



**Computer Society of India, Chennai Chapter  
IEEE Madras Section  
IEEE Computer Society, Madras Chapter  
IEEE Power & Energy Society, Madras Chapter**

*Cordially invite you for a presentation by*

**Dr. V. Balaji**

**Head, Modeling Systems Group  
Cooperative Institute for Climate Science  
National Oceanographic and Atmospheric Administration's (NOAA)  
Geophysical Fluid Dynamics Laboratory (GFDL)  
Princeton University, USA**

*On*

## **“The Role of Computer Modeling and Simulation in the Understanding of Climate Change”**

**on Monday, 29<sup>th</sup> Aug 2011 at 6.30 p.m.  
at CSI Education Directorate, Taramani, Chennai – 600 113**  
(Situated in the opposite lane to Indira Nagar MRTS Railway Station.  
About 100 meters away from the Dharmambal Women's Polytechnic & Opposite to  
the Institute of Mathematical Sciences and Institute of Hotel Management)

**Dr. R.M. Suresh**  
Chairman  
CSI Chennai Chapter

**Dr. T. Thyagarajan**  
Chairman  
IEEE Madras Section

**Mr. H.R. Mohan**  
Chairman  
IEEE CS Madras Chapter

**Mr. K.V. Rupchand**  
Chairman  
IEEE PES Madras Chapter

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**Programme: 6.00 p.m.: Tea & Fellowship :: 6.30 p.m.: Presentation :: 7.45 p.m.: Dinner**

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**About the Presentation:** The issue of climate change occupies centre stage in considering the future of the planet. The climate system is extraordinarily complex, being affected by everything from solar radiation to the dynamics of glaciers, from the waters of the ocean abyss to the behaviour of leaves and soils. It in turn affects all our human systems: climate change has impacts on agriculture, migration, international security, public health, air quality, water resources, travel and trade. How is it possible to understand such a complex system, and predict its future evolution? Even given a scientific understanding of the climate, how do we undertake scientific experimentation, envision alternate futures? Computers have been central in the advance of climate science. This presentation will survey some key aspects of climate, and the role of simulation and modeling in the understanding of climate. We will discuss the role of advanced computing in this area, and look at how this may evolve in the future.

**About the Speaker:** Dr. V. Balaji heads the Modeling Systems Group serving developers of Earth System models at GFDL and Princeton University. With a background in physics and climate science, he has become an expert in the area of parallel computing and scientific infrastructure, providing high-level programming interfaces for expressing parallelism in scientific algorithms. He has pioneered the use of frameworks (such as the Flexible Modeling System: FMS, as well as community standards such as ESMF and PRISM) allowing the construction of climate models out of independently developed components sharing a technical architecture; and of curators (FMS Runtime Environment FRE) for the execution of complex workflows to manage the complete climate modeling process. The Earth System Curator (US) and Metafor (EU) projects, in which he plays a key role, have developed the use of a common information model which allows the execution of complex scientific queries on model data archives. V. Balaji plays advisory roles on NSF, NOAA and DOE review panels, including the recent series of exascale workshops. He is a sought-after speaker and lecturer and is committed to provide training in the use of climate models in developing nations, leading workshops to advanced students and researchers in South Africa and India.