

From lightning to climate: a survey of thunderstorm effects on the atmosphere

Overview

There are approximately 2000 thunderstorms at any given moment on planet Earth, with a global flash rate of ~50 flashes per second. Thunderstorms and lightning are a natural hazard that affects the economy and lives of millions, in a seasonal cycle that is slowly being changed by the warming climate. Modern society depends on electricity for critical services, and so forecasting and monitoring lightning activity is of crucial importance.

The course deals with the electrical structure of the atmosphere and the processes which take place in fair weather conditions and during thunderstorms. The students will get to know the Global Electrical Circuit and its components, as well as study thunderstorm electrification, evolution and dynamics, lightning physics and its chemical and electrical effects. We will focus on the complex relation between lightning and severe weather (hurricanes and flash floods) and emphasize the trends and predictions for future climate scenarios. The role of lightning in the early terrestrial atmosphere and its existence on other planets will be presented. Students will be familiarized with practical aspects of lightning data for real-time and planning applications.

Course participants will learn these topics through lectures and independent learning from on-line resources. We will work on case studies and assignments using real data, in order to stimulate collaborative research between participants.

Modules	A: Theory and observations of atmospheric electricity : September 6 - September 9 B: Application of lightning data in research and operations: September 12 - September 15 Number of participants for the course will be limited to 30.
You Should Attend If...	<ul style="list-style-type: none">• You are a Graduate or a Masters' students in meteorology, physics or engineering• You are an Official, executive or a manager in disaster and risk management, electrical power supply with background (degree) in the Natural Sciences• You are a faculty member and researcher in a university or a research institution
Fees	The participation fees for taking the course is as follows: Participants from abroad : US \$500 Industry/ Research Organizations: Rs 20000 Faculty from academic Institutions: Rs 10000 Students: Rs 5000/- The above fees include all instructional materials and on campus wi-fi access. The participants from out of the city limits will be provided with single bedded accommodation on payment basis in double room.

The Faculty



Prof. Yoav Yair is the Dean of the School of Sustainability at the Interdisciplinary Center (IDC) Herzliya in Israel. His research interests include the electrification of dust storms, lightning properties and thunderstorm related phenomena, space weather and climate.



Dr Sanjay Deshmukh is the Vice-Chancellor of 158 year old University of Mumbai, India. His research interests are Climate Change impact on biodiversity, ICT for rural development, conservation and sustainable management of plant genetic resources, Environmental economics, EIA of mega-projects, CSR and Ethical management to name a few.

Course Co-ordinator

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