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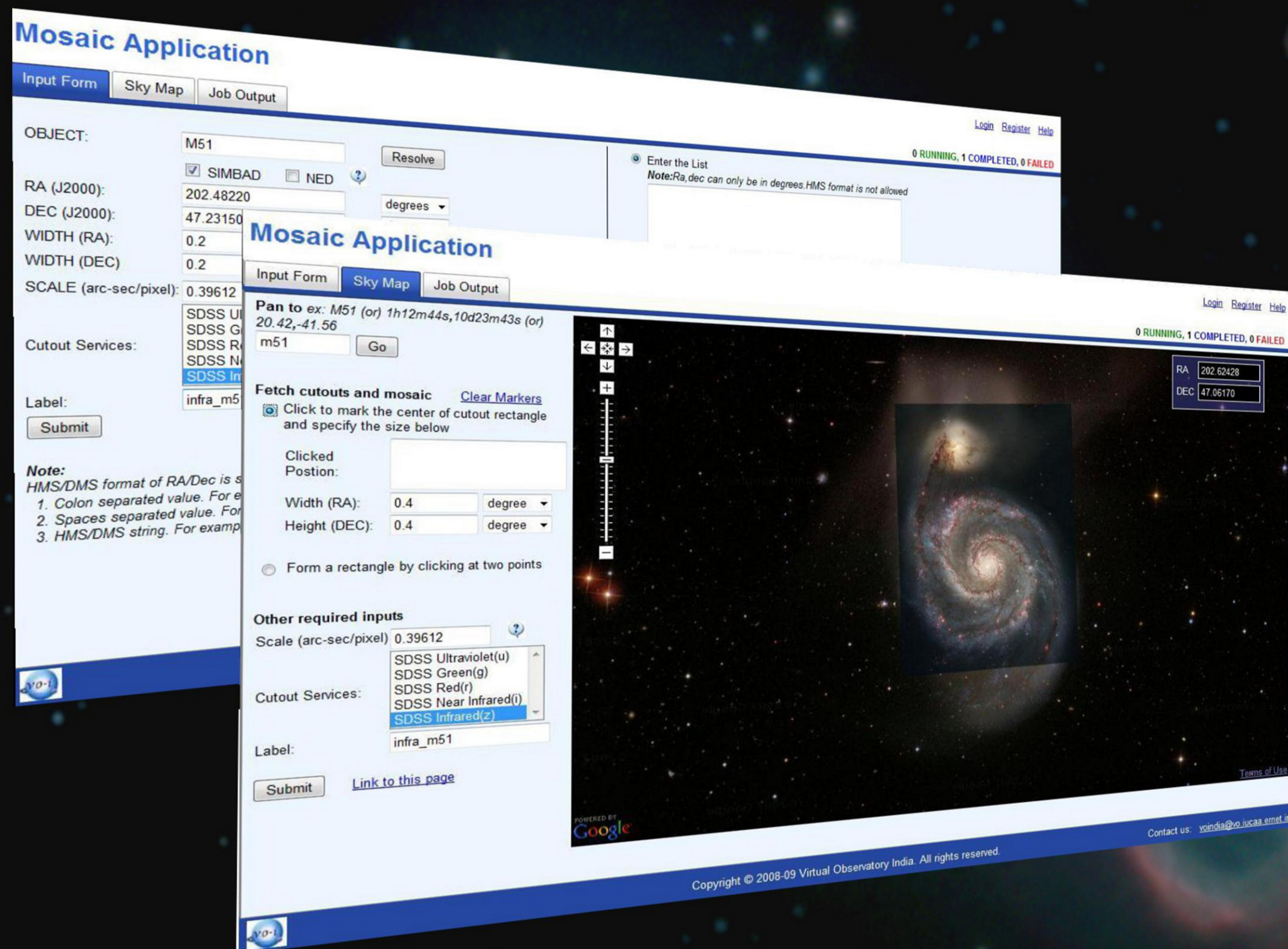
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VIRTUAL OBSERVATORY INDIA

