Newcomers

BSC, HPC in Europe’s bridge to Latin America

Ulises Cortés began his role as Latin America Relations Coordinator seven months ago. His objectives are to strengthen academic relationships with Latin American Institutions, to promote the use of HPC as a tool to develop science and technology, and therefore to promote economic development; and to create solid links with academic programmes which train people in the use of HPC to solve regional problems.

More information on page 6
Directors’ View

The BSC was created in order to perform research into computer and e-science and to support Spanish researchers who needed HPC resources. From the start, the vocation of the centre was international, and this has only grown stronger along time. It is reflected in our participation in EU funded projects, beginning with DEISA which was a forerunner of PRACE; SARC which advanced in the design of scalable processor and memory architectures for future multicore chips; and BEinGRID, which fostered the adoption of grid technologies in business application domains.

After just a few years we began coordinating projects such as VELOX, focussed on the impact of transactional memory at different levels of the computer system; PROARTIS on novel hardware and software paradigms for highly-demanding real-time systems (work now being continued under PROXIMA); TEXT proposing novel programming and performance analysis environments towards Exascale systems and later Mont-Blanc the use of low-power components in the design of HPC architectures. In fact the BSC has now participated in 80 European projects; one of the best returns from the Framework Programme of any centre in Spain.

Our commitment to the PRACE initiative and to providing a distributed supercomputing infrastructure for the best European researchers is perhaps the greatest demonstration of our international vocation. PRACE, together with the HPC Technology Platform, which designs the roadmap for HPC technology, as well as the future centres of excellence for HPC applications, will form the basis of the HPC ecosystem in Europe. We are well positioned in all of them.

We are and aim to continue being a globally recognised centre of excellence in our disciplines and this will mean even more international participation than ever. This is why we have already presented 24 proposals to Horizon 2020 programme and are currently preparing 40 more. It also means that we look beyond Europe and try to participate with excellent partners from all around the world: we now participate in the global Open MP consortium, we are an active member of the worldwide Big Data and Extreme-scale Computing initiative, and we collaborate closely with the best international IT companies including IBM, Intel, Microsoft, NVIDIA from the US and Samsung from Korea.

Elsewhere in this newsletter you will read about our intense cooperation with Latin America in various initiatives, and future opportunities are also being explored with China, Japan, Israel and Qatar. We are well aware that the greatest challenges of the moment can only be tackled through international cooperation and we encourage all of you to remain open to new opportunities.

Francesc Subirada, BSC Associate Director

Calendar of Events and Training

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tr>
<td>Jul 7</td>
<td>PUMPS Summer School 2014</td>
<td>7 July 2014, Barcelona</td>
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<tr>
<td>Sep 1</td>
<td>Social Simulation Conference 2014</td>
<td>1 September 2014, UAB</td>
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<td>Sep 23</td>
<td>8th Users'Conference &amp; 3rd HPC AC Conference</td>
<td>23 September 2014, Santander</td>
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<td>Oct 26</td>
<td>SEG Denver 2014</td>
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Forthcoming PATC Courses
News

Barcelona is the new home of the EGA

On 14 May, Carmen Vela, Secretary of State for R&D at the Spanish Ministry of Economy and Competitiveness, Andreu Mas-Colell, Minister of Economy and Knowledge at the Government of Catalonia, and Jaime Lanaspa, director general of “la Caixa” Foundation, publicly launched the European Genome-phenome Archive (EGA) in Barcelona, along with Luis Serrano, director of the Centre for Genomic Regulation (CRG) and Arcadi Navarro, affiliate head of the EGA team, ICREA Research Professor and director of the Department of Experimental Sciences and Health at Pompeu Fabra University.

The project is led by the CRG and the data, around 1,000,000 gigabytes in total, will be stored in Barcelona Supercomputing Center facilities and subsequently analysed by the MareNostrum supercomputer.

The EGA stores genome and phenome data on over 100,000 people, from 200 centres and research groups from all around the world, and is a fundamental resource for the advancement of personalised medicine.

At the moment, the EGA stores the data generated by over 700 scientific studies on cancer, diabetes, autoimmune diseases, cardiovascular problems and neurological disorders, among other illnesses.

Further information here

COMPSs now also supports Python

The Grid Computing and Clusters team at BSC is proud to announce a new release, version 1.1.2 of the programming environment COMPSs, which gives support to three major programming languages: Java, C/C++ and Python.

This version of COMPSs updates the product of the team’s work over the last few years: a set of tools which helps developers to program and execute their applications efficiently on distributed computational infrastructures such as clusters, grids and clouds.

Besides the new support for Python with the PyCOMPSs binding, the new release provides an Integrated Development Environment for COMPSs applications (IDE) that helps the development of applications and their deployment in distributed environments. This component is available as an Eclipse plugin published in the Eclipse marketplace. Also, new support to the generation of performance traces is provided with the Extrae tool.

