

[ONLINE] PATC: Earth Sciences Simulation Environments

Objectives

The objective of this PATC course is to cover the basics of a high performance computing (HPC) environment oriented towards earth science applications, specifically chemical weather modelling and climate modelling.

More precisely, the course will cover:

- Introduction to earth science fundamentals and modelling;
- Basic usage of an HPC environment: shell, compilers, libraries, file systems, queuing system and parallel computing;
- Build and configure targeted earth science applications with the NMMB/MONARCH chemical transport model and with the EC-EARTH climate model;
- Execute and monitor numerical experiments using a workflow manager;
- Analyse and visualise model outputs with a wide set of tools.

Learning outcomes: Participants will learn and gain experience in accessing an HPC facility, installing earth science numerical models and related utilities and libraries, running numerical simulations, monitoring the execution of supercomputing jobs, analysing and visualising model results.

Requirements

Prerequisites:

At least University degree in progress on Earth Sciences, Computer Sciences or related area

Basic knowledge of UNIX

Knowledge of C, FORTRAN, MPI or openMP is recommended

Knowledge of Earth Sciences data formats is recommended (grib, netcdf, hdf,...)

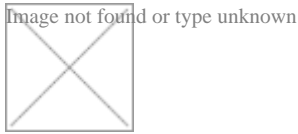
Knowledge of R and python

Please download and carefully read the following [recommendations](#) regarding the logistics that participants enrolling into the online PATC at BSC are expected to follow.

Learning Outcomes

Participants will learn and gain experience in accessing an HPC facility, installing earth science numerical models and related utilities and libraries, running numerical simulations, monitoring the execution of supercomputing jobs, analysing and visualising model results.

[Academic Staff](#)



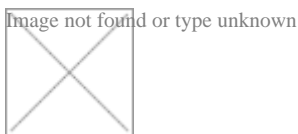
Conveners

Dene Bowdalo, Recognised Researcher, Atmospheric Composition Group, Earth Sciences, BSC
Iria Ayan, Junior Research Engineer, Computational Earth Sciences Group, Earth Sciences, BSC

Course Lecturers

Oriol Jorba, Leading Researcher, BSC-ES, Atmospheric Composition Group
Eleftheria Exarchou, Recognised Researcher, BSC-ES, Climate Variability and Change Group
Mario Acosta, Recognised Researcher, BSC-ES, Computational Earth Sciences Group
Miguel Castrillo, Senior Research Engineer, BSC-ES, Computational Earth Sciences Group
Maria Gonçalves Ageitos, Established Researcher, BSC-ES, Atmospheric Composition Group
Francesca Macchia, Research Engineer, BSC-ES, Computational Earth Sciences Group
Gilbert Montane, Research Engineer, BSC-ES, Computational Earth Sciences Group
Alejandro Garcia, Junior Research Engineer, BSC-ES, Computational Earth Sciences Group
Eric Ferrer, Junior Research Engineer, BSC-ES, Computational Earth Sciences Group
Francesco Benincasa, Senior Research Engineer, BSC-ES, Computational Earth Sciences Group
Miriam Olid, Research Support Engineer, BSC-ES, Computational Earth Sciences Group
Santiago Enciso, Junior Research Engineer, BSC-ES, Atmospheric Composition Group
Franco Lopez, Junior Research Engineer, BSC-ES, Atmospheric Composition Group
An-Chi Ho, Research Engineer, BSC-ES, Computational Earth Sciences Group
Eva Rifa, Junior Research Engineer, BSC-ES, Computational Earth Sciences Group

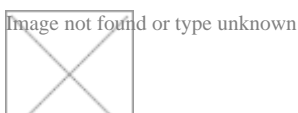
[Materials](#)



INTELLECTUAL PROPERTY RIGHTS NOTICE:

- The User may only download, make and retain a copy of the materials for his/her use for non-commercial and research purposes.
- The User may not commercially use the material, unless has been granted prior written consent by the Licensor to do so; and cannot remove, obscure or modify copyright notices, text acknowledging or other means of identification or disclaimers as they appear.
- For further details, please contact BSC?CNS patc [at] bsc [dot] es

[Further information](#)



**All PATC Courses at BSC do not charge fees.
PLEASE BRING YOUR OWN LAPTOP.**

You can send us an e mail to education@bsc.es for further details about MSc, PhD, Post Doc studies, exchanges and collaboration in education and training with BSC.

For further details about Postgraduate Studies in UPC - Barcelona School of Informatics (FiB), visit the [website](#).

Sponsors: BSC funds the PATC @ BSC training events.

Barcelona Supercomputing Center - Centro Nacional de Supercomputación

Source URL (retrieved on *14 jul 2024 - 07:10*): <https://www.bsc.es/ca/education/training/patc-courses/online-patc-earth-sciences-simulation-environments-1>