

**Environmental Engineering**

**and Earth Sciences**

**EEES Department Seminar**

**"The 2015 Kappe Lecturer"**

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**PRESENTED BY**

**Jay Banner, Ph.D., BCES**

**Professor/Director**

**University of Texas at Austin**

**Environmental Science Institute**

**Bio**: Jay Banner is the Fred M. Bullard Professor in the Jackson School of Geosciences and Director of the Environmental Science Institute at UT-Austin. Dr. Banner is a geochemist who investigates the impacts of urbanization on aquifers and streams, and the reconstruction of past climate change, soil erosion and ocean chemistry. His field research sites include Texas, Guam, Western Australia, the midcontinent and Great Basin USA, Barbados, and the Bahamas. Banner co-developed and teaches UT-Austin’s first Signature Course, *Sustaining a Planet*, and helped develop the university’s newest interdisciplinary degree, a B.S. in Environmental Science. Dr. Banner is a Fellow of the Geological Society of America, and was the first person certified as an Environmental Scientist by the American Academy of Environmental Engineers and Scientists.

**Abstract:** Texas comprises the eastern portion of the Southwest region, where the convergence of climatological and geopolitical forces has the potential to put extreme stress on water resources. Geologic records indicate that Texas experienced large changes in moisture sources and amounts on millennial time scales in the past, and over the last thousand years, tree-ring records indicate that there were significant periods of drought in Texas. These droughts were of longer duration than the 1950s “drought of record” that is commonly used in planning, and they occurred independently of human induced global climate change. Although there has been a negligible net temperature increase in Texas over the past century, temperatures have increased more significantly over the past three decades, and the region experienced a record drought in 2011 that is ongoing. Under essentially all climate model projections, Texas is susceptible to significant climate change in the future. Most projections for the 21st century show that with increasing atmospheric greenhouse gas concentrations, there will be an increase in temperatures across Texas and a shift to a more arid average climate. Studies agree that Texas will likely become significantly warmer and drier, yet the magnitude, timing, and regional distribution of these changes are uncertain. With a projected doubling of the state’s population by 2065, science, engineering, and economics are essential elements needed for the state’s planning for the projected changes.

2:30 PM

Friday, October 30, 2015

L.G. Rich Auditorium Advanced Material Center

*Refreshments following Seminar*