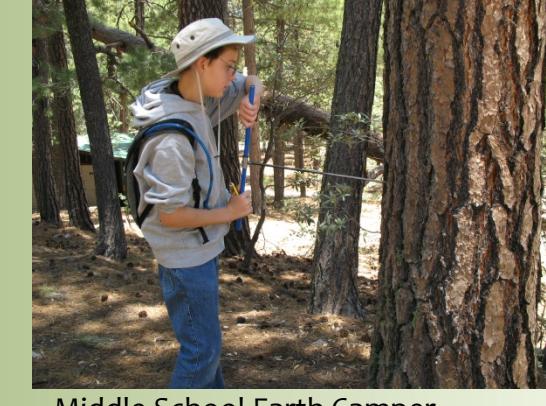
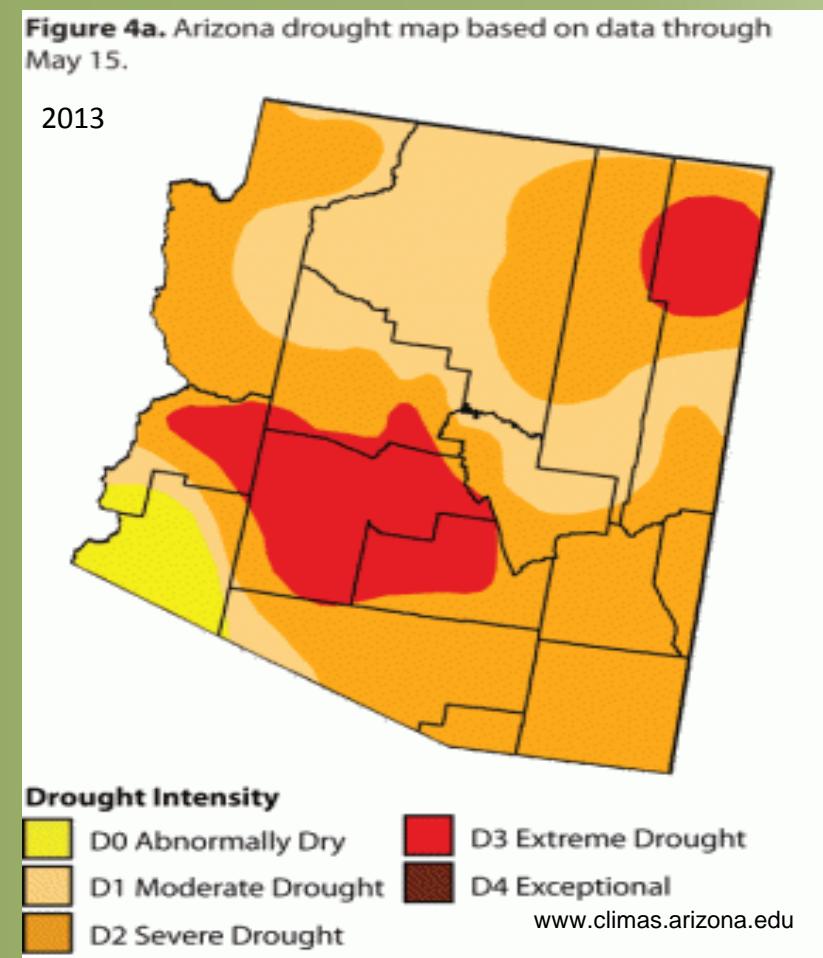
**Dendroclimatology is the study of tree growth rings to reconstruct climates of the past.** Thickness and density variations of annual growth rings offer valuable information about climate change.



