THE GISELA PROJECT

Long-term sustainability & VRC Support

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CERN (Geneva - Switzerland)

GISELA references

FP7 INFRA-2010-2 call - Topic INFRA-2010-1.2.3: Virtual Research Communities

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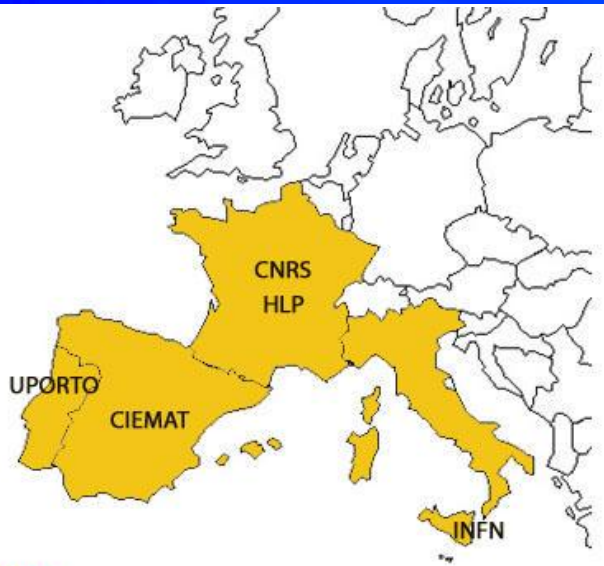
GISELA Countries & Partners

15 Countries (11 in Latin America)

19 Partners (14 in Latin America)

Negotiation with Bolivia & Paraguay for possible collaboration



Europe

Italy	INFN – Catania
France	CNRS, HLP
Portugal	U.PORTO
Spain	CIEMAT (Coord. Institution)

Latin America and the Caribbean

Argentina	INNOVA-T
Brazil	UFRJ, UFCG
Chile	REUNA
Colombia	UNIANDES
Cuba	CUBAENERGIA
Ecuador	CEDIA
International	CLARA
Mexico	CUDI, UNAM
Panama	CIDETYS
Peru	RAAP
Uruguay	UdelaR
Venezuela	ULA

Objectives and Work plan

Objective1: Ensure the long- term sustainability of the e-Infrastructure in the Latin American continent

Objective 2: Provide full support to the Virtual Research Communities spanning Latin America and Europe, using the e-Infrastructure.

Work plan:

