# ORAP : a french initiative to promote HPC

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# ORAP : a french initiative to promote HPC

- *ORganisation Associative du Parallélisme*
- To promote High Performance Computing

- Non-profit association, founded in 1994
  - 3 members :
    - **CEA** Commissariat à l'Energie Atomique, - The French Atomic Energy Commission
    - **CNRS** Centre National de la Recherche Scientifique - National Center for Scientific Research
    - **INRIA** Institut National de Recherche en Informatique et en Automatique – The French national institute for research in computer science and control

- From Jacques-Louis Lions report
  - « Parallel Computing in France» 150 pages report to founding members highest authorities

# ORAP mission statement (1994)

- **Considering HPC and applications are crucial to scientific and industrial activities,**
- **Multidisciplinary aspects** (Mathematics, Numeric, Computer, Applications) **are relevant**
- **Resarch and Industries**
- **4 missions :**
  - **Teaching** and learning algorithmics and parallel programming,
  - Enhance **scientific communities opening and collaborations,**enable incitativce actions,
  - **Help French actors presence on international stage** ( European actions coordination , assistance to european RFP answer preparation),
  - **Mutualising competences and resources**
    - RAPID **network** concept (Réseau de ressources pour les Applications Parallèles de l'InDustrie)
- **Lightweigth structure** (Scientific Council + executive bureau)

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# ORAP original structure and functioning

- Executive bureau from founding members
  - 1994 : Claudine Schmidt-Lainé (CNRS, lead.), Michel Cosnard (CNRS), Laurent Kott (INRIA), Gerard Meurant (CEA)
  - 2006 : Serge Petiton (CNRS, lead.), Stéphane Cordier (CNRS), Jacques David (CEA), S.Lanteri (INRIA), J-L Delahaye (INRIA)

- **Scientific council** : Representative scientists from concerned domains for paralellism; it includes the bureau
  - **Academics**  (fundamental research, computing science, applied maths, meteorology, climate research, nuclear sciences, chemistry, …)
  - **Industry** (aeronautics & space, petroleum, electricity, …)

# Scientific Council

## 1994

- Jacques-Louis Lions (Collège de France - Pdt)
- **Jean-Claude André (Météo France)**
- Paul Caseau (EDF)
- Pierre Chavy (CEA)
- Jean-Michel Clavery
- Paul-Yves de St Germain (DRET)
- Pierre Lallemand (CNRS)

## 2006

- **Jean-Claude André (CERFACS - Pdt)**
- Guillaume Alléon (EADS)
- **Dominique Birman (Météo France)**
- Jean-Yves Berthou (EDF)
- Bernard Brun (CEA)
- Pascal Daubouin ( TOTAL)
- **Marie-Alice Foujols (CNRS/IPSL)**
- Pierre Leca (CEA/DAM)
- Patrick Le Quéré (CNRS/LIMSI)
- Olivier Pene (CNRS/LPT)
- Thierry Priol (INRIA)
- Gérard Roucairol (BULL)
- Marie-Madeleine Rhomer (CRNS/ChemLab)
- Christian Saguez (Ecole Centrale Paris)
- Claudine Schmidt-Lainé (CEMAGREF)

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# ORAP activities : information

- Community information
  - Quaterly **bulletin Bi-Orap** (on Web site)
  - National & International  (bi-)annual **forums**,
    - One day « on topic » conference with  proceeding on web.
    - 20 forums since 1994, about 2 per year;
    - two took place in **cooperation with Swiss** « Speed-up » organisation in Geneva and Lyon
  - **Web site** : announcements, forum programs, community pointers http://www.irisa.fr/orap

# ORAP activities

- Specific actions
  - Forums **proceedings**, « on shot » vendor fair,
  - **Ten year anniversary report** (book, in french, 125p.) , « 1994-2004 : HPC in France » (downloadable from Web)
  - ORAP is consulted by national authorities
    - French Research and Industry ministries 2005 report « Héon Sartorius », on french HPC organisation
      => « Société civile du calcul » GENCI (end 2006)

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# ORAP conferences : examples

- Applications
  - Aeronautics :
    - Future of Simulation Modelling at EADS : Daniel Deviller, EADS
  - Petroleum :
    - *Le calcul haute performance en exploitation pétrolière* (TOTAL, CGG)
  - Meteorology, Climate, Oceanography :
    - *Calcul de pointe pour interaction homme-machine en météorologie* : Eric Brun, Météo-France, Toulouse
    - Coupler development in climate modeling and data assimilation: Oasis ead Palm : Sophie Valcke, Cerfacs
    - French experiences on Earth Simulator, S Masson, IPSL/LOCEAN
  - Biology
  - Chemistry
    - Quantum Chemistry on the Grid : Lucas Visscher (Vrije Universiteit - Amsterdam)

# ORAP conferences : examples

- Europe and International
  - On the Status of **Supercomputing in Germany** : Michael Resch, HLRS - Stuttgart.
  - **UK e-Science Programme** : Ronald H. Perrott, Queen's University Belfast.
  - **Navigating the MareNostrum** - 1st year of experienences : Sergi Girona, BSC - CNS, (Barcelone)
  - **e-Infrastructure in FP7** - GÉANT, Grids and the support to supercomputing : Maria Ramalho, European commission

  - **USA : A Science-based Case for Large-scale Simulation** : David Keyes, Columbia University, New York.
  - **USA : Getting up to Speed: The Future of Supercomputing** : Marc Snir, University of Illinois, Urbana-Champaign
  - **Recent Trends and Projects on High Performance Computing in Japan** : Mitsuhisa Sato, Center for Computational Sciences - University of Tsukuba (Japan)

# ORAP next conference

- Next forum planned : **Decembre 13th, 2006** at French Research Minister « Ministère de la Recherche » (rue Descartes, Paris)

    Morning : **The European community scene of HPC**
    > With invited speakers : Maria Ramalho (EC/DG3), Wolfgang Bosch (EC/DG13)

    Afternoon : **Applications**
    > With : bio-tech, aviation, ITER, benchmarking (RAPS)

    See http://www.irisa.fr/orap



Marie-Alice Foujols - RAPS - 01/11/06

# RAPS and ORAP

- ORAP proposes to establish stronger links with other European initiative in HPC like RAPS.

- We need to build together a European framework to promote, and lobby for, high-performance computing

- RAPS is invited to present RAPS activities during next ORAP Forum on December 13th, George Mozdzynski

# Thank you for your attention

Marie-Alice Foujols - RAPS - 01/11/06

# ORAP last conference

March 30, 2006

- ***Sur le contexte national du HPC :*** Jean-Claude André (Orap Pdt)
- ***Retour sur l'appel ANR - CIGC (Calcul Intensif et Grilles de Calcul) :*** Paul Caseau, Comité d'orientation du CIGC.
- ***Etat des lieux sur les actions du ministère*** : Alain Lichnewsky, Direction de la recherche, Ministère délégué à l'Enseignement Supérieur et à la Recherche.
- ***Recent Trends and Projects on High Performance Computing in Japan :*** Mitsuhisa Sato, Center for Computational Sciences - University of Tsukuba (Japan)
- ***Optimisation combinatoire sur grilles :*** LIFL
- ***Retour d'expériences sur Blue Gene*** : (CERFACS, CEA, EDF)
- ***Le calcul haute performance en exploitation pétrolière (***TOTAL, CGG)

- ***Calculs de haute performance sur le Earth Simulator : un pas vers une meilleure prédiction des ouragans*** : Météo Canadienne
- ***Expériences françaises sur le Earth Simulator*** :CNRS/IPSL.