

[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,...)

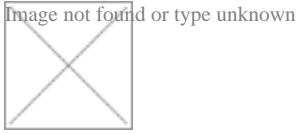
Knowledge of R and python

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

Herve Petetin, Research Scientist, BSC-ES, Earth System Services Group

Vladimir Lapin, Recognized Researcher, BSC-ES, Climate Prediction Group

Course Lecturers

Francisco Doblas-Reyes, Head of BSC-ES Department

Eleftheria Exarchou, Research Scientist, BSC-ES, Climate Prediction Group

Mario Acosta, Postdoctoral Researcher, BSC-ES, Computational Earth Sciences Group

Miguel Castrillo, Research Support Engineer, BSC-ES, Computational Earth Sciences Group

Enza di Tomaso, Postdoctoral Researcher, BSC-ES, Atmospheric Composition Group

Jan Mateu, Recognized Researcher, BSC-ES, Earth System Services Group

Francesca Macchia, Researcher Engineer, BSC-ES, Computational Earth Sciences Group

Gilbert Montane, Research Engineer, BSC-ES, Computational Earth Sciences Group

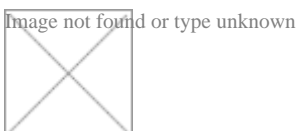
Francesco Benincasa, Research Support Engineer, BSC-ES, Computational Earth Sciences Group

Amalia Vradi, Junior Research Engineer, BSC-ES, Computational Earth Sciences Group

An-Chi Ho, Research Engineer, BSC-ES, Computational Earth Sciences Group

Nuria Perez, Postdoctoral Researcher, BSC-ES, Computational Earth Sciences Group

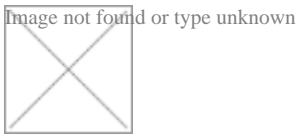
Materials



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 and PRACE 5IP project are funding the PATC @ BSC training events. If you want to learn more about PRACE Project, visit the [website](#).

Barcelona Supercomputing Center - Centro Nacional de Supercomputación

Source URL (retrieved on 11 des 2024 - 13:30): <https://www.bsc.es/ca/education/training/patc-courses/online-patc-earth-sciences-simulation-environments-0>