COMPSs has been available for the last years to the MareNostrum supercomputer users and the Spanish Supercomputing Network and has been adopted in several research projects, such as OPTIMIS, VENUS-C, EBrazilOpenBio and EGI.

Further information here
**Best Paper Award for PROXIMA at 51st DAC**

A paper from the EC-funded PROXIMA project entitled “Containing Timing-Related Certification Cost in Automotive Systems Deploying Complex Hardware” from Leonidas Kosmidis, Jaume Abella, Eduardo Quiñones, Franck Wartel, Glenn Farrall, and Francisco J. Cazorla has received the 51st DAC Best Paper Award. The Design Automation Conference (DAC) was held in San Francisco in June.

The paper proposes a new approach to software randomisation that is made statically and it is able to contain timing verification costs in the automotive domain. This will allow the processors in future cars to provide enhanced functionalities. Francisco J. Cazorla, the PROXIMA project coordinator, says that this award is “a great achievement for the PROXIMA project and shows the potential benefits of the probabilistic timing-analysis approach in domains such as automotive.”

Further information [here](#).

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**BSC and AEMET hosts Barcelona Dust Forecast Center**

Spain will lead the global operational forecasting of dust storms and sandstorms through Barcelona Dust Forecast Center, the World Meteorological Organization’s first operational center for dust forecasting for North Africa, the Middle East and Europe.

This center, managed by BSC and AEMET (the Spanish National Meteorological Agency), was presented to the public on 10 June. Barcelona Dust Forecast Center will use a transport model of dust and pollutants which will be executed on BSC’s MareNostrum supercomputer. Its daily forecasts will be distributed among national meteorological services within the territorial scope covered by the center via AEMET’s communication channels.

Further information [here](#) (Spanish).

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**The human face of supercomputing**

What’s the best thing about being a researcher? Did researchers always know they were going to dedicate their lives to science? Why should young people today be drawn to this profession? In this video, some of the researchers at BSC tell us about their experience and answer these and other questions. Many thanks to everyone who participated.

You can view the [Catalan version of the video](#) on the BSC YouTube channel.
Agreement to coordinate the development of the HPC technology value chain in Europe
[info]

BSC and IBM Recognize First anniversary of the Supercomputing Technology Center
[info]

PRACEdays14: the need for collaboration between countries and private and public sectors
[info]

HiPEAC celebrates 10 years of achievement
[info] / [video]

Alya code scaled to 100,000 cores on Blue Waters supercomputer
[info]

BSC showcases A.Track.Tion, an application which reviews the influence of different musical genres over the last 60 years, at Sonar
[info]
BSC, HPC in Europe’s bridge to Latin America

Ulises Cortés began his role as Latin America Relations Coordinator seven months ago. His objectives are to strengthen academic relationships with Latin American Institutions, to promote the use of HPC as a tool to develop science and technology, and therefore to promote economic development; and to create solid links with academic programmes which train people in the use of HPC to solve regional problems.

- **Ulises, what are the stand-out projects in which BSC has participated with Latin America up until now?**

  EUBrazilOpenBio and RISC were the two flagship projects demonstrating our wish to bridge EU and Latin America research, supporting bi-regional integration in science and technology. Both projects were very successful and we expect both to continue in some way in H2020.

- **What joint projects is BSC currently undertaking with Latin America?**

  At this point there is only one ongoing research project funded by the EU, EU Brazil Cloud Connect. We also have a post-doctoral and doctoral programme funded by CONACyT (Mexico), which opens five new postdoctoral positions at BSC every year. This is the largest of its kind in Europe. Our aim is to replicate this programme and to have as many EU-funded projects within H2020 as possible. Emphasis will be placed on ways of supporting partnerships through innovative approaches, including: a combination of training, communication, and staff exchange programmes; identifying funding opportunities from diverse stakeholders (academics, researchers, graduate and post-graduate training programmes, professional associations, business and entrepreneurial organizations, and local, national and European government bodies), identifying their institutional interests, and their training needs for human capital.

- **What does this mutual collaboration bring?**

  There are many reasons to encourage mutual learning and collaboration between BSC and Latin American institutions. In recent decades, new forms of global recruitment have helped research institutions such as BSC flourish by providing a significant number of international researchers, which allows stronger research partnerships. These partnerships are a critical element of the innovation landscape which, in turn, is vital to fostering growth in a knowledge-based economy. Collaboration and collaborative development have become more important because of the demands of international coordination in the appropriate use of resources. Being collaborative is a win-win strategy for survival.

- **What is the strategic importance of this collaboration for BSC?**

  Latin America is a dynamic and growing economic region where HPC applications are growing in size and importance. For BSC to have an important role in the region at this point, accompanying emerging players such as the ABACUS project in Mexico, is of major strategic importance.

