

Centre National de la Recherche Scientifique CNRS

*a French Research Performing Organization
with an International Dimension*



What is CNRS ?

- **Governmental organization performing basic research under the authority of the Ministry of Research**
 - **Omnidisciplinary:** covers all scientific areas
 - **Frontier research:** spanning from novel scientific concepts to forerunner applications
 - **Independent:** defines its own research strategy
 - **Nationwide:** has laboratories throughout France
 - **Worldwide reach:** supports collaboration and networking throughout the world
- **Missions**
 - Coordinate, carry out and evaluate the basic research in France
 - Contribute to the development of the Society through transfer of research results in practice and by enrichment of culture
 - Train for and through research



CNRS potential

- Main player in French research with **1200** affiliated laboratories throughout France and abroad

CNRS Campuses allow specific strategic developments

But most of the CNRS research is done joint CNRS-Univ. labs



- **100** intramural laboratories (owned and run by CNRS)
- **100** joint labs with industry or other research organizations
- **1000** joint labs in partnership with universities



CNRS human potential

- Total research personnel in all 1200 CNRS labs **77,000**
 - **57,000** faculty, researchers and support staff
 - **20,000** PhD students and post-docs
- Of which **30,000** on direct CNRS payroll
 - **11,500** researchers (tenured civil servants)
 - **14,500** support staff (tenured civil servants)
 - **4,000** short-term positions (PhD students, post-docs, visiting scholars...)

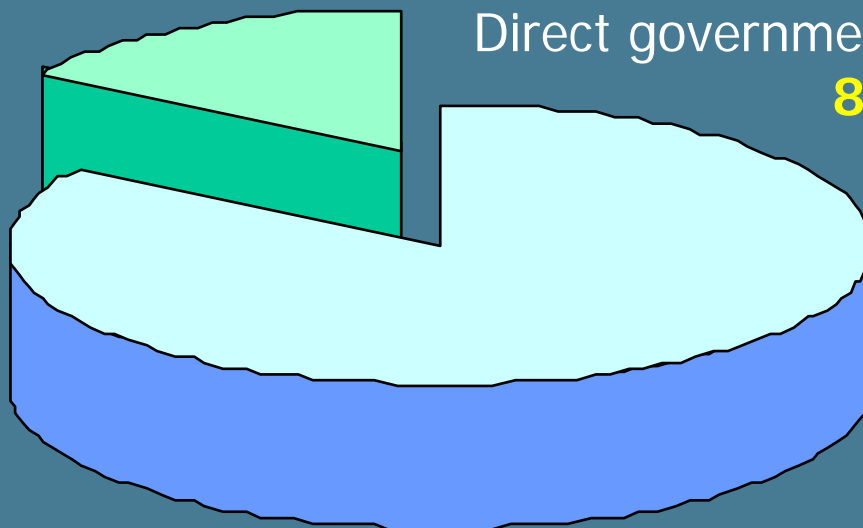


CNRS budget

~2.8 billion Euros

CNRS income 500 M€
~20 %

Direct government subsidy 2 300 M€
80 %



CNRS Organization

- **Six Research Departments**

- Mathematics, Physics, Earth Sciences and Astronomy
- Chemistry
- Life Sciences
- Humanities and Social Sciences
- Environmental Sciences and Sustainable Development
- Science and Technology of Engineering and Information

- **Two National Institutes**

- National Institute for Nuclear and Particle Physics (IN2P3)
- National Institute for Earth and Planetary Sciences (INSU)



Vision 2020: CNRS long-term strategy

**Beyond the specific challenges of each traditional discipline,
CNRS put forward 6 federating interdisciplinary themes**

- Origins of life
- Planet Earth, the human factor and society
- Energies
- Nanosciences
- Information, image, communication
- Neuron, brain, conscience and sociability



CNRS scientific impact:

- **13** Nobel Prizes in the last 50 years
(6 physics, 4 biology, 1 chemistry, 1 economy)
- **8** Fields Medals (mathematics)
- **27 300** articles/yr in international scientific journals
(not including social sciences and humanities)
 - = 55% of all publications in France
 - = 6.5% of all publications in Europe
 - = 2.5 % of all publications in the world



