Cerro Tololo Inter-American Observatory
Community Science and Data Center
Gemini Observatory
Kitt Peak National Observatory
Vera C. Rubin Observatory

August 27, 2020

Dear Ken,

The RSTAC thanks you, and all of the speakers, for the virtual meeting on June 30, 2020. Of the topics presented at that meeting, the RSTAC discussion focused on the 2020 Community Survey (results presented by Neill Reid) and the state of planning for Roman Space Telescope Deep Fields (presented by Anton Koekemoer).

Roman Space Telescope Community Survey
The community survey was sent to 7966 people on the HST mailing list, with a follow-up to 16,000 total subscribers to STScI notifications. Only 16% of the 572 respondents were Science Investigation Team (SIT) members.

The survey results underscored the opportunity to increase Roman's scientific impact if broad community input is included in refining the observing program, and if the large volume and complexity of Roman's data products are made usable and accessible to a broad community. The survey responses demonstrated general support for the core community surveys designed to support the cosmology, dark energy, and exoplanet programs recommended by the 2010 Decadal Survey, as well as science interests that extend far beyond these areas. Many respondents also highlighted community input and survey optimization as important factors to consider when specifying the broad attributes of Roman's observing program.

The committee discussed the tension between the overwhelming community survey interest in pursuing individual programs of less than 200 hours, and the planned lower limit of two weeks on individual programs. Engaging the community in defining and optimizing Roman's core community surveys and educating the community in Roman's vision to fund archival research projects may resolve some of this tension.

> **Community Survey Recommendation:** As the mission's primary interface to the astronomical community, we recommend that STScI engages the community in refining and optimizing Roman's core community surveys. We recommend this is done in collaboration with the Roman Project Science Office at GSFC and includes input from individuals who have hands-on experience optimizing other major surveys across science needs. Questions considered should include:
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> - How is the Roman "community" defined?
> - How to best reach out to this community?
> - How to optimize the core surveys (technically speaking)?
> - How to maximize the community engagement in that optimization?

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Deep Fields
The RSTAC was impressed with the work of the Deep Fields Working group, and the series of Deep Fields workshops from 2018-2020. As acknowledged after the February 2020 RSTAC meeting, planning for WFIRST ultra-deep field(s) appears to be a time-sensitive priority, to allow for the planning and implementation of coordinated observations from both the ground and space. However, the authority and responsibility for defining Roman Deep Fields was not clear to the RSTAC.

> **Deep Fields Recommendation:** We recommend that STScI implements a process that will result in the recommendation of an initial selection of Deep Field pointings, and that this is done in collaboration with the Roman Project Science Office at GSFC. In the interest of moving forward on Roman Deep Fields, we recommend that the selection of Deep Field pointings is separated from the design of their observing strategy, as Rubin did for their initial deep field selection. This process should be transparent and should provide the opportunity for broad-community input, including input from both the original Deep Fields Working Group and from other science fields.

The RSTAC also continued our discussion from the February 2020 meeting about Roman's Data Management System. The RSTAC recognizes the DM system as fundamental to Roman's success as a Great Observatory, with the archival data bearing enormous potential impact on Roman's legacy (e.g. Peek et al. 2019). We have ongoing concern about whether this aspect of Roman's mission is on track for success and would like to continue this discussion at future RSTAC meetings.

The RSTAC hopes that these recommendations are helpful to you and your staff as you continue preparing for Roman's science operations.

Sincerely, and on behalf of the committee,

Beth Willman
Chair, Roman Science and Technology Advisory Committee
Deputy Director, NSF's NOIRLab

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