

JSTUC Report For Meeting #19

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Introduction

Meeting #19 of the James Webb Space Telescope Users Committee (JSTUC) was held on December 2-3, 2025. Our conversations spanned a broad range of topics, but one persistent theme was the incredible scope of JWST's scientific productivity, the degree to which it has expanded our capacity for discovery in astronomy, and the stunning achievements of the teams that support and operate the telescope. As JWST continues its fourth year of operations it's clear that this is an unmatched facility with unprecedented reach and unrelenting demand, and that its daily impact and future potential continues to grow.

Many of the challenges and concerns that we discussed were focused, as has been the case in past meetings, on "good problems to have". JWST is an extremely oversubscribed telescope; while this poses logistical challenges it is also an unambiguous signal that JWST is an exciting and immensely in-demand resource. By and large, during the JSTUC's interactions with the astronomy community over the past six months, people have not sent us problems; they've sent us proposals, continuing to imagine new science cases and capabilities for JWST to explore.

The community has also expressed intense appreciation for the work that STScI and NASA have done in continuing to support JWST through recent periods of budgetary, administrative, and operational uncertainty. The people at NASA and STScI have unwaveringly maintained JWST's high level of scientific performance and responded with energy and enthusiasm to the needs and ideas of the community, including the points raised in previous JSTUC reports. From running a trusted TAC/SRP process to maintaining a broad array of crucial community resources to serving as a model of US cooperation with invaluable international partners such as ESA and CSA, NASA and STScI continue to demonstrate the high value of their collaborative scientific efforts.

Recommendations

The JSTUC has several recommendations that are detailed below. Our recommendations are focused on the resources that support JWST's ever-accelerating pace of discovery, sustain its scientific and public impact, and maximize its value to and engagement with the astronomy

community. These include a robust and healthy DSN, continued funding for JWST's science and operations budgets, and logistical support for clear communication and a robust proposal review process that will allow the observatory to thrive for years to come as it moves from prime to extended mission.

DSN

The Deep Space Network (DSN) is our nation's most vital piece of space infrastructure. We need it for everything from ensuring the safety of crewed spaceflight (including the Artemis and Moon to Mars programs) to planetary defense to extending our scientific reach with JWST and the suite of other incredible missions that are exploring our solar system.

However, the DSN is currently extremely strained due to unprecedented demands on its resources and decades of being underfunded. Its current state poses a significant risk to many of the missions that rely on it. This includes JWST, for which the DSN is a single-point failure. When access to the DSN is preempted by, for example, prioritizing crewed spaceflights, JWST must sit idle, communicating minimally with its team on the ground with the sole goal of maintaining the health and safety of the telescope. This is costly time that will be permanently lost on one of humanity's most valuable and in-demand scientific resources. **The JSTUC strongly recommends that NASA prioritize expanding the capacity of the DSN:** this is crucial for both the crewed and uncrewed exploration of no less than our entire universe, and represents a critical means of increasing the scientific impact of JWST in the years to come.

Science budget

The *global JWST community* is taking incredible data with the telescope every single day. However, without a healthy science budget the *US astronomy community* will cease to contribute to the scientific discoveries enabled by these data. The financial needs of the community are *much* higher than the current budget allows. **The JSTUC strongly recommends that JWST's science budget be raised, or at the very least sustained to match inflation:** this funding is vital for continuing to maximize the science being done with every moment of the telescope's time and every bit of its data, particularly by US teams.

The process of determining how teams receive and use these funds has been excellently streamlined and made more efficient by STScI. As noted in our last report, the formula-based approach for determining grant amounts has reduced effort community-wide while still maintaining the necessary levels of oversight by the Financial Review Committee to ensure that every dollar is being spent wisely, and the community and JSTUC have responded positively.

Operations budget

The teams at STScI that support JWST continue to do incredible work to provide the community

with the shared resources it needs to maximize science from JWST. We continue to see efficiency and documentation improvements in the data processing pipeline, along with top-notch performance on scheduling the telescope as tightly as possible while maintaining its health and safety. STScI also supports associated key infrastructure projects in the field, such as astropy, that serve as foundational tools for productive astronomy research with JWST.

The JSTUC strongly recommends that funding for the JWST operations budget be sustained to match inflation. The operations team is efficient and productive, providing enormous value to the community and maximizing the scientific output and discovery reach of JWST, and its continued support is critical to JWST's continued success.

