

The Virtual Observatory is still a growing-up collaboration. Many institutes are making their data accessible through the international grid. This poster deals with the accessible data and the infrastructure built-up at LAM. More than 10 Mega objects will be reachable thanks to VO-compliant tools and archives. Early 2006, most of the LAM databases will be VO-enabled. Using SItools interfaces, the astrophysical data products from LAM, consolidated into Postgresql and Oracle databases will be reachable and usable throughout statistical tools and direct queries services.

P.I.: O. Le Fèvre (LAM-OAMP)
 Information System Designer and Administrator : C. Moreau

The **VIRMOS-VLT Deep Survey (VVDS)** is a breakthrough spectroscopic survey which provides a complete picture of galaxy and structure formation over a very broad redshift range ($0 < z < 5$) over thirteen square degrees of the sky in 4 separate fields. This ambitious survey is possible thanks to the impressive multiplex gains of the VIMOS instrument built by the Franco-Italian VIRMOS consortium for ESO-VLT.

The survey has been carried on the consortium's 60 nights of guaranteed time, and goes on on open VLT time. The goal is to gather in total a sample of 100,000 redshifts. This unique database enables us to trace back the evolution of galaxies, active galactic nuclei and clusters where the universe was a fraction (about 20 per cent) of its current age. The VVDS is comparable in size to the largest redshift surveys currently underway, but probes much higher redshifts. It will provide an unparalleled description of how structures and galaxy populations evolved in the universe from high redshift to the present day.

Up to now, 45,000 spectra have been obtained, of which 25,000 have been analyzed, and 15,000 stored in our information center

2 565 654 objects, 120Go VVDS images (6 Go by image)

Public data via CENCOS:
 VVDS-CDFS : 1599 redshifts (since 2004)
 VVDS-F02 : in 2006

More information about VVDS:
<http://www.oamp.fr/vimos/>

GALEX-LAM Information System
P.I.: Christopher Martin (Caltech)
CO-I: B.Milliard and J.Donas (LAM-OAMP)
 Information System Designer and Administrator : T. Fenouillet

Galex is a NASA-SMEX mission led by CalTech (P.I. Christopher Martin). B.Milliard and J.Donas are the co-investigator for the Laboratoire d'Astrophysique de Marseille. Its goal is to produce a survey including UV images and spectra of millions of galaxies.

GALEX-LAM I.S. is dedicated to give access to images and detections of the Galex Survey to scientists at LAM. It contains simple requests (Cone Search and Simple Image Access) as well as more value-added services such as cross-identification (by distance and data mining methods), multiple FITS tools (creation, modification, and cut-out large images tools).

From the launch in April 2003, we have ingested data released to partners. We now have more than 40 millions objects for 6,000 images in the database covering over 3 000 square degrees. The next release planned Q4 2005 will score six times this number for approximately 240 millions objects and 18 000 square degrees.

Further information about Galex : <http://www.galex.caltech.edu/>
 Accessing data from Galex Release 1.0 : <http://galex.stsci.edu/GR1>

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 Information System Designer and Administrator : C. Moreau

COSMOS is a project centered on the study of the largest contiguous Hubble image ever taken covering 2 square degree on the sky. Extensive multiwavelength coverage are in progress from radio wavelength to X-ray including optical and near-infrared. Furthermore a massive spectroscopic survey is underway using the VIMOS instrument at VLT as well as the IMACS instrument on the Magellan telescope. The aim of this project is to understand galaxy evolution and morphology as a function of time as well as a function of the large scale structure in the Universe which can be probed directly using gravitational lensing techniques.

The public COSMOS Archive (images and catalogs) is maintained by IRSA at IPAC. The **COSMOS information center at LAM** aims at providing the most complete information on catalogues from different origins and matched together, as well as integrated scientific analysis tools.

Furthermore, the LAM-COSMOS center provides all the tools necessary to a coherent and complete handling of the observations, that will last for several years, use 2 different observing modes, and finally contain several thousands of objects.

