



Consiglio
Nazionale
delle Ricerche



PhD call in "Hierarchies of models and optimization methods for the study of 'tipping points' in the climate system"

The reliability of long-term climate model projections strongly depends on our understanding of tipping points, i.e. abrupt changes in some key elements of the climate system. Several tipping elements have been identified, but their understanding, solely relying on state-of-the-art climate models, is often incomplete, if not contradictory at all. We will advance the understanding of some of these tipping points, exploiting several approaches (e.g. investigating crucial processes using hierarchies of models and including machine learning and large deviation algorithms), which, for their complexity, will allow to exploit and test the capacity of the new HPC infrastructure developed within the RRNP TeRABIT project.

Institute of Atmospheric Sciences and Climate of the Italian National Research Council (CNR-ISAC), in collaboration with the University of Bologna, will be opening a 3-year PhD position on this topic, in cooperation with the National Institute for Oceanography and Applied Geophysics (OGS) through the RRNP TeRABIT Project.

Goal: Investigate poorly understood and new tipping elements with new statistical and dynamical techniques, using hierarchies of models.

- **Goal:** Investigate poorly understood and new tipping elements with new statistical and dynamical techniques, using hierarchies of models.
- **Degree:** physics, chemistry, mathematics, environmental sciences.
- **Experience:** A basic knowledge of climate dynamics and modelling is required. Experience in geophysical data analysis is welcome but not fundamental.
- **Coding:** Python, Bash, other languages welcome (Fortran, R, Julia, etc.)
- **Salary level:** 1250 per month (net)
- **Deadline for application:** 20/06/2023
- **Starting date:** November 2023
- **Contract length:** 36 months
- **Location:** CNR-ISAC, Bologna, Italy. Courses will be held during the first year at the University of Bologna.

If you are interested interested in joining our team for this exciting project and for any further information please contact:

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The official link to the call can be found here: [Unibo PhD page](#)

Additional details will be available here soon: [Unibo PhD description](#)