Cycle 31 Mid-Cycle Results, Cycle 32 TAC Results & Cycle 33 Preparations

Claus Leitherer
on behalf of the Hubble Science Policies Group

June 27, 2024
Cycle 31 Mid-Cycle Results
Mid-Cycle Review Process

• Reviewers were drawn from the Cycle 31 External (Non-Discussion) Panelists
  • Over 200 were available
  • 64 participated in this review with 5 reviewers per proposal
  • Only assigned true experts as much as possible

• Proposals are graded against “In-Field Impact, Out-of-Field Impact, and Suitability”
  • Same grading scheme as utilized during Cycle 31 Review
  • Continuing to use the SPIRIT tool so reviewers are very familiar with the process
  • 1 Excellent to 5 Poor Scale
  • Final Grade is the average of the individual grades
    • Outliers are manually inspected for consistency
Executive Summary

- 44 Proposals Received for 296 Orbits
  - 7 Proposals rejected as non-compliant and not distributed for review
  - 1 was submitted past deadline and disqualified by the Director
  - 36 Proposals reviewed for 246 Orbits
  - 12 Proposals recommended for 96 Orbits
  - Acceptance Rate: 1 in 3 for proposals and 1 in 2.6 for orbits

- Instrument Breakdown
  - ACS: (9% CPARs); COS: 18%; STIS: 15%; WFC3: 58% - Imaging (57%) vs Spectroscopy (42%)

- ESA Acceptance fraction
  - PIs 25% for proposals and 11% for orbits
  - ESA Cols are 35% of the total Cols

- UV Initiative: 33% for Proposals; 32% for Orbits

- 3 new PIs
Summary Charts and Statistics for Accepted Proposals
Proposals by Science Category

- ExoPlanets
- Galaxies
- IGMCGM
- LargeScaleStructure
- SMBH
- Solar System
- Stellar Physics
- Stellar Pops

Graph showing the number of reviewed and recommended proposals by science category.
Acceptance Fraction

Acceptance Fraction

<table>
<thead>
<tr>
<th>Category</th>
<th>Proposals</th>
<th>Orbits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ExoPlanets</td>
<td>10%</td>
<td>20%</td>
</tr>
<tr>
<td>Galaxies</td>
<td>20%</td>
<td>30%</td>
</tr>
<tr>
<td>IGMCGM</td>
<td>30%</td>
<td>40%</td>
</tr>
<tr>
<td>Large Scale Structure</td>
<td>40%</td>
<td>50%</td>
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<tr>
<td>SMBH</td>
<td>50%</td>
<td>60%</td>
</tr>
<tr>
<td>Solar System</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stellar Physics</td>
<td>60%</td>
<td>70%</td>
</tr>
<tr>
<td>Stellar Pops</td>
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Gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>Submitted Proposals</th>
<th>Recommended Proposals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women</td>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td>Men</td>
<td>25</td>
<td>10</td>
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</table>

Submitted : 69% Men and 31% Women
Recommended: 83% Men and 17% Women

<table>
<thead>
<tr>
<th>Gender</th>
<th>Submitted Orbits</th>
<th>Recommended Orbits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women</td>
<td>64</td>
<td>16</td>
</tr>
<tr>
<td>Men</td>
<td>182</td>
<td>80</td>
</tr>
</tbody>
</table>

Submitted : 74% Men and 26% Women
Recommended: 83% Men and 17% Women

We acknowledge the limitations and exclusive nature of binary gender statistics.

<table>
<thead>
<tr>
<th>Review</th>
<th>Women Submitted</th>
<th>Women Recommended</th>
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<tbody>
<tr>
<td>30-2</td>
<td>23%</td>
<td>14%</td>
</tr>
<tr>
<td>30-1</td>
<td>33%</td>
<td>25%</td>
</tr>
<tr>
<td>29-1</td>
<td>28%</td>
<td>33%</td>
</tr>
<tr>
<td>29-2</td>
<td>25%</td>
<td>29%</td>
</tr>
<tr>
<td>28-1</td>
<td>23%</td>
<td>14%</td>
</tr>
<tr>
<td>28-2</td>
<td>21%</td>
<td>15%</td>
</tr>
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<td>27-1</td>
<td>34%</td>
<td>29%</td>
</tr>
<tr>
<td>27-2</td>
<td>29%</td>
<td>29%</td>
</tr>
<tr>
<td>26</td>
<td>19%</td>
<td>20%</td>
</tr>
<tr>
<td>25-1</td>
<td>25%</td>
<td>21%</td>
</tr>
<tr>
<td>25-2</td>
<td>28%</td>
<td>30%</td>
</tr>
</tbody>
</table>
## MidCycle 31 Recommended Proposals

