EUMEDGRID [empowering eScience across the Mediterranean]

http://www.eumedgrid.org

EUMEDGRID

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EGEE04 - EGEE Generic Applications Advisory Panel

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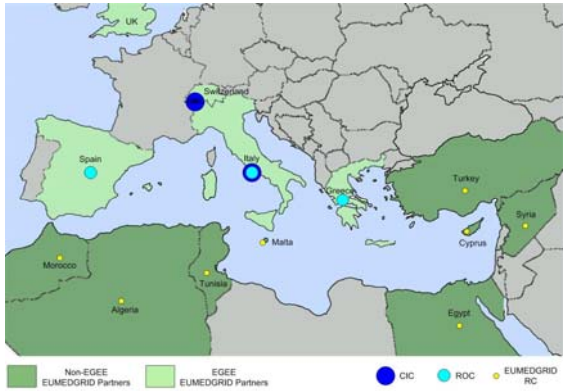

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FP6-2004-Infrastructures-

EUMEDGRID Basics

- Mediterranean area is of particular interest due to the neighborhood of such countries to many EU countries and many initiatives are already active (EUMEDIS, EUMEDCONNECT, etc.)
- EUMEDGRID aims to provide specific support actions to assist the participation of the states of the Mediterranean region in the pan-European and worldwide Grid initiatives, thus expanding and supporting the European Research Area (ERA) in the region.
- The core of the EUMEDGRID approach is to establish a human network in the eScience area, enlarge and train this community, and establish a pilot Grid infrastructure supporting proof of concept regional applications.
- The reference GRID Infrastructure in Europe will be EGEE.
- EUMEDGRID will build upon and exploit the infrastructure provided by the Gigabit Pan-European Research & Education Network (GEANT) and the Mediterranean Research and Education Networking (EUMEDCONNECT) initiative in the region.

Objectives

to create an human network

1. Stimulate the formation of National Grid Infrastructures (NGI) in the Mediterranean Countries, thus contributing to the creation of a "virtual Grid-based research space" ("horizontal action" of the project). It is expected that in the majority of the third countries a National Grid event will take place.
2. Promote awareness in the region regarding Grid developments through the organization of a number of dissemination and outreach events, which will promote the project results to the private and public sector, ultimately reaching the general public. (Focus of Workpackage 5)
3. Establish a dialogue regarding policy developments for research and education networking and provide input to the agenda of national funding bodies and if possible governments. (WP5). This is to be done as part of NGI establishment (O1) as well as in a form of dedicated policy workshop.

Objectives

to develop a Grid infrastructure

4. Capture local eScience user requirements in terms of resources needed, Grid services, and application software. (WP2)
5. Provide guidelines and technical cookbooks to guide regional integration in the Euro-Mediterranean infrastructures (WP2).
6. Carry out the regional integration in the Euro-Mediterranean infrastructures by supporting the establishment of pilot Grid resource centres at each country in the region. Adapt and implement the operational and organisational management techniques of the existing production Grids and bring the region up to speed with production-level operations. Pilot Grid Resource Centres are intended to be the major vehicle of this process, becoming the seeds of National Grid Infrastructures in the Mediterranean Countries. (WP3)
7. Build upon and exploit the infrastructure provided by the Gigabit Pan-European Research & Education Network (GEANT) and the Mediterranean Research and Education Networking (EUMEDCONNECT) initiative in the region. The coordination of NGI into a Regional (Mediterranean) infrastructure will take advantage from the existing human network created within the EUMEDCONNNECT project; on the other hand, such human network will be a trigger towards the creation of a physical backbone connecting directly all EUMEDGRID actors, to maximize the effectiveness of the pilot grid infrastructure, which in a first phase will mainly build upon Gèant2 network and the EUMEDCONNECT links towards the Mediterranean (WP3)
8. As a proof of principle, support the deployment of EGEE applications (High Energy Physics, BioMed) and other Grid applications of regional interest on the pilot infrastructure, with the involvement of local user community; actively encourage new user communities to join the EUMEDGRID community and deploy their own applications on the Pilot infrastructure. (Focus on WP4)

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Project timescale and Status

- Negotiation ended.
- Contract will be signed in November.
- 2 years program (24 Months from January ‘06).
- 5 Work Packages
- 14 partners: 9 Member States or AS, 5 non-MS.
- EU Contribution of 1,646,500 €
- A total of 481 Person Months (392 Funded).
- Start date 1st January 2006.

