Volume 21 - Issue 23, Nov. 06 - 19, 2004
India's National Magazine from the publishers of THE HINDU

Frontline

ASTRONOMY

The initiative in India

R. RAMACHANDRAN

INDIA has a fairly large community of astronomers with institutes like the Inter-University Centre for Astronomy and Astrophysics (IUCAA) and the National Centre for Radio Astrophysics (NCRA) in Pune and the Indian Institute of Astrophysics (IIA) in Bangalore dedicated to research in astronomy. It has a number of astronomical facilities with moderately sized optical and infrared telescopes.

In recent times, these have been augmented by the installation of the Giant Metrewave Radio Telescope (GMRT) near Pune and the Himalayan Chandra Telescope (HCT) near Leh in Ladakh. Experiments have also been conducted from space platforms and by 2007 Astrosat, a multiwavelength astronomy satellite, is to be launched.

With a view that the community stands to gain enormously by being part of the Virtual Observatory (VO), a national VO initiative called Virtual Observatory-India (VO-I) has been launched. It is essentially pioneered by the IUCAA under the leadership of Ajit Kembhavi. However, for reasons not entirely clear, the initiative is yet to catch on among the community. At present, the IUCAA and IIA are the only participating research institutes.

Given the fact that information technology has a very

important role to play in the international VO effort and that there is expertise in the area available in the country, VO-I in its initial phase has sought to bring together astronomers and software developers with the experience of handling large volumes of data. This has been a collaborative project between the IUCAA and Persistent Systems Ltd (PSL), a Pune-based software company with longstanding experience in data-base related software development in a variety of computing environments, including health care and bioinformatics.

But this is the first foray for PSL into basic sciences. For Anand Deshpande, the CEO of PSL, the excitement of getting to work on cutting edge problems made him take up the project. "The project gave an opportunity to work with experts in the field. Also, I have been fascinated about community software development. This enabled the company to participate in one," says Deshpande. "The project will establish a model for collaboration between academic experts and the industry in the area of IT," says Kembhavi.

Apparently, PSL has not charged any money for its contribution. Moreover, it has offered to make available the source code of the tools developed in the open domain. In the initial phase, the collaboration has developed a range of software tools, the most important and enormously popular one being the VOPlot. It is a tool meant to provide visual display of the information contained in astronomical tables in databases that conform to the internationally accepted format in XML called VOTable. The tools developed allow both 2D and 3D plots of data.

To arrive at an appropriate design of the tools, the collaboration has benefited from interaction with scientists of Johns Hopkins University and Stellar Data Centre at the University of Strasbourg, both key institutions in the international VO effort.

The development of an appropriate query language for a quasar database is on. Next on the anvil is a plan to design a VO-compliant archival database for the HCT data in association with the IIA. The project has been funded in the main by the Ministry of Communications and Information Technology. The total funding for VO-I initiative is about Rs.5 crores over a three-year period.

Printer friendly page