<table>
<thead>
<tr>
<th>ID</th>
<th>Orbits</th>
<th>Science Category</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>04897</td>
<td>10</td>
<td>Galaxies</td>
<td>The optical emission of the highest redshift lens system</td>
</tr>
<tr>
<td>04899</td>
<td>13</td>
<td>Galaxies</td>
<td>The globular clusters of Dragonfly 44</td>
</tr>
<tr>
<td>04908</td>
<td>12</td>
<td>Stellar Physics and Stellar Types</td>
<td>A X-ray through Radio Exo-Space Weather Campaign to Study the Young Sun, EK Dra</td>
</tr>
<tr>
<td>04909</td>
<td>5</td>
<td>Stellar Physics and Stellar Types</td>
<td>Understanding the Rapid Evolution in the Light Curve of the White Dwarf Pulsar AR Scorpii</td>
</tr>
<tr>
<td>04912</td>
<td>2</td>
<td>Supermassive Black Holes and Active Galaxies</td>
<td>The first changing-multiplicity lensed quasar: a probe of sub-parsec quasar structure at Cosmic Noon</td>
</tr>
<tr>
<td>04918</td>
<td>4</td>
<td>Stellar Physics and Stellar Types</td>
<td>An unbound accretion flow in the quiescent binary Cen X-4</td>
</tr>
<tr>
<td>04923</td>
<td>10</td>
<td>Exoplanets and Exoplanet Formation</td>
<td>Search for C, N, O in a long-period transiting warm Saturn</td>
</tr>
<tr>
<td>04928</td>
<td>5</td>
<td>Stellar Physics and Stellar Types</td>
<td>Did the progenitor of the Type IIb SN2011dh actually have a binary companion?</td>
</tr>
<tr>
<td>04932</td>
<td>4</td>
<td>Stellar Physics and Stellar Types</td>
<td>Revealing the Powering Mechanisms of Type Icn Supernovae through Late-time Observations</td>
</tr>
<tr>
<td>04934</td>
<td>10</td>
<td>Exoplanets and Exoplanet Formation</td>
<td>The Exosphere of an Venus-Like Exoplanet</td>
</tr>
<tr>
<td>04939</td>
<td>12</td>
<td>Stellar Physics and Stellar Types</td>
<td>Meet Me In the Afterglow: Late-time follow up of the Ultra-luminous GRB 221009A</td>
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<tr>
<td>04940</td>
<td>9+9 (CPAR)</td>
<td>Galaxies</td>
<td>Probing the galactic origin of ultra-compact dwarf galaxies</td>
</tr>
</tbody>
</table>

*New PIs marked in green*
Preliminary Cycle 32 TAC Results
• **Same process as in Cycle 31**
• **Hybrid process**: proposals were split between external panels and virtual panels meeting by video-conference.
• **External panelists** provided the assessment and grading of a subset of Small GO proposals (1 – 15 orbits) including Snapshot and Archival proposals (except for two panels with only AR in order to balance proposal load).
• **Discussion panels** reviewed the remaining Small GO, Medium, Archival Legacy, Large and Treasury proposals. Virtual panelists interacted by video-conference.
• **Exception** – all Solar System and Transients (see later slide) proposals were reviewed by the virtual panels (due to the small proposal pool)
Proposals reviewed by discussion panels:

• There were nine panels, with 10 – 17 members, including Chair and Vice-Chair (no Vice-Chairs in Solar System, Transients and Large-Scale Structure).

• Each panel was allocated an allocation for Medium proposals based on orbit pressure, as well as an orbit allocation for Small proposals based on orbit pressure.

• The panel Chairs and Vice-Chairs, together with the TAC Chair and two At-Large members, constituted the Executive Committee that reviewed MCT/Large/Treasury/Legacy proposals.

• The Executive Committee met in-person the week following the virtual panel meeting.