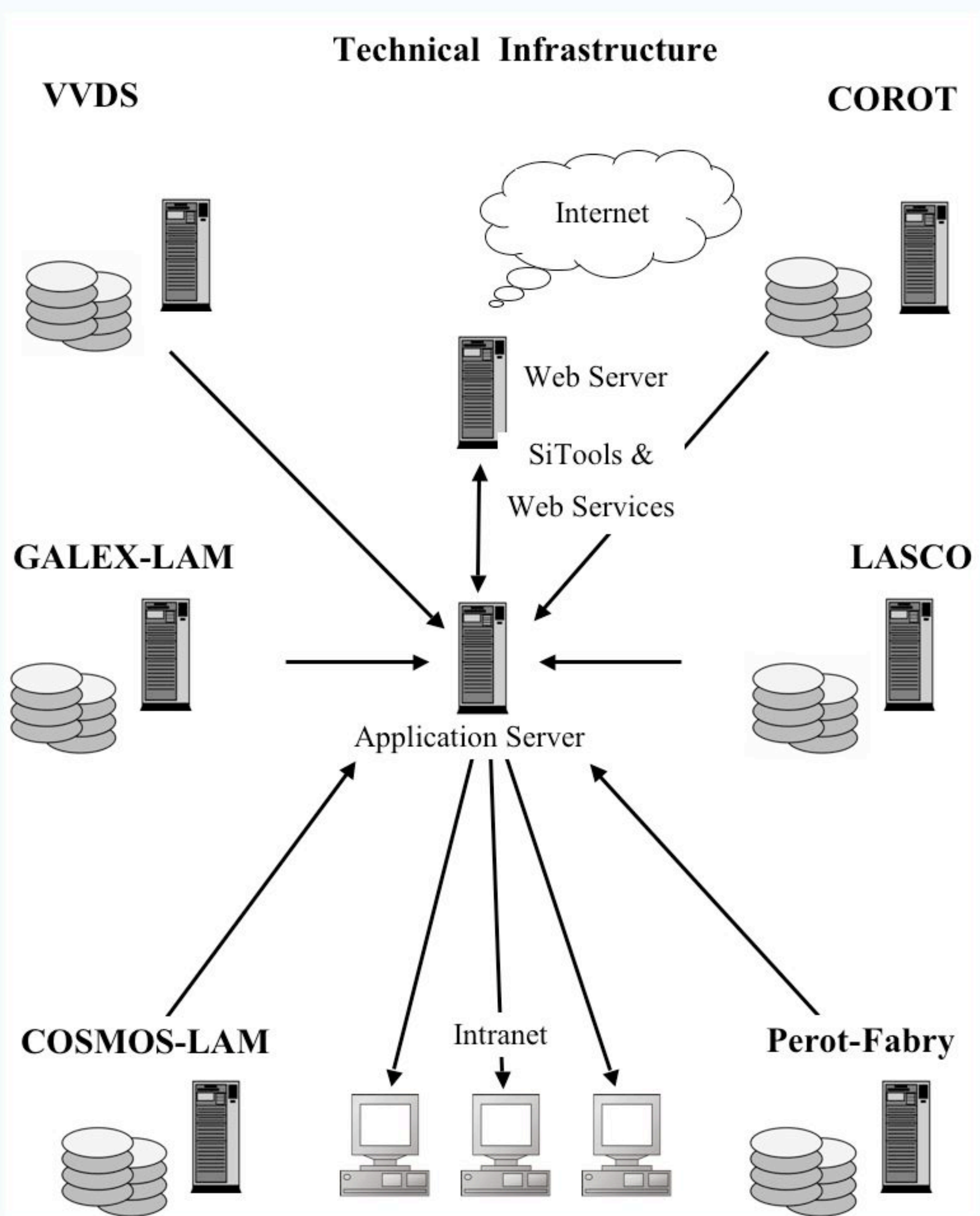
Further information : <http://www.astro.caltech.edu/~cosmos/>

Abstract

From the first spatial missions, to the last ground based observations, from cosmological surveys to extrasolar planets studies, LAM (Laboratoire d'Astrophysique de Marseille) has been involved in and leading many projects providing Terabytes of data. Due to the large experience of the laboratory in pre and post missions databases and data exchanges with consortium teams, LAM will provide VO-compliant data access and tools for data mining applications.

