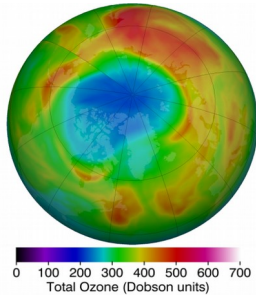


## Postdoc position in Stratospheric composition in Forecasting systems



Fascinated by the ozone layer and how it affects climate? Intrigued by its potential role as a source of predictability? Motivated by teamwork? Then consider a Post-doc position at the Instituto de Geociencias – Spanish National Research Council (IGEO-CSIC) within the EU project entitled “Stratospheric cOmposition in a changing CLIMate: drivers and mechanisms (SOCLIM)”, funded by the European Research Council (ERC).

The ozone layer plays a key protective role for the biosphere as it filters harmful UV radiation from the sun. It also plays a crucial role in shaping stratospheric climate. However, its representation in numerical models is often simplified, especially in those used for weather forecasting, due to the excessive computational cost of atmospheric chemistry. Also, stratospheric ozone and other constituents have generally been considered as passive tracers, simply responding to changes in the atmospheric circulation and chemistry, without in turn affecting the large-scale circulation and surface climate. Recent evidence, however, shows that stratospheric composition plays an active role in shaping climate, including that of the Northern Hemisphere. Arctic ozone varies from year to year, and these fluctuations may represent a (untapped) source of predictability.

The post-doc will explore the two-way interaction between stratospheric composition (Arctic ozone and water vapor among others) and the atmospheric circulation. In particular, the post-doc will improve the representation of stratospheric chemistry on Sub-seasonal to Seasonal time-scales (S2S) in the forecasting system from ECMWF. She/he will evaluate the impact of the existing simplified ozone schemes (“Hybrid Linear Ozone” model) in the Integrated Forecasting System (IFS) model and couple IFS to more comprehensive atmospheric chemistry schemes. The post-doc will perform numerical simulations with the IFS, (i) testing different model configurations, (ii) evaluating the impact of model biases, and (iii) performing mechanistic experiments to investigate the physical processes behind predictability and uncertainty in the predictions on S2S time scales. The post-doc will join the new ERC group on chemistry-climate led by Dr. Gabriel Chiodo at IGEO-CSIC, and will also be involved in co-supervision of other PhD students.

We are looking for a candidate who is fascinated about atmospheric dynamics, who likes running numerical models, analyzing scientific data and who enjoys scientific discussions. As a suitable candidate, the candidate may have research experience in Atmospheric Science, Chemistry, Computer Science. Previous experience with numerical models, data analysis and visualization (e.g., in python, matlab, R, etc.) is essential. We offer a full-time 3-year post-doc position. Salary Range: **36.400€ – 44.500€ gross** (per year). Start date of the post-doc position: Fall 2024

The position will be based at IGEO-CSIC in Madrid (Spain) under the lead of Dr. Gabriel Chiodo. Extensive collaboration with several partners is foreseen, such as Universidad Complutense de Madrid, Université de Lausanne (Switzerland) and ECMWF (Bonn, Germany and Reading, UK).

For more information about the project, visit: <https://www.gabrielchiodo.com/projects/soclim>

**Please send your application to: [gachiodo@ucm.es](mailto:gachiodo@ucm.es)**

Please, provide your Curriculum Vitae, one Cover Letter along with two References, and a short research statement. Your application will be given full consideration if you apply by **15. July 2024**.

