

# Status of the Biomedical Applications in EELA Project (**E**-Infrastructures Shared Between Europe an **L**atin **A**merica)

*Vicente Hernández*

*Universidad Politécnica de Valencia (UPV)*

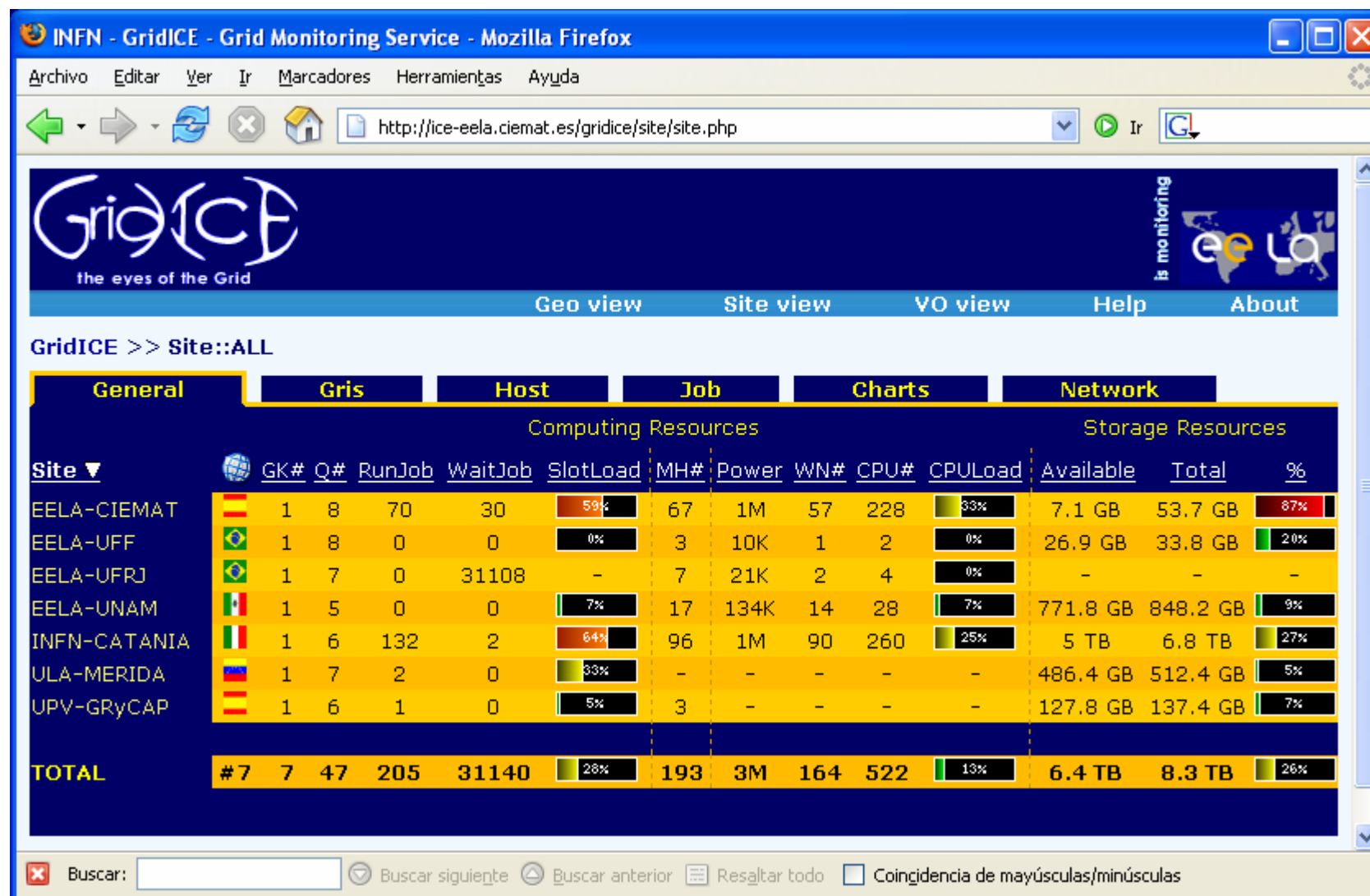
*Leader of Biomedical Applications (Task 3.1) in EELA*