Most of the databases include data with extra-information processed at LAM : astrophysical quantities and statistical results, Cross-identification algorithms, rotation curves. The goal of the databases from LAM is not to provide data but valuable informations on these data.

LAM and the OAMP (Observatoire Astronomique de Marseille Provence) are building-up a VO-pole for data access and Web services. The LAM specified a VO environment for local data access. GALEX, VVDS, COSMOS, EXODAT, LASCO, and Perot Fabry databases will be accessed using VO compliant infrastructure based on SI-TOOLS. More databases are still in the study or implementation testing phase.



EXODAT : Exoplanet database for COROT

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 Information System Designer and Administrator : J.-C. Meunier

The EXODAT project aims at providing the information needed for the selection of best targets and preparing the statistical analysis. The COROT exoplanet program will observe continuously a set of selected stars during 150 days in order to discover planetary transits.

At the end of the mission, in 2010, EXODAT will be the first exoplanet database with physical characteristics of parent stars and of their planets.

EXODAT currently contains 10 million stars over 100 square degrees centred on two main regions ($6h50+0.0\pm 12^\circ$, $18h50+0.0\pm 12^\circ$). Access is reserved to COROT team members and it provides :

- Astrometry
- Broad band photometry UBVRi, 2MASS, USNO-A2 and DENIS.
- A sub-set moderate resolution spectra with the derived stellar parameters : T_{eff} , $\log g$, $[M/H]$, rotation velocity, binarity.
- Stellar parameters: spectral type, luminosity class, reddening.
- Light-curves and planet properties, after the mission's launch.

LASCO

P.I.: R.A. Howard, CO-I: P. Lamy
 Information System Designer and Administrator : M. Burtin

LASCO is a set of three coronagraphs C1, C2 and C3 aboard the Solar and Heliospheric Observatory (SOHO) that record white light images of the solar corona from 1.1 to 30 solar radii :

