

Transnational Access

THE SUCCESS  
STORY



## Curriculum

Dr. Chijien Lin has received a Ph.D. degree in Statistics from the University of Joensuu, Finland. He also has master's degree in Forest resources management, College of Environmental Sciences and Forestry, State University of New York, and in Applied Statistics, Syracuse University, New York. Dr. Lin's research is on computer simulation of spatio-temporal dependencies in forest ecosystem. Generalized linear mixed models are used to model and simulate tree locations and characteristics. A Fortran 90 simulator was written to carry out the simulation. Due to the high demand on computing power, Dr. Lin is currently parallelizing the Fortran codes to run the simulator on IBM SP4 at CINECA.

# Chijien Lin

During late August to Mid-October 2004, I got an opportunity to visit CINECA via the HPC-Europa project. The main purposes of the visiting were to work on parallelization of a simulator that I used in my dissertation research, and visualization of simulation results, i.e., hypothetical forest ecosystems. When I just arrived at CINECA, I was surprised by the security doors, especially when I needed to go through a tube with 2 sliding doors, which I have only seen in movies. Then, I was greeted with real Italians who spoke only Italian. Of course, things went easier when my hosts, Dr. Giovanni Erbacci and Ms. Isabella Ciusa, came to settle me in the office and the apartment. This started my interesting life in Italy. The optimal working environment for researchers is to have every day life business been taken care of by someone else and we just concentrate on research. This was the working environment offered by the HPC-Europa project and CINECA. In the office, I got a PC loaded with Linux and Windows XP, and it was fast. Printing was also enjoyable since there were high-speed laser and color printers. It was always nice to go to the printing room since I could visit the

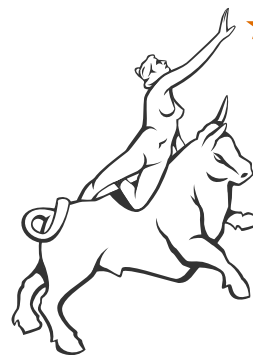
supercomputers in the next room, although it was like checking newborn babies over a glass wall. It took few days to get used to IBM SP4 OS and IBM Fortran 90 compiler. Nevertheless, it was not difficult to start working with SP4 since I could always get necessary helps from a team of experts in HPC leaded by Dr. Erbacci, who also came to chat with me frequently to make sure that things were going well. Because of the hassle-free working environment and superb technical assistances, I was able to advance the parallelization of the Fortran codes from scratch in just few weeks. The visualization work progressed in the same way. Dr. Cinzia Zannoni and her group provided me with all the technical assistance in scientific visualization. For a statistician, visualization is something we are not familiar with. Therefore, I was extremely happy to have a visualization tool to bring home with me. Other than research work, I also enjoyed the ordinary life in Italy. I stayed at an apartment about 20 minutes walk from CINECA. The apartment was fully equipped and cleaned once a week. It was very nice that HPC-Europa project offered free accommodation to visitors so that we don't

have to worry about logistical problems in a foreign country. There was a shopping center on the way between the apartment and CINECA. It soon became a routine that I went to work in the mornings and stopped by the market to pick up some food and wine after work. I had two housemates and we often share cooking in the evenings. After few glasses of excellent Italian wine, we could chat just about everything from mathematics to statistics, from parallel programming to cultural differences, etc. Other than work, I also made few short trips to Rimini, Padova, Venezia, Firenze, Pisa, Roma and, of course, city of Bologna. Thanks to the location of CINECA, it was very easy to go to nearby cities by train just in few hours. Before I went to Italy, I was prepared not to expect too much work could be done during 2 months period. When I got home, I was amazed by the achievements in HPC and visualization, and the wonderful experiences in Italy. I am sure my housemate and many other HPC-Europa scholars will agree with me that we all had a wonderful time in CINECA, both intellectually and leisurely.

