

Workshop : "From the stratosphere to the ionosphere: coupling, boundary conditions and assumptions"

26-11-2012 to 28-11-2012



This workshop aims at comparing current numerical models for the middle and upper atmospheres and, in the light of the observations, identifying key issues, lacks and roads for future improvement.

Location : Université Pierre et Marie Curie - 4 place Jussieu - Paris 5e - France (room meeting tbc)

Solar radiation is the main source of input energy to the terrestrial atmosphere and, as such, it determines the Earth's radiative balance and climate. There are multiple evidences showing how variations in the intensity of incident solar radiation at different wavelengths may affect all the layers of the atmosphere and the climate on annual, decadal and millennial timescales. Therefore, there is a strong scientific interest in developing climate models that properly describe all aspects of the solar forcing by also including the thermosphere and ionosphere, where solar UV flux and solar wind energy are essentially deposited.

However, the description of the terrestrial atmosphere from the surface up to the thermosphere and ionosphere is a very complex problem when dealing with the solar forcing on the climate. Thanks to numerous new observations and recent progress in our understanding of how the thermosphere/ionosphere reacts to solar forcing, several models have recently improved the description of the middle and upper atmosphere.

This workshop aims at comparing current numerical models for the middle and upper atmospheres and, in the light of the observations, identifying key issues, lacks and roads for future improvement.

Several leading specialists in the field will attend this workshop and describe their approach, present the difficulties, and discuss solutions. The programme will cover various aspects such as the ion-neutral chemistry, radiative transfer (linear and non-linear), the dynamic coupling between the stratosphere and the upper atmosphere, the EUV/UV solar flux (description and variability), its interaction with the upper atmosphere (heating and ionization), geomagnetic forcing induced by the solar wind variability and its interaction with the magnetosphere, energetic particle precipitation in the auroral regions and all the observations that could help to constrain these elements.

The goals of this workshop are to highlight the critical issues in model developments, discuss the choices that were made and foster collaborations between different teams.

The program outline is

1. Description of the solar radiative input(**Convener: T. Dudok de Wit**)

Invited speakers : N. Krivova, G. Cessateur, I. Usoskin

2. Modelling solar forcing from the surface to the upper atmosphere (Conveners: S. Bekki, P. Keckhut, A. Hauchecorne)

Invited speakers : S. Melo, A. Seppälä, E. Rozanov, H. Schmidt, F. Forget, A. Hauchecorne, A. Marchaudon, G. Thuiller, K. Semeniuk

3. Radiative transfer and chemistry (Conveners: M. Marchand, F.Lefèvre).

Invited speakers : M. Lopez-Puertas, D. Marsh, M. Sinnhuber,P. Verronen

Contributions to this workshop are welcome up to October 31. Interested scientists should contact the conveners:

Contacts :

T. Dudok De Wit (LPC2e)

S. Bekki (LATMOS)

P. Keckhut (LATMOS)

A. Hauchecorne (LATMOS)

M. Marchand (LATMOS)

F. Lefèvre (LATMOS)

Or the organizers: François Leblanc (LATMOS) and Jean Lilensten (Laboratoire de Planétologie de Grenoble).

Website: <http://strattoionwork.sciencesconf.org/>

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