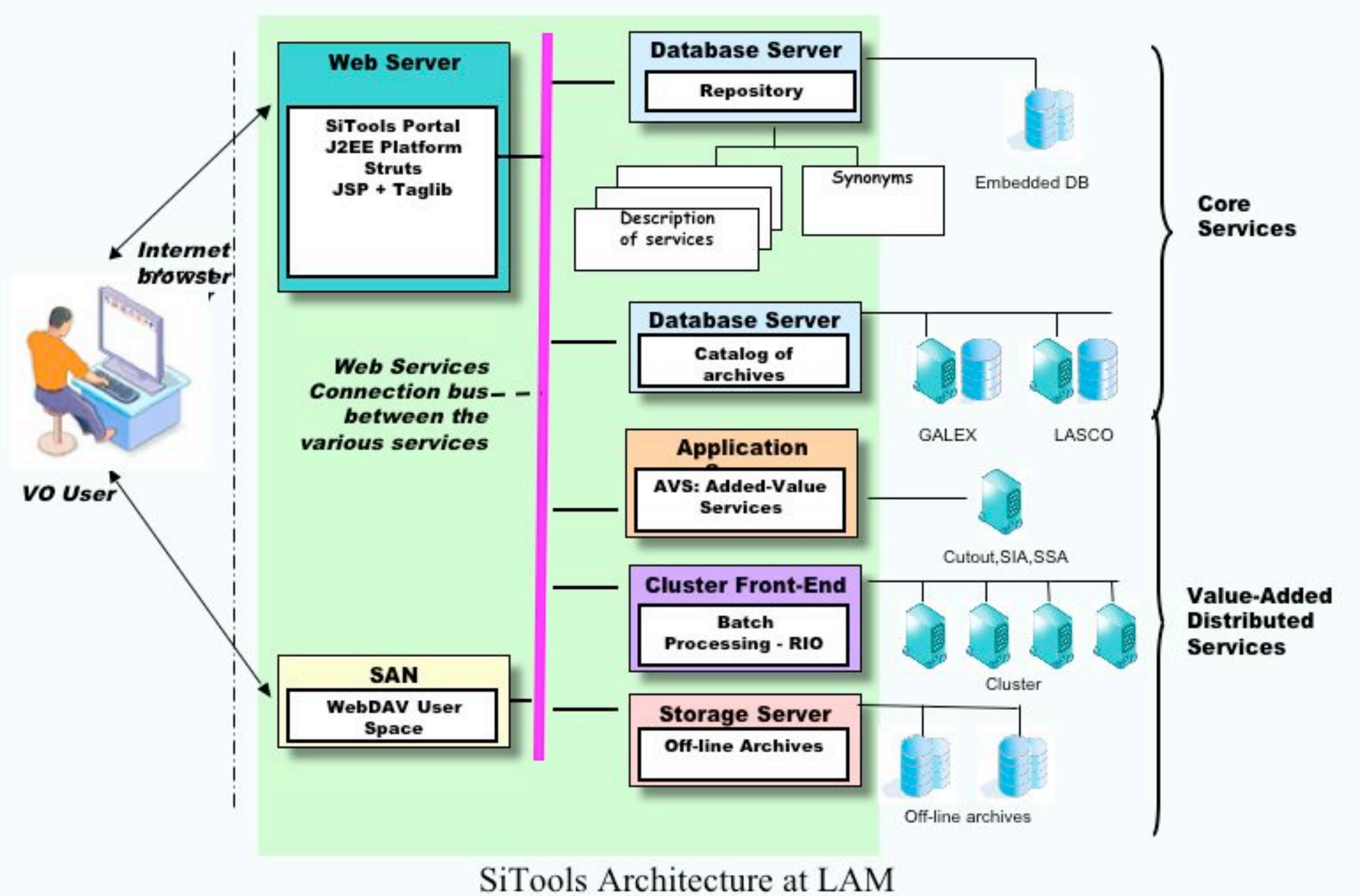
- C1: The Max-Planck-Institut für Aeronomie (MPIAe – Lindau/Germany)
- C2: The LAM
- C3: The Naval Research Laboratory (NRL - Washington D.C./USA)

The C2 and C3 LASCO coronagraphs have provided 350,000 images since 1995, representing about 300GB of data. Images have been taken with different combinations of filters (mainly Orange, but also Clear, Blue and IR), and through different polarizers (+0Deg, -60Deg and +60Deg). At LAM we focus on C2 images processing to provide calibrated data of the corona. Final products delivered to the community include F and K corona images, synoptic maps, carrington maps.

<http://www.oamp.fr/lasco/>

SI Tools: A VO-enabling portal for LAM archives

Developed by CNES in partnership with a computing and consulting company, SItools (Système d'Information, de Préservation et d'Accès aux Données) provides a customizable portal, a powerful query builder and a set of J2EE-compliant tools. This modular system, which features a virtual Web Service bus, will ease the development of middleware layers enabling interconnection of VO value-added services with existing astronomical datasets.



