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## Editorial

Leandro N. Ciuffo  
EELA-2 NA3 (Applications Support)



### Look! It's moving. It's alive. IT'S ALIVE!

No, I'm not talking about Dr. Frankenstein's creature, I'm talking about the EELA-2 production infrastructure which woke up and started to run its first jobs on last December.

The release of such an infrastructure gave new blood to the Project and lots of work came with it. A new Website providing technical information for either Grid site administrators or application developers has been designed by SA1 (<http://eoc.eu-eela.eu>). Also, the workflow of an application inside the EELA-2 project was remodelled ([http://applications.eu-eela.eu/app\\_status.php](http://applications.eu-eela.eu/app_status.php)). At the time this bulletin was released 95 users were registered in the EELA-2 Virtual Organization (VO) and 33 applications are able to run on the EELA-2 production infrastructure. Part of them thanks to the organization of several "Gridification Weeks" in the last 3 months.

As a matter of fact, the period since the last issue of this bulletin was quite intensive and full of accomplishments. The success of the first EELA-2 conference (ably organized by the UNIANDES people) has helped to attract new partners to our community as well as to renew the collaborative spirit of EELA-2. The strong words of the Project Coordinator during the conference have pushed the partners to reinforce their commitments and to catch up with the metrics foreseen in the DoW<sup>(1)</sup>.

At that time the project was about to held its First Periodic Review (<http://indico.eu-eela.eu/conferenceDisplay.py?confId=193>) at the EC premises in Brussels. Afterwards, the overall progress of the project during its first year was seen as satisfactory by the EC Reviewers, who recognize the difficulties faced by the project and the strategies adopted to tackle with them.

Currently, around 20 new institutions are joining the project and 2 new countries were incorporated to the EELA-2 map: Uruguay and Panama.

There are still lots of work to do in the forthcoming months. The Workshop + User Forum in Uruguay, the Second Grid School in Mexico and the Second Conference in Venezuela will be the main events from now till the end of the project. Many proposed applications are still not ready to run on the production infrastructure and those currently "gridified" need to intensify the usage of the infrastructure resources. Also, many institutions still need to integrate their Grid sites.

Keep in mind that now we have less than 1 year to the end of the project and that EELA-2 is a collaborative project by its nature. Its members should grab this opportunity and do not just keep standing in the wrong line – like in the movie scene narrated by the JRA1 manager at the conference closure:

*Jimmy Rabbitte: What do you play?  
Failed Drug Buyer: I used to play football in school.  
Jimmy Rabbitte: I mean, what instrument?  
Failed Drug Buyer: I don't.  
Jimmy Rabbitte: What are you doing here, then?  
Failed Drug Buyer: Well, I saw everyone else lining up, so, uh - I thought you were selling drugs."*

The Commitments (1991)  
<http://www.imdb.com/title/tt0101605/>

## First EELA-2 Conference

# One year later the project grows stronger

María José López Pourailly  
and Tania Altamirano

Conceived as an “open meeting” and a “user forum”, the First EELA-2 Conference, held in Bogota, Colombia, from February 25th to 27th, gathered together members of all countries involved in the project as well as other non-EELA communities. During those days, they had the opportunity to establish new contacts, to share their applications and get to know new projects.

The event was organised and held at Universidad de los Andes (UniAndes) and had as main objectives: (1) to present a selection of the most impressive results obtained by scientific communities, using not only EELA-2 but also other e-Infrastructures in Latin America and the rest of the world; and (2) to discuss policies and plans for the long term sustainability of Regional e-Infrastructures, with special emphasis on Latin America.

The program included three big topics: Grid Communities and Applications, e-Infrastructures case studies and e-Infrastructures for Development.

In total there were 394 participants (226 from Colombia from 8 different cities) from eighteen countries (14 from EELA-2, and 1 from US, Greece, Panama and Uruguay) and representatives of different institutions, including the 31 EELA-2 represented and other 74 (most of them Colombian). According to the Project Coordinator, Bernard Maréchal the main reason of the attendance success was “the excellent work of the Local Committee that disseminated the conference in Colombia.”

Colombia was the scenery where project members and the Latin-American scientific, academic and technological communities joined to share experiences, establish new contacts and learn from the result of the first twelve months of work.





Harold Castro, UNIANDES, Local Organizing Committee

## Colombia: The host experience

Four months later, the chair of the Local organizing Committee, Harold Castro from UniAndes, evaluates the experience as successful. "The conference illustrated what can be achieved on the grid world by Latin-American people. Making the grid closer to our reality is an important step to motivate people to hop on the grid train. Attendees got a clear picture of the kind of works currently undergoing and of the myriad of possibilities opened by building such infrastructures. Attracting new users to the grid will make easier the deployment of sustainability plans in our region."

According to Castro, the most relevant contributions of the EELA-2 Conference to the scientific, academic and technological communities of the Latin American region and of Colombia is the adherence of new institutions to the project, which makes the Colombian Joint Research Unit (JRU) a good case for transforming it in a real National Grid Initiative (NGI).

"Our JRU keeps growing, besides the three institutions on the procedures to join EELA-2, other institutions will join the JRU with a better understanding of the benefits and implications of developing an NGI for our country. Last but not least, some local authorities got awareness of the project and its sustainability plans and we are invited to a new Decision Makers Session to look for institutional support", explained Castro.

Martha Giraldo, Executive Director of the Colombian National Research and Education Network, RENATA, asseverates that the conference was a success from every point of view because of the quality of the presenters, the presentations' materials and the participants' interventions.

"Apart from the conference itself, the project coordinators in Europe brought to Colombia a proposal for Latin America in which they suggest that our advanced networks, led by CLARA, take over the EELA-2 project as of 2010, with the aim of ensuring its midterm sustainability. This proposal was well received by CLARA, which has committed itself to going over the proposal in order to analyse its feasibility", explain Giraldo.

For Harold Castro the result of the experience as local organizing committee is related with the caption of new institutions and more visibility among EELA members. "In a project with more than 50 members, institutions not being part of the management boards have little visibility. Colombia and UniAndes are not very known, therefore organizing this conference was a good opportunity to better show our capacities. I hope attendees returned back to their countries with a better image of us", he asserts.

