



The AO Construction Process

First (?) Explorer Program Retreat

Paul Hertz

Explorer Program Scientist
Office of Space Science

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Building an AO

- Critical decision points
 - Setting the schedule
 - Explorer Team input
 - Senior management input
 - Community input
- Critical AO decisions
 - Schedule
 - Policies
 - Cost cap
- Critical selection decisions
 - Are we building in risk?
 - Are we aware of the risk we build in?
 - Are we identifying the top risks during TMC evaluation?



Setting the Schedule

- Identify target schedule AO - 1 year
- Explorer Team input AO - 9 mos
- Senior Management decisions AO - 8 mos
- Complete draft AO AO - 6 mos
- Release draft AO - Community input AO - 5 mos
- Complete final AO AO - 2.5 mos
- Release AO AO
- Proposals due AO + 3 mos
- Stage 1 decision AO + 8 mos
- Concept studies due AO + 14 mos
- Stage 2 decision AO + 18 mos
- First LRD (SMEX / MIDEX) AO + 5.0 / 5.5 yrs
- Second LRD AO + 6.0 / 6.5 yrs



Policy Decisions

- Schedule (AO date, LRD)
- Cost Cap
- TMC style (light or heavy, serial or concurrent, E/PO deferred)
- What is being offered (e.g. LV's, 2nd launch, Shuttle, ISS, MO's)
- Reserves policy, and other attempts at risk reduction
- Constraints on international contributions (size, LOE's, risk)
- Phase A constraints (funding, duration)
- Evaluation criteria, weighting
- Programmatic Miscellaneous
 - Minimum mission, optional enhancements, rules for NASA centers, GFE, GSFC services
- Proposal Miscellaneous
 - Page limits, foldouts, CD's, appendices