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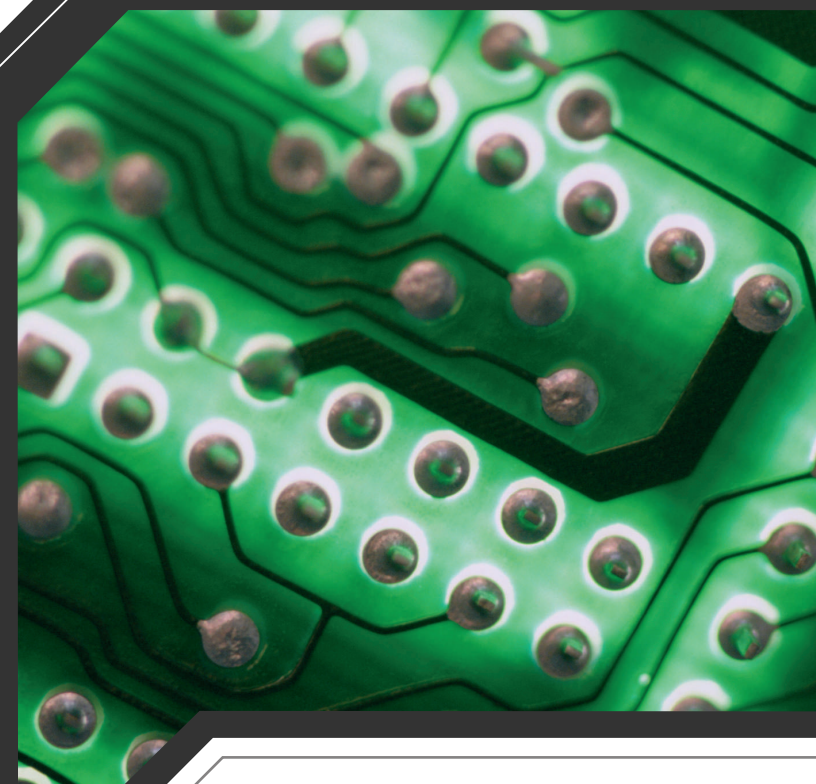
# HPC-Europa

Pan-European Research Infrastructure on High Performance Computing



► **HPC-Europa** is a partnership of six leading High Performance Computing (HPC) centres and five centres of excellence, carrying out research on HPC tools and methods. The aim of HPC-Europa is to provide advanced computational services in an integrated way to European researchers working at the forefront of science. During 2004, the first year of HPC-Europa, a wide spectrum of services has been delivered, and these will continue to be developed over the remaining three years of the project's lifespan. HPC-Europa offers access to first-class HPC platforms for researchers throughout the whole of Europe in every domain of computational science, providing advanced computational environments, technical support and training. The ultimate goal is to allow European researchers to achieve and maintain a competitive edge on the world stage.

Moreover, HPC-Europa's Joint Research Activities and Networking Activities will foster a culture of European cooperation, thus generating critical mass capable of bringing about the evolution of computational activities and driving new advances in HPC - all within the context of the European Research Area. HPC-Europa builds on the partners' existing experience in HPC service provision and benefits strongly from a successful history of collaborative links which have been continuously reinforced over the last ten years.



## projects



Networking Activities



Research Activities



Transnational Access

## contact

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An overview

# The Scientific Users' Selection Panel Activity

► by Prof. Claudio Zannoni  
Department of Physical and Inorganic Chemistry, University of Bologna

Since the HPC-Europa inaugural meeting on January 2004, the Transnational Access partners have agreed a mechanism for the selection procedure of applications to the HPC-Europa Transnational Access activity. This procedure is based on a rigorous peer review activity performed by the Scientific Users' Selection Panel (SUSP). This panel is composed of 14 well-known scientific experts, external to the staff of the HPC-Europa infrastructure, selected to serve as referees for the different disciplines, assuring the largest covering of all the computational disciplines.

**The chairman**  
The SUSP members have elected a chairman to coordinate the SUSP meetings and to use his casting vote in situations where two referees disagree on whether an application should be accepted or rejected. The chairman will also ratify recommendations from the HPC-Europa co-ordination team, and will represent the panel should the need for such a representation arise.

