

ACTION SPÉCIFIQUE OBSERVATOIRES VIRTUELS FRANCE (FRANCE VO): STATUS REPORT

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Abstract. The "Action Spécifique" *Observatoires Virtuels France* (ASOV) was created by INSU in 2004, with the support of CNES, to organize the French participation to the development of the International Virtual Observatory in all disciplines covered by the CNRS Section 17. The paper summarizes the role and actions of ASOV during its first 1.5 year of existence.

1 Introduction

The "Action Spécifique" *Observatoires Virtuels France*, created as a result of the last national strategic colloquium (La Colle sur Loup, March 2003), coordinates

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⁸ Observatoire de Bordeaux; GdR Exobiologie - Exobiologie

⁹ LAOG; ASHRA, GdR JMMC - High-Angular Resolution; Jean-Marie Mariotti Centre/Interferometry

¹⁰ INSU

¹¹ LPG; PNST- Solar-Terrestrial Relations

¹² Orsay Terre; PNP - Planetology

¹³ IAP; PNC - Cosmology

¹⁴ CRAL; PNG - Galaxies

¹⁵ Observatoire de Bordeaux; PNPS - Stellar Physics

¹⁶ LAOG

¹⁷ CRAL; ASSNA - Modelling in Astrophysics

French participation to the international Virtual Observatory, in astronomy, planetary, space plasma physics, solar physics, and astroparticles. Support to individual projects is provided by CNES and INSU, by the National Programs, "Groupements de Recherche" and "Actions Spécifiques", and by the laboratories, which provide by far most of the manpower. ASOV also aims at helping the national astronomical community to take advantage of the VO developments for its research activities: the VO will give seamless access to astronomical data and resources, and is thus expected to increase significantly the efficiency of everyday research work and to open new possibilities, in particular for topics requiring the study of masses of heterogeneous data, including theoretical data.

The organization of VO projects at the national and international levels will be explained in Section 2, and ASOV actions will be described in Section 3.

Information about ASOV and its activities, and useful links, can be found on the ASOV Web site: <http://france-vo.org/>.

2 National and international organization

The VO development is *science driven*, and not *technically driven* - although it takes advantage of leading edge developments in Information Technologies. Taking this into account, the ASOV Scientific Council was mainly composed of representatives of the National Programs, "Groupements de Recherche" and "Actions Spécifiques", which cover basically all astronomy scientific fields and organize national research in their domain of expertise, plus a few experts.

"France VO" is a member of the *International Virtual Observatory Alliance* (IVOA), an alliance of national VO projects, which presently has 16 members (<http://ivoa.net>). IVOA was formed in June 2002 to

facilitate the international coordination and collaboration necessary for the development and deployment of the tools, systems and organizational structures necessary to enable the international utilization of astronomical archives as an integrated and interoperating virtual observatory.

Each VO projects keeps its own objectives and constraints (for instance, several projects are funded by Information Technology or e-science funds). IVOA coordinates in particular the definition of the VO Interoperability standards, for which it has set several Working Groups and Interest Groups which work by email discussions and meet twice a year in the *IVOA Interoperability meetings*. The origin of these meetings is in the OPTICON *Interoperability Working Group* which was proposed and run by Centre de Données astronomiques de Strasbourg (CDS) before the creation of IVOA: the first meeting was held in Strasbourg in January 2002 and settled the basis for the first VO interoperability standard, VOTable. A Memorandum of Understanding establishing the *Euro-VO* project is presently being signed by ESO, ESA, INSU and other national agencies from Germany, Great Britain, Italy, the Netherlands and Spain. ASOV is the national point of contact

for Euro-VO, and CDS leads one of the three components of Euro-VO, the *Data Centre Alliance*. CDS also participates in the VO-TECH Design Study.