The collaboration

List of Participants		
Participant name	Participant short name	Country
Istituto Nazionale di Fisica Nucleare (Coordinator)	INFN	Italy
European Organisation for Nuclear Research	CERN	Switzerland
Cyprus Research and Academic Network	CYNET	Cyprus
Delivery of Advanced Network Technology to Europe	DANTE	UK
Consortium GARR	GARR	Italy
Greek Research and Technology Network	GRNET	Greece
Entidad Pública Empresarial RED.ES	RED.ES	Spain
University of Malta	UOM	Malta
Centre de Recherche sur l'Iformation Scientifique et Technique	CERIST	Algeria
Centre National pour la Recherche Scientifique et Technique	CNRST	Morocco
Egyptian Universities Network	EUN	Egypt
Institute of Applied Sciences and Technology	HIAST	Syria
Ministry of Scientific Research, Technology and Competency Development	MSRTDC	Tunisia
The Scientific and Technological Research Council of Turkey	TUBITAK	Turkey

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General strategy

- Middleware: EGEE middleware will be used; there are no other implementations in the Med area.
- Infrastructure: the EGEE infrastructure will be used complemented with the fostered national grid initiatives.
- Applications: EGEE applications (LHC, Bio, SWIMED, etc.) and other pilot applications will be supported; new regional applications will be investigated.
- Training & Dissemination: Joint activities with other projects are foreseen (SEEGRID, etc.) with possible synergies.

Program of work

- WP1: Project administrative and technical management
- WP2: Requirement capture and analysis
- WP3: Pilot infrastructure operational support
- WP4: Applications support
  - EGEE supported applications
  - Regional applications
  - New applications
- WP5: Dissemination & Outreach

The structure

	Name	Manager
WP1	Project administrative and technical management	INFN
1.1	**Administrative management**	**INFN**
1.2	**Technical management**	**INFN**
WP2	Requirement capture and analysis	UoM
2.1	**Gather and analyze countries' data**	**UoM**
2.2	**Study state of the art and propose technical roadmap**	**CERN**
WP3	Pilot infrastructure operational support	GRNET
3.1	**Operational, organisation and policy schemes**	**GRNET**
3.2	**Support to middleware deployment & pilot site installations**	**INFN**
3.3	**Pilot infrastructure operational support**	**GRNET**
3.4	**Network resource provision**	**RED.ES**
3.5	**Certification authority setup & operations**	**INFN**
WP4	Application support	INFN
4.1	**EGEE applications**	**TUBITAK**
4.2	**Regional applications support**	**INFN**
4.3	**Promoting new applications**	**INFN**
WP5	Dissemination and Outreach	GARR
5.1	**Dissemination activities**	**GARR**
5.2	**Outreach activities**	**INFN**