## The results

During the Conference one of the mains issues under discussion was the first year achievement of the Project. For the Project Coordinator, Bernard M. Maréchal, in terms of infrastructure deployment and maintenance, thanks to the Crash Programme and the efforts of the SA1 team, the project is on the right way. Regarding applications, the current results show the need of more applications ported and users registered. And with respect to training, the results

are satisfactory, thanks to tutorials and to the First EELA-2 Grid School. “Gridification weeks, proposed by NA3, and remote tutorials should speed up the porting of applications”, he said.

However, for Maréchal, resources fully integrated, applications deployed and the steady use of the infrastructure are some aspects that must be improved during the second period of the project in order to succeed in achieving the EELA-2 objectives.

Besides, during the Conference, the establishment of a Latin-American Grid Infrastructure (LGI) was pointed as the key factor to ensure long term sustainability after EELA-2, a proposal that received a unanimous support from all members of the project and that is being evaluated by the Latin American decision makers and the CLARA board.

Maréchal is optimistic and confident about the results. “All decision makers reached up to now supported the model. And concerning CLARA, the full support of its president was clearly witnessed by the audience during the Conference. Face to face contacts between the EELA-2 Project Coordination and Florencio Utreras [CLARA Executive Director] and Nelson Simões [member of the CLARA Board and Executive Director of the Brazilian National research and Education Network, RNP] indicated the willingness to consider favourably the EELA-2 model, keeping in mind that the actual implementation will not be straightforward. Moreover, a joint CLARA - EELA-2 committee has been named to put the project on the rails”.



Carlos Casasús, CLARA’s Board Director, and Bernard Maréchal, EELA-2 Project Coordinator.



First EELA-2 Conference attendees.

## A little of history

Funded by the 7th Framework Programme – Capacities of the European Commission, the EELA-2 Project (E-science grid facility for Europe and Latin America) is the successor of the EELA project. Its main objective is to build a high capacity, production-quality, scalable Grid Facility providing round-the-clock worldwide access to distributed computing, storage and network resources needed by the wide spectrum of applications from European - Latin American scientific collaborations, with special focus on providing a complete set of versatile services fulfilling application requirements and ensuring the long-term sustainability of the e-Infrastructure beyond the term of the project.

## EELA-2 in Numbers\*:

- 16 JRU-type partners (6 from Europe, 9 from LA and 1 International Institution CLARA) in 14 countries (5 from Europe, 9 from Latin America)
- Currently 46 institutions, most of them clustered in 9 Joint Research Units (JRU)
- EC support of about 2.1 MEuro (+ 300 KEuro from CETA-CIEMAT)
- 6 Activities (Management, Dissemination and training; Application support; Infrastructures services; Network resource provision; Development of services for applications and infrastructure)
- 24 Resource Centres; 3015 computing nodes; 581 TB of storage
- Foreseen growth over the project duration: 20 % in computing and 15% in storage
- About 50 applications selected (Biomedical, High Energy Physics, Earth Sciences, Climate, e-Learning, e-Government, e-Industry)

\*(General Presentation, Bernard M. Maréchal, EELA-2 Project Coordinator. 1ST EELA-2 Conference, February 25, 2009. Bogotá, Colombia. )

Leandro N. Ciuffo,  
EELA-2 NA3 Manager,  
studies the posters  
during the Conferene.



## Poster award winning

**As part of the Conference previous activities, a poster contest was launched among the EELA-2 Community. Raquel Pezoa, Project Engineer of the Center for Technological Innovation in High Performance Computing from Universidad Técnica Federico Santa María (UTFSM, Chile), obtained the Best Poster Award with the work: ATLAS Grid Information System for the ATLAS Experiment.**

**Why do you think that your poster won the Best Poster Award at the EELA-2 1st Conference?**

It shows in a very clear way a serious and important work, which mainly corresponds to a system that helps the ATLAS grid to inter-operate with its different middleware systems.

**Who worked with you in the elaboration of the poster?**

It is a teamwork between UTFSM (Luis Salinas and me) and CERN (Benjamin Gaidioz, Gilbert Poulard and Ricardo Rocha from the ATLAS Distributed Computing group).

**How did the attendees of the Conference value your poster? Did you get feedback from them?**

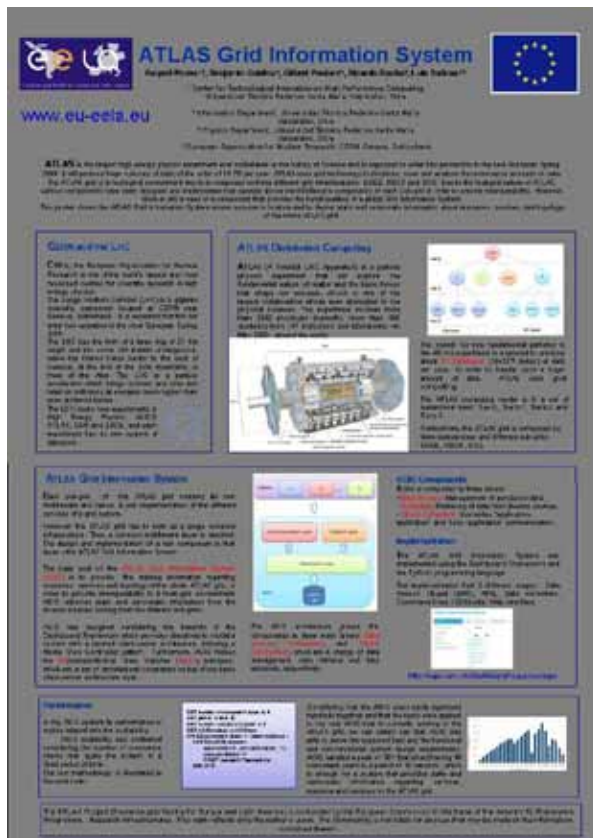
I received good opinions and also valuable feedback. One of the attendees suggested me to try with an object-oriented database, and I think it could be considered in the future work.

