Continental Tropical Convergence Zone (CTCZ) Programme

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Understanding and prediction of tropical convection/rainfall is currently one of the most challenging problems in atmospheric science. Under the Indian Climate Research Programme, a monsoon experiment which aims to understand space-time variation in convection over the Indian region, namely, CTCZ is underway. The large-scale summer monsoon rainfall over the Indian region is associated with a tropical convergence zone, TCZ, characterized by intense convergence in the boundary layer, cyclonic vorticity above the boundary layer and organized deep moist convection. This TCZ is called the continental TCZ (CTCZ) to distinguish it from the more common intertropical Convergence zone (ITCZ), seen over the tropical oceans. The CTCZ gets established over the Indian monsoon zone in July, at the end of the onset phase of the summer monsoon. The variation of the large-scale rainfall over the Indian region during the summer monsoon is linked to the space-time variation of the CTCZ.

Monsoon rainfall involves interactions across a wide range of scales, from sub-micron to planetary scale. CTCZ is an ambitious program planned by the Indian Scientists aiming to understand physical processes at cloud microphysical, convective cloud, meso and synoptic scales. CTCZ involves special observations through field campaigns in addition to the analysis of existing data from conventional platforms as well as satellites, buoys, ARGO floats; and theoretical studies with process models as well as complex atmospheric general circulation models. The CTCZ is a multi-year programme with a pilot phase during July-August 2009. The present talk will briefly discuss CTCZ objectives, and preliminary results obtained during the 2009 Pilot experiment.