A COLLABORATION BETWEEN IUCAA AND PERSISTENT SYSTEMS LTD.
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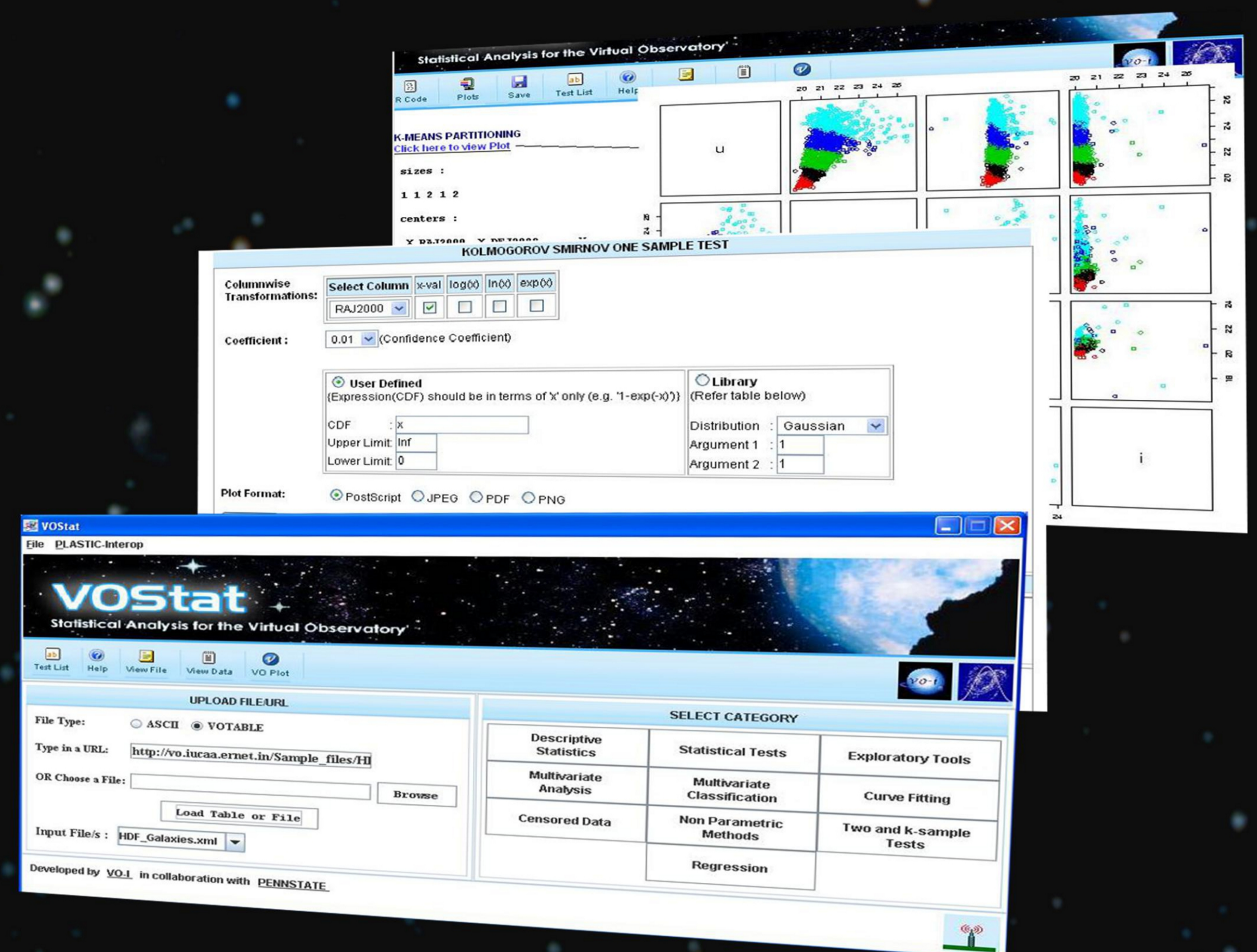
VO-I provides platforms for storing vast quantities of data generated by observatories in India and other countries. It undertakes development of VO tools and uses those for doing science. VO-I brings together astronomers, data mining experts and software professionals from India and abroad to work on the exciting frontiers of the Virtual Observatory. VO-I provides access to VO tools and vast quantities of data to the Indian and international astronomy community and these are being widely used for conducting scientific research. The tools being developed by VO-I adhere to the protocols set by the International Virtual Observatory Alliance.