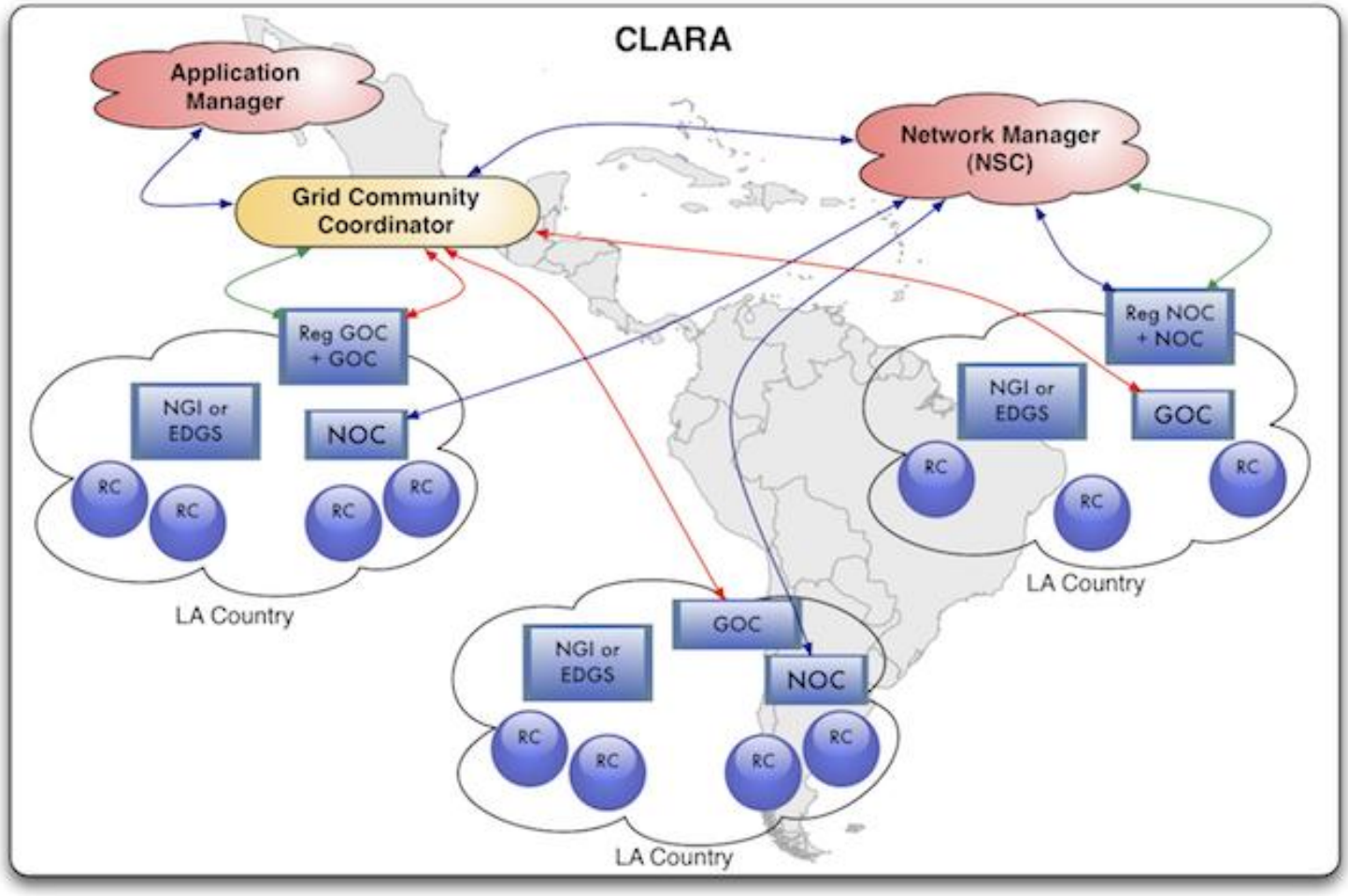
- Implement a sustainability model rooted on National Grid Initiatives (NGI), in association with CLARA, Latin American NRENs and collaborating with EGI.
- Provide the communities with the suited e-Infrastructure and Application-related Services required to improve the effectiveness of their research. This will address both:
  - ✓ The current EELA-2 User Communities whose research investigations are carried out at the Institution level or in small collaborations.
  - ✓ The larger Virtual Research Communities as Life & Earth Sciences, HEP

Long-term sustainability: Genesis

- **A concern since EELA-2 !**
  - Sustainability model defined in EELA-2: http://documents.eu-eela.org/record/1119/files/
  - Adaptation of the EGI model to the Latin American context
  - 3-layer model: Local (Institution), National (Country) and Regional (Latin America & The Caribbean)
  - Main idea: Get CLARA and Latin American NRENS involved in supporting Research e-Infrastructures on the long-term
  - 1-year negotiation with CLARA : model modified, adapted and finally adopted during the preparation of the GISELA Proposal
  - Responsibilities:
    - **Local**: Resource Centre Institutions
    - **National**: JRU, NGI or Equivalent Domestic Grid Structure **(EDGS)**
    - Regional: **IGALC** - **I**niciativa de **G**rid de **A**merica **L**atina **– C**aribe: www.igalc.org

Long-term sustainability: Model

- **The CLARA-GISELA model as defined in the GISELA DoW:**
  - http://documents.gisela-grid.eu/record/32?ln=en