• The overall TAC Chair was Margaret Hanson (Univ. of Cincinnati)
New in Cycle 32: Transients panel:

- New panel reviewing all proposal requesting Target-of-Opportunity observations of stellar-related transients
- Includes novae, supernovae, kilo-novae, tidal disruption events, etc. but not AGN and objects in the solar system
- Proposals included non-disruptive, disruptive, ultra-disruptive and Flexible Thursdays ToO’s
- The panel had ToO and orbit allocations; the latter with a 25% extra allocation to consider trigger probability
- Very successful – a lot of positive feedback from Chair and Panelists.
## Summary Results

<table>
<thead>
<tr>
<th>Proposals</th>
<th>Requested</th>
<th>Approved</th>
<th>% Accepted</th>
<th>ESA Accepted</th>
<th>ESA % Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Observer</td>
<td>769</td>
<td>130</td>
<td>16.9 %</td>
<td>38</td>
<td>29.2 %</td>
</tr>
<tr>
<td>Snapshot</td>
<td>33</td>
<td>10</td>
<td>30.3 %</td>
<td>3</td>
<td>30 %</td>
</tr>
<tr>
<td>Archival Research</td>
<td>72</td>
<td>13</td>
<td>18.1 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AR Legacy</td>
<td>18</td>
<td>7</td>
<td>38.9 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Theory</td>
<td>41</td>
<td>3 (1L+2R)</td>
<td>7.3 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>930</td>
<td>162</td>
<td>17.4 %</td>
<td>41</td>
<td>25.3 %</td>
</tr>
<tr>
<td>Primary Orbits</td>
<td>17520</td>
<td>2837</td>
<td>16.2 %</td>
<td>878</td>
<td>30.9 %</td>
</tr>
</tbody>
</table>

* ESA Total only counts GO/Snapshots*
Reduced Gyro Mode (RGM) Impact

• The previous summary table does not consider the impact of the RGM on program feasibility

• STScI performed an initial feasibility study of all recommended programs
  - A handful of programs cannot be executed and will not be scheduled
    - PIs will be informed of those circumstances
  - Some programs will require substantive changes to execute under RGM
  - The majority of programs can achieve their major science under RGM

• Program Coordinators will work with the PI to help adjust programs for RGM
  - In some cases this may require reducing and/or relaxing observing constraints
  - RGM leads to more restricted observing windows
    - This leads to stronger constraints on orientations and timing of observations
  - PIs must be flexible and only impose scientifically essential constraints
    - Unrealistic scheduling constraints will impede and delay observations
  - STScI will establish an RGM Implementation Team to ensure consistency in adjudicating program modifications
  - Moving to RGM will require time and we ask for patience from all PIs
Multi-Cycle Treasury (MCT) Programs

• 1,500 orbits committed over 3 cycles (250 GO + 250 DD each cycle)
• Purpose: To answer key science questions requiring large time requests that can’t be accommodated under the regular time allocation process.
• Programs of ≥ 350 orbits. Treasury → release of HLSPs and/or software tools to the community.

• Submissions: 9 proposals, requesting 5,271 orbits
  • Science areas: Exoplanets, Stellar Populations and the ISM, Galaxies, Intergalactic Medium and Circumgalactic Medium
  • Evaluated alongside regular EC proposals, required to rank competitively against them

• Passed triage: 8 proposals, requesting 4,851 orbits
  • By comparison, 40% of all EC proposals triaged

• Competitively ranked compared to regular EC proposals: 5 proposals, requesting 3,258 orbits

• Recommended for acceptance: 2 proposals, requesting 1,267 orbits
  • Science areas: Exoplanets, Galaxies

• Success Rate: 24% by orbits (1:4.2), 22% by proposals (1:4.5)
PRELIMINARY

Summary Statistical Charts
Oversubscription by Cycle

- GO Proposal oversubscription
- GO Orbit oversubscription
- AR Funding oversubscription

Cycle 7 AR Extension
Acceptance Fraction by Size

Orbit Bins

- 1 - 10: 64
- 11 - 20: 33
- 21 - 30: 25
- 31 - 40: 11
- 41 - 50: 5
- 51 - 74: 9
- 75 - 99: 2
- >=100: 6
- Overall: 20

