



Teach Mob – Visiting Professors Academic year 2017/2018

1st Term
COURSE TITLE Numerical environmental prediction and modelling
Scientific area Physics of the atmosphere, Meteorology, Hydrology, Earth Sciences
Department of Physics
Language used to teach English
Teaching Commitment: 48 hours
Course summary Main goal of this course is to introduce fundamental knowledge on numerical modelling and prediction of atmosphere. Especially numerical techniques to solve the partial differential equations will be discussed in depth for practical assessment to numerical modelling and prediction. Basic knowledge on physical parameterization, ensemble prediction and data assimilation will be also discussed. Topics to be covered include but not limited to: 1) observation systems; 2) overview of numerical weather prediction (NWP); 3) partial differential equations (PDEs); 4) governing equation of atmosphere; 5) numerical techniques for solving PDEs; 6) initial conditions (ICs) and boundary conditions (BCs); 7) sub-grid scale physical processes and parameterization; 8) basics of data assimilation; and 9) ensemble forecasting.
Learning objectives Main goal of this course is to introduce fundamental knowledge on numerical modeling and prediction of atmosphere. At the end of the course, the students should be able to: i) describe the basic ideas behind the generation of a weather forecast by a computer; ii) talk specifically about model grids and vertical coordinates; iii) identify the categories of primary numerical models used for short-term forecasting and briefly discuss their strengths and weakness; iv) successfully interpret the maps routinely produced by the main models.
Tutorship activities Availability to be co-tutor of M.S. thesis in arguments inherent to the topics of the course.
Lab activities Despite, strictly speaking, lab activities will not be performed, students will be required to give group or individual presentations in which they will be requested to comment some specific case studies referring to peculiar meteorological situations, commenting model performances.
Other activities besides the course: i.e. seminars and conferences addressed to PhD students and research fellows, dissemination conferences During the course, some dissemination conferences will be dedicated to interested students of any level, as well as to external public.

Visiting Professor Profile

The candidate visiting professor must: be graduated, and possess Ph.D., in meteorology or atmospheric sciences; have at least seven years of teaching experience in the fields of atmospheric sciences and/or meteorology; have a permanent position of Associate or Full Professor at a foreign university; have published papers related to meteorology and/or atmospheric sciences; have ongoing international collaborations; have a good knowledge of English language. It will be considered an element of merit to have proven responsibilities as director or vice-director of research centers, university departments.

Contact person at the Department

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