2020-10-07 Meeting notes

Date

07 Oct 2020

Attendees

- Julie McEnery, Alice Shapley, Ashley Villar, Bernie Rauscher, Cristina Oliveira, Dimitri Mawet, Dominic Benford, Gisella de Rosa, Greg Mosby, Harry Ferguson, Jason Rhodes, Jeff Kruk, Jessie Christansen, John MacKenty, Karoline Gilbert, Keith Bechtol, Ken Carpenter, Lee Armus, Lisa Storrie-Lombardi, Megan Donahue, Paul Hertz, Peter Melchior, Rachel Akeson, Roeland van der Marel, Ryan Hickox, Sangeeta Malhotra, Saurabh Jha

Agenda

- RSIG Members introduce themselves briefly
- Remarks from HQ - Paul Hertz/Dominic Benford
- Structure of Roman Science Team: Project Science, FSWG - Julie McEnery
- Roman Project Status - Jeff Kruk
- Science Operations Center roles - Roeland van der Marel
- Science Support Center roles - Lee Armus
- Discussions - community process
- agenda still under construction...

Notes

Remarks from HQ - Paul Hertz/Dominic Benford

Paul

Paul will give a status summary of NASA astrophysics to Astrophysics Advisory Committee on Oct 19

The future of NASA astrophysics depends on the Roman Space Telescope.

JWST is not an example of good management from NASA. NASA needs to demonstrate to our stakeholders that we can manage a large flagship within schedule and cost commitment, so we can earn the privilege of doing the next flagship. Historically, NASA has emphasized technical excellence/perfection over cost control. But on Roman we need to temper our culture of optimism to meet our commitment.

When Roman was confirmed in February, we were confident in meeting this commitment. The RSIG can help the project stay on track.

I challenge you to examine the requirements and testing plans. Poke at the connection between the requirements and the science we need. Do we have a smart balance? Some of you have PI experience that will be very valuable here.

Be skeptical, but help us have a great science program within cost commitment.

Questions for Paul
Megan Donahue: what is the climate, are there existence threats besides the annual appropriations. Will we be called on to lobby?

Paul: You are not called on to lobby, that is separate from the RSIG.
Every large project government-wide is challenged these days. Congress are tired of us failing to deliver on our cost estimates. Can no longer use the argument that we're doing impossible things, so we can't know the cost yet.

Since we've gone to our current plan of doing multiple independent cost estimates, joint confidence analysis, and budgeting at 50% confidence and holding adequate reserve at HQ for 70% confidence, we have begun delivering projects 3% below the cost commitment. Pre-covid, we had a reasonable commitment.

The 70% budget for Roman development is 3.2B. The CGI is 343M development only, no HQ reserve. 3.9B with 5 years of operations. This budget is consistent with Phase A and B, and part of that is thanks to the WIETR review bringing it back into the box.

Dominic

Programmatic Status

Over 50 white papers for the 2020 decadal survey mentioned Roman. People have a wide variety of ideas for what to do with it.

Roman is for the community:
-All observing time is available through open process
-Operations will be based on community
-GO/archival program
-Coronagraph will have a community participation program

Roman is powerful not just because of its FoV, but also its overall efficiency. A survey like PHAT (wide and shallow) is 1500x faster. A CANDELS survey (narrow and deep) is 1000x faster, a spectroscopic survey is 700x faster.

Mission is 5 years for prime science, designed for 10 years
Data volume 1.5 TB/day; 20 PB in archive after 5 years - new paradigm for NASA astrophysics
Launch date Oct 2026.

The development timeline for Roman stretches back to the 2008 JDEM concept.

We have a congressional markup that would fully fund Roman in FY21. Currently we are in a continuing resolution (CR).

Phase C began in Feb 2020. We are at peak work intensity, the most work happening at the most places. COVID has impacted schedule and cost across NASA, JPL, international partners, contractors, suppliers. Unknown when we will return to full efficiency.