Long-term sustainability: Roadmap

- GISELA / IGALC shall provide and support basic (CORE) operation services. It will develop inter-operation agreement with EGI, GÉANT2, CLARA, the NRENs and the NGIs (or EDGS), in Europe and Latin America
- GISELA shall refine, with the CLARA Transition Team, the final model of sustainability for the e-Infrastructure best adapted to the CLARA and LA NRENs environment
- CLARA shall identify the NREN(s) that will be in charge of the Operation and Support of the e-Infrastructure, applying a business plan
- Over the course of GISELA, Grid knowledge and expertise shall be handed over to CLARA and the selected NRENs, via the Transition Team
- By the end of GISELA, CLARA and Latin American NRENs, NGIs or EDGS shall take over the operation of the e-Infrastructure and the support of the VRCs

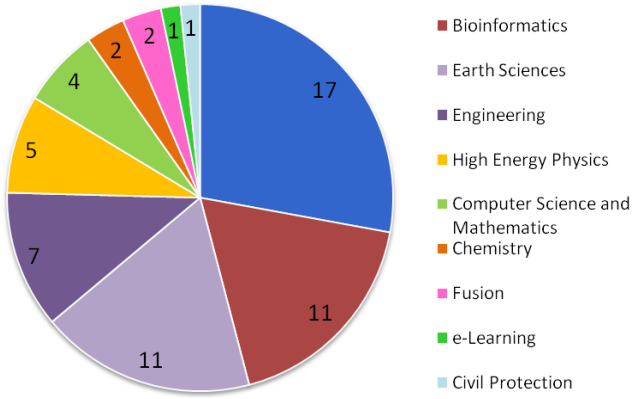
VRC Support: Genesis

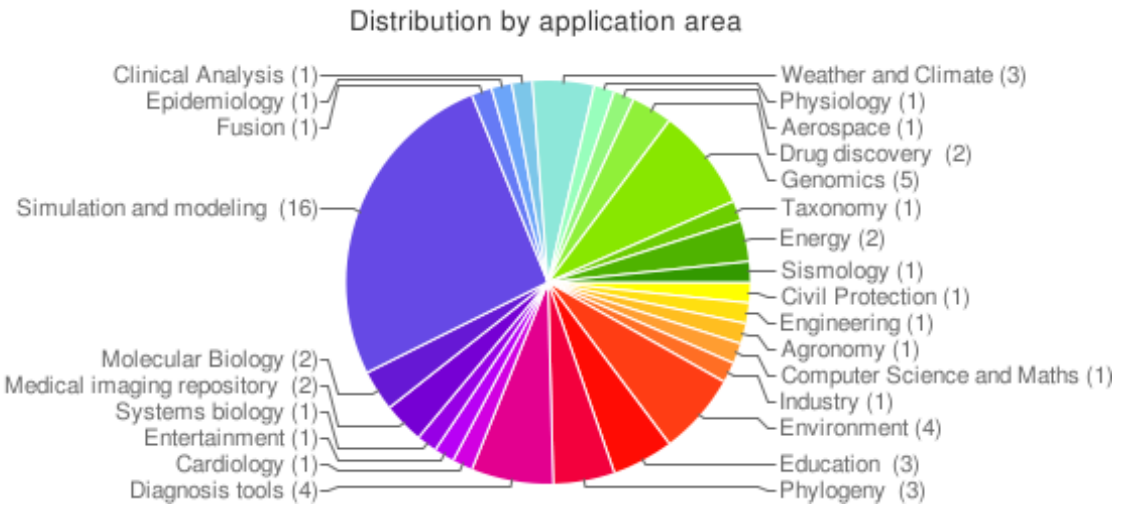
- **One of the major concerns of EELA and EELA-2 was to constantly interact with User Communities to:**
  - Disseminate Grid technology, provide training & technical support
  - Get back full support from User Communities on strategic and political issues

- **Instruments**
  - Tutorials, Grid schools, “Gridification” weeks, User Forum, Workshops, Conferences, etc.
  - In 2009, EELA-2 (www.eu-eela.eu) collaborated to the realisation of the e-Infrastructure Survey of the eResearch 2020 Project (www.eResearch2020.eu). Its purpose was to *“investigate the utilisation of e-Infrastructures in Virtual Research Communities and to propose strategies to policy makers and the e-Infrastructure community to enhance the uptake and use of these technologies”*

