[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

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Academic Staff

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List of lecturers

Francisco Doblas-Reyes. Head of BSC-ES Department

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

Miguel Castrillo. Research engineer, BSC-ES, Computational Earth Sciences Group

Francesco Benincasa. Research engineer, BSC-ES, Computational Earth Sciences Group

Raffaele Bernardello. Research scientist, BSC-ES, Climate Prediction group

Oriol Jorba. Co-group leader of the BSC-ES Atmospheric Composition Group.

Francesca Macchia. Senior researcher, BSC-ES, Atmospheric Composition group

Gilbert Montane. Research engineer, BSC-ES, Computational Earth Sciences Group

Conveners

María Teresa Pay. Research scientist, BSC-ES, Atmospheric Composition group

Marc Guevara. Research scientist, BSC-ES, Atmospheric Composition group

Carles Tena. Research engineer, BSC-ES, Computational Earth Sciences Group

Materials

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• For further details, please contact BSC?CNS patc [at] bsc [dot] es

Further information

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

CONTACT US 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

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