

**Presentation to NASA Advisory Council**

**SPACE SCIENCE ADVISORY COMMITTEE**

**Report**

**April 13, 1994**

**Claude R. Canizares (Chair)**

## SPACE SCIENCE ADVISORY COMMITTEE

- **Membership;**
  - **Chair + 16 members from Universities, NASA Centers, Industry**
  - **Expertise in Astrophysics, Planetary, Space Physics Education and Technology**
- **Subcommittees:**
  - **Astrophysics Subcommittee**
  - **Space Physics Subcommittee**
  - **Solar System Exploration Subcommittee**
- **Meetings:**
  - **January 18-20, 1994**
  - **March 21-23, 1994**
  - **Plus executive committee meetings and telecons**
- **Principal Activity: Assisting OSS in formulating strategic plan**
  - **subcommittees worked closely with Divisions**
  - **full committee reviewed division and integrated plans**
  - **reviewed draft Education and Technology plans**

## **SPACE SCIENCE ADVISORY COMMITTEE**

### **Principal Findings:**

- **Statement on FY1995 Budget Request**
  - supports balanced program across agency in FY95
  - preserves highest priority programs in space science
  - concern for declining budget in out years
  - supports Administrator's determination to alleviate this
  
- **Resolution on Global Geospace Science (GGS) mission**
  - reasserts importance of GGS program
  - supports efforts to repair WIND & POLAR
  - urges launch of WIND & POLAR
  
- **Statement on the 1995 Strategic Plan for Space Science**
  - identifies characteristics of a viable space science program
  - defines highest strategic priorities for 1996-2000
  - enumerates deferred, deleted and descoped priorities

## SPACE SCIENCE ADVISORY COMMITTEE

### Statement on the 1995 Strategic Plan for Space Science

- **Characteristics of *aviable* space science program:**
  - **Quality:** must remain at forefront of key disciplines
  - **Vitality:** must deliver products at reasonable rate
  - **Community:** must attend to necessary human resources
  - **Efficiency:** must make most cost-effective use of resources
  
- **Actions to achieve Quality**
  - **Choices based on scientific priority *and* discipline balance; missions making major advances should not be abandoned**
  
- **Actions to achieve Vitality**
  - **frequent opportunities for steady advances in space science**
  
- **Actions to achieve Community**
  - **attention to training, diversity, maintaining key capabilities**
  
- **Actions to achieve Efficiency**
  - **continue efforts to maximize efficiency; sharply define scientific objectives; make effective use of prior investments**

**SPACE SCIENCE ADVISORY COMMITTEE**

**Statement on the 1995 Strategic Plan for Space Science**

- **Highest strategic priorities for 1996-2000:**
- **Current Program: achieve optimum discovery potential from existing assets**
  - operating missions (~\$4.5B investment over ~20 yrs)
  - missions in development (GGs, Cassini, AXAF)
  - special consideration for Mars Surveyor I & II
- **Future Program: initiate new programs & prepare for future**
  - Provide frequent opportunities with small, fast missions  
*Highest Priority: continue Explorer & Discovery, initiate Solar-Terrestrial Probes, and begin SOFIA*
  - Initiate selected moderate programs  
*Highest Priority: Space Infrared Telescope Facility, Pluto Fast Flyby, and Solar Probe*
  - Leverage NASA investment with international cooperation
  - Prepare for future missions through technology (R&A)

**SETTING PRIORITIES:  
RESPONSES TO A CHANGING ENVIRONMENT IN SPACE SCIENCE FUNDING IN THE 1990s**

**Flagship/Moderate Missions Deleted**

- CRAF** Detailed, close-up studies of a comet and asteroids; primitive solar system material.  
**GAMMA RAY SPECTROSCOPY MISSION** US role in ESA study of nuclear emission from interstellar medium & supernovae  
**ORBITING SOLAR LABORATORY** Fundamental processes in the solar atmosphere & corona, solar flares  
**SUBMILLIMETER INTERMEDIATE MISSION** Interstellar molecules, star formation in diffuse interstellar clouds

**Missions Deferred beyond year 2000**

- ASTROMETRIC INTERFEROMETRY MISSION** Ultra-high angular resolution studies of stars & quasars  
**ASEPS-1** Comprehensive exploration and study of other planetary systems  
**ASTROMAG** Properties and origins of cosmic ray elements, isotopes and anti-particles  
**GRAND TOUR CLUSTER** Multi-point measurements of space plasma environment of Earth  
**MESUR JUPITER** Detailed study of largest planet in the solar system  
**SATURN PROBE** In situ measurements of the composition and structure of Saturn's atmosphere

**Missions Retained but Significantly Descoped**

- AXAF** Reduced instrumentation, lifetime; AXAF-S deleted; reduced capability to study properties and chemical composition of celestial objects  
**CASSINI** Deleted instrument scan platform; reduced flexibility for icy satellite observations; reduced instrument coverage and sensitivity  
**HESP** Reduced capability with HESI to study impulsive energy release in solar flares  
**IMI** Reduced capability with MI to study Earth's global magnetosphere; in situ measurements deleted;  
**MESUR NETWORK** Reduced capability on Mars Surveyor to study Martian atmosphere, rocks & soil  
**SIRTF** Reduced instrumentation and lifetime; reduced capability to study cool objects, interstellar gas and outer solar system  
**TIMED** Reduced instrumentation and orbital coverage with MTI to study unexplored upper reaches of Earth's atmosphere