

# JSTUC Report For Meeting #17

January 21, 2025

**From:** Casey Papovich (chair), for the JWST Users Committee (JSTUC): Emily Levesque (co-chair), Jean Dupuis (non-voting), Catherine Espaillet, Adam Ginsburg, Joel Kastner, Charlotte Mason, Erik Rosolowsky, Shobita Satyapal, J.D. Smith (Chair emeritus), Johanna Teske, Cristina Thomas, Christina Williams, Dominika Wylezalek

## 1. Overview

Meeting #17 of the James Webb Space Telescope Users Committee (JSTUC) was held in November 2024. The scale and breadth of JWST’s scientific output shows it ranks among the most productive, prolific, and requested scientific facilities ever operated. JWST’s growing scientific impact at the forefront of multiple fields and the community’s excitement and broad interests are apparent in the growing number of results and proposals.

Many of the issues and concerns the JSTUC discussed at depth during the two day meeting can be characterized as “coping with such success”. Success like this is the product of a dedicated staff of researchers at STScI and NASA, in addition to work from the community. The JSTUC members, on behalf of the JWST users community, wish to thank all of the JWST team members. JWST’s success is a culmination of this effort and commitment to the observatory.

Over the course of the two day meeting, the JSTUC discussed with STScI and NASA staff a wide range of topics, including instrument performance, community engagement and communication, the time allocation process, pipeline capabilities and prioritization, the grants process, and more. From these discussions, it is abundantly clear to the JSTUC that STScI staff have taken positive steps to respond to previous JSTUC recommendations and suggestions. The JSTUC acknowledges the steps STScI has taken to improve nearly all aspects of the JWST experience. The JSTUC thanks the STScI and NASA staff for their effort and care. The direct outcome of this effort is in the growing number of results from JWST and the growing enthusiasm of the community.

The JSTUC has recommendations in several areas, this includes responses to several charges specifically made to the committee. These are listed in the report that follows. The JSTUC looks forward to a continued productive relationship with NASA and STScI as we facilitate the process of discovery with JWST, amplify its public impact, and enhance engagement with the global JWST community.

## **2. Pipeline Data Processing**

The JSTUC commends the effort by the STScI staff to improve the data pipeline products and documentation. Specifically, the JSTUC acknowledges the work to make pipeline results more reproducible, particularly their backporting of a more appropriate calibration versioning scheme to older versions of the pipeline.

The JSTUC recommends that STScI continue to emphasize the need for improving and streamlining aspects of the data pipeline to improve the quality of the science-ready data products from the pipeline. The JSTUC also recommends that STScI consider how to inform PIs how updates to the pipeline may impact their individual datasets without users having to rerun their data through the entire pipeline.

## **3. Exclusive Access Period (EAP)**

The JSTUC thanks STScI and NASA for their steps to continue an EAP for JWST programs. The JSTUC agrees with the general community sentiment that the current EAP policies are appropriate for the needs of the community. The JSTUC supports the idea that STScI and NASA continue to make considerations to broaden access to JWST data, while providing an EAP for users. Among these considerations, the JSTUC recommends STScI and NASA consider the needs and obstacles of the community to publish results from data from JWST and from other NASA missions. The JSTUC recommends including input from investigators across the entire community, spanning the full range of institutions, with an emphasis on researchers at smaller institutions. The JSTUC also recommends that considerations for the EAP should include the need to train the next generation of younger researchers in data improvement and analysis techniques from these observatories.

## **4. Engagement, Communication, and Outreach**

The JSTUC supports the new initiatives implemented by STScI to engage the astronomical community and to improve communication of updates and new information. STScI has taken positive steps to reach the community, including steps to “lower the barrier” to applying for time with JWST and using JWST data. Specifically the JSTUC has the following recommendations.

### **4.1. Summer Schools**

The JSTUC supports STScI’s initiative of a JWST-focused summer school to train researchers on specific JWST capabilities. The JSTUC recommends that STScI consider broadening the scope of future summer schools to include a larger swath of the community; this may be facilitated by having the summer school focus on a specific instrument and/or observing mode rather than focus on a specific science area. The JSTUC recommends STScI consider offering these summer schools annually.

## 4.2. Webb Office Hours

JSTUC strongly supports continuing Webb office hours and is grateful to STScI for this initiative. The JSTUC recommends that STScI broaden the effort to advertise Webb Office hours to the community.

## 4.3. Communication of resources

The JSTUC recommends that STScI provide more detailed information about resources to JWST users in the MAST data-delivery emails. These details could include specific information about pipeline notebooks specific to the users' datasets, Webb office hours, and other available resources.

# 5. Grants process

The JSTUC expresses support for the formulaic approach to allocating NASA funding to support the JWST data analysis and the dissemination of results. The JSTUC concurs this will both simplify the process and make it more transparent to the JWST community, including for first-time PIs. The JSTUC supports the recommendations of the working group initiated by STScI, and endorses their proposal of a “hybrid” (formula+appeals) approach. The JSTUC recommends that STScI proceed with their implementation of these plans, recognizing that it may be difficult to allow for appeals, at least in Cycle 4. The JSTUC also recommends STScI consider additional ways to streamline the process for proposers who accept a “formula-based” budget amount.

# 6. Exposure Time Calculations

The JSTUC commends STScI on providing an Exposure Time Calculator (ETC) simulator that yields the most accurate expected data sensitivity for all observing modes of JWST. This is important for observers to have the best estimate of the data quality, and it facilitates science outcomes from JWST observations. The JSTUC recommends STScI continues to support this tool.

## 6.1. Promoting the JWST Interactive Sensitivity Tool (JIST)

Because the ETC simulator is necessarily complex, it continues to be a barrier to entry for use of the telescope. The JSTUC encourages STScI to further promote the JIST as a primary tool for initial exposure time calculations, and to test feasibility of ideas. The JSTUC recommends that STScI feature the JIST prominently in the Call for Proposals (CfP) documentation and on the ETC front page.

