



PLEASE POST!

COSEE-West presents the third free workshop in the 2009-2010 series

### Clouds and CloudSAT

**Saturday, February 6, 2010**

**8:00 A.M. – 3:30 P.M.**

### Jet Propulsion Laboratory \*

4800 Oak Grove Drive, Pasadena, California 91109

*featuring:* a tour of some of the JPL facilities,

hands-on, inquiry-based, integrative classroom activities correlated with CA Content Standards, and a lecture by Dr. Terence Kubar, Postdoctorate Research Associate/NASA Fellow, Jet Propulsion Laboratory, *“Cloud Structure, Composition, & Feedbacks in the current climate and a warming world”*

Clouds have long astounded us with their beauty and vast variety of sizes, distributions, and thicknesses. In addition to their aesthetics, they are a critical component of the Earth climate system because they modulate the amount of sunlight reaching the surface and also emit infrared radiation, controlling the amount of outgoing longwave energy. The vertical structure, horizontal extent, and cloud type are important for determining surface temperature as well as the location and intensity of drizzle, rain, and snow. The appearance, horizontal coverage, and vertical extent of clouds are influenced by many spatial and temporal scales. Thus, an understanding of the factors that control clouds requires an understanding spanning from the cloud-droplet scale to the underlying meteorology and circulation of the atmosphere. Cloud feedbacks, cloud changes that occur as a result of a forcing such as global warming, are challenging to predict quantitatively and are key to understanding the range of projected global temperature rise. Extensive suites of cloud satellite data and local and remote meteorology allow us to understand cloud variability in our current climate, which can lead to insights about predicting how clouds may change with climate change.

Terence Kubar, born in Fresno, CA, was able to pursue his early passion for meteorology by attending San Jose State University as a President's Scholar. He graduated in 2003 with a B.S. in meteorology and a minor in applied mathematics. Thereafter, he commenced graduate school at the University of Washington and completed his Ph.D. in atmospheric science in 2008 with his dissertation: "Cloud Structure, Microphysics, and Precipitation in Tropical Clouds Inferred from Satellite Data". Since then, Terry has been a NASA postdoctoral program fellow at Jet Propulsion Laboratory where he uses multi-sensor satellite and operational weather output data to examine the large-scale dynamical and stability controls on clouds in the tropics and subtropics. Terry is also an active member of the JPL Green Club which houses weekly meetings to discuss native gardening, connections between food production and the environment, energy and water conservation, solar and alternative energy technologies, and collaborations with local communities to monitor greenhouse gas emissions and suggest reductions goals.



There is no charge for this workshop. Lunch will be provided. Prof. dev. hours may be documented.

**Map & Driving Directions:** [http://www.jpl.nasa.gov/about\\_JPL/maps.cfm](http://www.jpl.nasa.gov/about_JPL/maps.cfm)  
**Please meet in the von Karman auditorium. Enter through the loading dock.**

**\* To be permitted to enter JPL,** your name must be on the list of registered participants AND you must show your photo ID (passport, driver's license or business/school issued). **NO exceptions.**  
JPL has strict security requirements!

**To register,** contact the UCLA COSEE-West office at [cosee.west@gmail.com](mailto:cosee.west@gmail.com) or 310-206-8247. Provide your full name & citizenship. Include your permanent residency status, if applicable. Foreign nationals must provide country of passport issuance, passport number, & expiration date, birth date, visa type, & expiration date. **The deadline to register is Fri, Jan 22.**

For information about our programs for teachers and informal educators, please visit the COSEE-West website: <http://www.usc.edu/org/cosee-west/>

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