Industrial impact of CNRS

FIST (France Innovation scientifique et transfert)

in charge of technology transfert and marketing of innovative technologies

- **2650** principal patents (**250** patents/yr)
 - **9800** patent extensions
 - **1060** active licenses (bringing to CNRS **55 million** € / year)
- **34** frame agreements with major industrial groups
 - **2100** signed industrial contracts par year
- **250** spin-off companies since 2000 (**30** companies/yr)
 - **210** spin-off companies active today
- **1900** jobs in spin-offs during 6 years



Example of a mixed unit with industry

Laboratory of solid state physics

(CNRS / University Paris 11 Orsay / group THALES)

- Partnership between CNRS, one of the best French Universities and high-technology group THALES specialised in communications
- 12 researchers, 15 engineers/techniciens, 20 non-permanent staff
- Application of the spintronics (following discovery of the giant magnetoresistance) in the development of the magnetic memories used in telecommunication
- This unit was cofounded in 1995 by the French physicist Albert FERT (Nobel price winner for physics in 2007 !)



CNRS collaborative activities abroad

Out of a total of **27.300** CNRS publications in 2006

- **14.100 (52%)** are co-authored with collaborators based abroad (half of them from Europe)
- **5000** foreign visitors in CNRS laboratories per year
- **1400** permanent researchers hold foreign nationality
- **25 %** of annual recruitment is from abroad

International activities is an integral part of the work of CNRS researchers.

Two geographic areas with different modes of action:

- **European Union:**

building the European Research Area (Commission actions + bilateral)

- **International:**

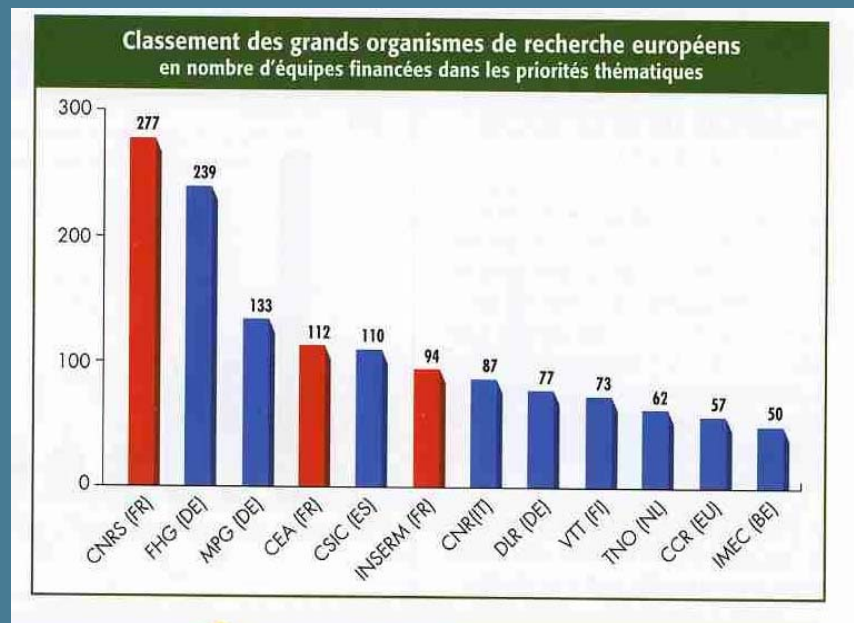
partnerships in areas of local excellence or particular resources (bilateral)



CNRS participation in FP6

CNRS is the topmost organization in Europe in terms of participation in FP6 collaborative actions

<i>Instruments</i>	<i>Number</i>	<i>€</i>
Infrastructures	33	17 199 222
Networks	85	37 649 842
Int. Projects	137	48 868 241
STREP	115	29 460 567
Marie Curie	158	36 216 919
Other	122	14 920 838
Total	650	184 315 629



CNRS bilateral collaborations

Collaborations in E.U. and on the international scene arise at the initiative of CNRS researchers and their colleagues abroad (“bottom up approach”).

