

February 7, 2020

Dr. Vandana Desai (IRSA lead)

Dr. George Helou (Director of IPAC)

Infrared Processing and Analysis Center Caltech
Pasadena CA 91125

Dear Vandana and George,

This document reports on the IRSA User Panel meeting held in Pasadena on November 15th 2019. The members of the Panel attending in person are Claudia Scarlata (UMN), Mike Person (MIT), Remy Indebetouw (University of Virginia), Klaus Pontoppidan (STScI), Alexandra Pope (UMass), Stephen Unwin (JPL) and Peter Veres (CfA). Attending remotely: Stephanie Juneau (NSF's OIR Lab) and Bahram Mobasher (UC Riverside). The meeting was also attended by George Helou, director of IPAC. The full day meeting consisted of presentations from Vandana Desai, Harry Teplitz and Steven Groom, on the various activities of IRSA. In this letter, I summarize the User Panel's conclusions regarding the past year IRSA's activities and the plan for the upcoming year. The role of the User Panel is to evaluate IRSA's content and services from the user's perspective, advise on the priorities for ongoing/planned activities (in light of current funding level), and to suggest improvements or new services, not covered in the current work plan.

During the meeting, IRSA's staff presented IRSA's plans going forward and in preparation for the upcoming proposal deadline. Although the Panel's detailed comments on the proposal will be conveyed to you in a separate letter, the summary the Panel's discussion is that we strongly support both the in-guide and over-guide requests that are being included in the proposal.

IRSA continues to be the reference point for IR astronomical research. Both the data and, as important, the tools which are offered by IRSA are allowing a broad range of new research projects, going from the study of our solar system to the farthest known galaxies and black holes in the Universe. With the upcoming Cycle 1 deadline for JWST proposals, IRSA's holdings and analysis/visualization tools are needed more than ever for the preparation and interpretation of its new observations. The usage of the archive is growing, as shown by size of the archive and number of queries, testifying the continuous interest of the astronomical community. The members of the User Panel were pleased to see that most the recommendations brought forward by the Panel during the 2018 meeting, had either been implemented completely, or concrete plans for implementations have been made.

Among the various activities IRSA is conducting, the panel members were particularly impressed with IRSA's work on the ingestion and visualization of the data collected as part of

the NSF-funded ZTF project. This effort resulted in the development of new tools that can be utilized to approach the “big-data” challenge that IRSA is bound to face with the ingestion of the data from the new planned SPHEREx and Euclid missions. Additionally, the panel is very supportive of the idea of adding results from numerical simulation to the list of IRSA’s holdings. We believe this endeavor will open new opportunities to perform cutting edge science and that, both the observational and theoretical communities will be interested in having a central place from where to access such data. Our recommendation is that IRSA start publicizing this opportunity broadly to the astronomical community, e.g., via the newsletter and social media, to gather interest, and possibly begin planning for implementation.

After a discussion of the IRSA work over the past months and of the planned work going forward, the User panel identified a number of recommendations and suggestion that could help improve the users’ experience of the IRSA archive.

- We support the use of Firefly as a single common platform for all of IRSA’s holdings. This will help homogenize searches and tools offered on the individual data.
- On short time scale we recommend that IRSA clarify the distinction between IRSA Viewer and Finder Chart. These tools provide similar, but not identical capabilities and it is sometime confusing which tool is more adequate for certain tasks. On the long term, we recommend that the two tools are combined: slowly retire Finder Chart as the missing capabilities are imported into IRSA Viewer.
- The user panel was happy to see that the work on spectroscopic visualization had begun, although we would have liked to see some more specific examples. We recommend that the effort devoted to these tools is complementary (rather than duplicative) to the work that is being conducted for existing missions. As an example, IRSA already has some prototypical spectroscopic visualization tools for SOFIA’s data. We suggest that when developing the software for the new spectroscopic surveys (i.e., Euclid and SPHEREx) IRSA capitalize as much as possible on the existing one.
- In order to facilitate the point above, we support the work that IRSA is doing to better standardize existing and new spectroscopic data sets. This effort, which in large part is related to the different units in which spectra are archived, will ensure that the IRSA archive will have the necessary flexibility to support different astronomical communities.
- With the WISE/NEOWISE archive growing in size, and with the new planned missions (NEOSM, former NEOCAM), IRSA is becoming more and more attractive to the solar system and planetary science community. As such, we believe that IRSA should work toward making itself known by this communities, via workshops, newsletters and other activities. As an example, we discussed the possibility that IRSA considers a presence at the Division of Planetary Science meetings, with activities similar to those it’s carrying out at the meetings of the American Astronomical Society.
- We also recommend that IRSA consider tracking of planetary science journals (such as Icarus, etc).
- The development of tools for search/analysis/visualization of moving objects continues to be a priority for the User Panel, and we therefore recommend that IRSA keeps

working on this. This conclusion applies to time-domain astronomy, including solar system & planetary science.

- With the closure of Spitzer, we recommend that IRSA maintains institutional knowledge/memory and technical expertise. The Spitzer archive represents a legacy that will be used for decades going forward, and it's important not only that that documentation is complete but also that people knowledgeable of the instruments/data are available to answer questions, as well as actively facilitating knowledge transfer to other similar missions

Sincerely yours,

A handwritten signature in blue ink, appearing to read 'Claudia Scarlata', with a stylized flourish extending to the right.

Claudia Scarlata

on behalf of the IRSA User Panel members: Mike Person, Remy Indebetouw, Klaus Pontoppidan, Alexandra Popee, Stephen Unwin, Peter Veres, Stephanie Juneau and Bahram Mobasher.