**Which would you say is the importance of this award?**

It was an honor because it recognized our work related with grid computing and also because the EELA-2 Conference is one of the most important activities related with grid computing in Latin America.



Raquel Pezoa and Bernard Marécal.



The award winning poster.

**ANNOUNCEMENT:**

The 2nd EELA-2 Conference will be held in the Venezuelan city of Choroní from November 25th to 27th, 2009.

In the same spirit of the 1st Conference, this second one aims to be both an "open conference" and a "user forum". Its Scientific Programme is conceived to reach two main objectives:

- \* to present a selection of the most impressive results obtained by scientific communities using not only EELA-2, but also other e-Infrastructures in Latin America and the rest of the world.
- \* to discuss policies and plans for the long-term sustainability of Regional e-Infrastructures, with special emphasis on the Latin American one.

For more information, please visit: <http://indico.eu-eela.eu/conferenceDisplay.py?confId=201>

Martha Giraldo

# The average citizen must be the grounding cable for e-Science

Since 2007, Colombia has been working hard towards the development of a national e-Science initiative, firstly with the participation of Universidad de Los Andes in the EELA project (first stage), then with the GridColombia initiative and now with an e-Science proposal developed by the Colombian National Research and Education Network, RENATA. In this interview, its Executive Director talks about the purpose and key points of the proposal, and the importance of e-Science for her Country.

María José López Pourailly

## What made RENATA elaborate a proposal in this matter?

Actually RENATA is focused on promoting the Network's effective use by academics and researchers and we decided to establish a strategy, so that the efforts we made could contribute not only towards the increase of the advanced network's use, but also towards the creation of a context that builds on the opportunities offered by these new technologies in order to join efforts with the Academia and create joint services which enable us to be more effective throughout this appropriation process and in this new way of doing science.

## Which are the key points of RENATA's e-Science proposal?

The e-Science proposal for Colombia is a systemic model where relationships are established at three levels: stages, players and services, which interact with each other in order to generate the strengths that are expected to have a direct impact on research and education projects in Colombia.

The stages are those spaces where scientific production is developed and exchanged, including high-speed networks as our regional networks, RENATA and CLARA, which in turn interconnects us with other networks at world level.

Among the "services" are included face-to-face communication services, access to remote resources, massive and distributed data processing, quotation and publication services, virtual environments shared in real time, and training resources, among others.

But in the end, we believe the most important thing is the players, including the academia, the state and R&D [Research and Development] companies, with the civil society as the final objective of the advances obtained from e-Science. The average citizen must be the grounding cable for e-Science.

We propose a model where the intersections between these services are also analysed by establishing an e-Science taxonomy not only for Colombia, but a model which can be applied in Latin America.

**Which one of the e-Science Resources provided in the web site is the most used by the RENATA community? Which one do you regard as the most important?**

“e-Science Projects” are the most consulted resources in this space because local academic community finds there, among others, proposals from projects which are looking for allies, opportunities for projects in different areas of knowledge in different regions and institutions in our country, which means opportunities for collaborative work.

**How important do you think the EELA-2 project is within the context that Colombia faces today in terms of e-Science development?**

The EELA-2 project pushes forward the computing grids issues in our country, a service which will enable researchers to have a high processing, storage and communication capacity in order to solve research problems. Being able to move forward in the grid issue will enable the country to have students trained on leading topics at world level, as well as to have an opportunity for national and international projection based on the collaborative work with participating institutions at national or international level.



Martha Giraldo.

# EELA -2 developed an extensive program of Gridification Weeks

Application developers have the opportunity to participate in a one-week face-to-face meeting with Grid experts.

In order to speed up the porting of applications to the EELA-2 grid infrastructure, EELA-2 has reserved funds to financially support on-demand application-specific courses. It consists of organising one-week face-to-face meetings between application developers and “Grid experts”. Such customised courses - called “Gridification weeks” - are aimed at dealing with the requirements that need to be met in order to “gridify” an application.

A general call for participation was sent to the EELA-2 application community. Altogether, between March 16th and June 29th, 11 weeks of meetings were completed in predefined venues in Campina Grande (Brazil); Mérida (Venezuela); Mexico City (Mexico); Rio de Janeiro (Brazil), Santander (Spain) and Trujillo (Spain).

New “Gridification Weeks” can be organized at any time depending on the demand from the applications. The NA3 management is in charge of evaluating the requests from the application owners. In some cases, instead of travelling to meet a Grid Expert, an application group might receive their visit. It will depend on the cost-effectiveness of the travel expenses. Each case are properly analysed.

However, it’s worth mentioning that only application developers with previous knowledge of gLite architecture can request to participate in a Gridification Week. Also, the candidates must have a valid personal certificate and be registered with the “prod.vo.eu-eela.eu” Virtual Organisation.

EELA-2 members interested in participating in a Gridification Week should contact the NA3 managers at leandro.ciuffo@ct.infn.it and rafael.mayo@ciemat.es

## The Cuban experience

A special gridification week was held in CIEMAT Madrid from 14th to 19th June, where three Cuban applications, AERMOD – AMS, gRREEMM and CuGfL, were finally developed and also installed in the EELA-2 infrastructure.

One of the Cuban applications to be presented was AERMOD - AMS (American Meteorological Society) / EPA (Environmental Protection Agency) Regulatory MODel, a model for the assessment of local dispersion of atmospheric pollutants which is expected to be included in the regulatory dispersion assessment and that has been already applied in the assessment of local atmospheric pollution due to power plants, generation sets and industrial sources. It also has been used in other countries in Latin America like Mexico and Argentina.

[http://applications.eu-eela.eu/application\\_details.php?ID=1](http://applications.eu-eela.eu/application_details.php?ID=1)

[http://applications.eu-eela.eu/application\\_details.php?ID=53](http://applications.eu-eela.eu/application_details.php?ID=53)

To Leandro Ciuffo - NA3 Manager - this is a great step forward as Cuban Network limitations will be overcome. “The big effort that this community is doing will finally produce scientific results on the Grid since their scientific tools will be available for everyone” he asserts.

