ICTS Postdoc/Graduate Student Seminar Series

Title : The Indian Monsoon through the lens of a Discrete Random Field

Speaker : Adway Mitra, ICTS-TIFR, Bangalore

Date : Friday, February 09, 2018

Time : 11:15 AM

Venue : Emmy Noether Seminar Room, ICTS Campus, Bangalore

Abstract : Indian Monsoon affects the lives of over a billion people. For over a century, scientists have been trying to understand the physics behind it, and make predictions. In this work, we make use of the availability of high-resolution data and advances in Data Science. We consider monsoon rainfall as a spatio-temporal random process, and introduce a random field of discrete variables through which we identify large-scale coherent spatio-temporal characteristics of the underlying physical process. We find that daily spatial distribution of rainfall over the Indian landmass during monsoon can be represented using a few canonical patterns. These patterns and their inter-relations give us a clear picture of the intra-seasonal oscillations of monsoon – its onset, "active spells", "break spells" and finally retreat. We also identify regions where daily rainfall characteristics during monsoon are near-identical, and this allows us to partition the landmass into homogeneous zones. We explore possibilities predictions at short/medium spatial and temporal scales.

Note: This will be an ongoing biweekly seminar series (Fridays, 11:15 am) by the ICTS postdocs and graduate students