Setting the Cost Cap

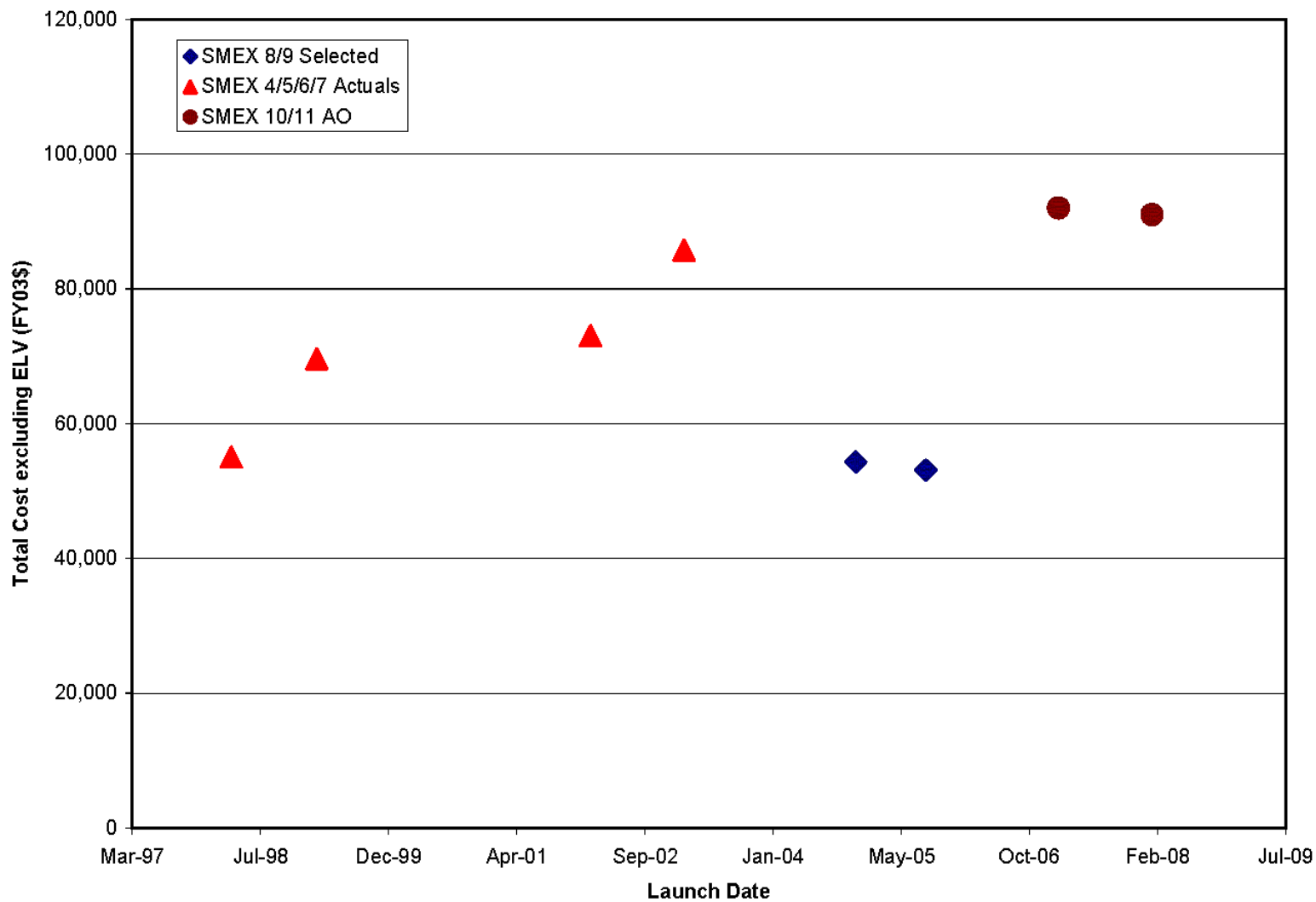
Cost cap set by

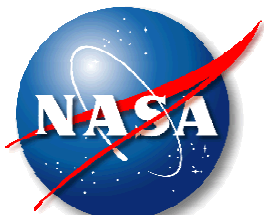
- Inflating previous AO
- Adjusting for launch vehicle costs
- Adjusting for new requirements
- Making programmatic changes

Examples	SMEX 2003	MIDEX 2004
Inflate previous	\$ 81M	\$ 197M
Adjust for LV cost increase	\$ 5M	\$ 7M
Increase reserves	\$ 2M	\$ 9M
Programmatic change	\$ 5M	\$ 4M
First estimate	\$ 97M	\$ 217M
Actual cost cap	\$120M	\$ 220-240M

