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#AzadiKaAmritMahotsav

Lecture Series on

Cloud and Precipitation Physics and Dynamics

Ministry Of Earth Sciences

Government of India

Ice nucleating particles in the atmosphere

Dr. Heike Wex

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About the speaker:

Dr. Heike Wex's research interests are focused on atmospheric aerosol and particularly include the experimental examination and theoretical description of aerosol-cloud-interactions such as: - hygroscopic growth up to high relative humidities (>99% RH) - activation of particles to cloud droplets - heterogeneous ice nucleation processes - atmospheric aerosol particles as nuclei for cloud droplets (CCN) and primary ice (INP) Besides, She is concerned about climate change and related issues and she works for measures preventing a severe climate crisis on a more regional level in her spare time.

Abstract: In the temperature range between 0 and -38°C, ice nucleation in atmospheric cloud droplets has to be aided by a catalyst, which is provided by one kind of atmospheric aerosol particles, INP (ice nucleating particles). Therefore, INP are important for mixed phase clouds, but also for some ice formation in cirrus clouds. And the ice formation, in turn, is important for cloud radiative effects, precipitation formation and cloud lifetime.

INP comprise different types of particles, more specifically biological and mineral dust particles. They are very rare in general, but still occur in vastly varying concentrations, depending on factors as location on Earth, season and temperature. Intensive laboratory research on INP was done in the past decade, while now the focus has shifted at understanding atmospheric INP based on atmospheric measurements. This presentation will provide some basic understanding of ice nucleation and measurements principles, will summarize the main findings from laboratory studies and then give an overview of the newest understanding gained from atmospheric measurements in the past years. Due to the vastness of the topic, it is thought as spark that may kindle curiosity and further own research in this important topic.

https://youtu.be/HFdUSgJzhH0