Roman is cost capped. Project management agreement is 3B for Roman and 343M for CGI

Survey grasp (deg^2 / PSF area) versus depth in magnitude. Roman has tremendous grasp at faint magnitudes - very flexible for survey design.

Roman is designed to be a survey mission, and science operations should be designed with that in mind.

All Roman time is openly competed, including Legacy Surveys (that enable Astro2010 prioritized science investigations)

Science operations designed first from choices about how to do it, then about what to do.

What are you most concerned about us getting wrong?

What other things do you need from us?

Questions for Dominic

Megan - what are the guidelines for development of analysis tools. If this tools are not public, how will the data be accessible? Historically, missions don't provide up-front access to their analysis tools.

Dominic - calibrated and co-added data go into the public archive within days. The science centers will also make tools available to the community, but we would like to know more about what tools are needed.

The key project teams who work on Legacy Surveys will be expected to provide both data and analysis tools.

Dimitri Mawet: How will we interact with the current SITs.
Julie will address this later

Jessie Christiansen: What is our scope for defining surveys and setting lists of products, etc?

RSIG kickoff - Julie McEnery

RSIG will provide guidance on replacing current SITs and how to support the science community.

The current SITs contain 300 scientists in total. Several joint working groups apart from specific science topics: detector calibration, data software /calibration, scheduling, WFI simulations, astrometry, grism/prism.

Need to decide what should follow the science teams that expire next year. Within next month, would like to start discussing what the future science teams will look like.

An example of how the project and operations centers and SITs work together is the Relative Calibration System peer review. The science teams have been a critical part of that, and we want to continue those kinds of interactions.

The Design Reference Mission is a strawman sequence of observations, existence proof that we can meet the requirements in the mission time frame. But the DRM is not the final observing plan. One of the functions of the RSIG is to help define the observing plan.

The Formulation Science Working Group (FSWG) includes PIs of SITs, project scientist and program scientist, and SOC/SSC representatives. We will have a joint FSWG/RSIG meeting in the near future.

Important for the RSIG to include scientists who are not perceived as insiders. It should be a visible avenue for broad-based community input.

Plan is to have staggered service terms in the future.

Questions:

Megan - what is relationship between FSWG and RSIG?
Julie: FSWG is comprised mostly of SIT PIs. The same questions asked of the RSIG have been asked of the FSWG. Since the FSWG ends next year, it is possible the RSIG will replace their role.

Ryan Hickox - Is it our charge to figure out how the community input will happen? Who ultimately makes the decision?
Dominic - for something that is heavily community involved, the project scientist could direct the SOC/SSC.
Major decisions will be made by consensus between HQ and Project Scientist.

Megan proposes leaving the remaining presentations for the next meeting.

Julie - let's have project status presentation now, postpone discussion on science centers until next meeting.

Roman Project Status - Jeff Kruk

Jeff has been involved with the Roman concept since 2007, so he serves as institutional memory.

We are past all the PDRs, and already most of the way to the critical design review of various elements.

Every future milestone will probably slip a couple of months. No assessment on covid delays until early next year when we do the annual re-baselining process.

We are at peak spending now, so a lot of flight hardware is getting built now. On track for getting all flight detectors by January. Telescope mirrors and relay mirrors to CGI have been figured and coated. Overall, the engineering work has been going according to plan apart from covid delays.

We are still on track for a launch "no later than 2026"

Questions/comments

Megan - what is status of filters and grism?

Jeff: The filters are finalized, we have engineering test units for prism and grism. Some filters have engineering test units.

Megan: Next step is finding a window to schedule next meeting. Prefer shorter, more frequent meetings. It's hard to set aside 6 hours.

Julie: Next time we will schedule less formal presentations, so that there's more time for discussion.

John MacKenty: It would help if we knew the real deadlines for various inputs so we can prioritize.

Dominic: We need to define a process before we can start, so most tasks will take at least a few months to complete.

Megan: Reach out to other members of your research community. Talk to people at your university, etc., to let them know what you're doing, so we can expand our networks.

Dominic: Everything we say here can be shared, none of this is secret.