

EOS GOAL

Establish comprehensive, integrated program of space-borne observations that will improve understanding of processes and develop long-term calibrated global data set to observe natural and human-induced changes.

Criteria to Be Considered

Scientific priorities — guided by the CEES and IPCC and focusing on continuity of global data sets.

Policy priorities — global change on time scales of decades to centuries, near-term results.

Technical readiness of instruments and maturity of interpretation of measurements.

Ongoing and planned activities by international partners and domestic agencies, both space missions and other programs.

BUILDING BLOCKS: IPCC PRIORITIES

- a. **Water and Energy Cycles:** clouds and radiative properties, hydrology and moist processes.
- b. **Oceans:** exchange of energy and chemicals.
- c. **Chemistry of troposphere and lower stratosphere.**
- d. **Land surface hydrology and ecosystem processes:** runoff; sources and sinks of gases; exchange of moisture and energy.
- e. **Polar ice sheets and sea ice.**
- f. **Chemistry of the middle and upper stratosphere.**
- g. **Solid Earth:** interactions with hydrologic cycle and ecosystems, role in climate change.

EOS PAYLOAD (scientists' recommendation planned October 28)

- 1998 launch date of first platform must not be sensitive to FY 92 and FY 93 budgets. Following scenario is in approximate priority order.

1. Following instruments on two or three platforms launched 1998-2000:

AIRS/AMSU/MHS	improved sounding of atmosphere
ASTER	fine-resolution measurements of surface from visible to infrared (→ HIRIS on 2nd launch)
CERES	Earth's radiation balance
HIRDLS	ozone, methane, temperature, water vapor in stratosphere
MIMR	microwave radiometer for sea ice, snow cover, atmospheric water vapor
MISR	multi-angle measurements for aerosols, surface reflectance
MODIS-N	global mapping of vegetation, ocean, temperature
MOPITT	carbon monoxide and methane in troposphere
SAGE III	aerosols, ozone in stratosphere (also in a non-polar orbit on satellite of opportunity)

2. Continuation of SeaWiFS and links to OCTS and MERIS for data.

3. Platform(s) of opportunity:

ACRIM total solar irradiance
SOLSTICE ultraviolet solar irradiance

4. Special platforms:

ALT/GGI altimetry of ocean surface
TES wide range of tropospheric chemical species

5. Scatterometer for measurement of surface vector winds over oceans.
Europeans will fly A-SCATT; we need to evaluate.

6. Precise altimetry of polar ice sheets

GLRS-A laser altimeter

7. Laser atmospheric wind souncer.

LAWS measurement of tropospheric winds

8. Synthetic aperture radar

SAR sea ice motion, biomass, soil moisture, snow properties

9. Stratospheric chemistry: what instruments after UARS?

10. Ocean color spectrometer. European (MERIS) and Japanese (OCTS) instruments need evaluation.

PAYLOAD PANEL MEETING

- Payload Panel composed of Interdisciplinary PIs (may send ONE substitute). Instrument PIs, co-Is, and Team Members are invited as observers.
- IWG Disciplinary Panels report to Payload Panel on instrument priorities (20 minutes at beginning of Payload Panel meeting, plus short—5-10 pages—written report).

alHist_Blz.Applied
alHist Blk.CalSite1

These Coefficients are copies of the
CAIConst Blk data which are stored to the

CalHist_Blz

Structure

- Must contain specific, prioritized recommendations.
- Must endorse (or reject) IPCC/CEES science priorities.
- Must focus instruments “appropriately” among science priorities.

EOS EXTERNAL ENGINEERING REVIEW

Mission Architecture

- Organize mission plans around prioritized USGCRP science goals.
- Refine strategic plan.

Instruments

- Support instrument technical development.
- Include pre-operational instruments and NOAA.

EOSDIS

- Give Version 0 high priority; possibly strengthen.
- Carry out external technical review of EOSDIS.

Launch Vehicle

- Change baseline to smaller launchers.

Relations with Other Agencies

- Use DoD- and DoE-developed instruments to launch by 1995.
- Include DoD and DoE within redefined "U.S. Global Change Observing System."
- CEES to develop such a USGCOS:
 - Process studies with small systems, RPAs, and ground programs.
 - Satellites to monitor key variables.
 - New technological developments for smaller instruments.
 - Comprehensive Earth Science Data System.

HOUSE-SENATE CONFERENCE REPORT

–\$65 million from the Earth Observing System platform

- \$271 million for EOS program, including full request of \$82.6 million for EOSDIS.
 - Program is capped through FY 2000 at \$11 billion.
 - NASA is directed to place EOS instrument configuration on smaller, multiple platforms. NASA should assess various launch option configurations before recommending final framework to Committees.
 - NASA should outline how its revised instruments for EOS will answer the issues on global climate change outlined in EPA report, *Policy Options for Stabilizing Global Climate* (1990).
 - NASA should submit its restructured EOS program to Committees for their approval by February 1, 1992. NASA should refrain from additional contract awards for instruments until Committees have approved.
- +\$25 million for CIESIN, to continue study and development of

- +\$20 million for Earth Probes, including \$5 million for additional instruments on TRMM and \$15 million to “initiate the ClimSat mission.”
- –\$5 million from Remotely Piloted Aircraft.
- +\$2.5 million for Landsat.
- +\$4 million for increased climate modeling studies.
- +\$2.25 million to academic programs, including \$1.5 million for the classroom of the future program at Wheeling Jesuit College, \$0.75 million for Delta College Learning Center, Michigan.
- –\$5 million from information systems.
- –\$18.2 million from UARS.
- –\$36.625 million from space and ground networks.

\$525 million for construction of facilities

- +\$6 million for classroom of the future at Wheeling Jesuit College.
- +\$3.4 million for CIESIN architecture and engineering design.
- +\$20 million for the Christopher Columbus Center of Marine Research and Exploration.
- +\$18.5 million for the National Technology Transfer Center.
- +\$10 million for an independent software validation and verification at West Virginia University.