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**PHOTO RELEASE** **RELEASE**

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Photo release:

**Press meeting January 20th: First Light for Europe's Virtual Observatory**

17-December-2002 **Imagine you are an astronomer with instant, fingertip access to all existing observations of a given object and the opportunity to sift through them at will. In just a few moments, you can have information on all kinds about objects out of catalogues all over the world, including observations taken at different times.**

Over the next two years this scenario will become reality as Europe's Astrophysical Virtual Observatory (AVO) develops. Established only a year ago, the AVO already offers astronomers a unique, prototype research tool that will lead the way to many outstanding new discoveries.

Journalists are invited to a live demonstration of the capabilities of this exciting new initiative in astronomy. The demonstration will take place at the Jodrell Bank Observatory in Manchester, in the United Kingdom, on 20 January 2003, starting at 11:00. Sophisticated AVO tools will help scientists find the most distant supernovae - objects that reveal the cosmological makeup of our Universe. The tools are also helping astronomers measure the rate of birth of stars in extremely red and distant galaxies.

Journalists will also have the opportunity to discuss the project with leading astronomers from across Europe.

The new AVO website has been launched today, explaining the progress being made in this European Commission-funded project:

**<http://www.euro-vo.org/>**

To register your intention to attend the AVO First Light Demonstration please provide your name and affiliation by Monday 13 January to:

Ian Morison, Jodrell Bank Observatory (full contact details below). Information on getting to the event is included on the web page above.

### **Programme for the AVO First Light Demonstration**

11:00 Welcome, Phil Diamond (University of Manchester/Jodrell Bank Observatory)  
11:05 Short introduction to Virtual Observatories, Piero Benvenuti (ESA/ST-ECF)  
11:15 Q&A  
11:20 Short introduction to the Astrophysical Virtual Observatory, Peter Quinn (ESO)  
11:30 Q&A  
11:35 Screening of Video News Release  
11:40 Demonstration of the AVO prototype, Nicholas Walton (University of Cambridge)  
12:00 Q&A including interview possibilities with the scientists  
12:30-13:45 Buffet lunch, including individual hands-on demos  
14:00 Science Demo (also open to interested journalists)

For more information about Virtual Observatories and the AVO, see the website or the attached fact sheets.

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### **Notes to editors**

The AVO involves six partner organisations led by the European Southern Observatory (ESO) in Munich, Germany. The other partner organisations are 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.

This is a joint Press Release issued by the European Southern Observatory (ESO), the Hubble European Space Agency Information Centre, ASTROGRID, CDS, TERAPIX/CNRS and the University of Manchester.

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## **Background Information:**

### ***What is a Virtual Observatory? - A short introduction***

The Virtual Observatory is an international astronomical community-based initiative. It aims to allow global electronic access to the available astronomical data archives of space and ground-based observatories, sky survey databases. It also aims to enable data analysis techniques through a coordinating entity that will provide common standards, wide-network bandwidth, and state-of-the-art analysis tools.

It is now possible to have powerful and expensive new observing facilities at wavelengths from the radio to the X-ray and gamma-ray regions. Together with advanced instrumentation techniques, a vast new array of astronomical data sets will soon be forthcoming at all wavelengths. These very large databases must be archived and made accessible in a systematic and uniform manner to realise the full potential of the new observing facilities.

The Virtual Observatory aims to provide the framework for global access to the various data archives by facilitating the standardisation of archiving and data-mining protocols. The AVO will also take advantage of state-of-the-art advances in data-handling software in astronomy and in other fields.

The Virtual Observatory initiative is currently aiming at a global collaboration of the astronomical communities in Europe, North and South America, Asia, and Australia under the auspices of the recently formed International Virtual Observatory Alliance.

## ***The Astrophysical Virtual Observatory - An Introduction***

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.

Researchers must now turn to the GRID paradigm of distributed computing and resources to solve complex, front-line research problems. To implement this new IT paradigm, you have to join existing astronomical data centres and archives into an interoperating and single unit. This new astronomical data resource will form a Virtual Observatory (VO) so that astronomers can explore the digital Universe in the new archives across the entire spectrum. Similarly to how a real observatory consists of telescopes, each with a collection of unique astronomical instruments, the VO consists of a collection of data centres each with unique collections of astronomical data, software systems, and processing capabilities.

The Astrophysical Virtual Observatory Project (AVO) will conduct 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 organisations participating in a three year Phase-A work programme, valued at 5 million Euro. The partner organisations 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 effort in the following areas:

- A detailed description of the science requirements for the AVO will be constructed, following the experience gained in a smaller-scale science demonstration program called ASTROVIRTEL (Accessing Astronomical Archives as Virtual Telescopes).
- The difficult issue of data and archive interoperability will be addressed by new standards definitions for astronomical data and trial programmes of "joins" between specific target archives within the project team.
- The necessary GRID and database technologies will be assessed and tested for use within a full AVO implementation.

The AVO project is currently working in conjunction with other international VO efforts in the United States and Asia-Pacific region. This is part of an International Virtual Observatory Alliance to define essential new data standards so that the VO concept can have a global dimension. The AVO partners will join with all astronomical data centres in Europe to put forward an FP6 IST (Sixth Framework Programme - Information Society Technologies Programme) Integrated Project proposal to make a European VO fully operational by the end of 2007.