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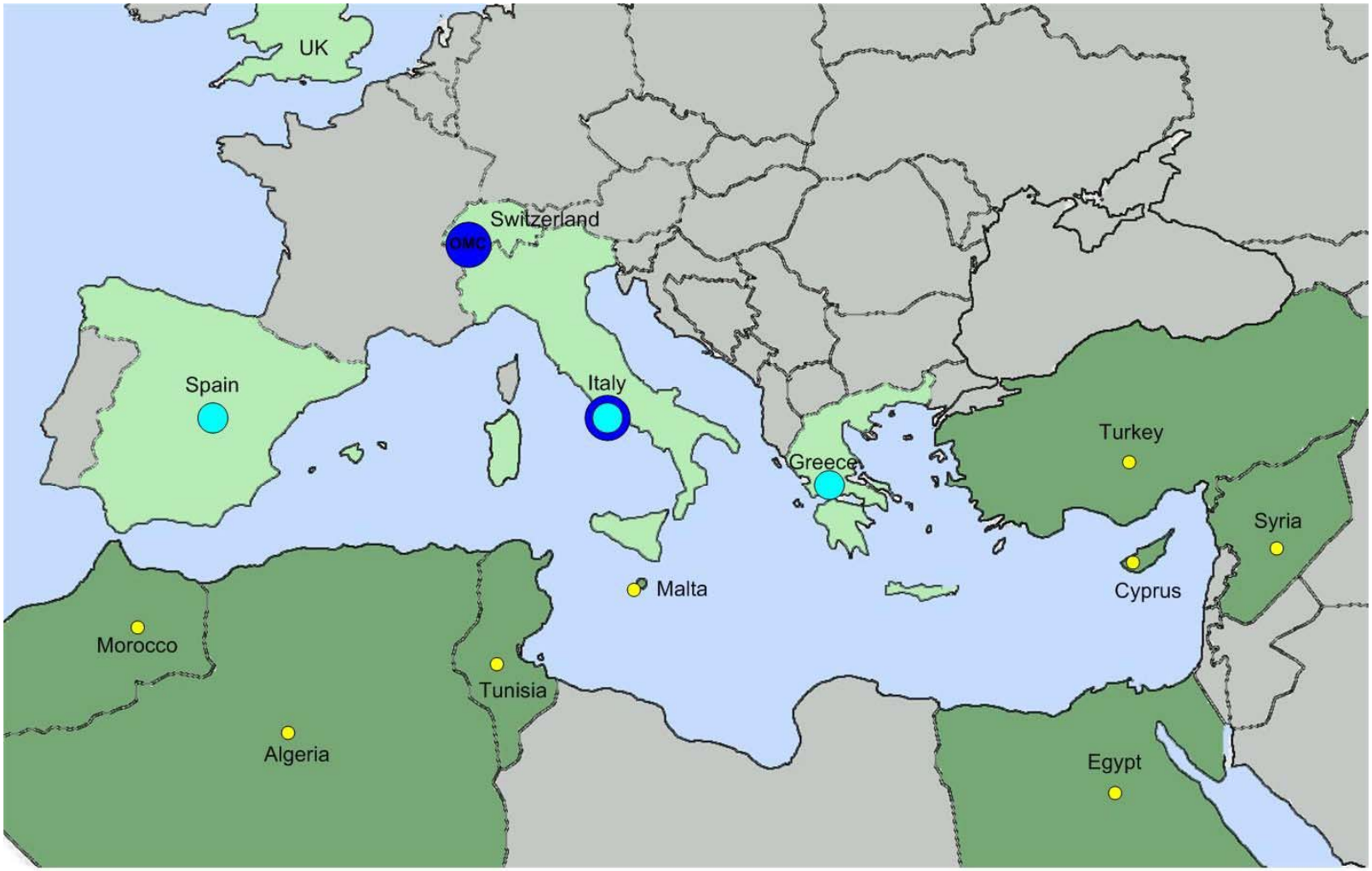
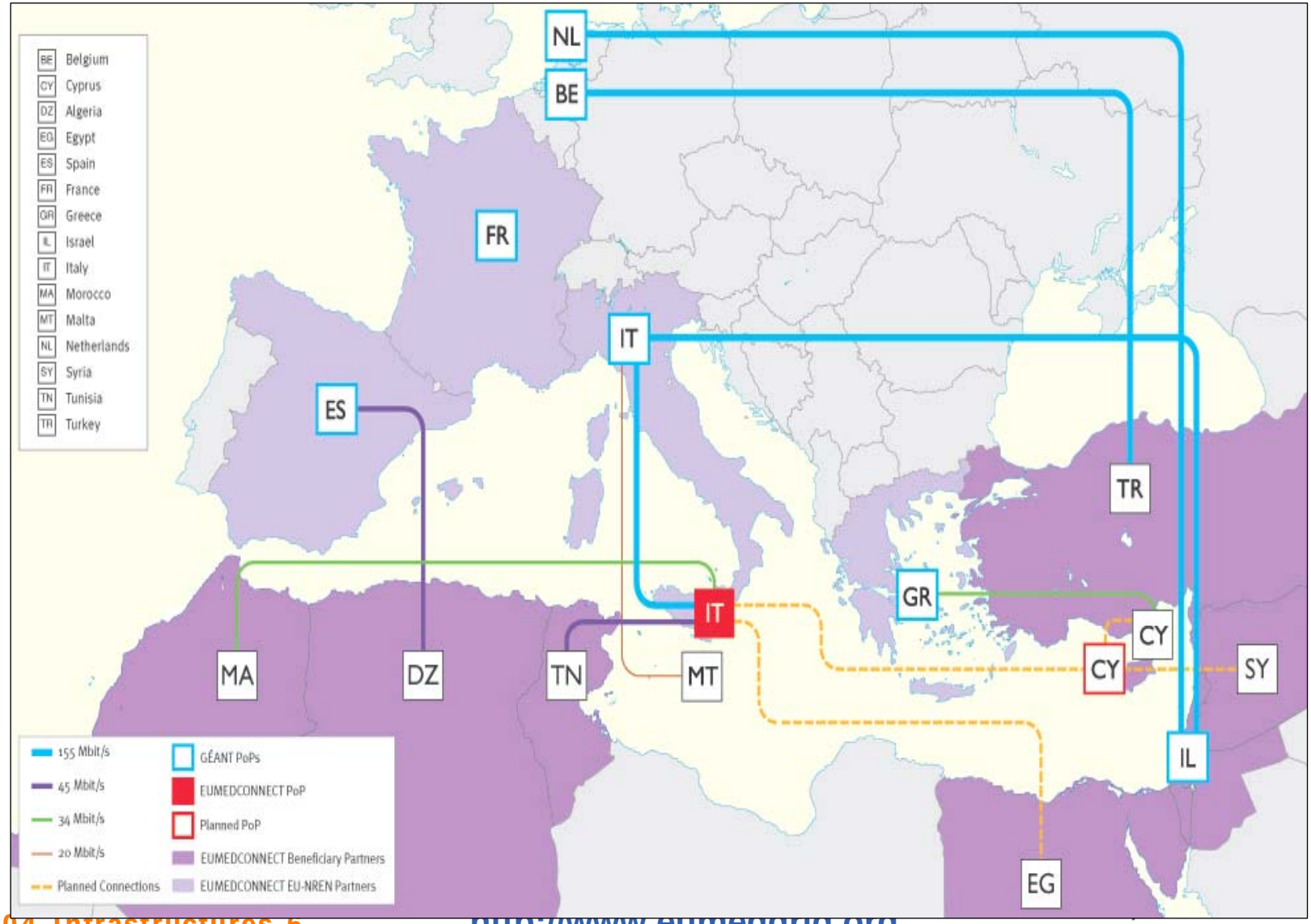
Pilot e-Infrastructure