# Montevideo will host the First EELA-2 Users Forum

The event will take place in July 21st in Montevideo, Uruguay, and aims to present how the application porting was carried out during the “Gridification Weeks” and to put together the EELA-2 application developers.

## Tania Altamirano

As a result of the EELA (E-science grid facility for Europe and Latin America) Technical Board meeting -held last February in Bogotá, Colombia-, the first EELA-2 user forum will be held in Montevideo, Uruguay, in July 21st.

The activity aims to present how the application porting was carried out during the “Gridification Weeks” and to put together the EELA-2 application developers in order to promote the exchange of best practices and ask them to present the results of their applications.

The forum is meant to be closed to non EELA-2 members. Nevertheless it might accept the participation of interested people, which should fill up the application form and wait for confirmation. For those who attended the “Gridification Weeks”, the participation in the User Forum is mandatory.

## EELA-2 User Forum 2009:

Dates: 21 July 2009 (09:00-18:30)

Location: Facultad de Ingeniería, Julio Herrera y Reissig # 565, Parque Rodó, Montevideo – Uruguay

## Tentative Agenda

09:20 - 09:20 | Welcome / Opening Session

09:20 - 09:45 | Demo 01 (video conference)  
– PhyloGrid, by Rafael MAYO (CIEMAT); Esther MONTES (CIEMAT)

09:45 - 10:10 | Demo 02 - WAM (WAVE prediction Model), by Yassine LASSOUED (CMRC)

10:10 - 10:35 | Demo 03 – Añuri, by Myrian COSTA (UFRJ)

10:35 - 11:00 | Demo 04 – DicomGrid, by Ramon MORENO (InCor - USP)

11:00 - 11:25 | Demo 05 – CardioGrid, by Juan Francisco EIJO (UBA)

11:45 - 12:10 | Demo 06 - Dist-SOM-PORTRAIT, by Tulio SILVA (UNB)

12:10 - 12:35 | Demo 07 - fMRI (Functional Magnetic Resonance Imaging), by Luís Filipe SEQUEIRA ALVES (U. Aveiro)

12:35 - 13:00 | Demo 08 - WRF (Weather Research and Forecasting model), by Valvanuz FERNANDEZ (UNICAN)

14:30 - 14:55 | Demo 09 - CIS (Classification of Satellite Images with neural networks)

by Hector Fernando GOMEZ ALVARADO (UTPL)

14:55 - 15:20 | Demo 10 - CATIVIC (Parametric quantum chemistry package for catalytic reactions), by Jaime Alberto PARADA (UCV)

15:20 - 15:45 | Demo 11 - Portal de Porticos (Damage Portal), by Herbert HOEGER (ULA)

15:45 - 16:25 | Demos 12 and 13 - AERMOD and gRREEMM, by Maikel Isover GARCÍA (CUBAENERGIA)

16:45 - 17:15 | Using additional services in EELA-2, by Diego SCARDACI (INFN)

17:15 - 17:40 | Monitoring and accounting tools, by Diego CARVALHO (CEFET-RJ)

17:40 - 18:30 | NA3+JRA1+SA1 Round table and wrap up by Leandro CIUFFO (INFN); Diego CARVALHO (CEFET-RJ); Francisco BRASILEIRO (UFCG)

For more information please visit: <http://indico.eu-eela.eu/conferenceDisplay.py?confId=205>

# EELA-2 offered Tutorial and Workshop about grid computing in Peru

From May 11th to 15th took place in Lima the tutorial and workshop organized by EELA-2 and dedicated to grid users and administrators.

Verónica Uribe



The EELA-2 team with some of the attendees.

How much can your PC do for you? Writing a Word document? Modifying a picture in Photoshop or fixing an Excel document? Some computers even solve complex problems on their own. Empowered with an internet connection, the list of tasks they can resolve increases even more. Constant communication and the production of shared documents and web sites, not only make easier solving problems with the PC, but also increase the possibilities of its functions when users are connected to each other. If all these tasks can be accomplished by one computer, imagine what could do 30 or 100 of them sharing resources and working together. That is Grid computation.

Starting with the premise that the union makes us stronger, Grid computing is based on the distribution principle. Its goal is to accomplish more efficiency by sharing processing and storage resources between computers among communities with similar objectives. "Each institution member of the Grid, contributes its resources, connecting them through advanced networks or internet. These resources mixed by a middleware, that work as an interface, allow the users access to the resources and

their applications", explains Richard San Martin, EELA-2 representative in Peru and Systems Administrator at SENAMIH.

Although "The Grid", understood as a network that connects computers around the world (desktops, laptops, supercomputers, cell phones, meteorological sensors, telescopes, etc), is not yet a reality, the technology that allows it sure is. Countries all over the world already work with this technology and Peru is no exception.

## The Peruvian experience

Since 2006, Peru counts on a Peruvian Grid Syndicate, which, in 2007, founded the PeruGrid Community, with the support of the EELA project. Its objective is to promote the applications development and research spaces for the Grid computing in Peru. The five members of this community; the National Meteorological and Hydrology Service (SENAMHI), which is also the national coordinator of the Peruvian Grid Syndicate; the Pontificia Universidad Católica del Perú (PUCP); the Universidad Peruana



EELA-e Workshop in Lima, Peru.

Cayetano Heredia (UPCH); the Universidad de San Martín de Porres and the International Potato Center (CIP), are all connected to RedClara through the Peruvian Academic Network (RAAP). PeruGrid has also joined forces with CONCYTEC to obtain official recognition as a National Grid Initiative (NGI).

In order to support this effort and as part of its training and dissemination activities, the EELA-2 Project offered last week, in Lima, a tutorial and a workshop about this technology. Herbert Hoeger, leader and tutor of this training session tells us that “the objective of the tutorials is to prepare people to master Grid technology and take this knowledge to their own institutions. On the other hand, the workshops are dissemination activities in which grid

technology and its benefits and the EELA-2 project itself are exposed. We also invited local researchers to present their work and to discuss new applications for grids in the country”.