Outside Europe “scientific diplomacy” may be necessary to prepare the ground.

The aims of international collaboration

- constitute a dense network of collaborations abroad,
- attain the critical mass necessary for the success of a new subject,
- have access to local expertise or resources,
- keep talents in their home country.



CNRS collaborative tools

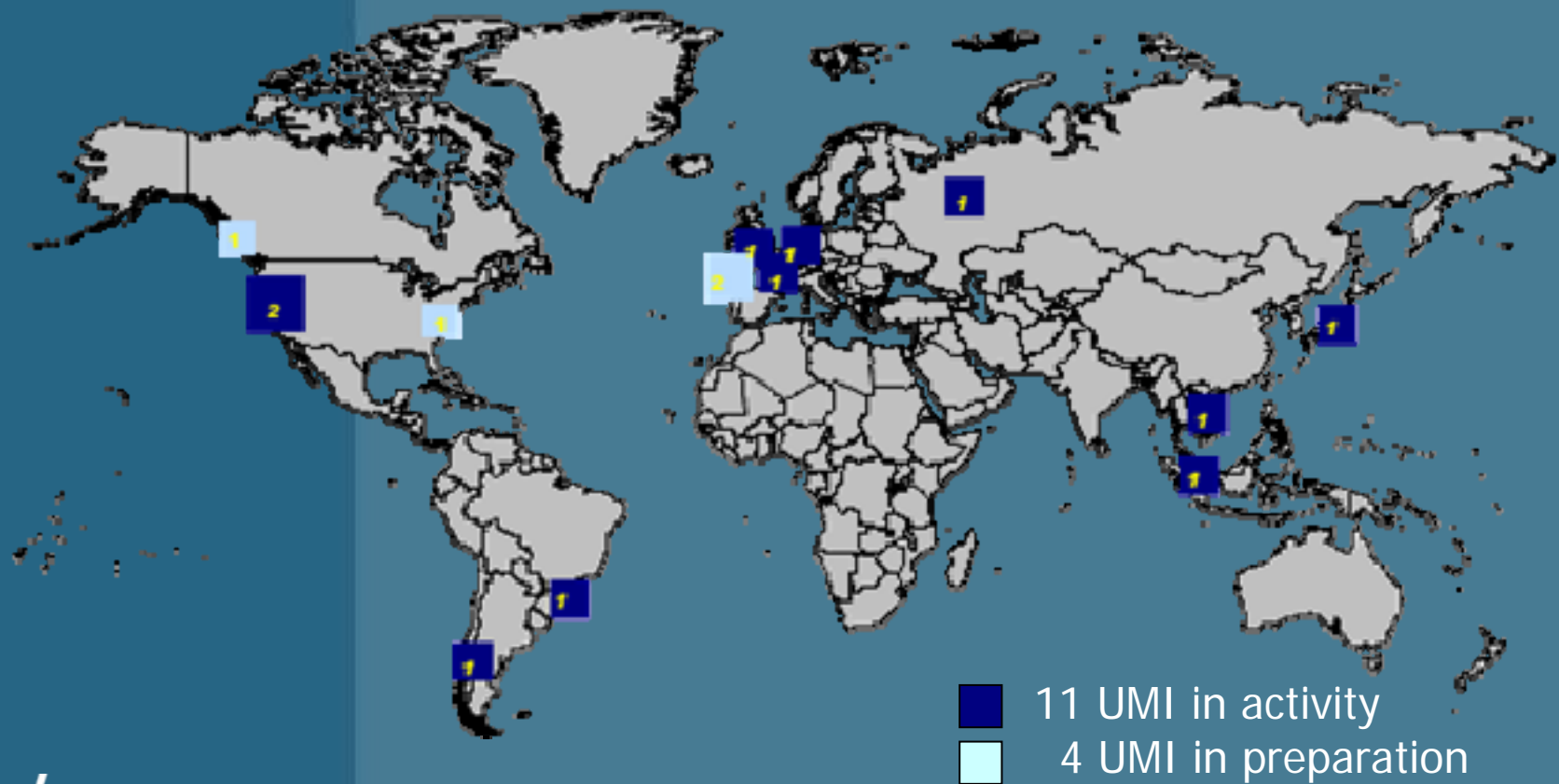
- Exchange mobility agreements (travel)
one to two-years projects with 80 organizations in 55 countries
- International Scientific Cooperation Projects (PICS)
three-year projects - non renewable
- European/International Research Networks (GDRE / GDRI)
four-year coordination activities - once renewable
- European/International Associated Laboratories (LEA / LIA)
four-year projects – once renewable
- International Joint Units (UMI)