Fabry-Pérot Database

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 Implementation: LAM, GEPI
 Information System Designer and Administrator : O. Garrido, I. Jegouzo (GEPI)

The database is designed to keep information on Fabry Perot observations, and to store the 3D dataset cubes of the 300 galaxies already observed. It also includes 2D and 3D high resolution information on local galaxies. Valuable data concerning rotation curves and profiles will be produced and presented with the interfaces. This database includes Fabry-Pérot data from several projects led by LAM :

- GHASP survey:
 - 220 spiral galaxies observed in the Ha range with a Fabry Pérot interferometer
- Virgo observations
- Galaxies pairs interactions
- Ha South Survey
 - Data on the Galaxy and Magellanic clouds from ESO

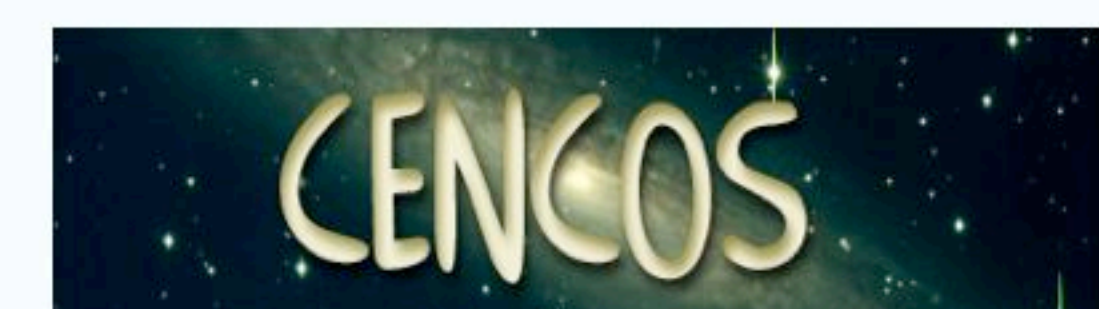
The stored data include processed results like : Ha and Monochromatic maps, continuum maps, velocity maps, rotation curves, and the data cubes themselves.

Interfaces include possible queries on objects, catalog, and fundamental parameters like position, Galaxy type.

Work is going on defining and implementing visualisation tools for 3D data cubes. This work is in collaboration with GEPI

400 galaxies will be available in 2 years (SINGS, VIRGO, Barred galaxies) Mosaics will be available for the observations of the Galaxy

The project 3D NTT still in study will feed the database with more than 500 expected observations till the end of 2008

