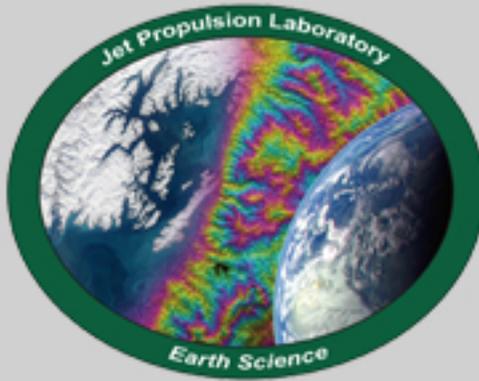


Earth Science Seminar

Monday
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11:30 AM



in JPL Bldg. 233-305E
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Imaging Spectroscopy and the Future of Biodiversity Research

David Schimel

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As the world enters the Anthropocene, the planet's environment is changing rapidly, putting the carbon cycle and critical ecosystem services at risk. Understanding and forecasting how ecosystems and the carbon cycle will change over the coming decades requires understanding the sensitivity of species to environmental change. The extant distribution of species and functional groups contains valuable information about the performance of different species in different environments. However, with high rates of environmental change, information about environmental sensitivity inherent in ranges of many species will disappear, since that information exists only under quasi-equilibrium conditions. The information content of distributional data obtained now is greater than data obtained in the future. New remote sensing technologies can map chemical and structural traits of plant canopies, and by extension, functional properties of carbon uptake and decomposition. Space-based approaches have proven their ability to observe critical ecosystem properties over time. In addition to global initial conditions, satellite observations are likely the only feasible way of observing planetary-scale dynamics of biotic responses to a changing environment. While current satellite remote sensing data can only produce relatively simple classifications, new techniques have dramatically higher biological information content.

About the Speaker

See <http://www.neoninc.org/bios/dschimel>