## A Grid week

During seven days, dozens of participants went to the Universidad Peruana Cayetano Heredia and the SENAMHI’s Central Office to take part on the tutorial and the workshop. The first one took place Monday, Tuesday and Wednesday. “We showed the participants how to access and use the EELA’s Grid resources using the GILDA training infrastructure. The procedures and requests to create a local grid infrastructure and connect it to EELA were also presented”, commented Richard San Martín.

On Friday, the workshop day, the EELA-2 Project and the initiatives of applying this technology in Peru were presented. Roberto Barbera, EELA-2 member and Catania’s University (Italy) teacher, talked about the reached goals and proposed new challenges to the project, now associate with RedCLARA. “Our main objective is that the work we have made this past 4 years (EELA and EELA-2) can sustain itself once the project is over. For that we count with the support of CLARA and the NRENs (National Research and Education Network) in each country” says professor Barbera.

In this line, Peru has managed to develop important researches about this technology. One of the main projects is the SENAMHI’s. Richard San Martín says that “the weather simulating applications need big computing resources. The use of Grid allows complex experiments like the generation of long term weather scenarios, which provide valuable information for the planning and environmental management resources”. Another important research is the one made by the CIP and EELA-2. They want to establish grid installations for bio-informatics and other similar scientific disciplines. With these and other projects, Peru is looking forward to find alternatives to scientific research. The bases are established, now it’s only left to make that “Grid” bigger and bigger.

## Weather scenarios creation and grid's infrastructure

# The SENAMHI experience in Peru

Connected to RedCLARA since 2006, the Peruvian National Service of Meteorology and Hydrology, SENAMHI, in cooperation with EELA-2, is developing an initiative involving the application and development of grid technological infrastructure. Here are some of the achievements and goals of this project that already is in its second phase.

Verónica Uribe

Every year Peru suffers the consequences of natural disasters such as floods and temperature decreasing in many regions, result from the "El Niño" phenomenon. These natural disasters not only generate great economic losses, but also the death of many citizens, especially in the poorest areas of the country. In this kind of situations, the weather forecast has a fundamental role in the prevention and preparation of the population to face those cases. Being Peru a country where important grid research has been made, is not a surprise that meteorology is one of the subjects of investigation.

### Grid applied to Peruvian reality

The project of Application of numeric modeling for the generation of weather scenarios with grid technology of SENAMHI has as its main goal to characterize the area, detect the actual weather changes and generate future scenarios. This initiative took place in Chile, Peru and Spain simultaneously during the first EELA project. Richard San Martin, EELA-2 tutor and representative in Peru and SENAMHI's system manager, explains that "the application was developed with the University of Cantabria from Spain and the University of Construction from Chile".

The basis for this activity is the use of global and regional circulation models, which solve numerically the physical equations of atmosphere/ocean dynamics. Global models simulate the dynamics of the circulation in a coarse resolution grid over the world (with an approximate resolution of 100 km) whereas the regional models focus on the area of interest (e.g. South America) simulating high-resolution details (5-10 km) with boundary conditions given by a global model.

Grid technology has a main role in this project, thanks to it and within the EELA and EELA-2 projects frameworks the generation of weather scenarios in Peru is now possible. "The applications for the weather simulation need many computing resources and in third world countries as ours the access to these resources is rare" says Richard San Martin.

### PeruGRID: An infrastructure for the future

Concluding the application phase successfully, SENAMHI is now in the second phase of the project which focuses in the development of the infrastructure. The PeruGrid (<http://www.perugrid.org/>) Community was founded in 2007 and its prime objective is to promote the applications development and research spaces for the Grid computing in Peru. The five members of this community; the National Meteorological and Hydrology Service (SENAMHI), which is also the national coordinator of the Peruvian Grid Syndicate; the Pontificia Universidad Católica del Perú (PUCP); the Universidad Peruana Cayetano Heredia (UPCH); the Universidad de San Martín de Porres and the International Potato Center (CIP), are all connected to RedCLARA through the Peruvian Academic Network (RAAP). PeruGrid has also joined forces with CONCYTEC (National Council of Science, Technology and Technological Innovation) to obtain the official recognition as a National Grid Initiative. ID: the last paragraph is repeated from text above.

More than 200 research units and over 1,200 Costa Rican researchers will benefit from the Costa Rica's direct link to RedCLARA, the connection infrastructure of the Latin American Cooperation of Advanced Networks (CLARA).

## Costa Rica on-line

Costa Rican universities will have a better connectivity and will achieve a greater Exchange of scientific and academic information with their Latin American and European peers thanks to the country's connection to RedCLARA. EELA-2 has already established a collaborative bond with the country.

Ixchel Pérez

According to the information published by Costa Rica's Ministry of Science and Technology (MICIT), the incorporation of RedCLARA provides the country with the direct link between Latin America and Europe and, thus, opens the doors to its participation in research projects and encourages scientific development in important areas like high energy physics, astronomy and medicine.

The article published by the MICIT adds that RedCLARA also facilitates the use of modern technology in order to meet certain basic requirements in areas like health and education.

The official announcement of Costa Rica's agreement for its connection to advanced networks was made at the Annual Forum of the Information Society, held in Rio de Janeiro, Brazil, from 22 to 26 November 2008. In this event, Alejandro Cruz, General Director of Costa Rica's National Centre for High Technology (CENAT), dependent on the National Council of University Vice Chancellors (CONARE), signed the country's connection to RedCLARA at 155 mbps.

After a series of tests the connection was materialised and launched at the end of May, with the conduction of a seminar-workshop on the use and applications of advanced networks in research and scientific development. The event was organised by CENAT and CONARE and featured the participation of renowned experts and members of the EELA-2 Project and CLARA, who reported on the project.

"What drives us to do this?, the need to have Costa Rica and our universities connected at the highest possible

level currently available in the world. Precisely in March, there were a series of tests which were concluded in April; some adjustments were made to improve this tool and we expect to after this workshop our researchers and professors will take advantage of this tool made available through CONARE and CENAT", explained Rodrigo Arias, president of CONARE and Vice Chancellor of the Remote State University (UNED).