NAME	INSTITUTION	SCIENTIFIC AREA
Graeme Ackland	School of Physics, University of Edinburgh (UK)	Physics
Eduard Ayguadé	Universitat Politècnica de Catalunya (E)	Computer Science
Ria Broer-Braam	Theoretical Chemistry Materials Science Centre, Rijksuniversiteit Groningen (NL)	Theoretical Chemistry
Giovanni Ciccotti	Physics Department, University of Roma 'La Sapienza' (I)	Biology Structures and Condensed Matter Physics
Attilio Ferrari	General Physics Department, University of Torino (I)	Astrophysics
Eberhard Goede	Institut für Strömungsmechanik und Hydraulische Strömungsmaschinen, Universität Stuttgart (D)	Engineering
Martyn Guest	Daresbury Laboratory (UK)	HPC, Computational Chemistry
Patrick Mascart	Laboratoire d'Aérologie, Observatoire Midi-Pyrénées (F)	Environment, Climate Modelling
Wolfgang Nagel	Center for High Performance Computing, Dresden University of Technology (D)	Electrical Engineering and Computer Science
Juan Jesús Pérez Gonzalez	Universitat Politècnica de Catalunya (E)	Life Sciences
Yves-Henri Sanejouand	Laboratoire de Physique, Ecole Normale Supérieure (F)	Macromolecular Biophysics
Henk A. van der Vorst	Mathematical Institute, Utrecht University (NL)	Applied Mathematics
Wyn Williams	School of GeoSciences, The University of Edinburgh (UK)	Geology & Geophysics
Claudio Zannoni, chairman	Department of Physical and Inorganic Chemistry, University of Bologna (I)	Chemistry

**The evaluation process**  
The SUSP examines and evaluates all the submitted applications and recommends a short list of these for support. The selection is based on scientific merit as well as on an assessment of the need to use High Performance Computing (HPC) facilities, taking into account that priority should be given to user groups who have not previously used the infrastructures, and are working in countries where no such HPC infrastructures exist. The panel will meet four times per year, one physically and the others “virtually” via AccessGrid, to globally evaluate the applications, ensuring transparency, fairness and impartiality, by discussing and reaching a consensus on each application that has been previously reviewed by two different referees. In the evaluation process, the SUSP members are provided, by an on-line web environment, with all the information pertaining to the applications: application details, Host Support Form (HSF) and Technical Evaluation Form (TEF). The TEF, prepared by members of the technical staff at the HPC centres,

comments on justification for access to research infrastructure, on the suitability of the requested resources and on the applicant's computing skills. The HSF is filled in by the prospective host scientist and indicates the level of interest in hosting the applicant.

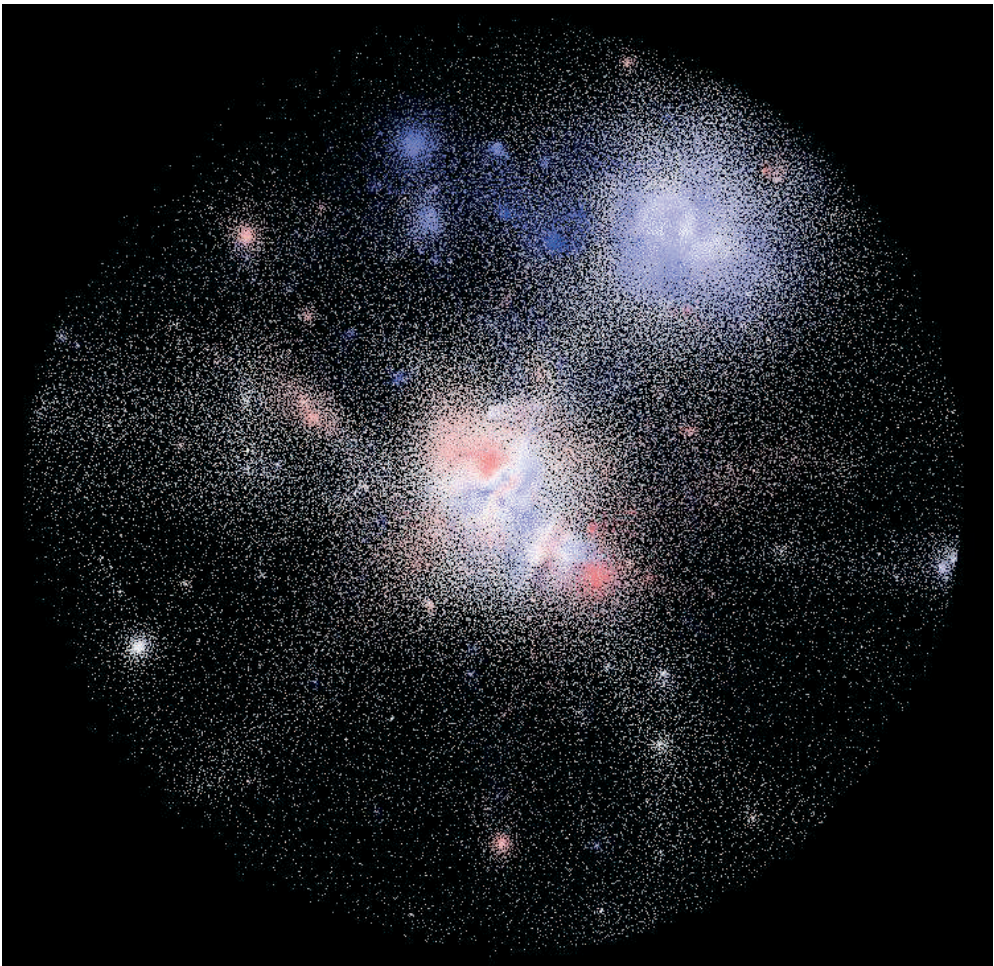
**More on the SUSP**  
In addition to the peer review activity, the SUSP serves the HPC-Europa consortium advising on how to improve the outreach and marketing activities towards new users, particularly those user groups which do not have access to HPC resources in their own countries, but also in defining and evaluating the HPC needs arising from the different branches of Science and the various Scientific Communities.

