



INDIAN INSTITUTE OF SCIENCE
BANGALORE

INSTITUTE COLLOQUIUM

By

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On

Convective Cloud – Beauty and Beast in the Sky

Date : Friday, 27 January 2012
Venue : Faculty Hall
Time : 4-00 p.m.

Professor P. Balaram, Director
Will preside

ALL ARE WELCOME

Tea: 5-00 p.m Reception Hall

ABSTRACT

Clouds are the largest source of uncertainty in weather and climate science and have been listed among the most urgent scientific problems requiring attention by the Intergovernmental Panel on Climate Change. They involve multiple phases, some of which change into each other releasing or absorbing considerable quantities of heat, and invariably alter atmospheric radiation balance. Clouds occur in a variety of shapes and sizes and the most spectacular ones are the convective clouds whose roots are in the atmospheric boundary layer and vertical extent from few tens of meters to the entire troposphere. Convective clouds represent a set of complex interactions among microphysics, atmospheric stability, flow turbulence, and large scale atmospheric circulation. While they are the major source of fresh water on land, extreme weather events are associated with the frequency, duration and intensity of their occurrence. This talk will give a broad overview of the present understanding of convective clouds gained through laboratory models, Doppler Weather Radars, satellites and instrumented aircraft. It will be shown that convective clouds share many properties of well known turbulent shear flows; however with an exception which is counter intuitive and in the absence of which life would have been very different on earth.