The connection to RedCLARA was promoted by MICIT, CONARE, the National Science Foundation (ANC), the National Institute for Electricity (ICE) and the Costa Rican Social Insurance Thrust (CCSS). The MICIT website indicates that Costa Rica participates in the initiative through the Directing Council of the Advanced Research National Network (CR2Net), created via Executive Decree N. 31531 on 16th December 2003.

"In CONARE we were worried that Costa Rica could be left behind in the connection to advanced networks for research and education, since we were foregoing a unique opportunity and we did not want the country to be left behind; this is why we made the decision to promote the country's integration to these advanced networks. This agreement is the one that finally leads us to materialise Costa Rica's incorporation into RedCLARA, thus providing our researchers and educators with access to research centres, collaborative projects, data bases and high-level scientific instruments which are available through these networks" added Arias.

Although it was not connected to RedCLARA, Costa Rica was already a member of CLARA, an entity which has been

working since 2003 and which connects 14 countries and more than 700 universities and research centres across Latin America. In the region, the countries still pending to be connected are Cuba, Honduras, Paraguay, Bolivia and Nicaragua.

For some time, Costa Rica was connected to advanced networks, but the costs and the limited bandwidth forced the country to abandon the project, pointed out Alvaro de la Ossa, interim director of CENAT. In that first effort, “the MICIT, the CCSS, CONARE and the National Meteorology Institute (IMN) participated, among other public institutions”, he said.

Luis Furlan, director of Guatemala’s National Research and Education Network, who was present at the seminar carried out to launch the materialisation of Costa Rica’s connection, commented that the problem for the integration of some countries is the cost, although the European Community funds 67% of the project.

“For countries this is a strong investment, particularly if there are not many higher education or research institutions, as it happens in Guatemala for instance, where six universities are participating, and they have to share the 33% of the funding, which represents an expenditure of around 13,000 Euros per month”, he pointed out.

## Experts meeting, the participation of EELA-2

The seminar-workshop on the use and applications of advanced networks, held on May 29th, featured the participation of international experts who discussed details of the CLARA and GLOBAL projects, and also went into detail about the Grid topic.

“The main objective of this activity was to promote the existence of the RedCLARA connection in CONARE and to extend the connection to four universities because what we are interested in is that there is a substantial use of the connection, since a big investment is being made by university vice chancellors and we need to justify that cost in the use of the Network, mainly with research and education projects”, said Alvaro de la Ossa.



Herbert Hoeger.

Herbert Hoeger, associate professor at the School of Systems Engineering of the Faculty of Engineering of the University of Los Andes (ULA) and an indefatigable researcher on the Grid topic, gave two important presentations: “General Grid Concepts: what it is and how it differs from clusters” and “The EELA-2 Project, examples of some applications”.

In the first presentation, Hoeger explained that Grid Computing is distributed computing but taken to a multi-organisation and multi-system level. It operates with different operating systems and connects many local systems, which are managed by different organizations which are cooperating.

Furthermore, Hoeger explained that the development of Grid is currently feasible thanks to the fact that we have global connectivity, availability and reliability in terms of bandwidth and the networks’ speed is doubled every nine months. Grid makes it possible to turn the Internet into a computing services platform, and not only a source of information, he added.

The researcher stated that the Grid offers services in an extended (many resources in many places), constant, reliable, simple, transparent and economic way.

“To have resources available in any place, at any time, in a reliable and secure way; to make the location of processes and data transparent for the user, and that the Grid is easy to use are goals on which we are still working hard”, concluded Hoeger.

In his second presentation, the expert explained all the details about EELA-2 (E-science grid facility for Europe and Latin America), which began in April 2008 and will be concluded in March 2010, and in which CLARA is actively participating.

Hoeger stated that the objectives of EELA-2 are to promote an empowering of Grid facilities with applications; to ensure the quality of services; to ensure the sustainability of the e-Infrastructure in the long term, beyond the conclusion of the project; and to expand the EELA-2 e-Infrastructure to new communities.

Furthermore, he indicated how to participate in the EELA-2 project and talked about the resources that it provides for researchers.

The researcher from the supercomputing department at Mexico’s Autonomous University (UNAM), José Luis Gordillo, gave further details on the subject by talking about the Metropolitan Delta Project for Supercomputing in Mexico City, as well as about the Mexican groups in EELA-2.

Claudia Córdova, representative from RedCLARA in the area of training and member of the Peru’s Advanced Academic Network, provided more details on the Global project, while Luis Furlán talked about CLARA.

## 4th BELIEF International Symposium

# e-Infrastructures and sustainable development are given prominence in Brazil

From 16 to 17 July, the Polytechnic School of the University of Sao Paulo, Brazil will host the 4th BELIEF International Symposium, whose main subject will be e-Infrastructure and sustainable development. Doctor and Professor Edison Spina, member of the Polytechnic School of the University of Sao Paulo and local coordinator for the BELIEF project, analyses here the benefits and challenges of e-Infrastructures across the region.

Renata Victal

The impacts of the investments on e-Infrastructure, especially in developing countries, are high. The highest among them is, undoubtedly, the improvement of the living quality for the population in remote places. The second, though not less important, is the possibility of a joint research, which will be carried out between Latin American centres of excellence and European centres that are among the most advanced in the world, with an economy of individual resources.

Doctor and Professor Edison Spina, member of the Polytechnic School of the University of Sao Paulo and local coordinator for the BELIEF project (Bringing Europe's Electronic Infrastructures to Expanding Frontiers) will participate, together with other renowned researchers, in the 4th BELIEF International Symposium, whose main subject will be e-Infrastructure and sustainable development.

The event will be held at the Polytechnic School of the University of Sao Paulo, Sao Paulo, from 16 to 17 July, and will feature the participation of the GLOBAL project, the Institute of Electrical and Electronics Engineers, IEEE, CLARA and the EELA-2 Project.

During the event, experts from different fields of knowledge (health, education, science) will discuss the achievements obtained in terms of sustainable development through the incorporation of e-infrastructures. The steps to be followed will also be discussed, taking into account political actors and decision-makers.