Clear engagement and communication

The JSTUC encourages STScI to continue prioritizing clear and well-curated communication with astronomers. JWST is a big and complex telescope; there's a wealth of information available for its users and a big user community with a huge range of expertise. We support ongoing efforts aimed at making sure the right information is easily found by the people who need it. STScI has already invested to great effect in sharing infrastructure improvements and key proposal and data analysis improvements with the community. The expansive JDOx webpages, regular online Webinars (including the first two JSTUC Webinars in the fall of 2025, a recommendation from our previous JSTUC report), office hours, popular summer schools, and a responsive Help Desk have all proven to be excellent and well-received community resources.

The JSTUC is also keenly aware of the ways in which AI can both help and hinder our community's ability to produce and communicate high-quality and trustworthy science. We support continued efforts by STScI to harness AI tools productively and responsibly without eliminating essential human roles and expertise.

We know that STScI is keenly aware of the risks of "communication fatigue" and has made every effort to not flood the JWST user community with information. Decisions to send email updates, circulate surveys requesting feedback, and post updates on the STScI website are all undertaken carefully, a degree of curation that is widely appreciated. However, **the JSTUC encourages STScI to increase their frequency of communication during times when exceptional circumstances have led to significant departures from the planned proposal, review, and funding process.** Delays in the federal budget process and the October 2025 government shutdown, for example, caused significant confusion and concern in the community over issues such as the availability of Cycle 4 funding and policies for proposers impacted by the shutdown. At the JSTUC's urging, STScI posted multiple website updates and sent emails to PIs; even in cases where the updates simply reiterated a lack of new updates, this regular communication helped reassure and inform the JWST community. This type of communication should be continued and prioritized in any future scenarios that significantly disrupt JWST's science, review process, or community.

Another area where communication can continue to improve is in the detailed language and highlighted content of the annual Call for Proposals (CfP) and guidelines for the review panels; several seemingly-small details can have an outsize impact on users' understanding of how JWST and the proposal review process work. For example, in our last JSTUC report we recommended clarifying whether Exposure Time Calculator (ETC) workbook links were required for proposals and how ETC results would be used in the review process: the ETC is a powerful but complex tool that can have a significant learning curve for new proposers and has, in past cycles, struggled under high-load times such as the days leading up to proposal deadlines. We commend STScI for following this recommendation: the Cycle 5 CfP made clear that links to ETC workbooks were not required, and that calculations using the JWST Interactive Sensitivity Tool (JIST) would suffice when estimating the time required for relatively simple observations.

During this JSTUC meeting we identified several additional small but important details that should be clarified in the CfP and the instructions given to proposal reviewers:

- Panelists should be given **clear and consistent guidance on how to evaluate coordinated parallels in proposals**. Beginning in Cycle 5, science goals for coordinated parallels are no longer required to align closely with the prime science program; instead, coordinated parallels can “complement or enhance the prime science” provided that are described in the “Justify Coordinate Parallel Observations” section of the proposal. However, guidance for panelists on how to evaluate the scientific merits of the proposed parallels, whether they meet the “complement or enhance” criteria, and how these parallels are weighted alongside the prime science and factored into a proposal’s ultimate grade and ranking, are all minimal. This should be made clear in future CfPs and panel reviews.
- **Future CfPs should have a clear and enforceable “late policy”**. Issues were raised by the JWST community regarding policies for late submissions in past cycles that were flexible or poorly documented; this in turn caused confusion in how these policies were enforced in Cycle 5. A clear statement of the deadline and how late proposals will be handled would significantly improve current information asymmetries in the community.
- **Future CfPs should clarify how the various JWST “Special Initiative” categories are handled during the proposal review process**. The Astronomer’s Proposal Tool (APT) currently has a number of checkboxes that proposers can select indicating whether their proposal is, for example, a Roman Preparatory Science or Long-Term Monitoring proposal. These correspond to JWST Special Initiatives, which are currently used to highlight some of JWST’s unique capabilities; a subsection of the Cycle 5 CfP briefly notes that no extra time will be made available for Special Initiative proposals and no weight will be given in grading. This should be highlighted and clarified in the next CfP, as some misunderstandings persist about how Special Initiatives are treated during the review process.
- STScI should continue to maintain a clear and sensible AI policy for both proposers and reviewers. Currently, the CfP simply asks proposers to acknowledge content that was

produced by generative AI (GAI). Panelists, however, are expressly “forbidden from uploading proposal content or review materials to GAI tools, since this violates the confidentiality of the review process” according to the CfP. The JSTUC applauds these policies but recognizes that they could be difficult to enforce. **In future cycles, STScI should give panelists a pledge outlining the GAI use policy and ask for their signature before they can participate in the review process.**

- While most proposers and panelists make every effort to adhere to the CfP guidelines and are committed to an ethical review process, there are occasional violations ranging from minor (slightly exceeding page limits) to egregious (breaking confidentiality). **STScI should apply consistent and fair handling of policy violations during the proposal and review process**, including clear guidelines on who is responsible for identifying and enforcing these policies, and what the consequence is for violation of said policies (for example, how page limit violations are handled is currently a very ambiguous process for both proposers and reviewers).