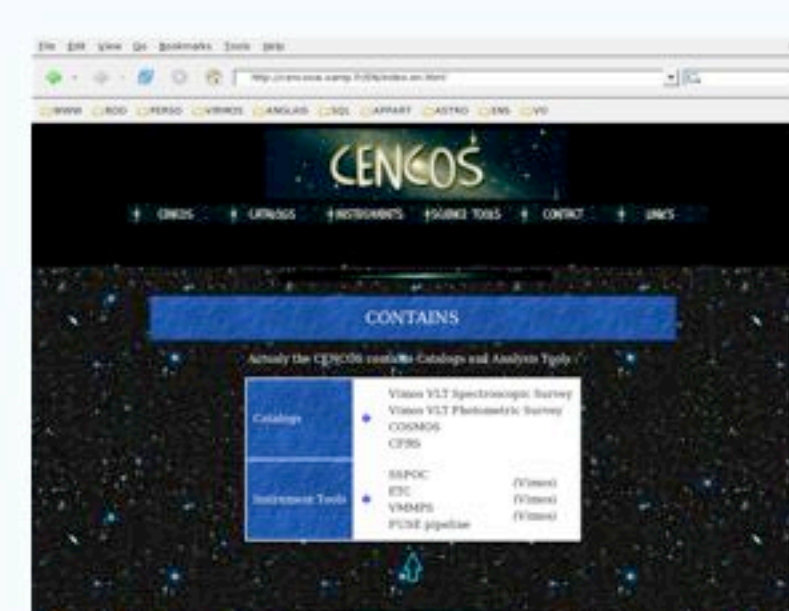
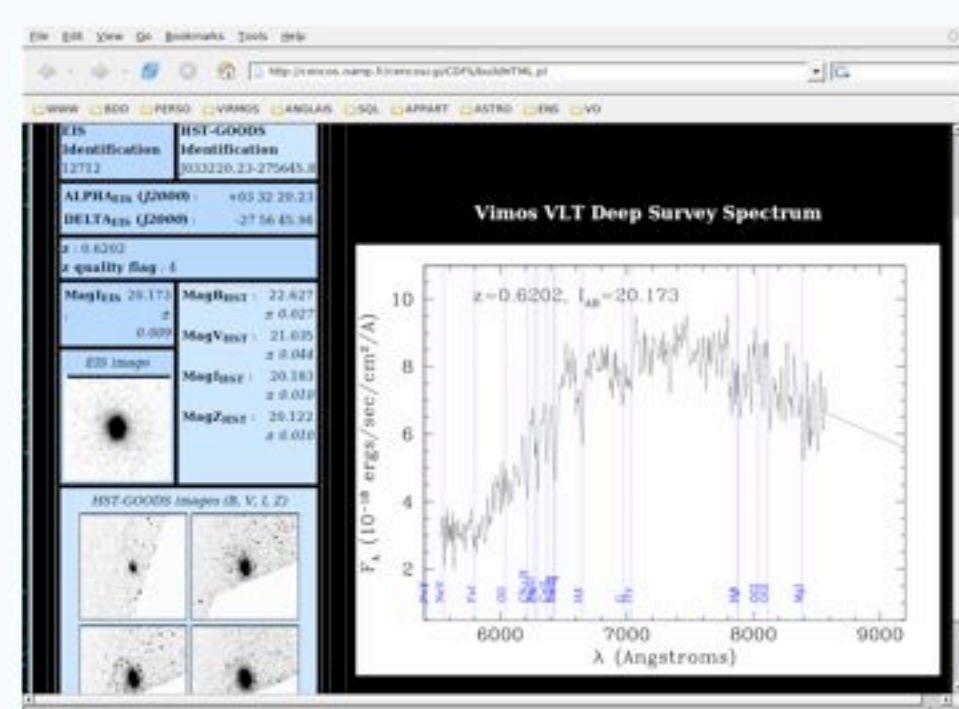


The **CENCOS** system provides access to deep spectro-photometric cosmology surveys: large images and associated catalog databases, deep redshift surveys. It is also a support center for the data processing and analysis of data from cosmological instruments (VIMOS, FUSE).

The **CENCOS interface** will be provided to the international community to explore the huge datasets from the (still) proprietary ongoing projects, once they will have been publicly released. The CENCOS is also open to any solicitation from others projects willing to offer a dedicated interface to their data

The **CENCOS** portal will also provide tools for cosmological parameters extractions and data-mining. It will include VO-compliant tools to combine surveys and data extractions

<http://cencosw.oamp.fr/>



Implementations and perspectives

Most of the databases are ready to use and reachable, the VO implementations should be performed early 2006 with most of the data available to VO tools. More databases are under studies or development:

- NGS : This survey combines multi wavelength information on local galaxies to create the reference sample for high Z studies.
 - VLTPF : pre-observation databases on target selections for Planet finder runs
- Databases and new VO implementations will allow LAM to provide powerful scientific tools applying to public and accessible data.

This work is undertaken in collaboration with GEPI, CDS and CNES.

Publications

- A Virgo high resolution Ha survey : I. NGC 4438, Chemin L et al., 2005, A&A, 436, 469.
- A deep Halpha survey of the Milky Way. VI. Russeil, D et al. A&A, 2005, 429, 497.
- GALEX: C.Martin et al., 2005, ApJ, 619
- VVDS: Le Fèvre et al., 2004, A&A 417, 839 - Le Fèvre et al., 2005, A&A 439, 845
- PF - GHASP : I.Garrido O. et al., 2002, A&A, 387, 821.
- LASCO: Brueckner, G. E. et al., 1995, Solar Physics, v. 162, p. 357-402