NAMIBIA UNIVERSITY OF SCIENCE AND TECHNOLOGY

Faculties of Natural Resources and Spatial Sciences and Engineering

Public Lecture

Progress and Challenges in Mineral Dust Modelling

by Dr Benoit Laurent

Abstract

A public lecture will be given on Monday, 27 February 2017, addressing developments in mineral dust modelling, concentrating on northern and southern desert areas, recent results and ongoing research works in the area of atmospheric mineral dust.

Atmospheric mineral dust is produced by Aeolian (sand) erosion in arid and semiarid areas. Surface-Atmosphere interactions control the occurrence and the intensity of dust emissions. Radiative and bio-chemical impacts of sporadic but intense dust storms on the environment differ from those of frequent but less intense events. Mineral dust also represents a risk for human health and activities in regions neighbouring deserts. To quantify these impacts, the regional spatio-temporal variability of dust emissions, atmospheric concentrations, and depositions has to be jointly measured, observed and modelled with adapted sub-daily and fine spatial resolutions.

Besides in-situ measurement campaigns, regional model systems are developed to simulate dust storms. These models allow describing the spatio-temporal evolution of dust events by comparisons with in-situ measurements, network observations and satellite dust products. The representations of dust emissions and dust size distribution in the models are crucial points to correctly simulate the atmospheric dust mass and deposition as well as to estimate dust optical thickness.

The Speaker:

Dr Benoit Laurent is an Associate Professor in chemistry, atmospheric and environmental sciences at the University Paris Diderot. His research activities on the modelling of the mineral dust cycle are conducted at the LISA laboratory. His research specifically focuses on, dust emissions process studies and modelling these processes; regional modelling of mineral dust and nutrient cycles; surface properties controlling dust emissions in arid regions and satellite dust products and dust deposition modelling.

Dr Laurent has published numerous peer reviewed articles in this field and participated in multiple international campaigns investigating mineral dust events particularly in Asia and the Sahara. He has joined together with other scientist to participate in the AEROCLO-sA campaign which is investigating mineral dust events within the southern African region and is a collaborative project between France-RSA-Namibia.

Date: Monday 27 February 2017
Time: 18:35
Venue: Engineering Auditorium

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