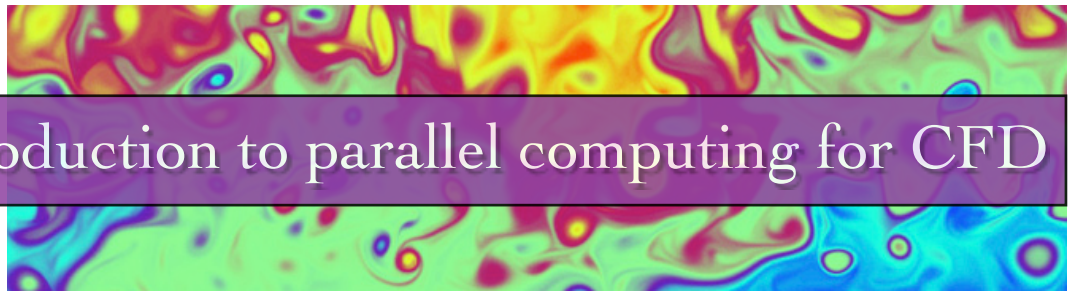
First Latin American SCAT Summer School

Universidad Técnica Federico Santa María, Valparaíso



An introduction to parallel computing for CFD

One of a series of mini-courses taking place 6-12 January 2007

Description

Parallel computing is now a key aspect of scientific discovery using mathematical modelling. This course will consist of a set of lectures (approximately two 50 min. sessions) that will introduce the basic concepts of parallel computing for schemes that use computational grids to discretise the governing equations. The course is intended as an introduction for students new to parallel processing and will teach how to develop numerical software to run on any type of parallel computer, from a cluster to a supercomputer. The talks will cover the basic principles of communicating data between processors and how typical numerical solvers perform in parallel. The test application will be the steady-state heat conduction equation.

The course will cover:

- Introduction to the grid partitioning
  - Solving a simple function in parallel
  - Communication strategies - local and global
  - How to avoid creating bottlenecks
- Solving the heat conduction equation in parallel
  - Explicit, implicit and iterative solvers in parallel
- Comments on some CFD solvers

Lecturer:

Dr David Emerson, Head of the Computational Engineering Group
Daresbury Laboratory, United Kingdom

This course will be in English.

For more information, email info@scat-alfa.eu or visit www.scat-alfa.eu

SCAT
SCIENTIFIC COMPUTING ADVANCED TRAINING

A project funded by
EuropeAid