2020-12-11 Meeting notes

Date

11 Dec 2020

Attendees

Julie McEnery, Aki Roberge, Alice Shapley, Ashley Villar, Bernard Rauscher, Cristina Oliveira, Dara Norman, David Spergel, Dominic Benford, Harry Ferguson, James Rhoads, Jason Rhodes, Jeffrey Kruk, Jessica Lu, John Mackenty, Jonathan Hargis, Karoline Gilbert, Keith Bechtol, Lee Armus, Megan Donahue, Rachel Bean, Roeland van der Marel, Ryan Hickox, Sangeeta Malhotra, Saurabh Jha, Zeljko Ivezic, Neil Zimmerman,

Agenda

- Project Update (pptx) - Julie McEnery
- Science Operations Center roles - Roeland van der Marel (pptx , pdf)
- Science Support Center roles - Lee Armus (pdf)
- Discussions - future meetings, community process

Minutes

Julie - Roman project update

continuing towards Critical Decision Review. CDR is Sep 2021, this was shifted back 2 months due to covid delays.

In the run up to mission CDR we have many subsystem reviews: Ground System in July, Coronagraph Instrument in April, Wide Field Instrument in January

Detector characterization is busy testing flight detectors - 15 detectors have passed (need 18 + 6 spare)

Change in I&T plan allowed us to swap out an engineering filter for a science filter. The project is implementing a Kshort filter that was previously recommended by the FSWG filter working group.

Deformable mirror passed TRL 6 environmental test review

Primary and secondary mirrors have been polished and coated. CGI relay optics are completed.

Active working groups: Calibration, Data/Software

Questions:

Megan - Does the addition of a scientificaly viable K-short filter change any of the operating temperature requirements for the telescope and temperatures for testing?

Dominic -- the science white papers on the K_short filter assumed a slightly higher operating temperature than will be the case, so the situation now is similarly viable to that. The telescope temperature for testing/operation won't be changed.

Jessica - Where is membership of the working groups listed? Are there means of community input into these working groups? (or even through the science teams?)

Roeland - Science Operations Center

SOC org chart

SOC systems are in the critical design phase. These are a mixture of new concepts unique to Roman, as well as reuse of systems from other missions.

Ongoing trades: appropriate schedulable unit (orbits , tiles), interfaces with GSFC Mission Ops Center, interfaces with IPAC SSC.

Data management system designed to provide users new ways of interacting with data products in cloud

WFI data management in cloud-based platform for high-level data processing, with tools like Jupyter Lab

Pipeline components: catalogs, point spread functions, astrometry, simulations for source injection

Calibration planning - WFI requires accuracies 10x better than those available on Hubble (PSF shape, photometric stability)

Simulation tools, user support, documentation and white papers, hack days

Community engagement, conferences such as Galaxy Formation and Evolution, Outerspace collaboration space

Questions:

Jessica - what are the astrometric calibration limits? It would be useful for the community to see the performance numbers. Which of the precisions from the Sanderson et al 2019 paper will actually be met?

Jeff - some surveys have specific astrometry calibration requirements, project will work on disseminating that information.

Dara - how will the SOC train users?

Roeland - it is on our radar, but until the data management system matures further, we haven't planned these in detail.

Ryan - how much storage space for simulated data sets?

Roeland - Currently not within the cost baseline to host massive data sets, but the design is compatible

Megan - encourage the institute to consider mechanism to make simulated data sets accessible early for training

Julie - simulated data access would be a good topic for a future meeting, let's defer further discussion.

Lee - Science Support Center

Roman Telescope Proposal System (RTPS) - proposal ingest, TAC review process, grants managment

CGI operations system (COS) - CGI commanding, high order wavefront sensing operations

Rachel Akeson is the task lead for the SSC.

Microlensing science operations system (MSOS)

Spectroscopy pipeline - create and maintain the Wide Field Spectroscopy Mode (WSM) calibration and science data pipelines.

Science Support - work with SITs to understand science requirements, define operation and processing scenarios

IPAC and SSC scientists are directly involved in the microlensing, CGI, High Latitude Survey and Supernovae SITs.

General implementation approach - collaborate with ground system partners and other Roman project elements

partner with SITs and science community on algorithms and methods

Leverage heritage and relevan experience from other projects like IRAS, 2MASS, Spitzer, Kepler, WISES, Planck, and Euclid

SSC communtiy engagement and outreach, like "Science in our Own Backyard" conference

host data simulations such as WSM (WFI spectroscopy mode)

Discussion

We've added a shortened version of the Program Level Requirements Appendix to the "useful links" section of the RSIG outerspace home page.

Future meeting topic suggestions:

- Data simulations and data challenges
- Strawman legacy and GO observing plans - would like to discuss early deep field observations with Roman. Should we have one? What kind of observing time? Guidance on how to conduct community engagement.
- Timeline and processes for implementations proposals (Jessica)

Action items

Please edit the future meeting topics page and add your ideas.

Jeff and Jessica to work on communicating astrometry calibration capabilities.