

## **ICTS Seminar**

Title : Understanding stability of Earth's biosphere

Speaker : Kartik K. Murthy, Indian Institute of Science, Bangalore

Date : Monday, January 27, 2020

Time : 11:30 am

Venue : Chern Lecture Hall, ICTS Campus, Bangalore

Abstract : In Earth's biosphere, the nutrient flows between biological (biotic) and physical (abiotic) systems. Typically in an ecosystem, nutrients flow from soil to plants, plants to herbivores to carnivores and back to soil. This nutrient recycling involves materials to be exchanged between bio-physical boundaries, which involves expenditure of energy. These bioenergetics or physiological processes are sensitive to abiotic conditions like temperature, water availability, soil pH etc. These abiotic conditions are spatially heterogeneous and hence organisms experience different physiological constraints in different ecosystems. Theoretically this complex nutrient flow can be represented by coupled differential equations. I will briefly discuss about how to integrate this theoretical study with the available remote sensing data-sets on vegetation and climate. Further, I will share insights about the statistical analysis conducted using long-term satellite derived climate and vegetation data-sets, to understand the effect of climatic conditions on the spatial and temporal patterns in vegetation.