[www.eu-egee.org](http://www.eu-egee.org)

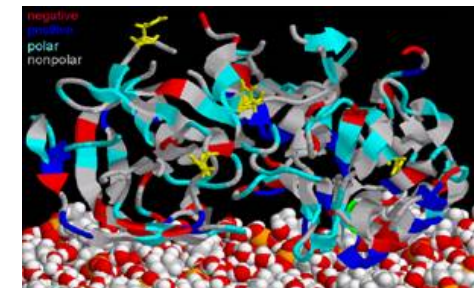
- The EELA Project in Brief.
- EELA Infrastructure.
- EELA Biomed Applications.
- Future Plans.
- Discussion.



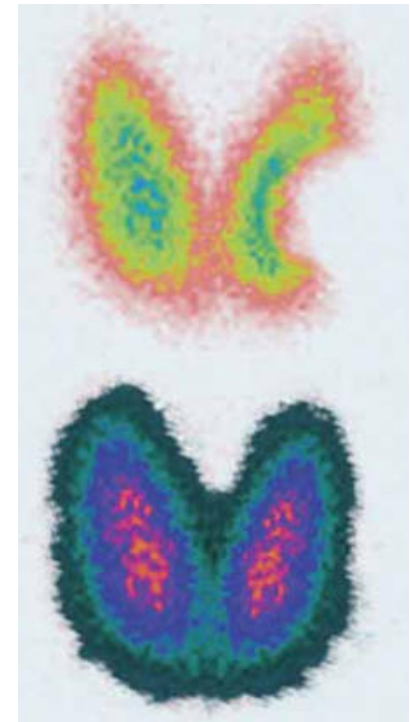
- Focused on Building a Bridge Between Consolidated e-Infrastructure Initiatives in Europe and Emerging Ones in Latin America.
- Partners
  - European
    - Spain: CIEMAT, CSIC, UPV, RED.ES, UC
    - Italy: INFN
    - Portugal: LIP
  - International
    - CLARA
    - CERN
  - Latin American
    - Venezuela: ULA
    - Cuba: CUBAENERGIA
    - Chile: UTFSM, REUNA, UDEC
    - Peru: SENAMHI
    - Mexico: UNAM
    - Argentina: UNLP
    - Brazil: UFRJ, CEDERJ, RNP, UFF



- **The choices has been performed according to:**
  - Interest on the Latin American Partners.
  - Consolidated User Communities.
  - Availability of Resources.
  - Particularities of the LA Community.
- **Applications Selected**
  - Mature Applications
    - GATE.
    - Wide in-Silico Docking on Malaria (WISDOM).
  - New Applications
    - BLAST in Grids.
    - Phylogeny.



- **Geant4 Application to Tomographic Emission (GATE)**
- **User Communities**
  - The Interest of the LA Community is Led by CUBAENERGÍA
    - It is Focused Towards Two Main Oncological Problems:
      - *Thyroid Cancer.*
      - *Treatment of Metastasis with  $P^{32}$ .*
    - 9 centers in Cuba are Interested (5 Hospitals and 4 Oncological Centers and Institutions)
- **Resources Available**
  - UPV ([ramses.dsic.upv.es](http://ramses.dsic.upv.es); GATE-1.0.2-3)
  - CIEMAT ([ce-eela.ciemat.es](http://ce-eela.ciemat.es); GATE-1.0.0-3)
  - INFN CATANIA ([grid012.ct.infn.it](http://grid012.ct.infn.it); GATE-1.0.0-3)
  - UFF ([ce-eela.ic.uff.br](http://ce-eela.ic.uff.br); GATE-1.0.0-3)
  - UFRJ ([ce-eela.uf.ufrj.br](http://ce-eela.uf.ufrj.br); GATE-1.0.0-3)
  - Cuban Centres have Problems with Bandwidth
    - A Local Deployment is Being Developed.

