



ΔΙΑΛΕΞΗ

Πέμπτη 12 Μαρτίου 2020, ώρα 9:00

Αίθουσα Συνεδριάσεων του Τμήματος Φυσικής (2^{ος} όροφος, απέναντι από τη Γραμματεία)

Detection of pollen with lidars and different in-situ instruments

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Abstract

Pollen has various effects on human health and the environment. Many people in the world are suffering from allergies due to pollen inhalation. Airborne pollen is recognized as one of the major agents of allergy-related diseases such as asthma. Pollen is also a form of biogenic air pollutant which affects both the solar radiation reaching the Earth and cloud optical properties by acting as CCN and IN. Various networks are built to monitor pollen concentrations at ground level using in situ instruments, mostly collectors, but very little is known about their vertical distribution. Recently it has been found out that lidars can detect the presence of pollen in the atmosphere using the strong depolarization generated by the non-spherical pollen grains. Aerosol lidars can provide vertical information of the atmosphere with good vertical and temporal resolution and can therefore improve our understanding on pollen. Multi-wavelength lidar measurements also provide the possibility to identify different pollen types, providing several aerosol parameters. We have organized several pollen campaigns with the lidar accompanied by multiple in-situ instruments and drones. Campaign have mainly been organized in Kuopio Finland, but also in

Germany and Crete. The presentation reveals the possibilities of lidars in detecting pollen and summarizes our findings so far and looks to the future.

Short CV

Mika Komppula is leading the Atmospheric Measurements -group at Finnish Meteorological Institute (FMI) in Kuopio since 2008. He has been working at FMI since 2001 and earned his doctoral degree on Atmospheric Physics in 2005 from the University of Helsinki. His research topics include atmospheric aerosols and their interaction with clouds using a wide range of instrumentation including in-situ instruments and remote sensing (especially lidars). He has participated and organized several measurement campaigns in Finland and abroad. One of the most recent interests of the group is pollen measurements with lidars and different in-situ methods.