Transforming Solar System Exploration:
The Applied Physics Laboratory and the Origins of the Discovery Program, 1989-1993

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"Solar System Exploration @ 50"
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Origins of Discovery

Sense of crisis in planetary exploration community 1989, no launches since 1978

- In contrast, Len Fisk's expansive view as Assoc. Admin. for Space Science and Applications
- Geoff Briggs' initiative spring 1989 for small planetary spacecraft and the SSED strategic planning workshop, UNH 6/89, and NEAR
- Tom Krimigis, APL, and the ACE talk

Stamatios “Tom” Krimigis 1986

Page from Fax to Krimigis 6/28/89

ACE Spacecraft Configuration

The ACE Spacecraft is based on AMPTE design heritage

Basic Octagonal Shape, with Corners Widened to Accomodate Experiment Fields of View

Most Experiments and S/C Electronics on Top Deck

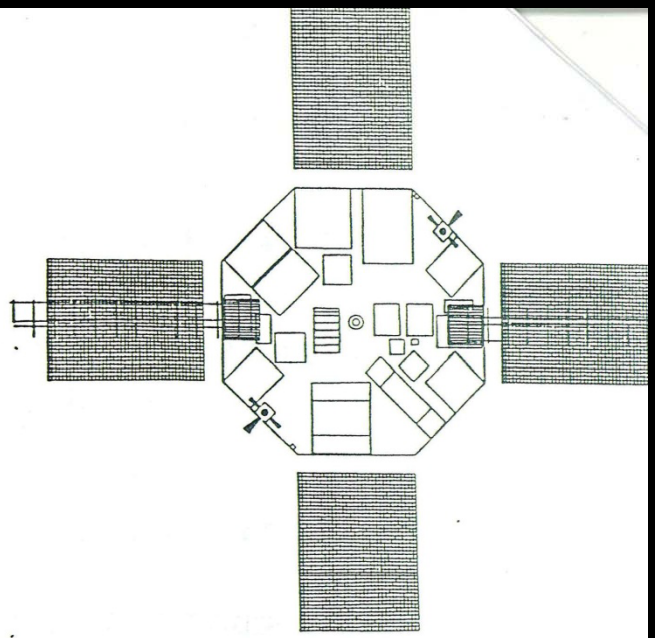
Four 32 x 50 inch Solar Panels

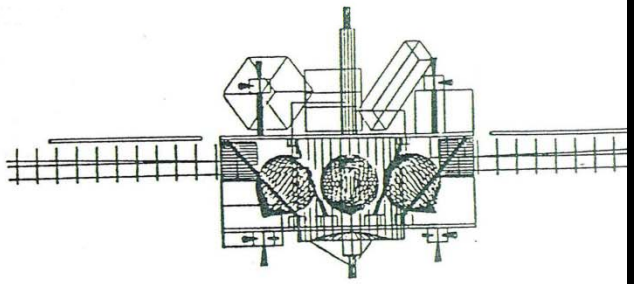
4.0 m Astromast Magnetometer and Balance Booms