Recently were established also:

- mixed units SHS with the French Institutes abroad (UMIFRE)
run jointly by the French Min. of Foreign Affairs and CNRS

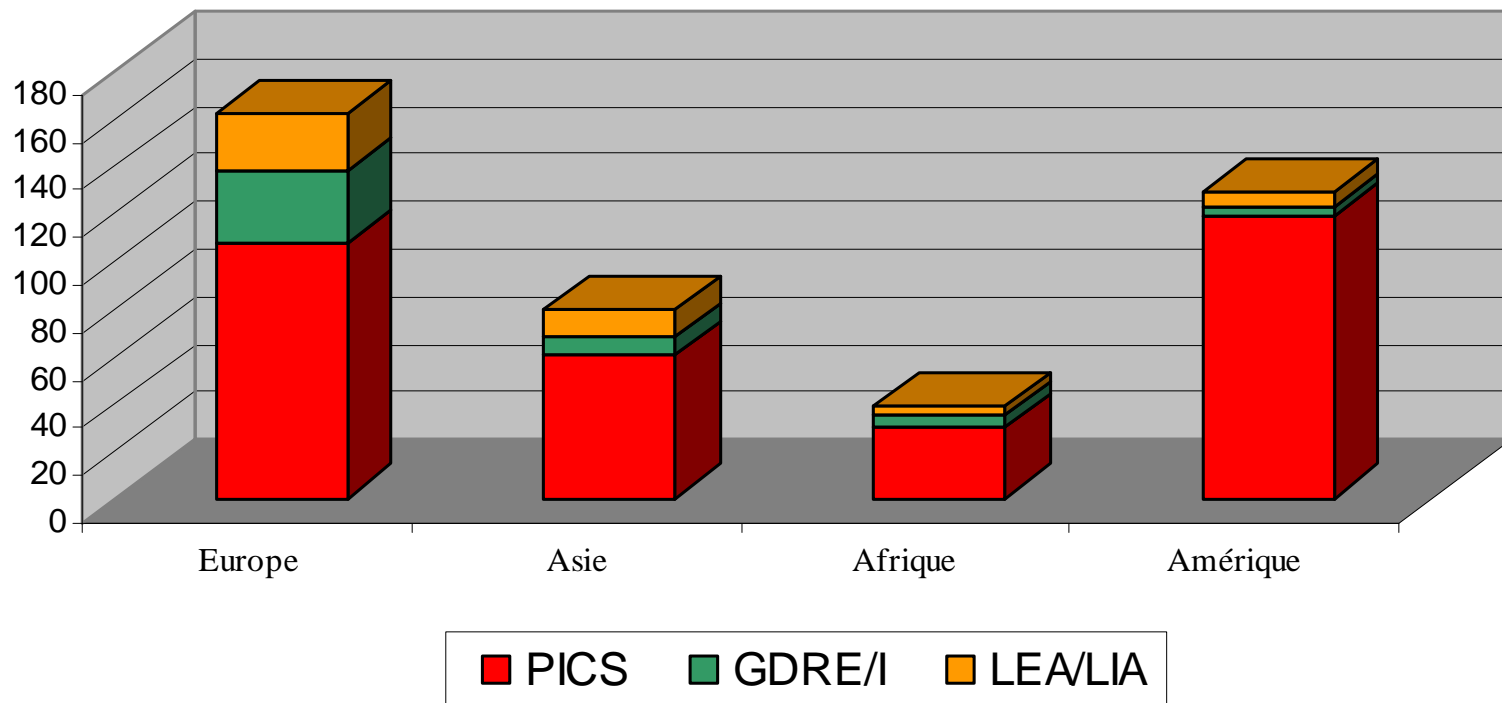


CNRS International Joint Units



Volume of collaborative actions

CNRS International projects / structures by geographic area in 2006



340 PICS

63 GDRE/I

56 LEA/LIA



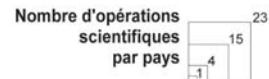
Example of international strategy in the Social Sciences

