

10th November 2022
Thursday, 16:30 IST
(11 UTC)

#AzadiKaAmritMahotsav

Lecture Series on

Cloud and Precipitation Physics and Dynamics



MINISTRY OF EARTH SCIENCES



Understanding the particle number concentrations from satellite observations



About the speaker:

Odran Sourdeval's research interests lie in the understanding of cloud processes, aerosol-cloud interactions (aci) and their radiative effects, via a combined use of remote-sensing, modelling and in-situ observations. Building on his expertise in the development of satellite retrieval schemes, he has long contributed to operating a shift from a traditional view on satellite products to quantities better adapted for model evaluation and aci studies. His main current research focuses on improving observation-based estimates of the effective radiative forcing due to aci for liquid but also ice clouds, through better constraints on key cloud parameters such as the number concentration in particles. Most of Odran's work remains closely linked to current and for future spatial missions.

Abstract:

The cloud particle number concentration is central to understand cloud formation and growth mechanisms. It is therefore a key parameter for the representation of clouds in models as well as for the quantification of aerosol-cloud interactions. Despite this importance, this parameter remains poorly understood from satellite remote sensing. Our understanding of the cloud droplet number concentration (Nd) has significantly improved over the last decades but it still remains indirectly estimated from satellite observations under very restricting assumptions. For ice clouds, the ice crystal number concentration (Ni) appears even more challenging and satellite estimates have only emerged in the recent years. This lecture will review the challenges faced by satellite observations to estimate Nd and Ni and offer a current state of the art of the existing methods and climatologies.

Odran Sourdeval
University of Lille



<https://youtu.be/0MitMbipi6c>