French involvement in the definition of VO standards has thus been very significant from the very beginning. Thanks to the ASOV actions (Section 3), to the priority given by several French laboratories to their participation in the VO, and to the motivation of many astronomers and engineers, it extends now well beyond CDS. Many fruitful collaborations have been built among French teams and with other VO projects. French participation in Interoperability Meetings and in international events is conspicuous. For instance, Euro-VO organized in June 2005 in Garching a workshop aimed at giving data centre and large project staff the ability to publish data within the existing VO infrastructure (<http://www.euro-vo.org/pub/workshop/index.html>). 16 French participants, most of them supported by ASOV, and 7 tutors and lecturers from CDS, attended the Workshop, on a total of 116 participants from all over Europe and beyond.

In the other disciplines covered by the ASOV, one can note participation of the Centre de Données de la Physique des Plasmas in the Space Physics Archive Search and Exchange (SPASE) consortium, the efforts to build a project to continue the developments initiated by the European Grid of Solar Observations (EGSO) project, and the creation of the 'VO-France Planetology Working Group' in the EuroPlanet European project.

3 ASOV actions

The ASOV has a limited yearly budget and optimizes its usage by opening two Announcement of Opportunities (AO) each year, to adjust spending at best to the rapid evolution of the national and international projects. It supports in particular travel to international "Interoperability" meetings, as explained above. The following actions were also carried out:

- a tutorial "Standards and tools of the VO", organized by CDS in Strasbourg on October 11-13, 2004. It was aimed at giving service developers a practical knowledge of VO standards and tools, with overviews, lectures and tutorial. It gathered 21 participants from 10 different laboratories, and the expertise gained in organizing this tutorial has been very useful in preparing the Euro-VO June 2005 Workshop.
- a census of VO-related projects in French laboratories. 45 answers were received. Nearly all the French laboratories sent at least one answer. The answers confirm that many kinds of services can be provided to the VO: access to observation archives; tools for data management, data processing, visualization; added-value data bases; 'software instruments' to tackle specific scientific questions; 'thematic portals'; theory/modelling services providing access to modelling results or allowing astronomers to run models; etc. Services proposed by French teams take advantage of local expertise on instrument hardware, data pipelines, scientific topics, and are at very different levels in terms of manpower, from reference disciplinary data centres

to services in national and international niches. The projects cover a wide range of topics, from astrometry to theory, and also Sun/Earth relations and the study of planets.

- the first plenary meeting of the French VO, which was held in Paris (4-7 April 2005). More than 50 people attended, and nearly all the French laboratories were represented. The following topics were addressed: status of VO actions in the different disciplines covered by the ASOV, French disciplinary-wide services, VO policy of laboratories, presentation of several thematic services. The role and actions of ASOV were discussed. It was in particular decided (1) to set up a mailing list for technical discussion, complementary to the IVOA WG mailing lists (done by the Observatoire de Paris at vo.echanges@obspm.fr); and (2) to ask for proposals of thematic or technical meetings, such as the one organized in June by space plasma and solar physicists to discuss common metadata (this was done in the second 2005 AO).

Three satellite technical meetings were also organized, on feedback from October 2004 "Standards and tools of the VO" tutorial and preparation of Kyoto Interoperability meeting (organized by F. Bonnarel and A. Schaaff), spectroscopy (organized by P. Prugniel), and theory in the VO (organized by H. Wozniak).

- A 'thematic school' for scientists, "The Virtual Observatory, a new tool for scientists", got support from the CNRS. It aims at discussing the science usage of the VO and to identify the specific needs of the French astronomical community. It is organized by the ASOV Scientific Committee, and will be held on November 7-9, 2005, in Obernai near Strasbourg.

4 Conclusion

The VO already produces new tools for scientists, and much more are expected to come. The French VO community has been emerging very quickly, thanks to the ASOV triggering action, and to the mobilisation of individuals, teams, laboratories, and National Programs. Many laboratories and observatories are coordinating their own VO actions. The ASOV organizes information on on-going projects, technical training, and the French participation to international actions. It contributes to the building up of collaborations among French teams, and of French teams with other VO projects.