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EXPANDING THE FRONTIERS OF SPACE ASTRONOMY

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



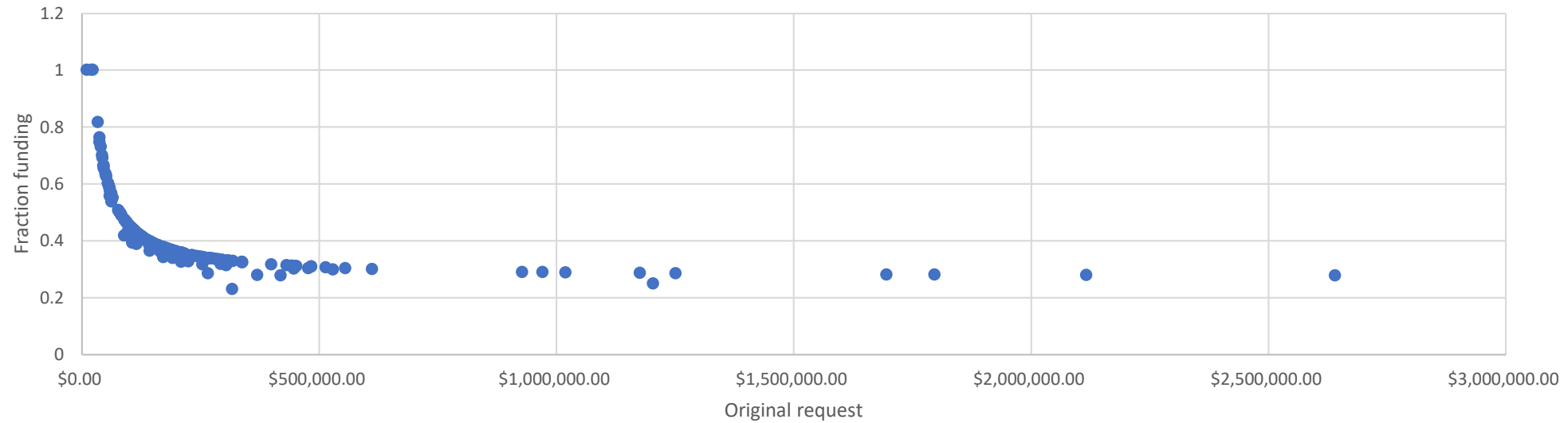
Scaling formulae

- Set base level, B , for funding
- Compute $\$/\text{orbit}$ for each program, E , and $\langle \$/\text{orbit} \rangle$, E_{AV}
- Consider program X assigned total funding F :
 - If $E < E_{AV}$,
 - $F_{rev} = B + (F-B) * 2 / R$
 - If $E > E_{AV}$,
 - $F_{rev} = B + (F-B) * (1 + (E_{AV}/E)^p)/R$
- 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 $\$/\text{snap}$, S , and $\langle \$/\text{snap} \rangle$, S_{AV}
 - If $S < S_{AV}$,
 - $F_{rev} = B + (F-B) * 2 / R$
 - If $S > S_{AV}$,
 - $F_{rev} = B + (F-B) * (1 + (S_{AV}/S)^p)/R$
- For ARs, apply the scaling factor, R , to all funding above B
 - $F_{rev} = B + (F-B) * 2 / R$



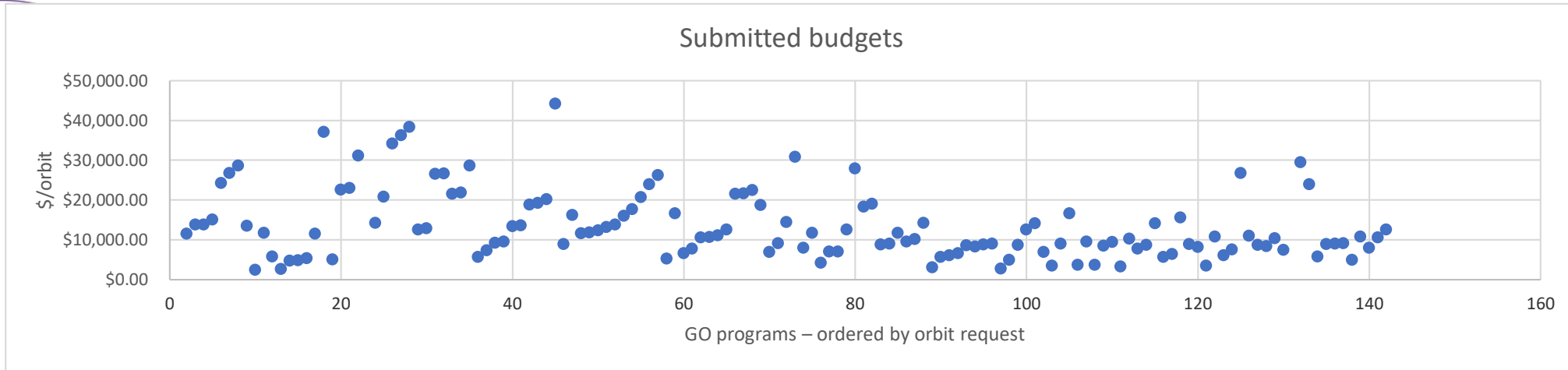
Example 1

- $B = \$25,000$, $p=0.5$, $R=7.4$, $\langle \text{orbit} \rangle = \13960 , $\langle \$\text{snap} \rangle = \2400
- Total = \$15 million