Mosaic Application



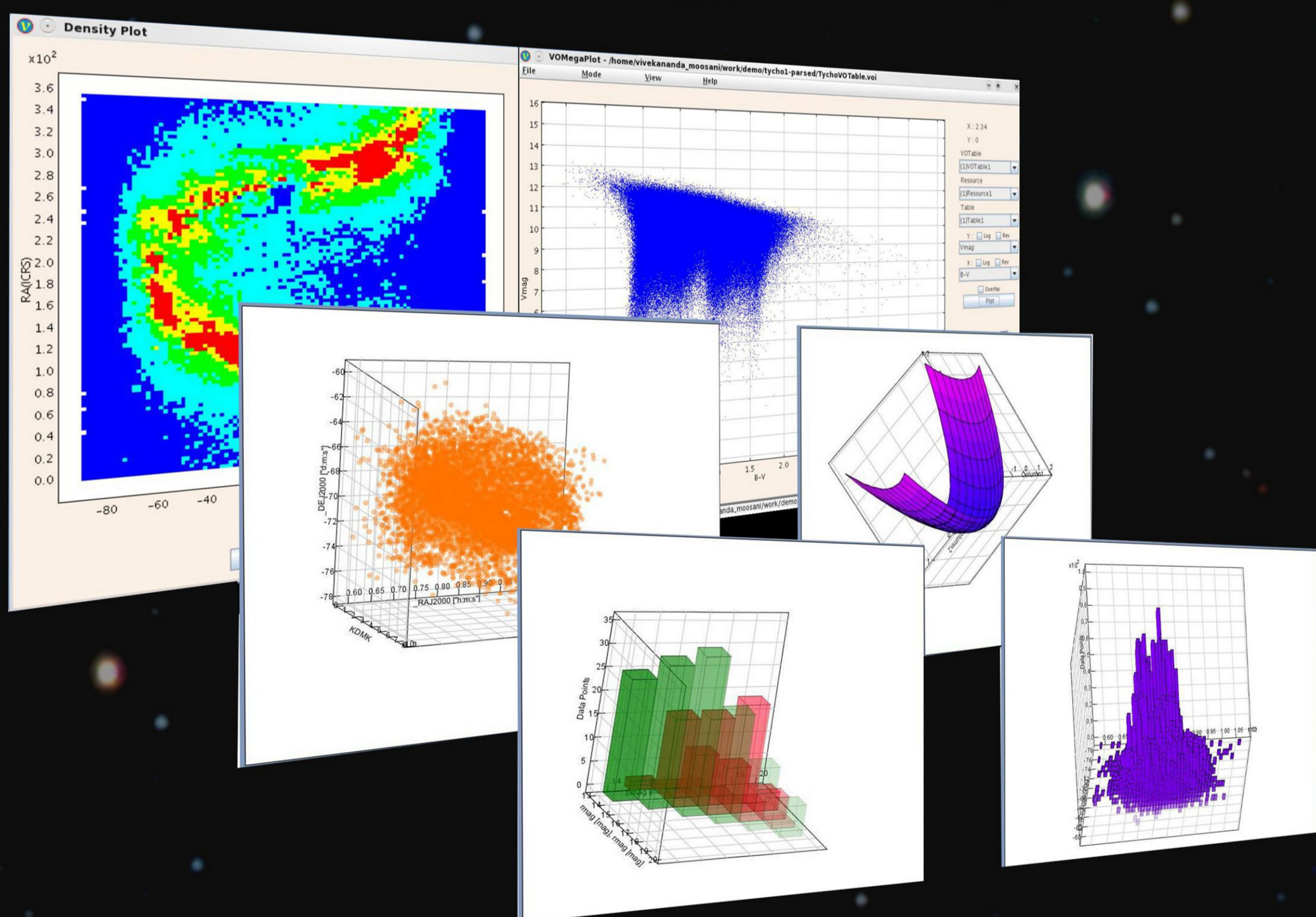
This is a web based application developed in J2EE technology. It is used to create Mosaic of FITS cut-outs of required areas of the sky. The cut-outs are obtained by specifying input data in the form of co-ordinate or list of co-ordinates. Another way of input is by specifying area of cut-out graphically using Google Sky. Using Google Sky, user can draw a rectangle which highlights area of input for mosaic service. For this SIA (Simple Image Access) queries are executed to get desired image cut outs and further using standard programs, SWarp and S-Extractor, final mosaic is generated.

VOStat



VOStat allows astronomers to use both simple and sophisticated statistical routines on large datasets. Currently, VOStat supports twenty eight statistical routines of varying complexity, accompanied by a brief documentation of each test. This tool uses a large public-domain statistical computing package called 'R'. VOStat provides a subset of the functionalities provided by R. Datasets can be uploaded in either ASCII or VOTABLE (preferred) format. If the user does not wish to install 'R' on their machine, a web-based version of VOStat is available.

VOPlot & VOMegaplot



VOPlot is a tool for visualizing astronomical data. VOPlot is developed in JAVA, and acts on data available in the VOTable format. VOPlot is available as a standalone version, which is to be installed on the user's machine, or as a web-based version. VOPlot has been further enhanced keeping in mind the suggestions made by the user community. New features such as 2D/3D plots, density plot and SAMP interoperability have been added.

VOMegaplot shares certain common functionality with VOPlot, but is optimized for handling large number of points (in the range of millions).

VOMegaplot uses certain preprocessing algorithms to create data-structures which are then serialized on the disk in a plot-friendly format. During the actual plotting operations, only the relevant data necessary for plotting is loaded. This significantly reduces the memory requirements and allows plotting of large amount of data.

GMRT NAPS & DAS



To make observations through the Giant Meter-Wave Radio Telescope (GMRT), observers have to submit proposals detailing the various parameters and justifications. These proposals are then reviewed by a Time Allocation Committee (TAC). The Committee then allocates suitable time to the proposers to make their observations. The NCRA Proposal-Management System (NAPS) has been designed to impart automation into the process and enable all involved individuals to do their work from any location in the world through the web. Observations made through the GMRT are stored in LTA format (a custom data format designed specifically for GMRT). The Data Archive System (DAS) has been created to store this data along with the observation logs. Development of DAS involved the creation of a data parser application for processing the raw data and populating the metadata into a database, collecting observation log and search interface for querying and downloading data from the observations.