

AVO ASTROPHYSICAL VIRTUAL OBSERVATORY



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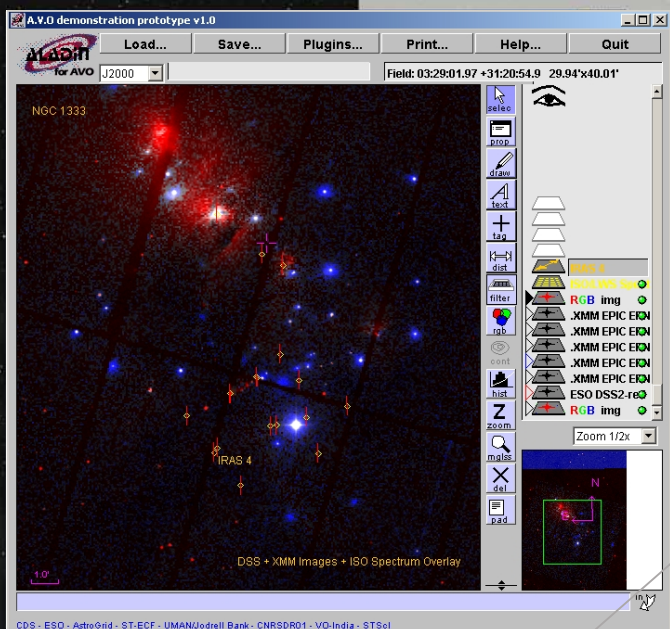
The Astrophysical Virtual Observatory Project (AVO) is conducting a research and demonstration programme on the scientific requirements and technologies necessary to build a VO for European astronomy. The AVO has been jointly funded by the European Commission (under FP5 – Fifth Framework Programme) with six European organizations participating in a three year Phase-A work programme, valued at 5 million Euro. The partner organizations are the European Southern Observatory (ESO) in Munich, Germany, the European Space Agency (ESA), AstroGrid (funded by PPARC as part of the UK's E-Science programme), the CNRS-supported Centre de Données Astronomiques de Strasbourg (CDS), the University Louis Pasteur in Strasbourg, France, the CNRS-supported TERAPIX astronomical data centre at the Institut d'Astrophysique in Paris, France, and the Jodrell Bank Observatory of the Victoria University of Manchester, United Kingdom. The Phase A program will focus its efforts on a detailed description of the science requirements for the AVO, data and archive interoperability and the necessary GRID and database technologies needed for a full AVO implementation.

The AVO project is currently working in conjunction with other international VO efforts as part of the International Virtual Observatory Alliance. This alliance will define essential new data standards so that the VO concept can have a global dimension. As a coordinated effort, and as part of an internationally agreed roadmap for development, the IVOA partners are holding demonstrations of new VO technologies and capabilities on an annual basis. The AVO demonstrations were held at Jodrell Bank Observatory and in Sydney in January and July 2003 and at ESO in January 2004.

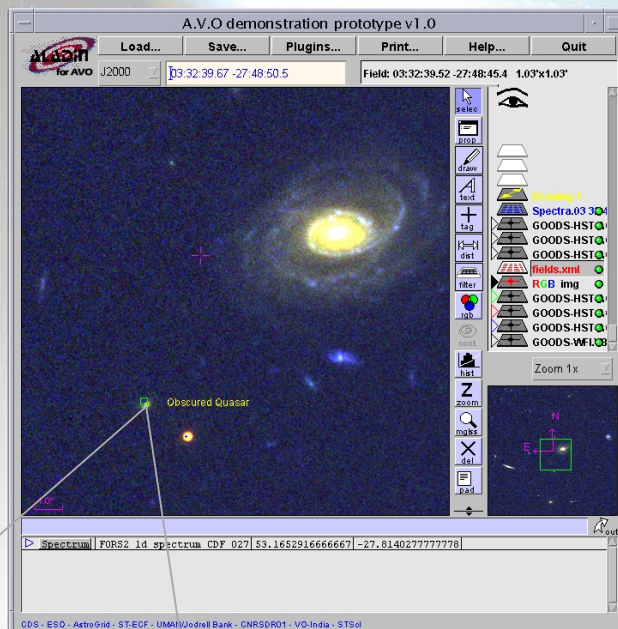


The breathtaking capabilities and ultrahigh efficiency of new ground and space observatories have led to a 'data explosion' calling for innovative ways to process, explore and exploit these data. The Virtual Observatory is an innovative system that allows users to interrogate multiple data centres in a seamless and transparent way, which provides new powerful analysis and visualisation tools within that system and which gives data centres a standard framework for publishing and delivering services using their data. This is made possible by standardisation of data and metadata, by standardisation of data exchange methods, and by the use of a Registry that lists available services and what can be done with them.

The Virtual Observatory is already starting to do cutting-edge science by allowing exploitation of astronomical data beyond the "classical" identification limits and by providing "statistical" identification of sources using multiwavelength information. Virtual Observatory tools will soon enable astronomers to make new discoveries with relatively little effort.



Composite optical (red — DSS2) and X-ray (blue — XMM Newton) image of the star-forming region NGC 1333. Symbols denote sources with infrared spectra taken with ESA's ISO.



An obscured quasar imaged by the Hubble Space Telescope ACS and identified through an ESO/FORS2 spectrum (below left).

