

Fakultätskolloquium

anlässlich der Verleihung des

Professor-Ludwig-Weickmann-Preises 2016

Freitag, 2. Dezember 2016, 15:00 Uhr

Kleiner Hörsaal, Linnéstraße 5, 04103 Leipzig

- Programm:**
1. Grußwort
 2. Vorstellung des Preisträgers
 3. Kolloquium Dr. Goren
 4. Preisverleihung

Dr. Tom Goren

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Is air pollution “clouding” the oceans?

Marine stratocumulus clouds exist over oceans and occur in two main cloud regimes of open and closed cells that differ significantly by their cloud cover. Closed cells are characterized by relatively high aerosol concentrations that gradually get cleansed in a process that involves formation of drizzle. The drizzle triggers feedbacks that reduce the cloud cover from fully cloudy closed cells to partially cloudy open cells. These changes in cloud cover modify the amount of reflected solar energy back to space.

Detailed analysis of satellite observations show that continents can act as huge aerosol sources and form “continental tracks”, an ocean area that is assumed to be cloudy for longer time due to higher elevations of anthropogenic aerosols. This is in fact a large scale manifestation of a similar well known phenomena, ship tracks. The high aerosol concentrations is assumed to delay the initiation of drizzle and thus to keep the clouds in the closed cells regime for longer time and larger distance away from land. Given that anthropogenic air pollution is higher today relative to pre-industrial times, the question that rises is whether fully cloudy closed cells are more prevalent in current days compare to the past. If so, the warming due to greenhouse gases could have been partially masked by the cooling effect of the clouds. Continental tracks serve as a platform to examine this hypothesis. Hierarchy of models along observations are used in an attempt to provide a global estimate of the climatic significance of the effect of anthropogenic aerosols on cloud cover, which is one of the major uncertainties in climate studies.

Alle Interessenten sind herzlich eingeladen.