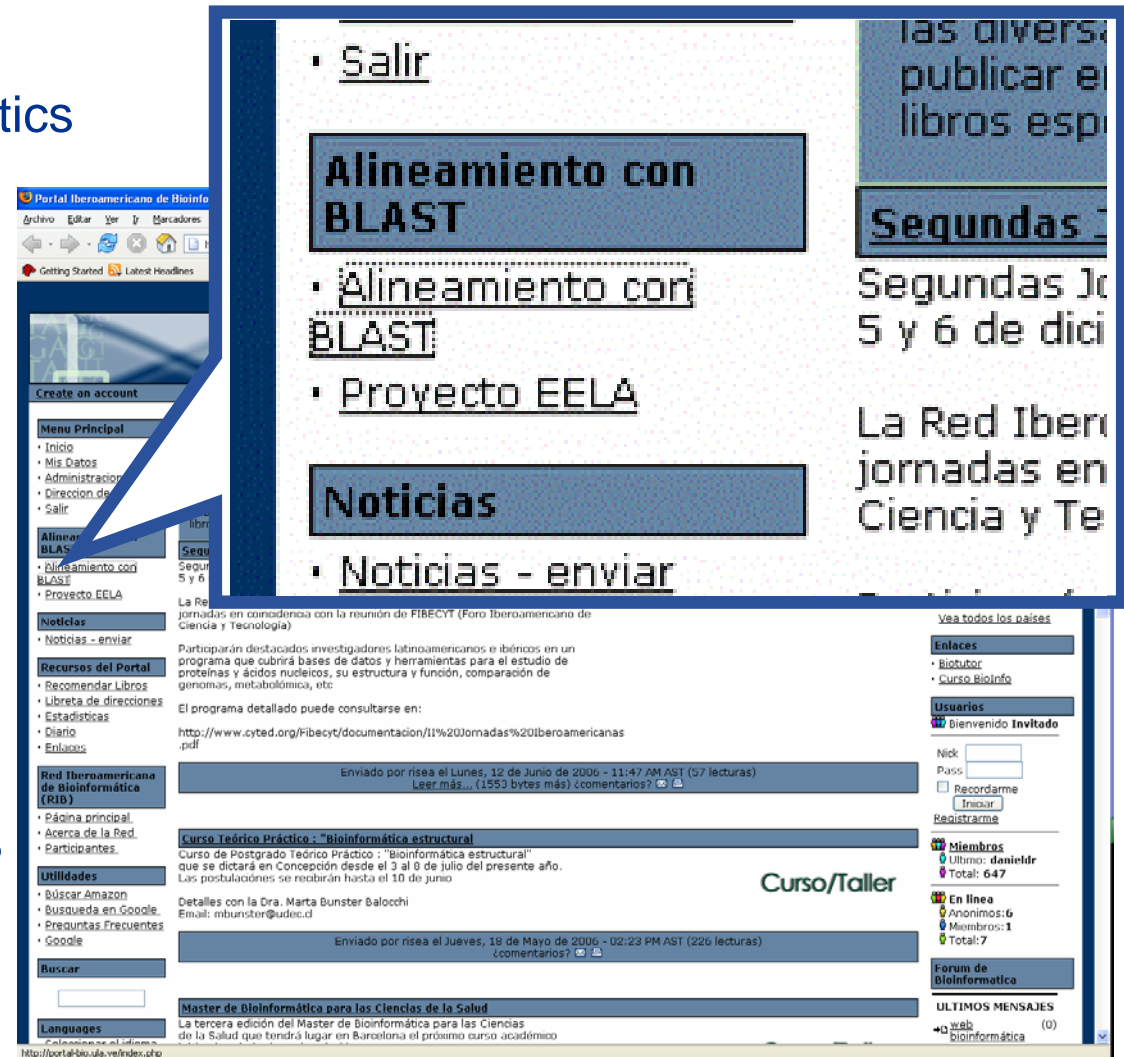




- **WISDOM (Wide In-Silico Docking Of Malaria)**
- **The Interest is Being Driven by the University of Los Andes (Venezuela).**
- **New Targets have been Proposed for the Next Data Challenge on Malaria**
  - Interest of the LA Focus on Plasmodium Vivax, Rather than Plasmodium Falciparum.
- **EELA Partners will Provide Resources and Labour to Watch the Jobs.**

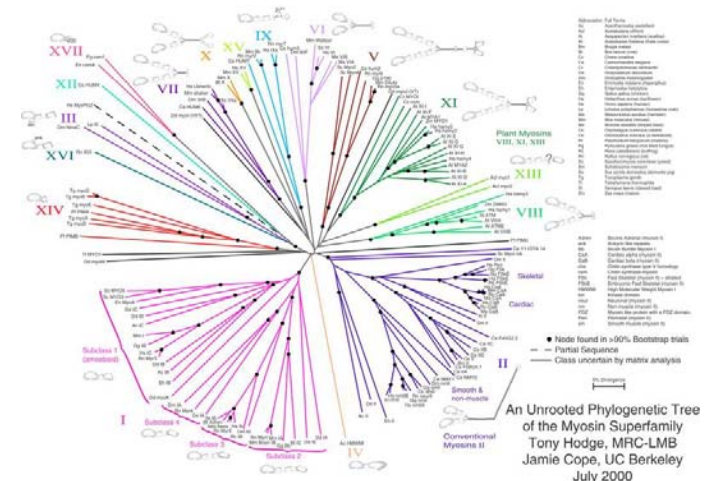


- **BiG: BLAST in Grid is a Grid-enabled BLAST Interface.**
- **User Community**
  - Users of the Bioinformatics Portal of Latin America.
  - Users Access the Service Through a Web Portal.
- **Web Server Application has Been Installed on ULA Computers.**
- **Tests Have Been Performed Successfully on a Dataset of Around 3000 Sequences of the Plasmodium Vivax.**





- **A Phylogeny is a Reconstruction of the Evolutionary History of a Group of Organisms.**
- **The Inference of Phylogenies with Computational Methods is Widely Used in Medical and Biological Research and has Many Important Applications, Such as Gene Function Prediction, Drug Discovery and Conservation Biology.**