VRCs Support: Initial situation

- **VRC situation in EELA-2:**
  - EELA-2 ended up supporting **61** Applications from **78** Institutions





  - EELA-2 User Communities were typically **1-2** Institution group(s), largely located in Latin America, alone or collaborating with a few Institutions. Their use of the Infrastructure was to learn Grid technology to evaluate its potential for their future research.
  - A few large VRCs from HEP (Auger, LHCb, ALICE, CMS, ATLAS) were also supported

VRCs Support: Strategy

- ***From the DOW***
  - *"**WP3** (User Communities Support) will interact with new VRCs to evaluate the technical requirements and impact of their Applications and to support their deployment. **WP6** (Infrastructure and Applications-oriented Services) will contribute to the dissemination and use of the services it developed in EELA-2*
  - ***WP6** will interact with the VRCs to collaborate to the identification, development and deployment of integrated services (e.g. gateways)"*

- ***Will to adopt precise strategies on the short term***
  - **Bottom up strategy**
    - Get asap a few VRCs running production as intensively as possible on GISELA
    - Aim at saturating the e-Infrastructure
  - **Top down approach**
    - Contact VRCs by all means
    - Collaborate with EGI, CHAIN and other regional initiatives
    - Refine our VRC approach

VRCs Support: Status

- **Identification of VRCs to include**
  - Selected EELA-2 User communities
  - User Communities recruited by CLARA
  - More large VRCs from Earth, Life Sciences, HEP
  - Other possible VRCs from national initiatives, e.g. centres/poles of excellence
  - Industry partners, as from contacts taken through Chambers of Commerce (e.g. San Luis Potosi - Mexico)
- **Not clear: collaboration with ESFRI projects!**
- **Enrolling large VRCs, e.g.**
  - e-NMR / WeNMR: UFRJ (Brazil) group coming on board
  - Weather Research and Forecasting (WRF) for mass production
- **Progress with EGI and related projects**
  - Active participation at the "Regional Initiatives" session of the EGI Technical Forum (Amsterdam - 14th to 17th September 2010)
  - Proposal to organise a Workshop "Regional e-Infrastructures meet VRCs" to take place at the CHAIN KoM (Roma, December 2010)

