
POST-DOC POSITION

RESEARCH PROJECT MORDICUS

Mechanisms for climate oscillations and retroactions at decadal timescale : uncertainties and sensitivity.

Profile	PhD in atmospheric sciences. Fair knowledge of thermodynamical, radiative and chemical processes in the atmosphere is necessary. A good background in computational techniques is desirable, and a particular experience with running long-term simulations with large codes is welcome.
Missions	Document the various mechanisms involved in the decadal timescale climate responses to external aerosol forcing and investigate the sensitivity of the decadal climate variability to the representation of the aerosol forcing by analyzing existing numerical experiments and by preparing, launching and analyzing a set of numerical simulations with an upgraded version of the CNRM atmosphere-ocean general circulation model.
Beginning	May 1 st to July 1 st .
Duration	~ 18 months (net salary from 1800 to 2700 euros, depending on experience).
Host laboratory	CNRM-GAME (http://www.cnrm.meteo.fr)
Scientific officer	David Saint-Martin (http://www.cnrm.meteo.fr/spip.php?article180&lang=en)

Description of the project

This project is part of the larger MORDICUS (Mechanisms for climate Oscillations and Retroactions at Decadal tImesCale : Uncertainties and Sensitivity) French research project whose principal objective is to explore, describe and better understand the relative role of external forcing (GHG, solar, volcanism, tropospheric aerosols) and internal variability as well as their interactions. The project aims at explaining the decadal regional climate variations observed over the last 50 years or so and providing an estimate of the range of outcomes for the regional climate of the next two or three decades. Four laboratories (CNRM-GAME, CERFACS, LOCEAN, LMD) participate to cover all aspects of the project subdivided in three main tasks. The first one will study the relative role of IPV/AMV internal modes in setting large-scale decadal variability. The second one will focus on the influence of external forcings on decadal modes of climate variability. And the third one will investigate the climate change associated with the past/projected evolution of the main decadal modes of variability.

The focus of the present post-doc position is to document the various mechanisms involved in the decadal timescale climate responses to external aerosol forcing and to investigate the sensitivity of the decadal climate variability to the representation of the aerosol forcing. For this purpose, dedicated simulations will be used and performed. Simulations with the CMIP-5 version of the CNRM AOGCM (Atmosphere-Ocean General Circulation Model) will first be used. Idealized simulations with abrupt change in the prescribed map of aerosol optical depth will be used to analyze the response of the climate system to tropospheric aerosol perturbations. Secondly, simulations with a new version of the CNRM-CM model will be carried out and analyzed. These simulations will include an interactive tropospheric aerosol scheme and be coupled to a mixed-layer ocean model. Both modelling activity and data analyzing will be performed during this post-doc position.

Contact

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Application

- Language : English or French.
- Deadline : **March 18, 2014**, to be sent by mail to D. Saint-Martin and M. Michou.

Selection criteria

- PhD, skill (CV), recommendations.