Finally, “outward” communication beyond the astronomy community is also exceptionally important; this is our primary means of sharing the incredible science made possible by JWST with a broad audience. **The JSTUC strongly recommends continued support for science communication related to JWST at all levels.** The Goddard Space Flight Center communications office and the STScI Office of Public Outreach have both been significantly reduced, and this poses a significant problem for continuing to share the value and impact of JWST with the general public. The astronomy community is also eager to devote well-directed time and energy to JWST-focused public communication, and would welcome guidance from STScI (e.g. future Webinars that are already in the works, media training, example presentations) on how best to share our JWST science with a broad audience.

Coping with the scale of proposal review

JWST’s most persistent “problem” is the biggest symptom of its success: the challenge of oversubscription. The Cycle 5 CfP received the most submissions ever received for a single telescope call with more than 2,900 proposals, breaking its own record for the third year in a row. This enormous number of submissions highlights the sheer volume of exciting new science that can be done with JWST, but it also results in extreme oversubscription: it is expected that only 8% of the submitted proposals will be accepted for Cycle 5, and the process of reviewing such a large number of proposals places a significant strain on STScI and the JWST user community.

Oversubscription and coping with the scale of the review process has been a recurrent topic of discussion in community conversations and at past JSTUC meetings. Key concerns include the difficulty of recruiting enough reviewers, poor morale among both reviewers and proposers facing low success rates, and more complex problems stemming related to proposal submission such as the growing strain on Director’s Discretionary (DD) time and challenges with the overall

timeline of the submission and review process. At the same time, the community as a whole still has a fundamental level of trust in the volunteer-based and peer-led review process run by STScI, and despite discouraging acceptance rates the enthusiasm for submitting proposals has clearly not dimmed.

STScI dedicated time to discussing this during Meeting #19 and also provided a detailed breakdown of how the process could scale, imagining a hypothetical future CfP that received 5,000 proposals and noting that this would require adjustments to, but not a large-scale overhaul of, the current process. This was a valuable and informative exercise and helped inform our subsequent discussion. The JSTUC ultimately identified three avenues for STScI to explore as part of scaling up the proposal review process, focusing on areas where efficiency can be improved without decreasing community trust.

- **STScI should explore the possibility of assembling a standing committee of experts to review Director’s Discretionary proposals.** At our meeting STScI informed the JSTUC that there has been a surge in JWST DD submission, putting significant strain on the DD review process and diluting the focus of the DD opportunity. In particular, STScI noted that finding four in-field non-conflicted experts for each DD proposal posed a serious challenge.

Assembling a standing committee of expert reviewers who commit to reviewing a subset of DD proposals over a set period of time (committee members could serve for one calendar year, one Cycle, or similar) should make it easier to quickly identify and assign expert and non-conflicted reviewers, offer a quick review turn-around time, and decrease the time-consuming nature of the process for both STScI staff and reviewers. STScI noted that in response to the increase in DD submissions they will be narrowing the scope of acceptable DD proposals, focusing on time-critical and timely “Discovery”-oriented proposals. In practice, DD proposals in these categories typically represent a relatively predictable subset of science topics, which should help with targeting the appropriate expertise in recruiting DD review committee members.

Serving as a standing DD reviewer also comes with a very different type of time demand compared to serving as a reviewer for the traditional TAC process: rather than committing to reading and discussing a large number of proposals over the course of several intensive weeks, DD reviewers could instead expect to receive a smaller number of proposals and review them one at a time but on a much faster timescale. This could encourage participation in the review process by members of the community who cannot easily commit to the annual TAC review (they may, for example, have other professional commitments during the TAC or operate on a southern-hemisphere academic schedule).

The number of DD proposals is likely to continue to increase in the coming years (even with the new focus on time-sensitive proposals, given the imminent start of Rubin observatory alerts and the resulting increase in time-domain astronomy science cases).

This suggestion is meant to decrease the STScI workload while also maintaining the high quality of peer review and the high standard applied to the allocation of DD time.

- **STScI should explore other possible ways of altering the TAC process to cope with the continued increase in total proposal numbers expected in future cycles.** It has already been demonstrated that the current TAC process can be scaled up to ~5000 proposals with some minor modifications; however, several concerns about these scenarios were raised during our meeting (for example, going down to three grades for the external and preliminary stages of the review decreases the number of reviewers needed but also introduces more scatter relative to the current five-grade process). With this in mind, the JSTUC believes there is still value in exploring other scenarios.