Présence internationale

du département *Sciences humaines et sociales* en 2007

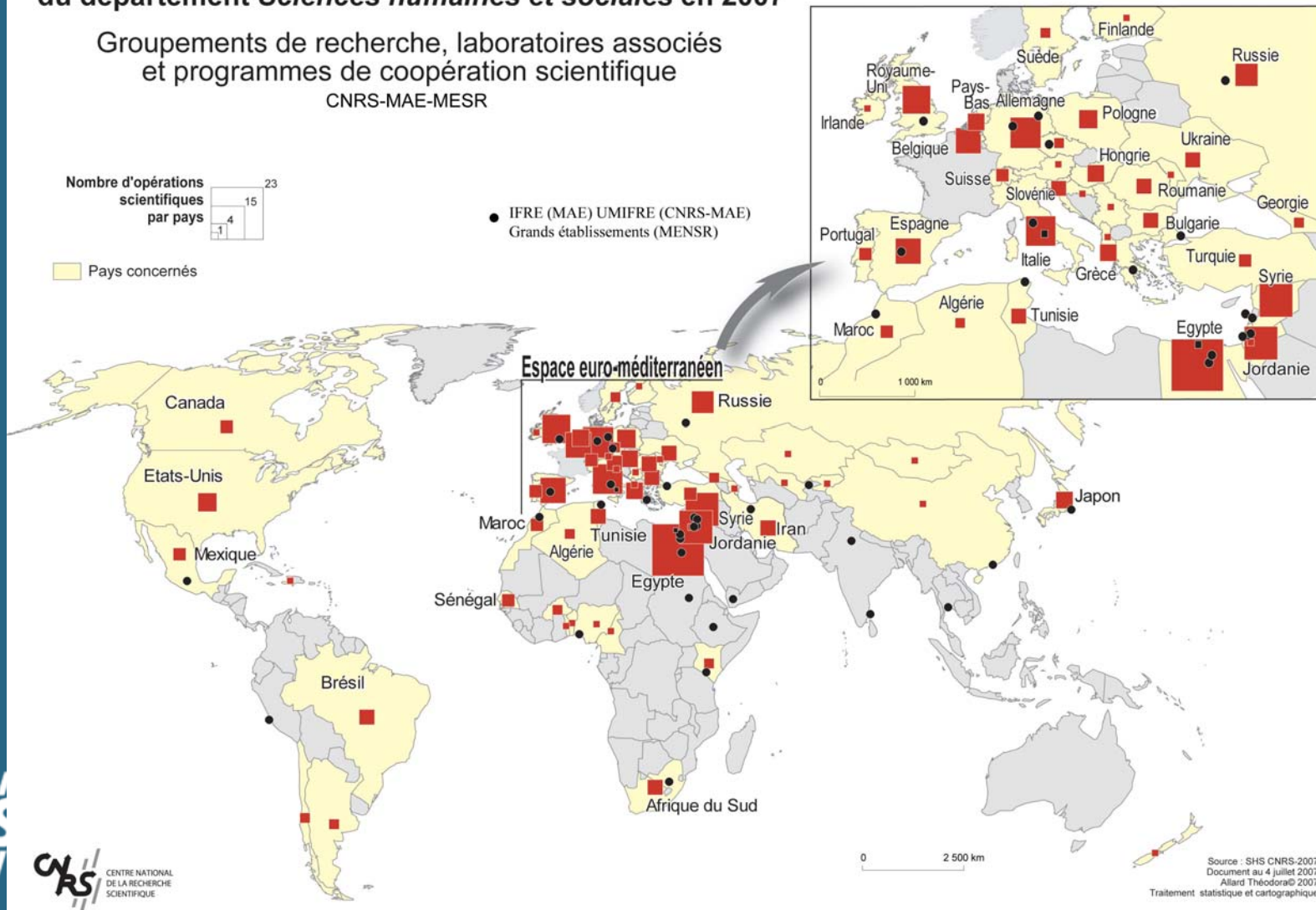
Groupements de recherche, laboratoires associés
et programmes de coopération scientifique