"Brazil has got an immense cultural, ethnic, technical and economic diversity and a geographical distribution which does not allow all solutions to be implemented in all places with the same scope and depth. Therefore, the use of e-Infrastructures becomes imperative since it allows for the remote, online and direct application of these solutions", explains Dr Edison Spina.

According to him, the fields of health, education and science have more tools to meet the specific online demands, which allows for a more suitable use of public investments and guarantees the distribution of both technical resources (the availability of a specific machine for a given exam performed remotely from the other end of the country) and human ones (the possibility to talk to a specialist doctor without the need to have him/her physically present).

"Although investments are constant, the challenges are many", points out the researcher. "We have to increase the capacities in communications (both in terms of bandwidth and capillarity), data processing and storage for specific applications which serve the nation's social and economic development". Spina states that technical development requires resources that are increasingly scarce. Resources which, particularly in the case of countries like Brazil and its Latin American partners, have to be very well used in order to guarantee, above all, the nations' quality of life.

“To rationalise the resources expenditure and to guarantee a suitable use of these in the applications which directly affect the population are pressing needs. The information and communication technologies have provided more solutions to everyday problems and can be applied more directly, regardless of the geographical distribution”, points out the BELIEF project coordinator from the Polytechnic School of the University of Sao Paulo.

Two years ago, Rio de Janeiro hosted a similar meeting with discussions focused on the area of application in business. This year, the discussion will focus on areas which are regarded as a priority according to the latest events, such as education, health and science, including social sciences. The participants will include Senator Jefferson Praia, representative from the Amazon state.

“The presence of an authority at this level shows that sustainable development issues, particularly the definitions of investment on e-Infrastructures, have become vital for our country, which has a great diversity in terms of culture and innovation policies”, highlights Spina.

For more information on how your institution can participate in the conference, visit <http://www.beliefproject.org> or contact the CONVICCIONES project at +39 050 3871 400 or via email at [events@beliefproject.org](mailto:events@beliefproject.org)

## Opening Programme: Thursday July 16th

1. Open plenary of political actors and representatives from the main projects/initiatives in e-Infrastructures.
2. Political actors and representatives from the main projects/initiatives in e-Infrastructures.
  - Senator Jefferson Praia – Representative from the Amazon State in the Brazilian Senate.
  - Vahan Agoypan – University of Sao Paulo.
  - Paulo Lopes – European Commission Delegation in Brazil
  - Michael Stanton & Florencio Utreras – RedCLARA
  - Bernard Marèchal – EELA-2 Project Coordinator
3. Round table for Political Actors
4. GLOBAL plaza – collaborating with global e-Infrastructures
5. Key presentations. Invited and accepted presentations.
  - Craig Lee – Grid Open Forum
  - Susana Fiquelievich – National Adviser for Scientific and Technical Research from Argentina
  - Silvio Ernesto Barbin – IEEE
6. Questions & answers / discussion
7. Plenary
  - Johan Eksteen – Microsoft
  - Federico Ruggieri – INFN/EGEE
  - Ioannis Liabotis – GRNET/PRACE
8. Questions & answers / discussion

# GridCafé launches in Spanish

GridCafé, an award-winning website aimed at introducing the marvels of grid computing to a wider audience, launched in May a Spanish language version, making the website available to an estimated 300 million Spanish speakers around the world.

Cristy Jane Burne (GridTalk) and  
María José López Pourailly



The expansion comes as part of a partnership between the European Commission project GridTalk and REUNA, a non-profit collaboration of 15 Chilean universities, the AURA Observatory and the Chilean National Commission for Scientific and Technological Research.

“In REUNA we believe that by using innovative technologies we can help to make a better world. When we first saw GridCafé we fell in love with its great contents

and the simple fashion in which they are explained; we felt we needed to share that with the Chilean education and research community, and also with the rest of Latin America,” said Paola Arellano, REUNA Executive Director. “We are extremely satisfied with the great result of our collaboration with GridTalk and we are sure that the Spanish version of GridCafé will serve to trigger the development of new eScience initiatives”.

One of the eScience initiatives that will benefit is the world's largest multi-science grid project Enabling Grids for E-science (EGEE). EGEE has been working closely with EELA-2 (E-science grid facility for Europe and Latin America) to increase the number of scientists within southern and central America using grid technology. This new translation of GridCafé into Spanish will help to increase grid awareness among the research community in Latin America.

The GridCafé website received nearly 300,000 visitors in the last year, viewing more than 600,000 pages. The site introduces the concepts behind grid computing - a technology that connects ordinary computers from around the world to create an extraordinary computing resource - as well as grid applications, challenges and ways to get involved.

"Grid computing is an essential and fascinating technology," said Dr Sarah Pearce, GridTalk project manager. "It allows scientists from all over the world to work together, sharing their data and resources for the greater good. We're thrilled that GridCafé can now reach an even wider audience."

# The creation of a Grid in El Salvador moves forward

A project by the Don Bosco University intends to be the seed for the creation on the first grid in El Salvador.

Ixchel Pérez

When a researcher needs to make a very complex mathematical calculus, for instance to solve a system of non-linear equations of multiple variables (200 or 300 variables), to develop it in one single work station may take many hours, even days. Using one single computer can turn into a disincentive for fundamental initiatives and projects.

In the search to open up an alternative for those who need a great capacity of computing systems for research and education, the Don Bosco University (UDB) from El Salvador launched a project for distributed computing in October 2008.

The "Research for the Development and Implementation of Supercomputing Models" project, also known as the "Legion" project, was born with the aim of developing a scalable and efficient model to recycle computers which could be used in parallel processing infrastructures of high performance and high availability, using dedicated strategies such as clusters or non-dedicated ones such as Grids, as defined in the UDB website.

Carlos Bran, Director of the Centre for Information and Communication Technologies of the Don Bosco University (CTIC), explains that the idea was to set up an experimental laboratory with three distributed computing models: high performance computing model, high availability computing model and Grid.