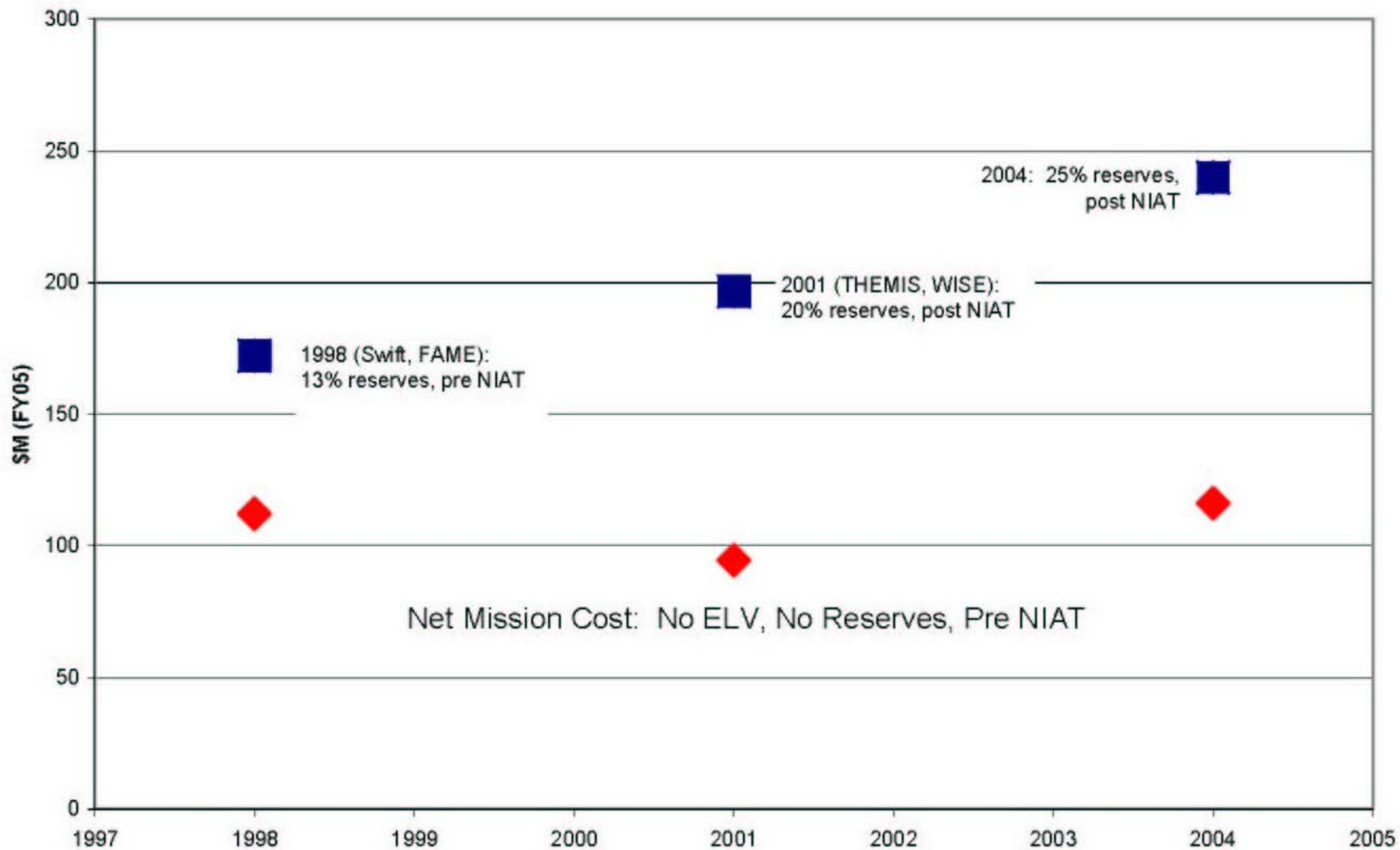


SMEX Cost Caps





MIDEX Cost Caps





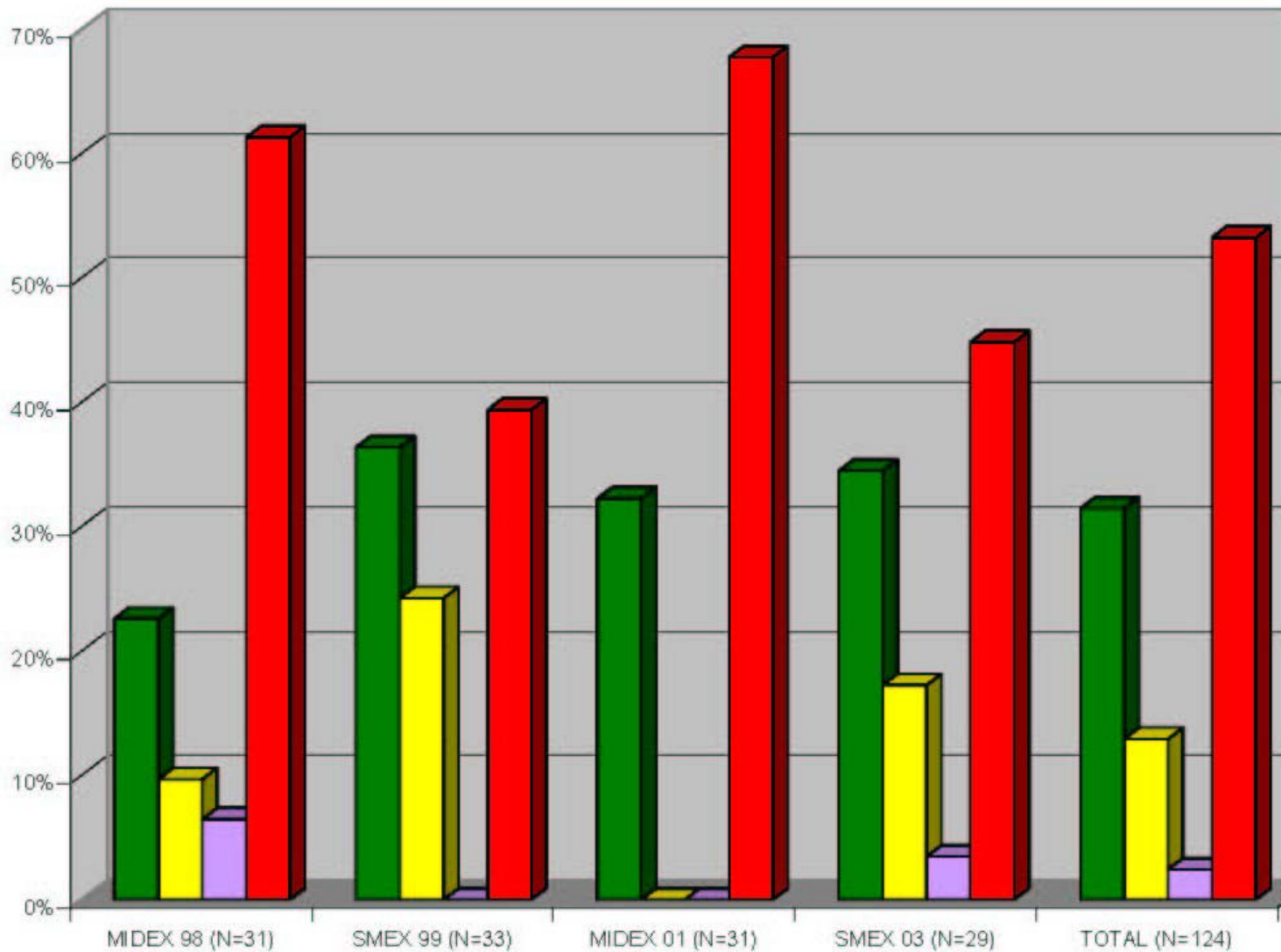
Risk Evolution

- SMEX 97: 1 Stage TMC RHESSI, GALEX
- UNEX 98: Science 1st 1 Stage CHIPS, IMEX
- MIDEX 98:2 Stage TMC Swift, FAME
- SMEX 99: 2 Stage TMC-Lite SPIDR, AIM
- MIDEX 01:2 Stage TMC THEMIS, WISE
- SMEX 03: 2 Stage TMC ???

- Clean bill of health
 - RHESSI - “not their fault”
 - THEMIS - “not yet”

