



DEPARTAMENTO DE
MATEMÁTICA APLICADA



Seminario de Matemática Aplicada

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“Modelling the atmospheres of other planets: the case of Mars”

ABSTRACT :

A fundamental need to explore our surroundings, typical for mankind, is the source of the interest driving us to space. Landers and orbiters have been sent to the neighboring planets for decades, and modeling efforts have been of growing importance in understanding the other atmospheres and designing the missions sent to study them. Planetary research is thus a mixture of natural interest of the human imagination, and fundamental science, providing scientists with a very intriguing playfield.

Theories and models developed for the terrestrial atmosphere can and are applied to other planets. These alien atmospheres function as very efficient test benches where the theory is pushed to its limits where it has to reveal its faults and needs for improvement.

Terrestrial weather predictions are still far from perfect: research of planetary atmospheres can contribute to this via model testing and development of parameterizations. Terrestrial climate research is puzzled by the role of aerosol particles in the climate: they have an effect in the climate via influencing the radiative transfer. The theoretical description of turbulence is insufficient and thus our understanding of the processes in the lowest layers of the atmosphere, the boundary layer, is still imprecise.

In my seminar I will talk about modeling other atmospheres in general, and I will give some examples related to the atmosphere of Mars. More specifically, I will talk about modeling the boundary layer and cloud formation on Mars. Related to the latter topic, I will present some recent findings of Mars Express on CO₂ clouds that demonstrate well the differences between the Red Planet and the Earth.

Organizado por el Departamento de Matemática Aplicada de la UCM y el IMI

Fecha: 15 de diciembre de 2009, a las 12.00 horas
Seminario Alberto Dou (aula 209)
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