

# Astronomy and Astrophysics applications on EGEE from Paris, Grenoble, Lyon and Strasbourg observatories

*Tuesday, February 12, 2008 4:00 PM (0 minutes)*

Numerical simulations, data analysis, as well as design study for new instruments and telescopes, often require important computing time. It is not uncommon that the analysis of a single observation requires to run a huge number of times the same simulation code to explore the parameters space. On the other hand, the same reduction pipeline has to be used several times for data reduction of a set of observations. On the other hand, the physics introduced in simulation codes may be limited due to computing time restrictions. By sharing computing facilities thanks to grid technology, we can expect to work faster and to go further in the detail of the physics of simulations

## 3. Impact

A&A applications require the deployment of codes on the Grid on the fly and in a transparent way. The sharing of computing facilities between different institutes thanks to grid technology as EGEE will allow the A&A community to work in a more efficient way, to share codes and to facilitate collaborations. Thanks to EGEE, the A&A applications will allow to have a fast return of space and ground missions such as Herschel/ALMA, to more detail the physics in numerical simulations. As examples this concerns the exploitation of the theory in the virtual observatory, collaborative projects such as HORIZON, scientific preparation and exploitation of observational space and ground missions such as HERSCHEL/ALMA and design study of new instruments as CTA

## 4. Conclusions / Future plans

The Astronomy and Astrophysics community is beginning to adapt simulations and reduction pipelines for Grid technology. If we have not yet experience with EGEE, we have experience on two other systems: Grid'5000 (HORIZON collaboration) and CIMENT (Astrochemistry and Radiative transfer), the Grenoble regional grid. CNRS researchers in Grenoble have been involved in the specifications and testing of CIGRI, and have demonstrated its ability to tackle large campaigns of millions of jobs.

## Provide a set of generic keywords that define your contribution (e.g. Data Management, Workflows, High Energy Physics)

Astronomy, Astrophysics, High energy physics, Cosmology

## 1. Short overview

We present the french project for Astronomy and Astrophysics in the cluster A&A of EGEE III. The scientific interests cover a broad range of hot topics as simulations in cosmology and galaxies evolutions (HORIZON project), simulations for celestial mechanics, atomic and molecular computations, models for the interstellar medium for Herschel/ALMA observations, data-processing with workflows, design study of the Cherenkov Telescope Array for high energy astrophysics.

**Primary authors:** LE-PETIT, Franck (LUTH - Observatoire de Paris); BERTHIER, Jerome (IMCCE - Observatoire de Paris); DUBERNET, Marie-Lise (LERMA - Observatoire de Paris); LE-SIDANER, Pierre (UMS - Observatoire de Paris); LECUBIN, Julien (IMCCE - Observatoire de Paris)

**Co-authors:** SHIH, Albert (UMS - Observatoire de Paris); SCHAAF, Andre (CDS - Observatoire de Strasbourg); SPIELFIEDEL, Annie (LERMA - Observatoire de Paris); GODARD, Benjamin (LERMA - Observatoire de Paris); SEMELIN, Benoit (LERMA - Observatoire de Paris); BALANCA, Christian (LERMA - Observatoire de Paris); VALLS-GABAUD, David (GEPI - Observatoire de Paris); SLEZAK, Eric (Observatoire de Nice); ROUEFF, Evelyne (LUTH - Observatoire de Paris); ROY, Fabrice (LUTH - Observatoire de Paris); MENARD, Francois (LAOG); COMBES, Francoise (LERMA - Observatoire de Paris); SOL, Helene (LUTH - Observatoire de Paris); WOZNIAK, Herve (CRAL); CHILINGARIAN, Igor (LERMA - Observatoire de Paris); LE BOURLOT, Jacques (LUTH - Observatoire de Paris); ALIMI, Jean-Michel (LUTH - Observatoire de Paris); LENAIN, Jean-Philippe (LUTH - Observatoire de Paris); WIESENFELD, Laurent (LAOG); FOUCHARD, Marc (IMCCE - Observatoire de Paris); FEAUTRIER, Nicole (LERMA - Observatoire de Paris); DI MATTER, Paola (LERMA - Observatoire de Paris); CORASANITI, Pier-Stefano (LUTH - Observatoire de Paris); LESAFFRE, Pierre (LERMA - Observatoire de Paris); LAINEY, Valery (IMCCE - Observatoire de Paris); RAZERA, Yann (LUTH - Observatoire de Paris); REVAZ, Yves (LERMA - Observatoire de Paris); FAURE, alexandre (LAOG); STEHLE, chantal (LERMA - Observatoire de Paris); FROUARD, julien (IMCCE - Observatoire de Paris); VALIRON, pierre (LAOG); TABURET, sylvestre (GEPI - Observatoire de Paris); THUILLOT, william (IMCCE - Observatoire de Paris)

**Presenter:** BERTHIER, Jerome (IMCCE - Observatoire de Paris)

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