HONR238P: The Water Cycle and Water Wars of the American West
Meeting Time: Monday and Wednesday, 2:00-3:15pm **(FALL 2007)**
Meeting Room: CSS Bldg. (new wing) Room 2416 or 2428
Instructors: Sumant Nigam, AOSC and ESSIC
Alfredo Ruiz-Barradas, AOSC

Course Theme: Water on our planet is found in its oceans, atmosphere, biosphere, cryosphere, and in the land surface and subsurface layers. The circulation of water between these reservoirs is called the Water Cycle. The water cycle over North America, especially, the arid western half of the continent will be the initial focus, which will help in developing a climate perspective on Western Water issues. The subsequent portrayal of atmospheric moisture sources and precipitation patterns, and the seasonal charging and discharging of natural and man-made water reservoirs will lead to an appreciation of the West's vulnerability to climate variability and change, including droughts.

Water is a precious commodity in the West given its role in sustaining the enormous agricultural enterprise in this parched region and the significant contribution of hydroelectric power to the regional energy grid; in addition to meeting living needs of the burgeoning population in western and southwestern states. Not surprisingly, Water Wars and Water Compacts figure prominently in the history of the West.

Topics covered will include:

- Seasonal distribution of North American precipitation in current climate and global warming scenarios, and past climates
- Atmospheric and terrestrial water-balance over the western continent to highlight natural storage on seasonal time scales
- Water cycle over the Colorado River Basin
- The Colorado River Compact (1922)
- Hoover Dam, Lake Mead and Lake Powell
- William Mulholland and the St. Francis Dam
- Water for Los Angeles: The Owens Valley Project to import water from the Eastern Sierras
- More water for Los Angeles: The Colorado River Aqueduct
- Even more water for Los Angeles: The California Aqueduct to tap the Sacramento River
- California Water Wars; Roman Polanski's *Chinatown*
- Drought in the American West: Current and past droughts, including paleodroughts
- External influences on hydroclimate of the western continent: From Pacific and Atlantic sea-surface temperatures
- Colorado River Basin in a warmer climate: The view from climate model simulations
- Other student suggested topics

Tentative Readings: The Great Thirst: Californians and Water- A History by Norris Hundley Jr. Revised Edition (Paperback); Published July 2001. ISBN: 978-0-520-22456-8