- **Most Approaches Depend Upon a Mathematical Model Describing the Evolution of Characters Observed in the Species Included, and are Usually Used for Molecular Phylogeny Where the Characters are Aligned Nucleotide or Amino Acid Sequences.**
- **Interest of the LA Community**
  - ULA is Leading the Interest in the LA.
  - A Grid Service Will be Developed to Run a Parallel Version of MrBayes from the Bioinformatics Portal.
- **Analisis of the Application has Started.**



- **Potential Collaboration**

- Enlarge User Communities

- EELA is Fostering the Usage of Grids and Training Users.
    - EELA can be the Bridge for these Users.
    - Grid Certificates are Compatible.

- Share Applications

- New Applications Deployed in EELA and Applications Developed are Compatible with EGEE Ones (Share the same Middleware).
    - Applications of EGEE are Fairly Interesting for the LA Community.

- Define New Interests

- New Problems are Defining new Applications and New Targets.



**Vicente Hernández**

**Universidad Politécnica de Valencia**

**Camino de Vera s/n**

**46022 Valencia, Spain**

**Tel: +34-963879743**

**Fax. +34-963877274**

**E-mail: [vhernand@dsic.upv.es](mailto:vhernand@dsic.upv.es)**

**[iblanque@dsic.upv.es](mailto:iblanque@dsic.upv.es)**

