

The SIRTf Science Center is Alive and Well and Living in Pasadena

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The Space Infrared Telescope Facility (SIRTf) will perform an extended series of science observations at wavelengths ranging from 20 to 160 microns for five years or more. The California Institute of Technology has been selected as the home for the SIRTf Science Center (SSC). The SSC is responsible for evaluating and selecting observation proposals, providing technical support to the science community, performing mission planning and science observation scheduling activities, instrument calibration during operations and instrument health monitoring, production of archival quality data products, and management of science research grants.. The science payload consists of three instruments delivered by instrument Principal Investigators located at University of Arizona, Cornell, and Harvard Smithsonian Astrophysical Observatory. The SSC is responsible for design, development, and operation of the Science Operations System (SOS) which will support the functions assigned to the SSC by NASA..

In the past year, the SOS has made the transition from a design on paper to an operational system that is currently supporting proposal submission, observation planning by the Guaranteed Time Observers and the general science community, mission planning and scheduling of the first set of post-launch observations, and pipeline design and processing of preflight instrument data. Innovative web-based tools for planning observations with SIRTf have been successfully downloaded to hundreds of user sites, and the observation database at the SSC currently contains thousands of individual observation requests. The proposal submission system has been used to support the call for proposals for the SIRTf Legacy Science program, and proposals will be in evaluation by the time ADASS 2000 takes place.

The SIRTf spacecraft, mission profile, and science instrument design have undergone almost ten years of refinement. SIRTf development and operations activities are highly cost constrained. The cost constraints have impacted the design of the SOS in several ways. The Science Operations System has been designed to incorporate a set of highly efficient, easy to use tools which will make it possible for scientists to propose observation sequences in a rapid and automated manner. The use of highly automated tools for requesting observations will simplify the long range observatory scheduling process, and the short term scheduling of science observations. Pipeline data processing

will be highly automated and data-driven, utilizing a variety of tools developed at JPL , the instrument development teams, and Space Telescope Science Institute to automate processing. An incremental ground data system development approach has been adopted, featuring periodic deliveries that are validated with the flight hardware throughout the various phases of system level development and testing. This approach minimizes development time and decreases operations risk.

This paper will describe the top level architecture of the SOS, the current status of the evolution of the SSC systems and capabilities, and an overview of plans for remaining development prior to launch