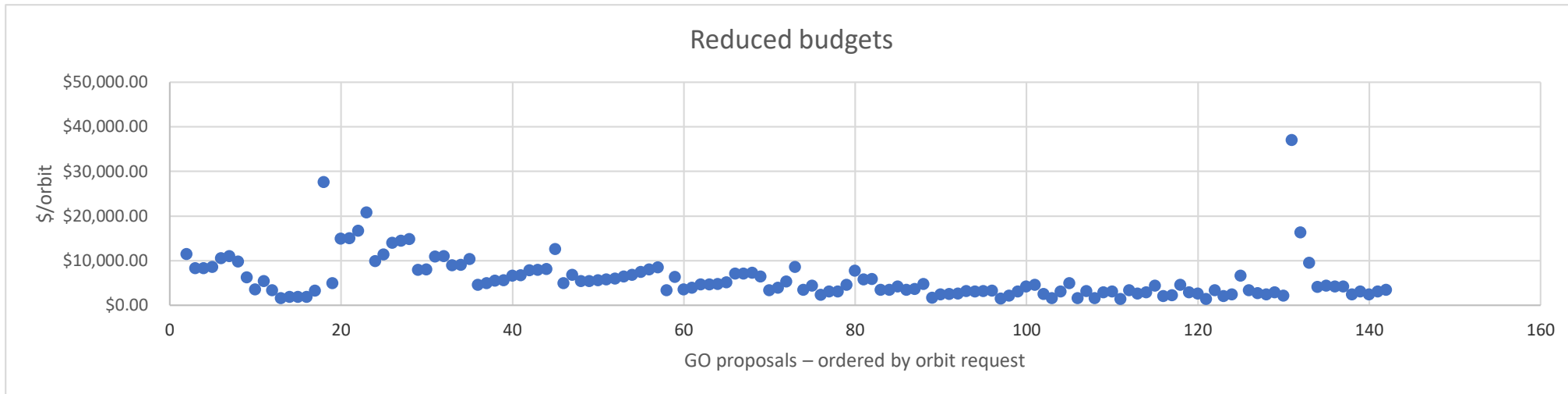




GO programs - \$/orbit



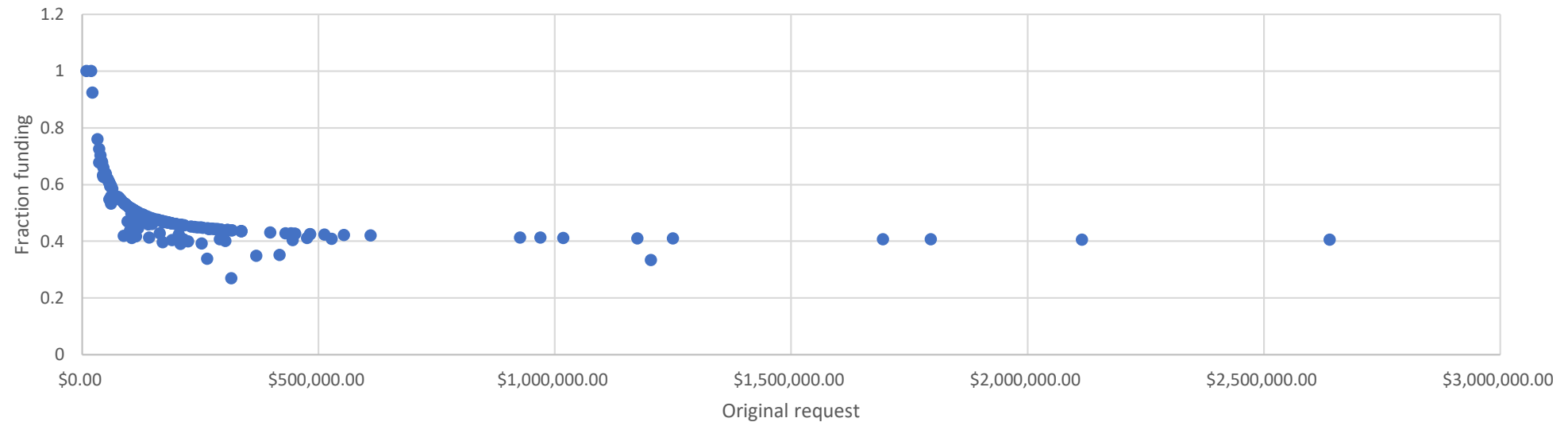
Average funding request \$13900/orbit Average allocation \$6343/orbit





Example 2

- $B = \$20,000$, $p=0.75$, $R=5$, $\langle \text{orbit} \rangle = \13960 , $\langle \$\text{snap} \rangle = \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.