

Spitzer Users Panel #25 report

The Spitzer Users Panel met for three hours via teleconference on October 30, 2010 providing time for the Spitzer Science Center (SSC) to update the panel on the progress of the Warm Spitzer mission and the archiving and documentation of the primary cryogenic mission. The Warm Mission continues to exceed original expectations of efficiency with 7800 hours scheduled in the first year compared with 6500 planned. IRAC has operated continuously for 450 days since the start of warm operations. Scientific productivity remains high and the SSC has been working with the spacecraft team to improve pointing stability and thus the photometric precision so important to exoplanet studies. The impressive end result has been to improve precision for long time-average photometry by nearly a factor of two.

The Warm Mission proposal and time allocation enterprise continues to operate flawlessly. Cycle 7 selection is complete with 2800 hours scheduled, including 500 hours of snapshot programs that will aid in flexibly scheduling the observatory. The Cycle 8 call for proposals has been issued which includes a new opportunity for large Exploration Science programs and thus a new set of unique scientific opportunities that exploit the availability of large observing blocks.

The public persona of the SSC remains remarkably strong with new science results released to the press on roughly a monthly basis. The SSC has also been extremely effective in engaging teachers in Spitzer research with 55 teachers to be in attendance at the Seattle AAS meeting with involvement in nine meeting posters.

This meeting preceded, by just a few days, the formal switch from Leopard user access to the Spitzer data archive to the Spitzer Heritage Archive (SHA). Panel members have been using and exercising the SHA and are uniformly impressed with the quality and utility of the new interface - including a variety of features not previously available in Leopard. Particular note was made, for example, of the ability to share search results with colleagues via a URL. Population of the archive with cryogenic mission results will continue through April. Currently MIPS and IRS final processing has been completed with MIPS data review occurring in February 2010 and analysis and final review of IRS data currently underway. Final processing of IRAC is still underway, with the schedule tightened, but not delayed, by the discovery of a processing issue in September. Processing should resume in November with expected completion now only a month before scheduled delivery. Although time is now tight, it still appears likely that the SHA will be fully populated with primary mission products on the originally planned schedule. Formal handover of SHA to IRSA occurs at the end of September, so there is still margin to address an unexpected surprise. Source list super-mosaic

generation is running on a similarly tight but practical schedule and now has begun first-pass processing with a plan to review these first-pass super-mosaics early in 2011. These super-mosaics and source lists represents a significant legacy for Spitzer and long-term may be regarded among the most valuable products of the SSC. The team generating these products has worked on a compacted timeline from the initial decision to generate source extractions for public consumption. The efforts this summer to reach bug-free pipeline production have been impressive and the team should be commended for this effort. The team will likely take great long-term satisfaction watching the community exploit these products for scientific return.

At its last meeting the SUP requested clarification of the structure and organization of the end-to-end documentation to accompany the delivery of the cryogenic mission data products. At this meeting the SUP received a detailed list of documents which is extensive and to first order complete. SUP members have been encouraged to provide an independent consideration of the completeness and organization of the cryogenic mission documentation.

The general theme of this and the previous SUP meeting is that the SSC has been consistently and steadily delivering on the long term objective of final delivery of the cryogenic mission products and while smoothly conducting the warm mission. The plans presented have been executed nearly flawlessly, often exceeding expectations. Where issues have arisen they have received the resources and attention to correct problems and remain on schedule. The user community remains remarkably satisfied. Matters of concern have been about issues outside of the SSC's direct control. For example, the SUP heard about the potential for restricted availability of the DSN in 2012 coincident with the arrival of Mars Science Laboratory as well as the timing of Cycle 8 vs. a potential Cycle 9 to accommodate the deliberations of the Senior Review in 2012.

The SUP is delivering this report as the Deep Impact/EPOXI spacecraft has returned a spectacular set of images of the nucleus of Comet Hartley 2, underscoring the great economy of recycling/extending missions to enable an order of magnitude gain in science per dollar expended. Now well into its warm/extended phase Spitzer garners similar science return on a continuing basis. This meeting has provided the opportunity to not only review the effectiveness of the Spitzer Science Center in participating in the operations and optimization of the Warm Spitzer Mission, but also in the delivery of lasting data products, exquisitely organized and served by IRSA, that will be mined for exciting science for years to come. The Spitzer Users Panel reiterates its desire to see near-term funding for the SSC structured in such a way that the SSC can act effectively on a strong recommendation from the 2012 Senior Review to continue the Warm

Mission.