VRCs Support: Basic duties

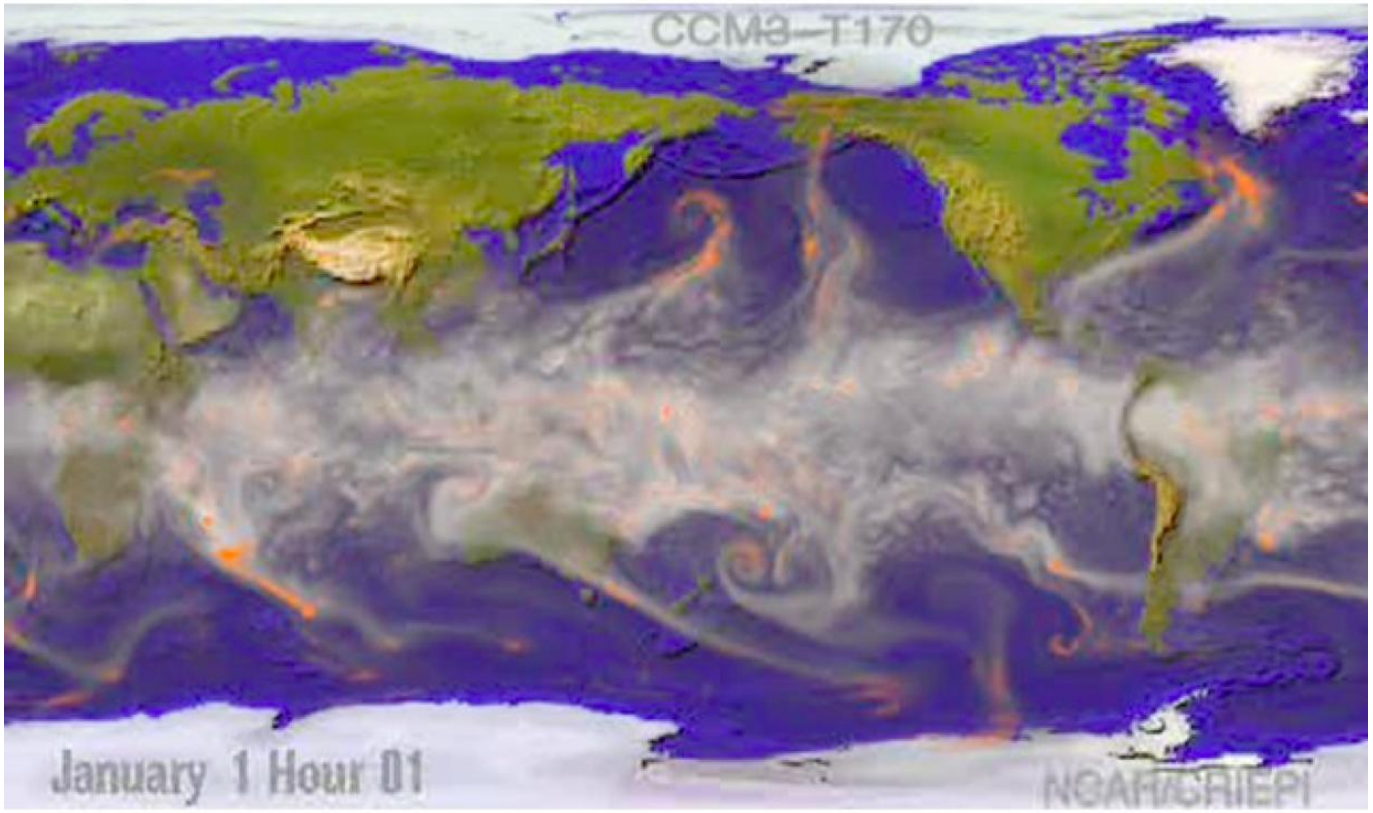
- Ensure the proper access of GISELA users to the e-Infrastructure resources
- Support Application developers and users over the whole process from deploying an Application up to running it in production
- Organise the training best adapted to each VRC
- Support the use of the e-Infrastructure and Application-related Services already developed in EELA-2 and helps the users in the validation of these services in the context of their Application
- Participate in the development of new services requested by the VRCs and helps in the test and validation of these services for user's Applications

Application example 1/2

Weather predictions (UNICAN – Spain)

http://applications.eu-eela.eu/application_details.php?l=20&ID=65

The Weather Research and Forecasting (WRF) Model (www.wrf-model.org) is a popular model used both operational forecasting and atmospheric research. It is well adapted to a broad spectrum of applications across scales ranging from kilometers to thousands of kilometers.



Water resources management (UFCG – Brazil)

The SegHidro platform (http://seghidro.lsd.ufcg.edu.br/) cares of the water resource management in Brazil, in particular in the Northeast, a semi-arid region, where irregular rainfall distribution causes many problems to the population. It uses the BRAMS simulation model developed by INPE (Brazil's National Institute for Space Research) to provide weather forecast and climate prediction over a given area and period of time. As climatology simulations normally require a high computational effort due to the large amount of data that must be processed, they are conveniently run on Grid infrastructures.

BRAMS is routinely used - on either the GISELA infrastructure that runs gLite or on the opportunistic part that runs OurGrid - to process the regional climatology of the 3 areas shown. It provides workflows such as (i) weather and seasonal climate forecasting; (ii) reservoir planning and operation; (iii) rainwater harvesting risk analysis; (iv) integrated surface and groundwater management; (v) operation of water distribution networks; (vi) agricultural planning; (vii) flood forecasting; (viii) soil conservation planning; (ix) and regional impact of climate change.