

JSPS Core-to-Core Program
FY2007 Implementation Plan (Project No. : 16006)

Research Theme Establishment of Japanese Virtual Observatory in relation with International Virtual Observatory by utilizing state-of-the-art information technology

Duration of Project 2006 / 4 / 1 - 2009 / 3 / 31 (36 months)

Core Institution in Japan (Co-Chair) National Astronomical Observatory of Japan
(Assoc. Prof. Masatoshi Ohishi)

Implementing Organizations

Japan

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|-------|---------------------------|--|---|
| Japan | Core Institution | National Astronomical Observatory of Japan | |
| | Co-Chair (name and title) | Masatoshi Ohishi / Associate Professor | |
| | Cooperating Institutions | Ochanomizu university, Tokyo Institute of Technology, University of Tokyo, JAXA/ISAS, Tokyo Gakugei university, Ibaraki university, Graduate University for Advanced Studies | Number of Cooperating Institutions 7 |

Partner Countries

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|---------|---------------------------|---|---|
| Germany | Core Institution | European Southern Observatory | |
| | Co-Chair (name and title) | Paolo Padovani /EURO-VO Project Scientist | |
| | Cooperating Institutions | Strasbourg Data Centre, European Space Astronomy Centre | Number of Cooperating Institutions 2 |

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|------|---------------------------|---|---|
| U.K. | Core Institution | Cambridge University | |
| | Co-Chair (name and title) | Nicholas Andrew Walton / AstroGrid Project Scientist | |
| | Cooperating Institutions | Jodrell Bank Observatory, University of Edinburgh, Rutherford Appleton Laboratory, The University of Manchester, Mullard Space Science Laboratory, University of Leicester, The Queen's University of Belfast | Number of Cooperating Institutions 7 |

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|--------|---------------------------|---|---|
| U.S.A. | Core Institution | Space Telescope Science Institute | |
| | Co-Chair (name and title) | Robert James Hanisch / Project Manager | |
| | Cooperating Institutions | The Johns Hopkins University, California Institute of Technology, National Center for Supercomputing Applications, National Radio Astronomy Observatory, National Optical Astronomy Observatories, San Diego Supercomputing Center, Smithsonian Astrophysical Observatory, NASA Goddard Space Flight Center, Dominion Astrophysical Observatory | Number of Cooperating Institutions 9 |

Objectives of Research Exchange (including the five years after the project finishes)

It has been requested to understand the formation of the universe and galaxies, and the origin of the life by statistically treating high sensitivity and large-scale multi wavelength data acquired with the latest telescopes. It was difficult immediately to exchange and to use these observational data because the network was slow to exchange such data to each other. However, the progress of recent network technology is remarkable, and current impossibility is becoming possible. Therefore we aim to construct in Japan a new research environment through a high-speed network in order to exchange observational data to clarify the previous problems, and to provide immediately with research results to the society.

Results to the present

Japanese Virtual Observatory implemented standardized VO interfaces defined through the IVOA seminars, joint researches, etc., and succeeded to interoperate with VOs in Germany, the United Kingdom and the United States since December, 2004. In 2006 JVO improved the Work Flow Description Language and the Work Flow execution mechanism, in order to utilize not only astronomical databases but data analysis servers that are distributed in the world. Astronomical databases provided by the NAOJ and the JAXA/ISAS were connected through the JVO system.

Summary of FY 2007 Exchange Plan**Joint Research**

Some JVO members plan to visit and stay for a while at the CDS, Strasburg, France, the Johns Hopkins university, USA, and Cambridge, UK, to develop a work flow execution management system. France takes a roll to develop a GUI, and Japan and UK will develop execution system jointly. Japan and USA will upgrade data access protocols.

Seminar

It is planned to hold two major seminars to discuss and define VO interfaces. One meeting will be in Beijing, China, in May 2007, and the second meeting will be held in Cambridge, UK, in September 2007, hosted jointly by the ESO and the UK VO group. The majority of VO researchers participates these standardization meetings which are good occasions to disseminate VO technologies among the astronomy community in the world.

Researcher Exchanges

It is expected to visit to each other and exchange researchers to discuss science use cases and functionalities that are required to the international VO activities. We plan to encourage young researchers to visit Europe and/or the US to establish "human network" not only for the VO activity but their own research activities. We start to discuss with the ALMA (Atacama Large Millimeter and submillimeter Array) project, that is being constructed through international collaboration among Japan, North America and Europe, to implement the VO technologies to the relevant software systems for the ALMA.