

Special Program in Applied Mathematics and Applied Mechanics

Anthropogenic climate change: Modeling & Projection

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2017 - 06 - 07 (Wed.)

15:00 - 18:00

308, Mathematics Research Center Building (ori. New Math. Bldg.)

Given that anthropogenic warming of the climate system is unequivocal, accurate assessment of future climate is essential to understand the impact of climate change due to global warming. Although the projections of future climate are widely generated using global climate models (GCMs) forced by emission scenarios of anthropogenic greenhouse gases (GHGs), GCM's coarse resolution prevents it from adequately capturing local forcings such as complex topography and surface heterogeneity that modulate the climate signal at fine scales. In this regard, regional climate models (RCMs) with relatively high resolution can be an excellent tool to produce high-quality fine-scale climate change information. This is especially the case for regions characterized by complex geographical features. In this seminar, I introduce the general methodology of regional climate modeling and several example simulations to demonstrate how RCM can be used for the study of regional climate change in response to anthropogenic forcings such as greenhouse gases emission. A particular focus will be given to the projection of extreme heat waves around densely-populated agricultural regions of South Asia derived from the MIT regional climate model.



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