"The main objective was to find a mechanism to make use of the processing power of computers working in a cluster environment, where several computers could develop or use their processing power to solve a particular problem", states Bran, responsible for the project at UDB and

technical representative from the Salvadorean Advanced Network for Research, Science and Education (RAICES), an active CLARA partner. "The project was organized through the possibility of using advanced networks to make the synergy process in the use of stations and computers" he adds.

The high performance computing model is ready, although it was necessary to overcome many obstacles such as the lack of researchers willing to get involved and the creation of simple applications for its installation. Legion has managed to bring together in the cluster a total of 48 stations, which are connected by means of a LAN network, with a combined processing power of 52 processors and a combined memory of 4 terabytes RAM.

"The purpose is that I can make it extensible to all the stations in the University, to eventually have 300 stations which can be working in a given moment; certainly to use them in a night environment, where the station is left active and is used by researchers and students" indicates Bran.

"Legion" has required a \$60,000 investment, of which 75% was funded by El Salvador's Ministry of Education (through its Research Fund for Higher Education, FIES), and 25% by the Don Bosco University.

"The main project was to set up the platform. The development and set up of the infrastructure took between 4 to 5 months. One of the ideas of the project was to develop applications which could make it simple, and this is what took longer", states Bran.

The UDB developed those applications, which turn into a facilitating element so that the project can be replicated

in other educational institutions and, thus, a Grid can be developed. “The installations have been made. They will be made available to RAICES”, says Bran.

During the last months of the project, which is expected to be concluded in September, it will seek to create a portal for RAICES members to have access to the cluster’s resources.

With the laboratory up and running, the UDB expects to make the project extensible to the other universities in order to create the Grid. “In the Grid we want to engage RAICES members. We are about to begin to perform tests in the Centro American University José Simeón Cañas (UCA) in order to start setting up the Grid” points out Bran.

The idea is that all RAICES users get to share their resources and that, later on, papers can be put up in the Grid from any of the universities, using advanced networks.

Once the rest of the universities are involved, the Grid will be one more resource available for RAICES researchers” concludes Bran.

## **Carlos Bran: “The Grid was the state of the art”**

### **Was the idea of creating the Grid in El Salvador part of the project’s initial idea?**

Yes, it was. That was the state of the art, the most complicated part that we wanted to try, because it was something we had never done before. In fact, on the part of CLARA there was a lot of work with the Grid, but we only knew that it was an element of distributed computing, but we didn’t know anything else. We started to evaluate it and to learn how it worked. In the country nobody had played with Grid until now that we have the laboratory and we expect to extend it.

### **How will it work?**

The Grid will be the extension of the cluster; it will no longer be restricted to geographical environments. We will share the cluster in a Grid environment with academic purposes. Now we have tried it out locally at UDB; we have not yet extended it.

### **Which obstacles did you face for the development of the project?**

One of the main problems was the lack of research culture. This is why many researchers did not want to participate in the project, out of fear, even though they were offered the double for their salaries as academics.

### *Which challenges do you envision in the construction of the Grid?*

To start to create applications that we can make in El Salvador and which can run over the Grid environment. Let us say that 80% of the infrastructure has already been sorted out; there is a remaining 20% in involving other institutions. But once we have solved that the question is “what about the applications?”. The Grid will be one more tool available for researchers, academics, mathematicians we have in RAICES. We will offer a few conferences to encourage teachers and students, telling them “Here’s a Ferrari with thousands of processors, are you going to use it by pulling it with a rope or driving at 200 km per hour? This no longer depends on me.

### **And will it be easy to use?**

We are making it very easy so that people cannot say for instance: “I can’t program”. It is not necessary to be able to program, we will simply install some applications. For example, this can serve to use electronic simulators and not real ones, when testing a wall’s resistance.

# Grid Events Agenda

## June – July:

28-1 | HealthGrid 2009 Conference  
<http://berlin2009.healthgrid.org/index.php?id=2>  
 Berlin, Germany

28-3 | 21 Annual FIRST Conference  
<http://conference.first.org/>  
 Kyoto, Japan

29-4 | EGEE and EDGeS Summer School on Grid  
 Application Support  
<http://www.egee.hu/grid09/>  
 Budapest, Hungary

## July:

5-17 | 7th International Summer School on Grid  
 Computing  
<http://www.iceage-eu.org/issgc09/index.cfm>  
 Summer School, Côte d'Azur, France

6-8 | IASTED Modeling and Simulation  
<http://www.iasted.org/conferences/home-670.html>  
 Banff, Alberta, Canada

11-13 | Symposium on High Performance Distributed  
 Computing  
<http://www.lrz-muenchen.de/hpdc2009/>  
 Munich, Germany

16-17 | 4th Belief International Symposium - <http://www.beliefproject.org/events/4th-belief-international-symposium>  
 São Paulo, Brazil

20 | EELA-2 Workshop - <http://indico.eu-eela.eu/conferenceDisplay.py?confId=195>  
 Montevideo, Uruguay

21 | First EELA-2 Users Forum - <http://indico.eu-eela.eu/conferenceTimeTable.py?confId=205>  
 Montevideo, Uruguay

21-24 | EELA-2 Tutorial  
<http://indico.eu-eela.eu/conferenceDisplay.py?confId=194>  
 Montevideo, Uruguay

20-23 | 28th APAN Meeting  
<http://www.apan.net/meetings/kualalumpur2009/>  
 Kuala Lumpur, Malaysia

## August

25 | 4th Workshop on Virtualization in High-Performance  
 Cloud Computing (VHPC '09)  
<http://vhpc.org/>  
 Delft, Netherlands

25 | UNICORE Summit  
<http://www.unicore.eu/summit/2009/>  
 Delft, Netherlands

31-4 Sept | Cluster 2009  
<http://www.cluster2009.org/>  
 New Orleans, LA, U.S.

## Keep November in mind!

The 2nd EELA-2 Conference will be held in the Venezuelan city of Choroni from November 25th to 27th, 2009. For more information, please visit: <http://indico.eu-eela.eu/conferenceDisplay.py?confId=201>