## 6.2. Using ETC with the Astronomy Proposal Tool (APT)

The JSTUC recommends that the CfP documentation and APT interface be updated to more clearly indicate if and when the inclusion of an ETC workbook link is required in a proposal, and to clarify whether JIST-based calculations are acceptable in proposals. The JSTUC recommends that STScI investigate means for communication / translation of APT observing parameters to ETC-ingestible parameters (and vice versa).

## 7. TAC process

We are extremely grateful for the responsiveness of STScI to the recommendations from Cycle 3 TAC panelists and from the JSTUC regarding the proposal process. The JSTUC will be interested to see formal feedback from reviewers following the Cycle 4 proposal review process regarding the shortened proposal-page limits. The JSTUC also commends STScI for being receptive and responsive to community needs regarding the proposal deadline. The JSTUC recommends that STScI continue their policies in this regard. The JSTUC also recommends that STScI consider small changes to the deadline timing through the user survey. The JSTUC recommends that STScI remind reviewers, at the start of the review discussions, that maintaining confidentiality during and after the review process is crucial for the success of JWST programming.

## 8. New Observing Modes and Initiatives

### 8.1. XL observing programs

The JSTUC supports the initiative for a special category for extra-large (XL, >300h) observing programs for JWST. Given the large allocation of JWST time, the JSTUC recommends that all XL programs be exclusively treasury programs, that these programs be required to prioritize the treasury and legacy value of the data, and that this be a selection criterion for such programs.

### 8.2. Community ToO programs

The JSTUC supports the initiative for special Community ToO programs for rare and high-impact events that are too infrequent for the standard ToO TAC process, and/or are too urgent for a typical DDT process. The JSTUC recommends that STScI solicit the community for white papers to describe the type of these rare events, to define clear trigger criteria for activation, and to state an observing plan. The JSTUC recommends that the Community ToO plans should carry out a limited number of observations of a specific type, and after which point, further events of that type would fall under the regular TAC or DDT processes. The JSTUC recommends that data from Community ToO programs be released with no EAP.

### 8.3. Proposals for Alternate Targets

The JSTUC finds the idea of having programs that specify a type of target to be meritorious (with a target list of “Alternate Targets”). However, the JSTUC was unable to find a compelling reason to create a new category for such a program at this time. The JSTUC does not recommend that STScI consider this a high priority, and requests that this be considered in the future if the need for this mode becomes more necessary.

### 8.4. Discovery and High-risk / Higher-return Programs

The JSTUC supports the use of Director’s Discretionary time (DDT) for a class of Discovery programs that can facilitate “high risk / high return” science. The JSTUC recognizes the importance of this mode given the incredibly high oversubscription of JWST time, and the propensity of the GO review panels to down-weight proposals that fall into this category. The JSTUC suggests that these programs have guidelines for the expected size of requests made available through this allocation, but no hard limits for time allocation.

The JSTUC does not recommend that a special category of “high-risk / high-return” proposals be created for the general proposal process for the TAC review. JSTUC is concerned that an overabundance of proposal categories could be confusing to proposers and reviewers.

### 8.5. Pure Parallel (PP) Programs

The JSTUC finds broad value in programs using PP observations, as these provide an important means to increase the science output of the observatory. Community interest in this mode remains strong as demonstrated by a record number of PP proposals in Cycle 4. The JSTUC commends the effort by STScI to study how to improve the efficiency of PP programs observations to support their science productivity relative to that proposed. The JSTUC recommends STScI continue to identify pathways to improve access and science outcomes of PP modes, including reviewing the criteria by which PP programs are allocated within the TAC process to most efficiently use available PP time, because these differ from the criteria for prime programs. The JSTUC also recommends that STScI continue to document and characterize PP capabilities and limitations, and to communicate these to the community to facilitate the design of feasible PP programs.

## 9. Commitment of Resources for JWST

JWST is an amazing resource for nearly all areas of astrophysics. There is enormous excitement from the user community and the public surrounding JWST results. The increasing number of proposals for JWST time shows there will be continued pressure for JWST well beyond the five-year prime mission. Discoveries with JWST are still being made with an accelerating pace

and this is fueling the higher proposal pressure. It is clear to the JSTUC that JWST has not achieved its peak.

The JSTUC is concerned about the future allocation of funding for JWST in the final years of prime mission, and as it moves into the extended mission. The JSTUC recommends in the strongest possible terms that STScI, NASA, ESA, and CSA continue their commitment to allocate sufficient resources and funding to support the capabilities of JWST and the analysis of JWST data. Such a commitment to JWST is critical to NASA's central role in advancing US science given the scientific interest, public interest, and investments made in the most advanced observatory ever. The JSTUC is concerned about the danger that US leadership will decline as JWST research moves overseas without sufficient funding for US JWST users. To maintain the excellence of JWST research in the US requires continued funding support.

## **Fall 2024 JSTUC membership:**

- Chair: Casey Papovich, Texas A&M University
- Co-Chair: Emily Levesque, University of Washington
- Catherine Espaillat, Boston University
- Adam Ginsburg, University of Florida
- Joel Kastner, Rochester Institute of Technology
- Charlotte Mason, Cosmic Dawn Center, Niels Bohr Institute, University of Copenhagen
- Erik Rosolowsky, University of Alberta
- Shobita Satyapal, George Mason University
- J.D. Smith (Chair emeritus), University of Toledo
- Johanna Teske, Carnegie Science
- Cristina Thomas, Northern Arizona University
- Christina Williams, NOIRLab
- Dominika Wylezalek, University of Heidelberg (ARI)