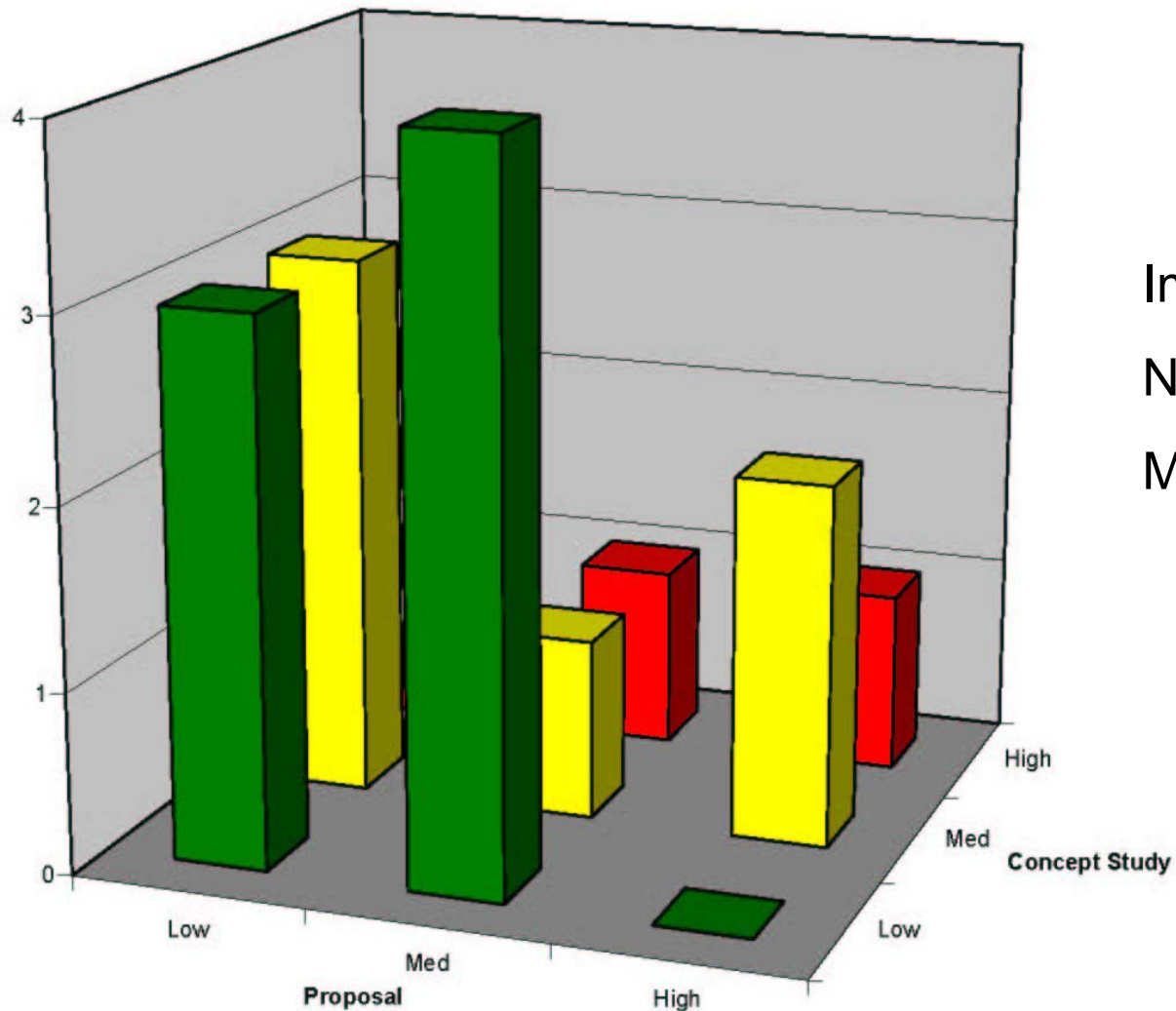


Risk Evolution





Risk Evolution



Improved: 6 / 15

No change: 5 / 15

More risky: 4 / 15



Risk Evolution

- How do the AO requirements build in risk?
- How can NASA / TMC evaluate that risk and select with knowledge?
 - Note that NASA has selected non-Low Risk proposals at both Stage 1 selection and Stage 2 downselection
 - Stage 1 proposal?
 - Phase A concept study report?
- Does NASA / TMC actually identify the real risks?
 - Equal probability of improve, stay same, increase risk --- do we have a clue?
 - If not, how can risk evaluation be improved?