

Goddard & Project Update

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Hi there! I'm Jane Rigby, and I'm the new Senior Project Scientist for JWST. (I started 07/02/2023.) I've attended JSTUC meetings since its inception in 2017, and I've worked on JWST for 13 years in the Project Science Team at Goddard.

First, ***thank you*** for your service on the Users Committee. We are so grateful for your feedback, your wisdom, and your representation of community perspectives.

I want to work in partnership with you to make JWST even better than it is now. I promise to **listen** to you, to be open and honest about the missions successes and challenges, and to bring to you the big questions we need to wrestle with together.



alt caption: Jane Rigby waving

Let's go back to basics for a moment. Why are we here?

- The purpose of the JSTUC is to provide user advice to the JWST mission.
- The JSTUC reports jointly to the JWST Senior Project Scientist (me) and to the STScI Director. Nancy and I will be at this meeting, listening to you, and will read carefully your report.
- By charter, the JSTUC can set its own agenda, create subcommittees to dive into certain topics in depth, and request that GSFC and STScI provide information. I encourage you to exercise your powers.
- I encourage you to set a format and cadence for your meetings that works. I get the sense that some of you may feel flooded at JSTUC meetings with information, and want more time for discussion. By request, this time we're providing charts in advance, so that you can digest and come with questions.
- I encourage you to represent users beyond yourself.

Also basics: What is the job of JWST Senior Project Scientist?

- Maximize the science impact of JWST. Ensure that the science goals are achieved.
- Act as the primary science interface between the science community, NASA management, and the JWST project.
- Be the scientific spokesperson and advocate for the mission.
- Provide scientific guidance and oversight of all elements of the project implementation, including to STScI, which is responsible for JWST mission and science operations.
- Lead the JWST Project Science team at Goddard.

Mission status and systems engineering

- Mission System Engineer Mike Menzel's charts are at the end of this package. I'm happy to discuss any aspect of them with you.
- We've found the Science Operations groove. Far fewer anomalies than I (pessimistically?) expected.
- The one new anomaly since the JSTUC's last meeting was opened in April 2023: anomaly #4953, the MIRI MRS count rate drop. There have been several JWST Observer news articles on it.
- Science performance continues to be amazing, exceeding requirements, with the exception of long-wavelength MIRI MRS sensitivity.

Calibration and Pipelines

- I hear a lot from the community about the pipeline and the calibrations. They need to generate science-ready data for all 17 instrument modes — they don't, yet. To me, this is our most important issue right now, because it limits our scientific output, and is also an equity issue.
- In July 2023, NASA issued Technical Direction #19 to AURA, *“to prioritize the Data Management Subsystem efforts on improving the scientific quality of science data products, through improvements to the data processing pipeline, calibration reference files, and associated documentation for science users.”*
- You'll hear from STScI about their response, including new JDOx pages that summarize known data issues and current calibration uncertainties, the “Data to Papers” initiative, and the planned “Improving data products” workshop.
- How are calibration/pipeline issues affecting users? Which parts most urgently need attention? Are we doing enough?

Calibration and Pipelines

- Fully calibrating 17 instrument modes on a young observatory is a major, multi-year undertaking. The components of the pipeline are powerful and flexible.
- Regarding data, where do we want to be? Here's my personal expectation:
 - A junior graduate student can pick any of our 17 science instrument modes, download data, and start doing competitive science within a few weeks.
 - There's no divide, in terms of data quality achievable, between the Haves (folks w special access to experts or methods), and the Have-nots.
- What does your vision look like? How far along are we on that path? I'll be asking you this each time we meet.

Media, public engagement, press releases

- STScI produces press releases for JWST science results, as well as image releases. GSFC approves them, and broadens the reach through social media.
- My team and I are regularly interviewed by media. This summer included CNN, The New Yorker, CBS, The New York Times, The Washington Post.
- In addition, GSFC, STScI, and partners organize outreach events.
- As the new SPS, I'm in learning mode in this area. I'm asking about strategy, priorities.
- My goals in this area are to “build the JWST brand”, explain our science, and use JWST to build enthusiasm and support for NASA astrophysics.

The JWST PS team at Goddard

- As the new Senior Project Scientist, I lead the JWST Project Science team at Goddard. For FY 2024 this will be 7 FTEs covering 11 scientists.
- The team has broad scientific expertise covering galaxies, solar system, exoplanets, and instrumentation. These dedicated scientists worked their tails off during commissioning. In normal ops, they've been compiling lessons learned, characterizing the Observatory's performance (see PASP special issue), and producing early science with JWST.
- Our team was structured for integration, test, and commissioning. I am restructuring our team for our work now, in science operations.
- We just had a 2-day retreat to develop our strategic goals for the next year.
- Our team is uniquely cross-cutting and independent.

The JWST Project Science Team (left to right): Jane Rigby, Stefanie Milam, Knicole Colón, Bernie Rauscher, Mike McElwain, Matt Greenhouse, Susan Neff, Amber Straughn, John Mather, Chris Stark, Jon Gardner, Erin Smith. 8/2023 at our team retreat



My questions for the JSTUC

- I'm not satisfied by the current FRC process to set the dollar amount to each GO budget, because of community workload and lack of transparency. What do you think of STScl's plan to convene a working group to design a better system? Which stakeholders should be included? What values are most important for such a process? (e.g. transparency, amount of community effort, customizability to individual programs, equity.) Must we wait for Cycle 4, or should we make some changes for Cycle 3?
- How are interactions with STScl working for users? Is the helpdesk working?
- For Cycle 4, are you happy with the boundaries for Small/Medium/Large?
- How are calibration/pipeline issues affecting users? Which parts most urgently need attention? Are we doing enough?
- What will it look like for users, when the pipeline and calibrations are mature? How far along are we on that path?
- How do you want to alter the cadence/format of your meetings, to improve the effectiveness of the JSTUC?
- What would be the impact of shortening the Exclusive Access Period for small and medium proposals from 12 mo to 6 mo?
- What issues are we missing, that you, the user community, are seeing?