Six Sphericonical Fuel Tanks on Lower Deck

60 cm Parabolic Antenna

Prudent Redundancy





Discovery Limps Along

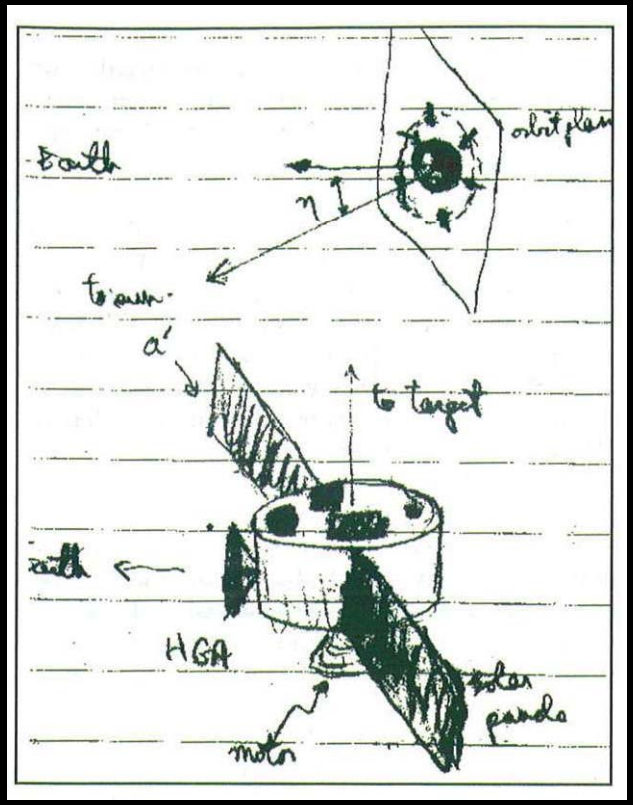
- FY 90--formation of Discovery Project Science Working Group and naming of Bob Farquhar as program mgr. 9/89
- DPSWG held two meetings during FY, inconclusive—NEAR concept languished
- 1989/90 went by with little progress—unclear why: lack of urgency from the top?; distracting impact of Pres. Bush's SEI on space science program?

Wesley Huntress at SSED

- Huntress became SSED Director 8/90—Discovery one of 3 objectives
- Revised DPSWG and created Jim Martin's tech. committee
- NEAR study contracts to JPL and APL—politics of JPL and planetary explor.

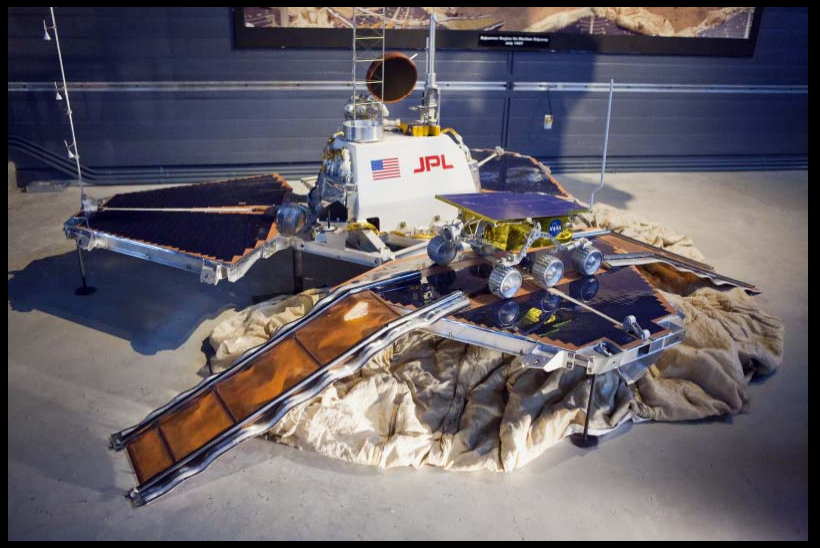
NEAR, the Moon and Mars

- Showdown in Pasadena: JPL vs. APL 5/91 on NEAR
- JPL gets second chance but Huntress picks APL to send message, wants to find JPL a low-cost project
- Lunar Scout, Mike Griffin and Code X—OSSA loses Moon, wants to save Mars