- **What are the future plans for collaborative work with Latin America?**

  In H2020, BSC will continue promoting bilateral activities with Latin America in Research, Development and Innovation (RDI). We will participate not only in the general programme but also in the bilateral calls with Brazil and Mexico, with the intention of increasing research activities in the region.

Mateo Valero: “Latin America represents one of the greatest seedbeds for research in the world, and BSC wishes to exploit its potential.”

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**BSC takes part in setting up Abacus**

Abacus, a supercomputing centre currently under construction in La Marquesa, Mexico, will follow a model similar to that of BSC. The collaboration between the two centres has involved meetings to share experiences, courses delivered by BSC staff, conferences and visits to BSC by several members of Abacus. In this regard, Dr Alejandro Flores Méndez, one of the researchers who participated in the programme, highlights that “the exchange was very valuable thanks to the openness and availability of staff at all levels to share knowledge and experience. This allowed a dynamic exchange which enriches our project.”

Further information [here](#)
Inside BSC

**BSC Newcomers**

We remind you that BSC has a Welcome Manual for the newcomers. You can find the online version on the intranet: https://intranet.bsc.es/en/node/2212

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**FELLOWSHIPS**

- ALEJANDRO VELASCO
  - Undergraduate Student
  - Computer Sciences Dept.
- MARCELO AMARAL
  - PhD Student
  - Computer Sciences Dept.
- BENZHAD SALAMI
  - PhD Student
  - Computer Sciences Dept.
- CRISTIAN RAMOS-CORTES
  - Undergraduate Student
  - Computer Sciences Dept.
- PEDRO BENEDICTE
  - Undergraduate Student
  - Computer Sciences Dept.
- PAUL FARRE
  - PhD Student
  - Computer Sciences Dept.
- GABRIEL BERNARDINO
  - Master’s Student
  - Life Sciences Dept.
- ELIAS RODRIGUEZ
  - Master’s Student
  - Life Sciences Dept.
- MARTA MUNAR
  - PhD Student
  - Life Sciences Dept.
- DIEGO MARRON
  - PhD Student
  - Computer Sciences Dept.

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**Job Vacancies**

If you know someone who wants to join the BSC team, he/she can submit a CV to one of our current vacancies or fellowships’ calls: www.bsc.es/vacancies-fellowships

For further information contact rrhh@bsc.es.
Inside BSC

BSC-“la Caixa” International Doctoral Grants Programme

On 17 and 18 June, the final stage of the selection process to award the second round of “la Caixa” Doctoral Grants was held at BSC. The 12 finalists were invited to participate in the event to defend their applications before a selection committee, including representatives from “la Caixa.”

Scholarship grants for MSc students

Since 2013, in the context of the Severo Ochoa Program, BSC has offered four scholarship grants for students on the MIRI MSc programme at Barcelona School of Informatics at UPC (Universitat Politècnica de Catalunya) who have chosen the High Performance Computing Specialization. This call for applications closes at 23:59 on 10 July 2014. Further information here.

Social Activity Plan 2014

BSC has launched the 2014 Social Activity Plan, which provides funding for activities in order to promote cohesion and contact between staff, as well as adding to the centre's social value. ‘Solidarity activities', initiatives to raise funds for a specific project or NGO, will be particularly valued. You can find all the information here.

The BSC Marewalker team, which participated in the Oxfam Intermon Trailwalker, successfully met their challenge by walking 100km in just under 20 hours. Congratulations! You can see photos of this and other events in the Social Activity Plan on the intranet: https://intranet.bsc.es/en/image/tid/193

Did you know...

Training plan?

The training plan has been uploaded to the intranet, so you can now consult the programme of training events scheduled over the coming months. https://intranet.bsc.es/files/Training%20Plan%202014v2.pdf

Come and demonstrate your research work to schoolchildren visiting MareNostrum!

For the new school year, research staff will be participating in MareNostrum tours. Help us show the people behind supercomputing! Contact communication@bsc.es for further information.

BSC hosts its first Doctoral Symposium

This was the first in a series of annual events highlighting the research of BSC doctoral students. The goal of the symposium is twofold: first, to provide a framework to share results of research undertaken by PhD students at BSC; second, to offer training sessions on topics and skills that will be useful to them as future researchers and professionals. Read more here.

Scholarship grants for students

Since 2013, in the context of the Severo Ochoa Program, BSC has offered four scholarship grants for students on the MIRI MSc programme at Barcelona School of Informatics at UPC (Universitat Politècnica de Catalunya) who have chosen the High Performance Computing Specialization. This call for applications closes at 23:59 on 10 July 2014. Further information here.

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Do you work at BSC but haven’t yet visited MareNostrum?

You can register for guided visits for centre staff by emailing visits@bsc.es.