EUMEDCONNECT network



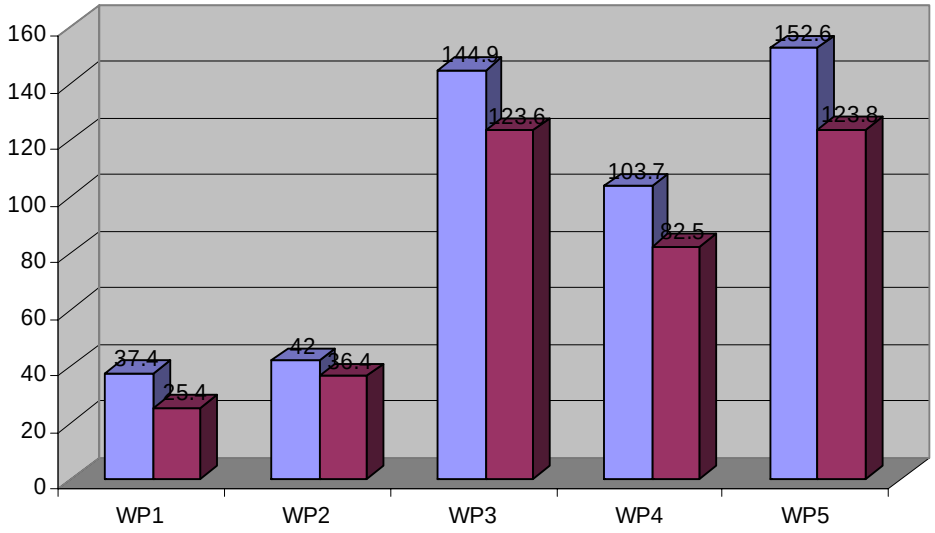
WP2

- Key work package
- Due to the region peculiarities
- It will gather lot of information needed to define the project in a precise way
  - Computational resources available for the project
  - Applications to be ported on grid chosen on the relevance basis.

Other WP

- **WP3 will follow the deployment and support of the pilot e-Infrastructure**
- **WP4 will work on:**
  - applications integration on the grid using GILDA and
  - support to turn them into production environment.
- **WP5 will use GILDA to train and to disseminate**

