

Rubin Science Advisory Council (SAC) meeting

February 01, 2023

SAC members attending: Michael Strauss, Mansi Kasliwal, Will Clarkson, Josh Simon, Franz Bauer, Marcio Catelan, Meg Schwamb, Steve Smartt, Niel Brandt, Anze Slosar

Rubin leadership attending: Bob Blum, Zeljko Ivezic, Steve Ritz, Fed Bianco

Regrets: Risa Wechsler

This meeting was focused on the response of the Rubin leadership team to the [SAC's report](#) following our meeting at the August 2022 Project and Community Workshop. The recommendations and concerns listed in that document reflect the SAC's understanding in August 2022, and the Project and Operations teams have accomplished quite a bit since then. Thus the SAC was gratified that many of the concerns they had raised had been significantly addressed.

The Rubin leadership prepared [slides](#) responding to the recommendations that the report made; the minutes which follow summarize what is found on these slides.

A general theme of many of the recommendations that the SAC made was ideas for improved communications and dissemination of information from the Rubin project and leadership to the Rubin science community. Information is sent via a wide range of forums and methods of dissemination: this in part reflects the breadth of the community and the different ways that they receive information. However, it means that it can be difficult to find information after the fact; the different forums are not all easily searchable and no one of them is complete in any sense. The SAC suggested there be an archivist for the Rubin project, whose job is to capture all the most important information disseminated by the project, and include relevant links and summaries on the webpage.

The future of the Rubin webpages was a matter of discussion. A new webpage, <http://rubinobservatory.org>, is under development (and is planned to replace the current <http://lsst.org>; current staging version is live at <http://rubinobs.org>); it was produced by the Rubin Education and Public Outreach (EPO) team, and future content will be added in coordination with the Community Engagement Team (CET). The professional scientist-facing parts of the website will be ready in fiscal year 2024; the SAC is eager to see them and give feedback on them.

There is a great deal of interest among the scientific community for alerts to be produced in the first year of Rubin science operations. This is challenging, because a full set of templates to do image subtraction will not yet be in place, but the DM team does have plans for using incomplete (i.e., based on fewer visits than the ideal) templates early in operations. This is outlined in the [Early Science Plan document](#). A question that may require input from both representatives of DM and the SCOC is the extent to which we can quantify the effect of these less-than-perfect templates on the various metrics: it will be important to communicate to the community what the quality of these early alerts may be.

As Rubin construction becomes more focused on commissioning activities, and science verification efforts are nearing, the scientific community is becoming ever more interested in the specific plans for early science, the transition from the construction to operations, and the formal start of the ten-year survey. Rubin has prepared [a document](#) describing this transition, which is periodically updated. The Project also has kept a [list of formal milestones](#) for the project going forward; the [project status pages](#) are also of interest. Following its presentation to the Joint Operations Review in March, Rubin plans a community post updating the current state of construction and timeline for early science activities.

A significant concern of the SAC in its August 2022 meeting were the specifics of the plans for the Survey Cadence Optimization Committee (SCOC). Since that time, the SCOC released its [Phase 2 report](#), which describes in detail the committee's recommendations for the overall survey strategy, as well as the remaining issues that the committee still needs to address (see Section 4 of the report). The SCOC has been posting short notes to community.lsst.org following each of their meetings, to keep people informed on how their deliberations are going. The SAC urged the SCOC to further articulate the timeline for decision points going forward. For example, a major unresolved question is whether 30-second visits would be broken into two 15-second exposures, a decision that will require commissioning data to address (but will affect the overall survey speed at close to the 10% level). It would be good to articulate to the community at least roughly when relevant data might be taken, and when a decision could likely be made.

The data previews that have been released to date are based on image simulations prepared by the Dark Energy Science Collaboration. These simulations do not include solar system objects of any sort, significantly limiting their use for the members of the Solar System Science Collaboration. The good news is that simulated solar system objects ***will*** be included in Data Preview 0.3, which is to be released in June or July of 2023.

The Rubin Project has a requirement to provide a mechanism for the community to put filters on the alert stream. We learned at the August meeting that the ANTARES community event broker (led by scientists at NOIRLab) would provide essentially all of the functionality that the Rubin Project was to have provided, and therefore that the Project itself would not be needing to replicate this functionality. That is, the ANTARES option fulfills the requirements and needs that Rubin had identified; moreover, it will be in place through the full lifetime of the survey.

The Operations team has solicited applications from international groups wishing to contribute in-kind effort to the construction, commissioning, operations, and/or science activities in exchange for data access. The SAC asked for an update: which applications have been approved? We were gratified to see that the list of approved applications is now [available](#) on-line. The Operations team is responsible for managing these efforts and confirming that groups are delivering the work they had promised. They will be asking the science collaborations for feedback or concerns in any of the work done under their auspices.

There is a [separate list](#) of approved groups (including those in the US and Chile) that are contributing directly to the commissioning and science validation analyses. The SAC encouraged Rubin leadership to publicize both of these lists; the Rubin community is eager for an update on these topics. The overall [in-kind list](#) has been posted on community.lsst.org.

Rubin has held annual Project and Community Workshops, typically in Tucson in August, bringing together the scientific and technical teams and communities. The next of these will be held the week of August 7 in Tucson. The responsibility for these meetings will move from the Project Team to the Operations Team, and as data begin to flow, they will include an increasing component of science results.

We also briefly discussed the role of the SAC going forward. Bob Blum emphasized that while he is happy to hear the SAC's opinions and recommendations, he doesn't see the SAC as an oversight group to the Rubin management: rather, the SAC and Rubin management are in *collaboration* to promote and improve the scientific impact of the survey. In that context, the management is encouraged to task the SAC with specific questions and concerns it has, or tasks it would like the SAC to carry out.

The now-approved SAC charter is explicit about the terms of SAC members. Michael will reach out to Melissa Graham of the CET to set up a process whereby individuals can nominate themselves or others to serve on the SAC.