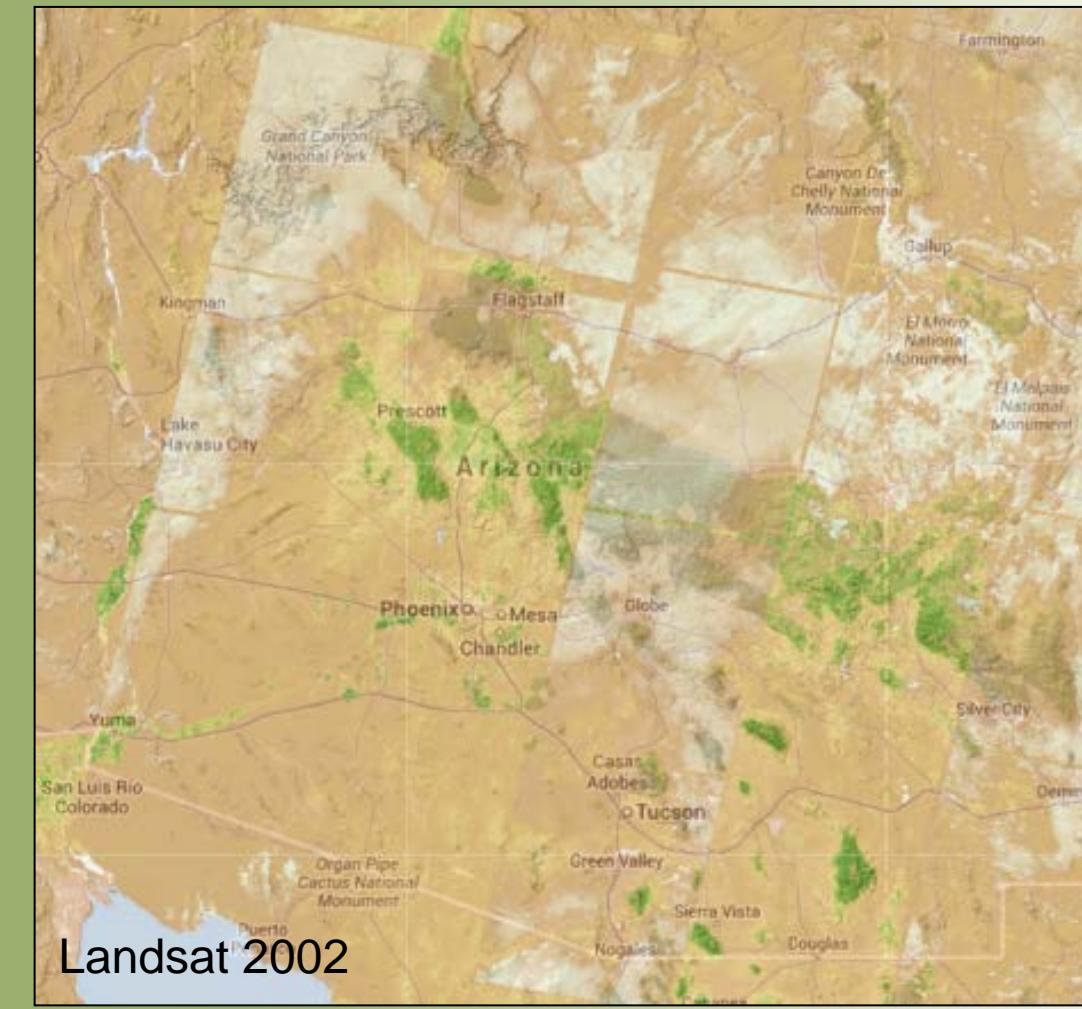
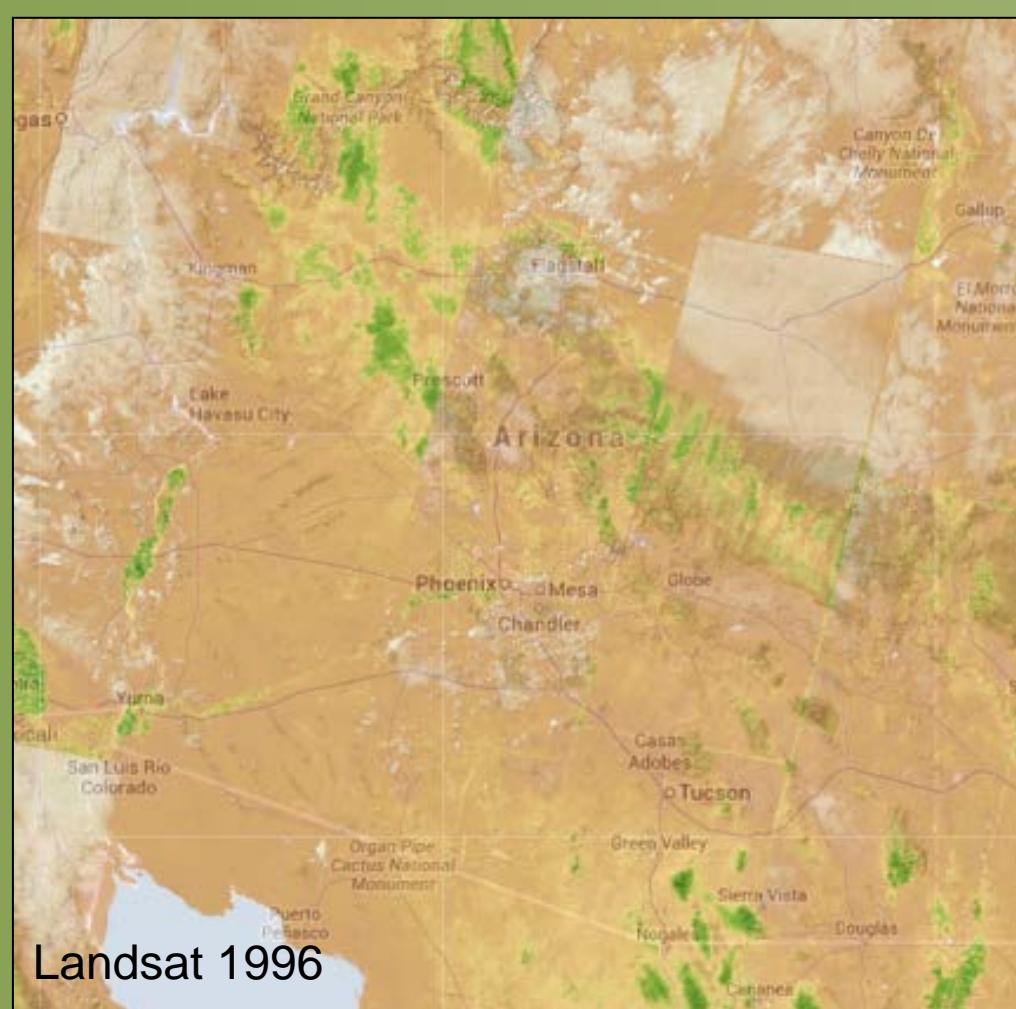
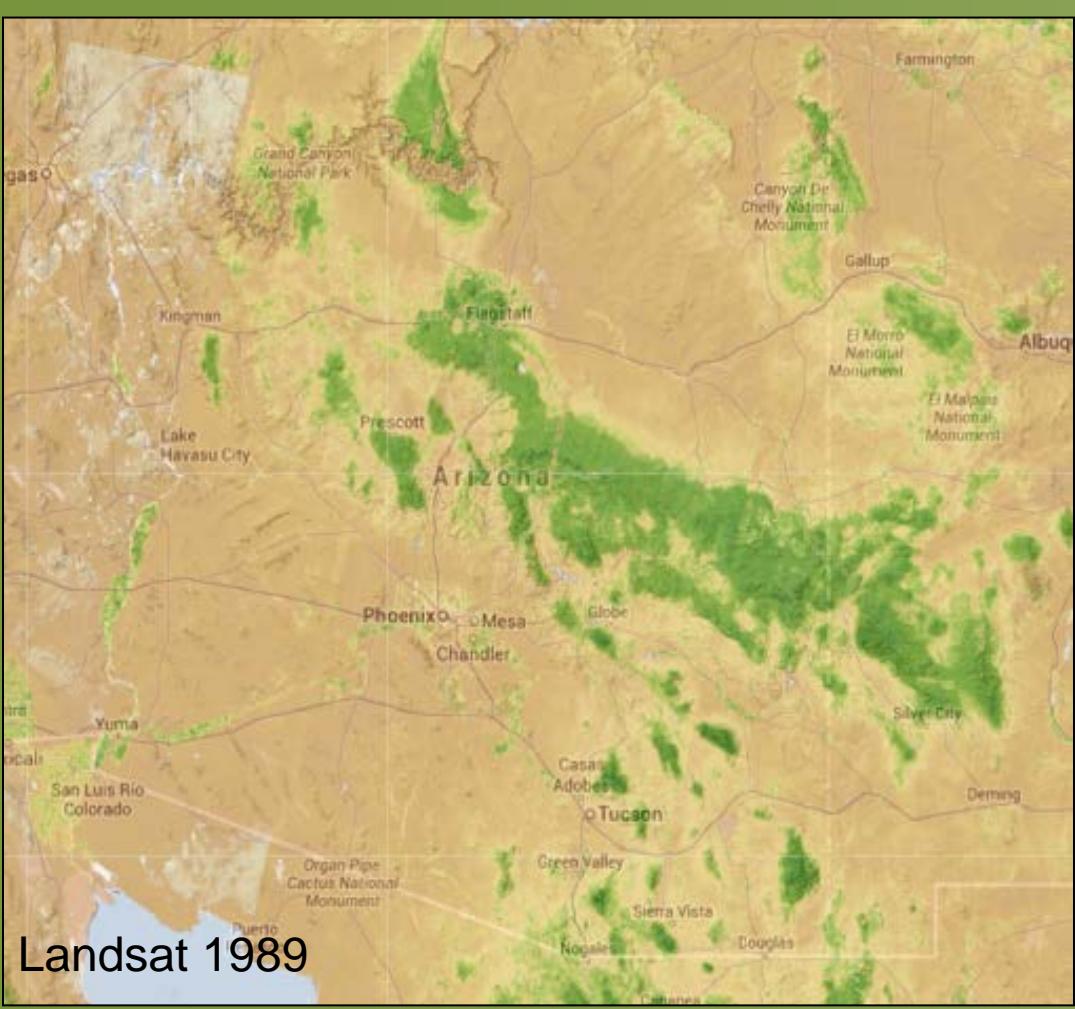
Trees need water, sunlight and various nutrients to grow. In a wet year, trees grow more and their annual rings will be thicker. Scientists can study the size variation of tree rings to reconstruct the history of wet and dry years in a region. With that data, scientists can then analyze patterns of precipitation change over time.

In the Southwest US, climate researchers are particularly interested in what tree rings can teach us about past droughts, dating back hundreds of years.

Arizona has been in drought conditions for the last twelve to fifteen years. Researchers at the Laboratory of Tree Ring Research at the University of Arizona studied tree rings from the Salt and Verde watersheds and determined that 1996 and 2002 had so little precipitation that there were no growth rings for those years.



Middle School Earth Camper extracting tree core on Mount Lemmon



These Landsat images include data overlays on a background map of Arizona. The green false-color represents healthy vegetation, as determined from annual composites of satellite images. More green indicates years with more precipitation. Landsat imagery accessed via Google Earth Engine's Trusted Tester program.