CNRS-MAE-MESR



Pays concernés

● IFRE (MAE) UMIFRE (CNRS-MAE)
Grands établissements (MENSUR)



Cooperation Actions of CNRS with Russia / CIS

	2003	2004	2005	2006	2007
<i>Joint intern. units</i>	-	-	-	1	1
<i>CNRS / MAE units</i>	-	-	-	-	1/2
<i>Associated Labs</i>	1	4	6	6	7/1
<i>Research networks</i>	1	5	8	12	15/5
<i>Intern. Coop. Progr.</i>	26	25	27	40	52/8
<i>Exchange agreem.</i>	90	85	83	90	95/30

Main funding source in CIS:

Russian Foundation for Basic Research (RFBR), over 600 k€ / year



Example of a UMI: « PONCELET »

French-Russian Laboratory in Mathematics, Computer Science and Theoretical Physics

- part of the network of 5 UMI in mathematics, link with other « schools »
- located at the Independent University of Moscow (CNRS, IUM, RAS)
- **launched in 2002** and upgraded to UMI in **2006**
- staff: 16 Russian and 6 French researchers,
5 PhD students, 4 Post-docs, 2 support personnel
- **20 young French researchers hosted since 2002 for annual stays**
- **20-25 short-term (2 wk to 2 mo) visitors per year**
- **200 publications in 5 years**
- **26 active international collaborative contracts**
- **Organization of ~10 conferences per year**
- **8-10 research seminars per year**



Example of a LIA: « LFRC »

French – Russian Laboratory of Catalysis

- Partnership of 1 mixed unit (CNRS / Claude Bernard University) in Lyon and Boreskov Institute of Catalysis (RAS) in Novosibirsk
- laboratory « without walls »
- established as LIA in 2004, to be renewed in 2008.
- co-directed by one French and one Russian scientist
- 4 research axes
 - Catalysis and energy
 - Catalysis and environment – waste water treatment
 - Clean oxidation processes for fine chemistry
 - Advanced spectroscopic methods for heterogenous systems
- 6 French and 6 Russian researchers, 2 Ph.D. students, 2 post docs
- Production over 3 years: 18 publications, 1 plenary lect., 20 short comm.



Example of a GDR: « Black sea »

A Network in Pontic Archaeology

- partnership of France (6 mixed units CNRS/university), Bulgaria (2 teams), Georgia (1 team), Roumania (3 teams), Russia (2 teams) and Ukraina (2 team),
- launched in **January 2006** for coordianting the reserach in the two selected areas of the archeaology focusing on of the Black sea region:
 - Pottery and trade amphoras from the Black sea area during the Greek period : local products and imports
 - Greek and Latin inscriptions from the Northern Black Sea region
- **one coordinator appointed in each country**
- **organization of seminars and exchanges of researchers and students**



Implementation of European and international policies at CNRS

To implement its European and International policies in support of its activity, CNRS put in place two Offices