Proposals

Orbits
ESA Acceptance Fraction

- Proposals
- Orbits

HST ESA Lifetime Requirement

Accepted Cycles Orbits
Proposal Institutional Acceptance Fraction

Only shows institutions that have >= 3 Proposals Recommended
Science Category Distribution by Orbits

- Super Massive Black Holes
- ExoPlanets and Planet Formation
- Galaxies
- Large Scale Structure
- Intergalactic Medium and the Circumgalactic Medium
- Solar System
- Stellar Physics
- Stellar Populations

Approved vs. Submitted
Science Category Distribution by Proposals

- Stellar Populations
- Stellar Physics
- Solar System
- Large Scale Structure
- Intergalactic Medium and the Circumgalactic Medium
- Galaxies
- ExoPlanets and Planet Formation
- Super Massive Black Holes

Approved vs Submitted
Gender Success Rate by Proposals

**Medium Proposals:**
Female accepted: 4
Male accepted: 15

**EC Proposals:**
Female accepted: 7
Male accepted: 8

**Regular Proposals:**
Female accepted: 43
Male accepted: 78

Success rate = N(acc)/N(sub)

Success Rate

<table>
<thead>
<tr>
<th>Proposals Type</th>
<th>Female Accepted</th>
<th>Male Accepted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium Proposals</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>EC Proposals</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Regular Proposals</td>
<td>43</td>
<td>78</td>
</tr>
</tbody>
</table>
Gender Success Rates
Cycle 33 Preparations
**Cycle 33 Preparations**

- New Cycle 33 will start on 11/1/25 and end on 10/31/26
- The Cycle 33 HST TAC will have the same hybrid structure as the Cycle 32 TAC, with external panelists reviewing most Small (< 16 orbits), SNAP and AR proposals.
- Stellar and SMBH ToO proposals will continue to be reviewed in the Transients panel
- The Executive Committee will meet virtually as well.
- The reviews will again be dual-anonymous.
- All five instruments are planned to be offered (if operational and pending OPCR feedback): ACS, COS, FGS, STIS, WFC3.
- The same proposal categories as in C32 will be offered.
- We will be looking at proposal loads in each science area, and may remove LSS and/or IGM external panels.
• Reduction in proposal page limits to align with JWST (following extensive JSTUC feedback) and other large NASA and community-wide facilities (e.g. Chandra, Swift, Fermi, TESS, ALMA, NOIRLab)

• Page limits would be N+1 (+ references):
  • **N pages** are for Scientific Justification, Description of Observations (GO,SNAP)/Analysis Plan (AR)
    • Small GO, Regular AR, SNAP: **N=4**
    • Medium GO: **N=5**
    • Large GO, Treasury GO, Legacy AR: **N=6**
  • **+1**: additional page dedicated exclusively to justify duplications, joint time requests, coordinated parallels, other special requirements

• **Significant reduction of workload for reviewers**
Anticipated Cycle 33 Timeline

- **Proposal Deadline: Thursday April 10, 2025**
- **STScI releases proposals to reviewers: Friday April 25, 2025**
- **Panelist orientations: Monday April 26, 2025 and Tuesday April 27, 2025**
- **Preliminary discussion grades/External grades+comments due: Friday May 30, 2025**
- **Discussion lists released: Monday June 9, 2025**
- **Discussion panel meetings: Monday-Thursday June 23-26, 2025**
- **Executive Committee meeting: Monday-Wednesday June 30 – July 2, 2025**
- **Director’s Review: mid July, 2025**
- **Notifications: late July, 2025**
- **Phase II deadline: mid August, 2025**
• We have been thinking about **Generative AI (GAI)** use for both *writing and reviewing* of proposals.
• We are receiving an increasing number of questions from the community about GAI tools as well.
• At present, NASA does not currently have any guidance or policy around use of GAI tools to support proposal writing or review.
• In the interim, STScI is considering adopting a similar approach to that recommended by the National Science Foundation (see link below). Specifically, we will advise:
  • **Reviewers** are forbidden from uploading proposal content or review materials to GAI tools since this violates the confidentiality of the review process.
  • **Proposers** are discouraged from using GAI in constructing proposals. If they do use such tools, they must describe how they were used as part of the proposal submission.

• **We welcome your feedback on this!**