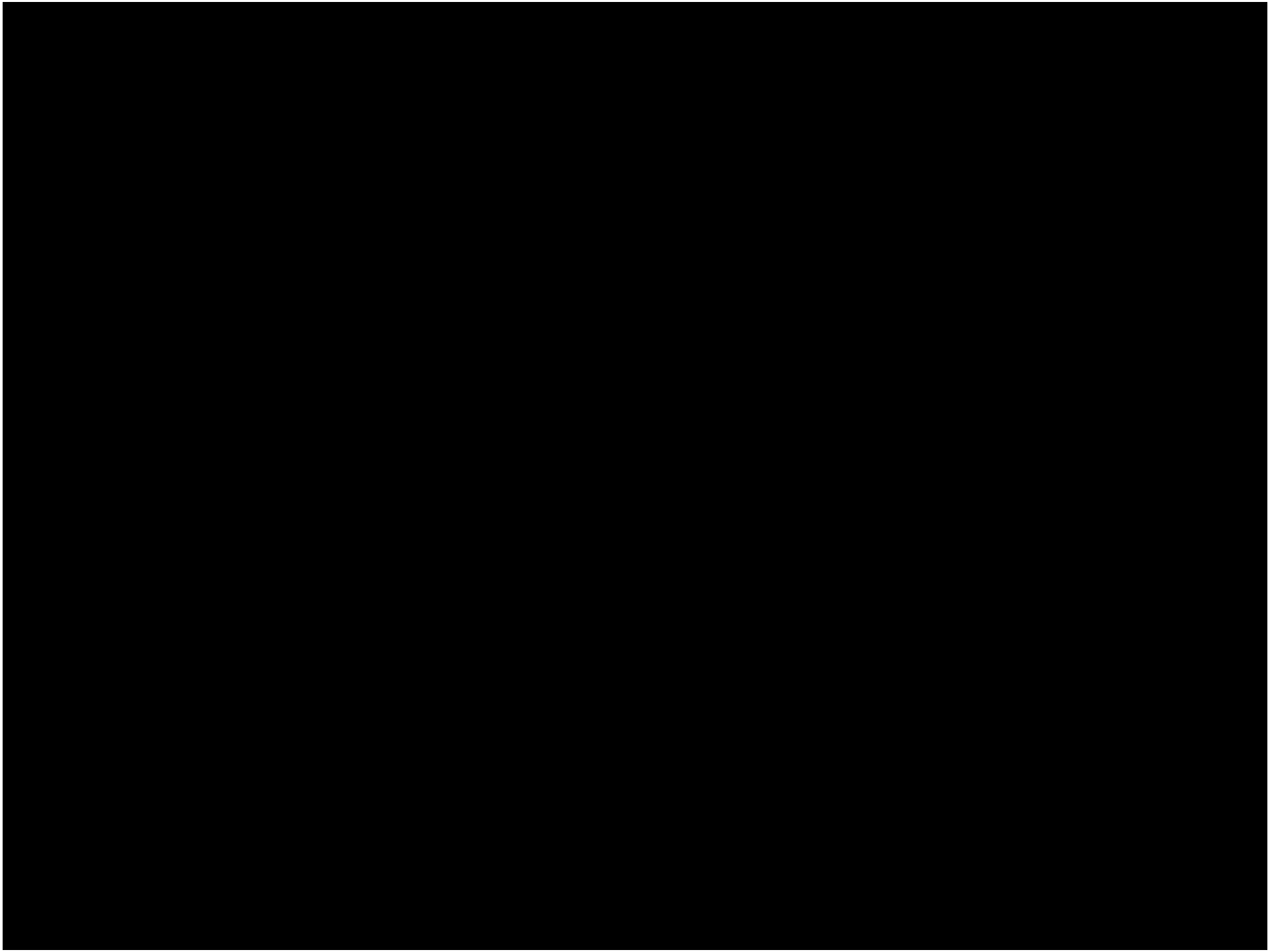
MESUR (Mars) Pathfinder

- Huntress/Fisk transferred Ames' MESUR study and Pathfinder concept to JPL
- Micro-rover added, put under Discovery banner 3/92, to solve OSSA's problems with JPL, strategic plan and Code X



APL Strikes Back

- APL's NEAR bumped to second, 1998 launch instead of 1997
- Farquhar finds 1996 launch for Eros, late 1992
- Pathfinder still first, NEAR minimal funds in FY 94 budget, Krimigis launches campaign

End Game

- Krimigis's connections to Sen. Barbara Mikulski's office and maneuvering over the FY 94 NASA budget, summer 1993
- Conf. Cttee. approves Discovery with both NEAR and Pathfinder –starts better funded and forestalls threat of one-mission program
- Krimigis and Huntress as 2 key actors
- Discovery's impact on US planetary and space science programs