

14-months post-doctoral position at CNRM-GAME

Representation of atmosphere-ocean processes in the tropical Atlantic by climate models

Context

The « Centre National des Recherches Météorologiques » (CNRM) is the research center of Météo-France, the French weather service. To carry out its missions, CNRM hosts approximately 275 permanent positions (one third being research scientists), and about 60 students and visitors, working in specialised divisions. The climate group, GMGEC, is one of these divisions. Its main specific research activities concern the development of climate models, the studies of climate variability and change at global and regional scales, of long-range forecasting, of atmospheric chemistry and of ocean-air interactions. Besides, the CNRM climate group has recently developed a new version of its global coupled climate model including a deeply revised set of atmospheric parameterisations. This new model will be used for the CMIP6 exercise.

The Tropical Atlantic is a region of key uncertainty in earth-climate system: state-of-the-art climate models exhibit large systematic error and climate change projections are highly uncertain over this region as well as for the West African monsoon. Any improvement of the models over the tropical Atlantic could increase our confidence on African monsoon projections, which could have strong implications over this highly populated region. Only few models have significantly improved in this region from CMIP3 to CMIP5. The EU project PREFACE (<http://preface.b.uib.no/>) aims at reducing these systematic errors to reduce the uncertainty of seasonal hindcasts and climate projections.

JOB Description

The successful applicant will first document the behaviour of the new CNRM climate model (CNRM-CM6) over the tropical Atlantic region. Then he/she will identify leading-order mechanisms responsible for the development of systematic coupled model biases. To achieve this, he/she will focus on the analysis of the systematic drift in existing integrations using full-field initialisation from observations (Tonizzo and Woolnough, 2013), using high-frequency diagnostic output in both oceanic and atmospheric components. Sensitivity experiments will then be conducted with the CNRM-CM model in hindcast mode to isolate relevant processes and model weaknesses (clouds convection and large scale dynamics).

The work will be carried out at CNRM (Toulouse, France) but with strong interactions with Cerfacs (Toulouse) also involved in the PREFACE project and using CNRM-CM. The applicant will benefit from the collaborative framework of the PREFACE project.

Applications

The candidate should have a PhD with experience / knowledge in climate modelling, atmospheric physics modelling and ocean-atmosphere interactions. The candidate should be autonomous and able to work with computing tools such as FORTRAN and/or python, and with complex model codes in UNIX environment. He should also have good communication skills. Fluency in English is necessary. Net salary of the successful applicant will range from 2500 to 3000€/month, depending on experience. The selected candidate will be offered a contract for 14 months. Applications should include a CV and a cover letter, and if possible the names of two reference persons. They should be sent to Aurore Voltaire (aurore.voldoire@meteo.fr) and Romain Roehrig (romain.roehrig@meteo.fr). The position will start as soon as possible and possibly no later than September 2016. Applications should be sent by **15 May 2016**.