HPC-Europa aims to better integrate and structure the way HPC Infrastructures are operating in Europe and thus contribute to the creation of a true European Research Area. The SUSP can effectively help and guide the HPC-Europa consortium in better achieving this objective, addressing the needs and the main requests coming from the leading edge scientific community.

An overview

# Transnational Access activity

by J.C. Desplat and C. Inglis  
Transnational Access Staff ◀



The Transnational Access (TA) visitor programme is the lynchpin of HPC-Europa. It offers computational scientists the opportunity to use some of the most powerful supercomputers in Europe, while collaborating with one of more than 200 world-class research groups associated with the six centres involved in the programme. HPC-Europa is open to researchers at all levels, from PhD students to the most senior professors. Applications are particularly welcome from countries with no High Performance Computing (HPC) facilities.

**The story so far**  
Since January 2004, HPC-Europa has received 197 applications, of which 133 were approved – an acceptance rate of 67%. It is a truly multidisciplinary programme, having already attracted applications from all major computational disciplines, including astrophysics, earth sciences, engineering, life sciences, physics, chemistry, mathematics and computer science. Applications have come from an equally broad range of geographic areas – from 27 of the 33 eligible countries<sup>1</sup> to date.

**Fostering collaborative computational science in Europe**  
HPC-Europa supports visits to research institutes associated with our participating centres. See footnote 2 for a list of “host” departments. The visitor is integrated into their chosen “host” department, resulting in high-quality interaction between the visitor and the host research group. Lasting links are often forged between visitor and host, and the collaboration can extend to the whole group. Of those collaborations initiated under previous visitor programmes, many are still strong. Several visitors have subsequently returned to their “host” departments to take up research positions or visiting lectureships.

**Our strategy**  
HPC-Europa is a very ambitious project. During this first challenging year we believe we have have built the foundations for a successful consortium. Our key objective for 2005 is to promote the routine use of (affordable) emerging technology to foster a greater spirit of collaboration amongst geographically-disperse researchers. Using AccessGrid technology, we will offer distributed group

tutorials, workshops and seminars across the consortium. All visitors, regardless of which centre they are visiting, will be able to participate (in person or remotely via AccessGrid). The aim is for visitors to interact with those at different sites, creating web-based “virtual communities” of researchers.

**The bigger picture**  
One of the EC's current priorities is “to strengthen and structure the European Research Area”. With the development of software technology (or middleware), closer integration of compute resources allows the creation of a European-scale HPC infrastructure. The TA visitor programme will develop the “human side” of this venture,

providing co-ordinated services and support across the consortium. Close integration with HPC-Europa's NA and JRA activities will demonstrate the potential of emerging technology as a vital resource for collaborative research across Europe. Please see our web site for updates on our progress.

We look forward to receiving your application – or that of your colleagues or students – to the Transnational Access visitor programme in the near future.

<sup>1</sup> see <http://www.hpc-europa.org/presentation.html> for full list of eligible countries  
<sup>2</sup> see [http://www.hpc-europa.org/host\\_departments.html](http://www.hpc-europa.org/host_departments.html) for a list of associated “host” departments