Commitment


160
140
120
100
80
60
40
20
0
37.4
25.4
42
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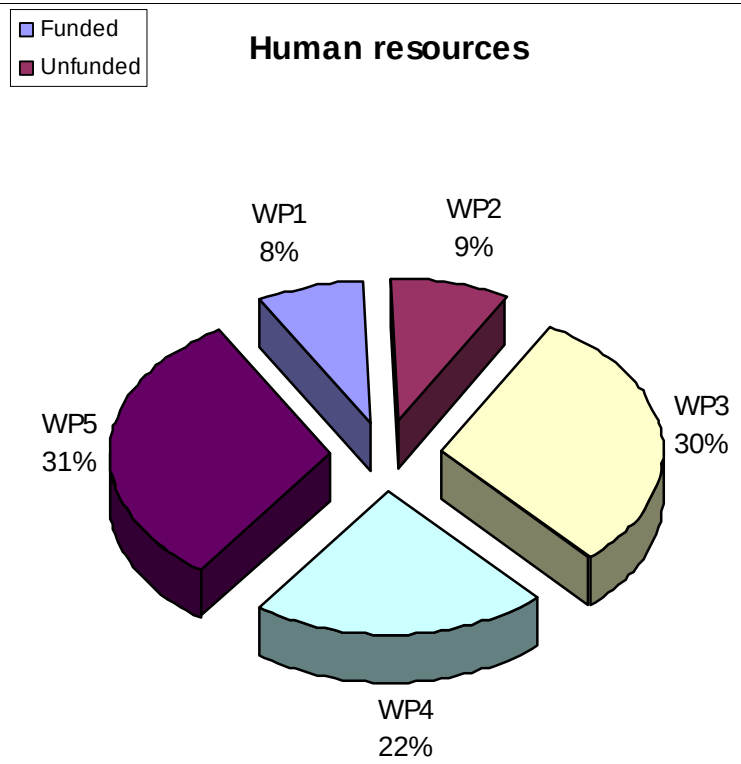
82.5
152.6
123.8
WP1
WP2
WP3
WP4
WP5


Funded
Unfunded
Human resources
WP1
8%
WP2
9%
WP3
30%
WP4
22%
WP5
31%

Applications

- WP2 will search for applications specific to the region.
- Some of them will be selected as pilot applications.
- Those applications will start a “Virtuous Cycle” in Mediterranean Region.
- In the early stage EGEE applications will be used to validate the infrastructure.

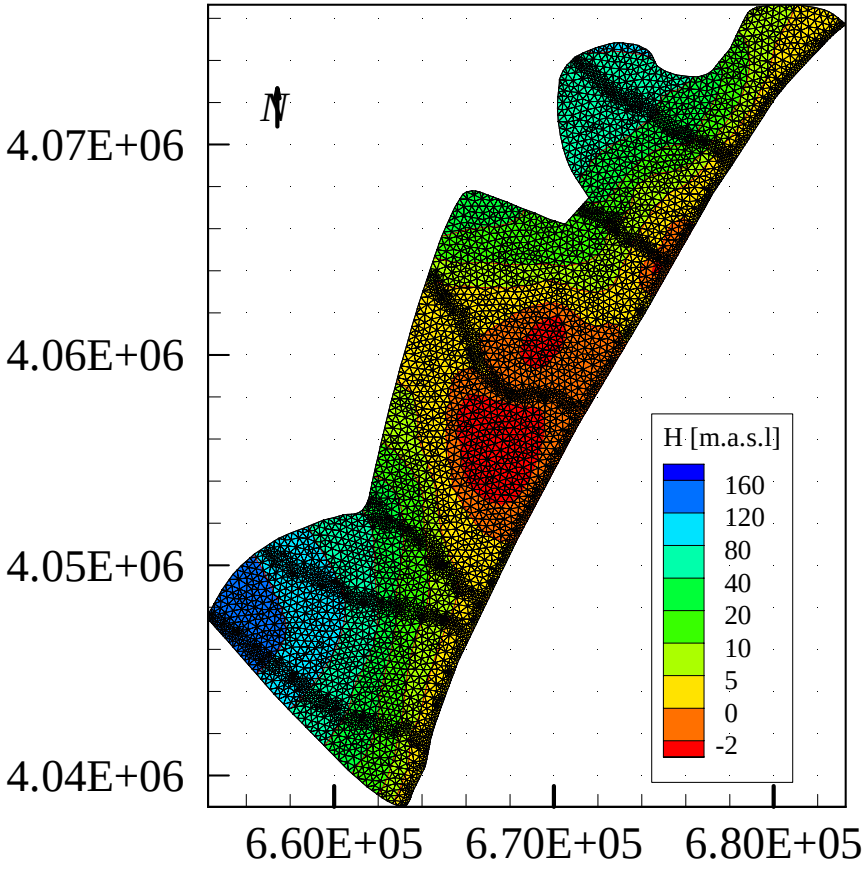
Applications

Candidate regional applications:

- **Management of water resources in the Mediterranean area (SWIMED)**
  - Already a generic application in EGEE
  - Up to 10000 CPU hours per year
  - Up to 200 Terabyte per year
- **Museum With No Frontiers (www.museumwnf.org)**

SWIMED
Groundwater modeling

- **Aim: estimate sustainable extraction scheme - improve management**
- **CODESA-3D: Density-dependent 3D coupled groundwater flow and transport simulations**
- **Data requirement**
  - Geology
  - Topography
  - Meteorology
  - Water extraction by the farmer
  - Aquifer properties
  - Soil maps
  - Land use



One simulated map of water levels

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