First, **distributed peer review (DPR) is a model worth exploring specifically for the triage stage of the process** (i.e., before the panel discussions). The expansion of a distributed review approach is already happening as part of the changes that are currently underway, with more external reviews being used in the triage stage, and this has become a valuable element of the overall process. However, at the moment this still does not solve the sizable problem of struggling to recruit reviewers, which was a significant problem in Cycle 5 (when the success rate for recruiting external panelists was 67%). DPR, by comparison, automatically draws reviewers from the pool of submitting PIs, committing every PI who submits a proposal to reviewing a certain number in return. Several other observatories have moved to versions of DPR for proposal review.

A particular approach the JSTUC would like to see explored is a *hybrid DPR/TAC approach*, where DPR is used during the initial triage stage before moving to a traditional panel review and discussion format for proposals above the triage line. This will significantly ease the burden of reviewer recruitment and automatically draw reviewers from a subset of the community – PIs of submitted proposals – that is familiar with JWST, invested in a fair and trustworthy review process, and able to offer a broad swath of expertise and experience.

Second, previous JSTUC reports have requested a **simplification of the current grading structure** for reviewers: reviewers have expressed concern that the three-grade scoring system is not used uniformly and that ambiguities in how the grades are interpreted and weighted could be contributing in part to grade scatter. While rubrics and criteria for reviewers are very valuable, retaining these guidelines while simplifying the process down to a single-grade system would retain the rigor and reliability of proposal grades while both decreasing workload and removing some potential sources of confusion or ambiguity in the grading process.

The JSTUC would be very interested to get reports from STScI at our next meeting on the *potential pros and cons of implementing these two suggestions*.

- **STScI should explore and quantify the impact of moving the JWST deadline and the**

corresponding timeline of future JWST cycles.

The timing of the current JWST proposal deadline and TAC process has been a recurrent topic at previous JSTUC meetings, with several specific concerns raised repeatedly. Members of the community have noted that the current early fall deadline collides directly with the deadlines for several other large funding opportunities including the NSF AAG program, the Canadian NSERC program, and the European Starting Grant program. Early fall also coincides with deadlines for postdoctoral and faculty positions (a conflict that disproportionately impacts early-career members of the JWST community), with the start of the academic year (which disproportionately impacts community members with significant teaching and serving responsibilities), and with the start of the fiscal year and potential complications from a government shutdown (which disproportionately impacts civil servants).

Similarly, the current timeline puts the bulk of the community workload for proposal review in December and January. A number of other review-heavy processes are also underway during these two months, including the graduate school application process, reviewing applications for postdoctoral and faculty positions, and the grant programs listed above. The astronomy community is small, and it is likely that many community members are already shouldering a significant review burden during these two months, making it difficult to recruit reviewers. The JSTUC is particularly interested in the possibility of swapping the HST and JWST deadlines as a means of alleviating some of these problems.

We understand that making such a change represents a significant disruption to current operations and is not a decision to be made lightly. There is, of course, no perfect time of year to place a deadline or a large review process and that any timeline will have some amount of conflict with other key dates (Roman Cycle 1 proposals, for example, are due March 17). Since JSTUC Meeting #19, STScI has shifted the Cycle 6 deadline two weeks earlier, to September 30th, 2026, at the direction of NASA HQ. This lessens some of the schedule problems described above (such as the end of the fiscal year) but other conflicts and challenges with the overall review timeline still remain.

The JSTUC is particularly interested in *a detailed breakdown of benefits and drawbacks* (for STScI and the JWST user community) for both the current schedule and the hypothetical swapped schedule (as well as any other schedule alternations that STScI feels might be worth exploring). We would also like to understand the tasks and costs associated with the actual schedule-shifting process itself. Making this change would be a significant undertaking and we are interested in quantifying the scope of the problem.

Conclusions

The JSTUC's feedback and recommendations are all centered around a single core fact: JWST is a phenomenally successful telescope with the potential for many years of scientific progress ahead of it. As JWST prepares to move from prime mission to extended mission beginning in Cycle 6, its productivity and science yield continue to climb, and a sentiment raised several times at our meeting was that "JWST is its own best successor". Results from the first few JWST cycles are continuing to inspire new questions and ideas: new observing modes are still coming online and being proposed, the JWST community is still expanding, and the scientific impact of JWST is still growing. Our suggestions are intended to continue giving JWST the support it needs to flourish and deliver groundbreaking new science for many years to come.

Dec 2025 JSTUC membership

- Chair: Emily Levesque, University of Washington
- Vice Chair: Leigh Fletcher, University of Leicester, UK
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- Eiichi Egami, Steward Observatory
- Catherine Espaillat, Boston University
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- Christina Williams, NSF's NOIRLab