



Enabling Grids for E-scienceE

Earth Science session Wrap up

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www.eu-egee.org



- **Large panel of applications (4 oral presentations and 4 posters)**
 - 2 Overviews and 6 single applications
 - New applications with large challenge (satellite data exploitation, scenarios for soil pollution by pesticides)
 - Mainly for Research,
 - few for company and civil protection
 - Various scientific domains: atmospheric chemistry, air and soil pollution, geosciences, hydrology, clouds, seismology...
- **Key ES requirements missing, barriers for porting applications – analyzed by DEGREE, related project.**
- **How to classify the ES applications in EGEE:**
 - scientific domains
 - application requirements

- Exploring Large Set of Data

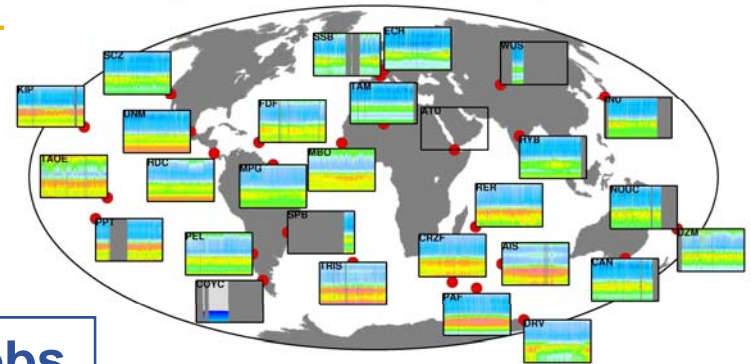
Geoscope: (<http://geoscope.ipgp.jussieu.fr>) IPGP-France

28 seismological stations and data center

25 years of data

Processing of the whole data set on EGEE

Z component seismic signal daily variation in year 2006



Job on alert, Hundreds of independent jobs

Earthquake characteristics, results published on <http://geoscope.ipgp.jussieu.fr>

Modelling

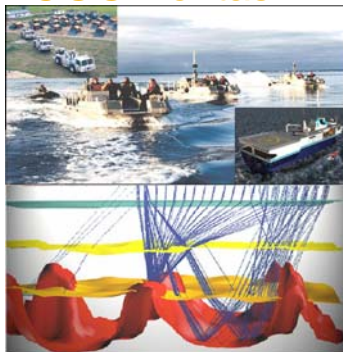
- (1) Area of Thessaloniki (GR) : Synthetic wave form to study Ground motion in 3D model of Pr Moczo – MPI
- (2) Seismic noise correlation : lot of independent simulations (IPGP)
- (3) 3D- Seismic waves propagation – MPI (IPGP)

- **Main requirements**
 - Large set of files
 - Database: Metadata for large sets of files
 - Sharing algorithm
 - Complex workflow
 - MPI
 - Lot of independent jobs – not short
 - Statistical approach
 - Long job
 - Web services like GIS
 -
- **Possibility to propose existing solutions**
- **Collaboration with other Grid projects and communities**

Sharing Algorithm

GEOCLUSTER

CGG-Veritas

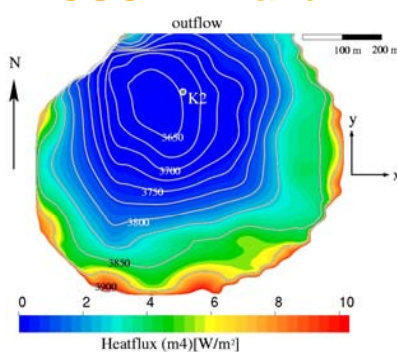


Partners:

VO - EGEODE

ELMER

CSC - Finland

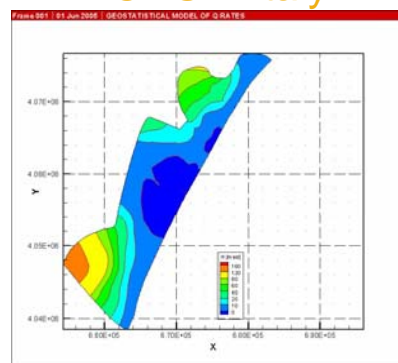


Partners:

VO- ESR

CODESA-3D

CRS4 -Italy

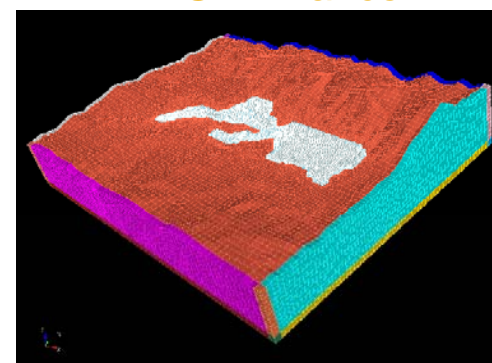


Partners:

EUMEDGrid

3DSEM_UNSTRUCT

IPGP- France



Partners:

EELA

New users (~15)

New tools.....

- **Some common features whatever the ES domain:**
 - Large number of cells
 - Input files : access to data centres....
 - Often large number and volume of output files
 - MPI
 - RAM available
- **Large scale Air pollution model – Danish Eulerian model – long time needed to adapt to a Grid like EGEE. Interesting and “scaring” results on ozone**
- **RISICO: wild fire risk evaluation for civil protection**
 - Model, large number of jobs....
- **New request by a very large community in various domains**
 - Porting of meteorological model like MM5, WRF, RAMS
 - User adding modules for the given topic

- **In EGEEIII improvement and/or implementation of functionalities more adapted to Earth Science**
 - “Generic “ solutions
- **New tools needed to use the whole Grid potential**
 - Need of Exploration of huge data sets
 - Creation of Platform integrating web services, computing power, information systems...

Pushing frontiers of scientific discovery by exploiting advanced computational methods.

EGU (European Geophysical Union), Vienna, Austria – 13-18 April. 2008

EGEE booth & 2 Grid sessions ESSI8 and ESSI9