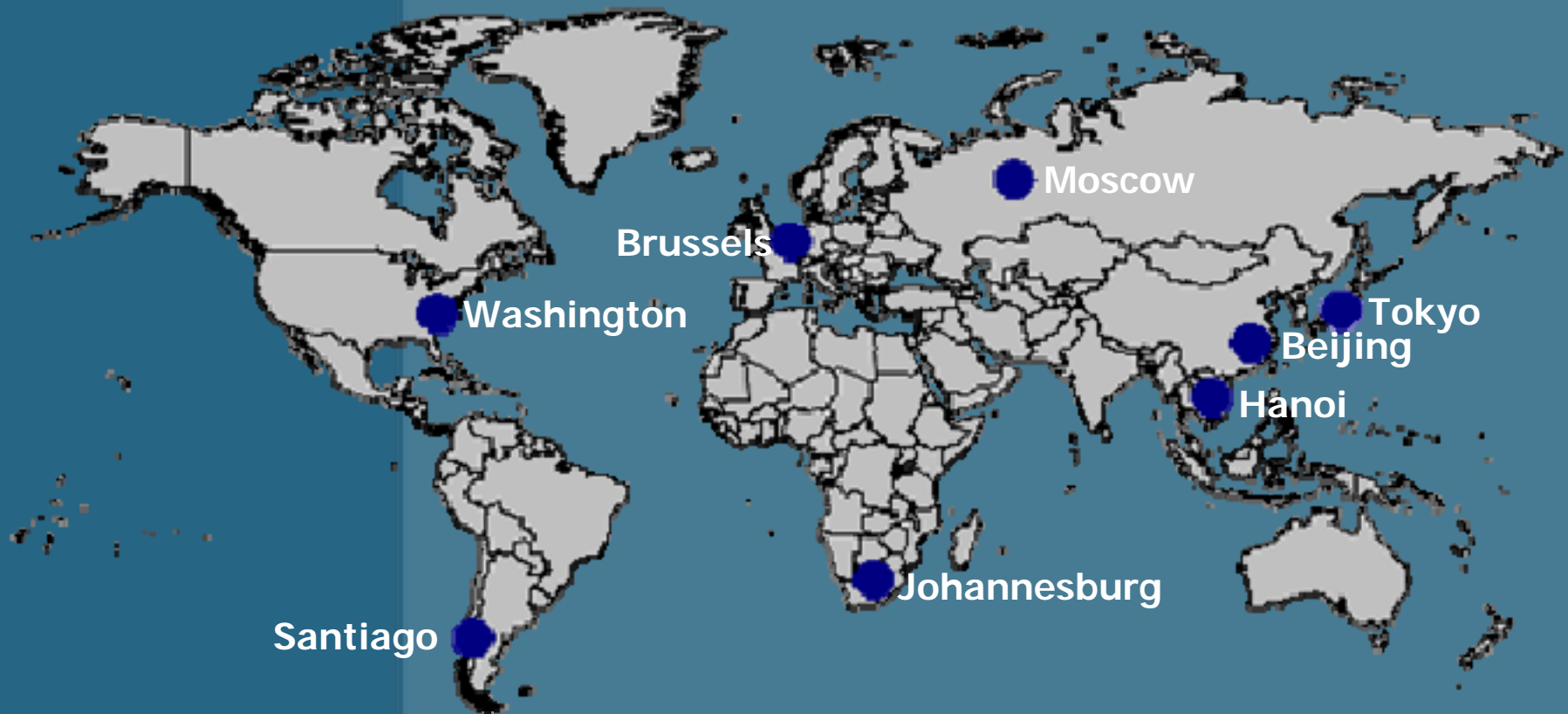
the Office of European Affairs (DAE)
focusing on the construction of the ERA

the Office of International Relations (DRI)
covering the rest of the world

and relies on a network of 7 representation offices abroad
(Moscow, Tokyo, Beijing, Hanoi, Johannesburg, Washington Santiago – Chile,



CNRS offices abroad



Regional Bureau of CNRS in Moscow

link between CNRS and research bodies in the Community of Independent States (CIS): Academies of sciences, funding agencies and universities.

Main missions:

Developing and strengthening relations between institution

- Structuring collaborations between research groups
- Assisting in innovation activities
- Facilitating exchange of information about the research and development
- Stimulating mobility of researchers, helping obtaining visa

Address : ul. Gubkina 14, Apartment 98, Moscow 117 312 – Russie

Tel : +7 495 129 0313, *Fax :* +7 495 938 2229, *E-mail :* cnrsadm@orc.ru

