HST Cycle 31 GO/AR grants update

STUC meeting, December 1
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Background

• HST grant funding is generally assessed through the FRC process
  • PIs submit budget requests describing the resources required to achieve the science goals outlined in the proposals
  • The Financial Review Committee reviews those requests to determine if the requests are consistent with meeting those science goals – are they in scope?
  • Grants Administration reviews for unallowable costs
  • Recommendations are passed on the Director for approval

• In Cycle 31, the total budget request is ~$44.1 million
  • This significantly exceeds the typical cycle value (~$26 million for 10 months)
  • Additionally, NASA has indicated that there will need to be reductions in the overall HST budget to meet the FY24 congressional allocation

• We are therefore adopting a hybrid approach for Cy 31 budget assessments
  • Combines an FRC-style review, focused primarily on the larger programs, with a scaling formula to apply further reductions
Principles

Our approach is based on the same set of principles used to assess Cycle 1 JWST budget requests:

- Use the information submitted by proposers as a starting point for the analysis
- Take steps to verify that the work proposed is in scope and allowable
- Limit reductions to smaller programs
- Apply a progressive scaling formula that applies higher reductions to more expensive (higher $/orbit or $/snap) programs
Process

- Cycle 31 includes budget requests from 178 programs
  - 84% of requested funds are for salaries, 8% supplies, 5% travel, 3% publications
- FRC will review programs for consistency with the work described in the original proposal
  - Focus on 70 proposals requesting >$185K, encompassing ~75% of requested funds
  - Flag any out of scope or duplicative work
  - Flag travel/publications that are very substantially out of scope
- Grants Administration will check budget requests for unallowable expenses
  - Foreign investigator expenses, ISP costs etc
- Individual budgets will be adjusted to incorporate reductions
- Scaling formula will be applied to the revised program totals to match the total available funds from NASA
Scaling formulae

- Set base level, B, for funding
- Compute $/orbit for each program, E, and <$/orbit>, $E_{AV}$
- Consider program X assigned total funding F:
  - If $E < E_{AV}$
    - $F_{rev} = B + (F - B) \times \frac{2}{R}$
  - If $E > E_{AV}$
    - $F_{rev} = B + (F - B) \times \frac{1 + \left(\frac{E_{AV}}{E}\right)^{p}}{R}$
- Where $R$ is the overall reduction factor and $p$ sets the scale for a “wealth” tax
- $R$, $p$ are adjusted to match the total available funding
- For SNAPs, apply a similar formalism using $$/snap, S, and <$$/snap>, $S_{AV}$
  - If $S < S_{AV}$
    - $F_{rev} = B + (F - B) \times \frac{2}{R}$
  - If $S > S_{AV}$
    - $F_{rev} = B + (F - B) \times \frac{1 + \left(\frac{S_{AV}}{S}\right)^{p}}{R}$
- For ARs, apply the scaling factor, $R$, to all funding above $B$
  - $F_{rev} = B + (F - B) \times \frac{2}{R}$
Example 1

- $B = 25,000, p=0.5, R=7.4, <\text{orbit}> = 13960, <\$\text{snap}> = 2400$
- Total = $15$ million
GO programs - $/orbit

Average funding request $13900/orbit   Average allocation $6343/orbit

Submitted budgets

Reduced budgets
Example 2

- $B = 20,000, p=0.75, R=5, <\text{orbit}> = 13960, <\text{$\$\text{snap}$}> = 2400$
- Total = $19.5$ million
Summary

We will use a hybrid approach to assess Cycle 31 budget requests

• FRC review of the proposed work for the largest programs
• Apply a scaling formula to meet the final cycle allocation

This solution has several benefits:

• The scale factor allows adjustment to match the final allocation
• The starting point for each calculation takes into account the work by the PI in allowing for program-dependent considerations that went into the submitted budget.
• The FRC review eliminates excess in the larger programs
  • Disincentive to “pad” budgets should we need to return to this approach in the future
• The reductions are structured in a progressive way that place a higher proportion of reductions on more expansive ($/orbit) programs, preserving a broader pool of viable programs.