7. Major Proposal Activities in 1998

1998 presented the Laboratory for Atmospheres with unusually abundant opportunities for proposing new instruments and missions. Successful proposals form the foundation of our research. Proposals generated in response to Announcements of Opportunity for new missions and instrument systems are extensive in scope and represent a major Laboratory investment in the future.

Our scientists responded to this year's opportunities with an exceptional number of proposals for substantial new work. We've put forward 22 proposals as principal investigators and 4 proposals as major co-principal investigators. At the time of this writing, 10 proposals have been funded, combined with other funded proposals, or included as the basis for new Earth Observing System missions. Four proposals are still being evaluated.

The proposals are listed below. Note that the participants come from our own lab, other parts of Goddard Space Flight Center, other government labs, universities, companies, and a variety of foreign organizations. Many who contributed significantly in preparing proposals are not listed individually.

**** Invited to EOS-2 Workshop (where the future EOS missions were discussed and evaluated).***
**** Winning Proposal***

Responses to Requests for Information for EOS-2

1. The Radiative Energy Leaving Earth: Spectral, Diurnal, and Angular Variation, with First Application to Indirect Effect of Aerosols (Leonardo)

PI: Warren Wiscombe (NASA GSFC)
Co-I's: Yoram Kaufman (NASA GSFC), Bruce Barkstrom (NASA LaRC), Bruce Wielicki (NASA LaRC), Michael King (NASA GSFC), Si-Chee Tsay (NASA GSFC), Christina Hsu (NASA GSFC), John Townshend (Univ. of Maryland)

2. A Global Integrated Rainfall Observing System (GIROS)

PI: Christian Kummerow (GSFC) *
Co-I's: Eastwood Im (JPL), Roy Spencer (MSFC), Robert Adler (GSFC), Eric Smith (FSU), Thomas Wilheit (Texas A&M), Christopher Ruf (Penn State), Kenji Nakamura (Japan), A. Mugnai (Italy), Christopher Kidd (UK), L. C. Lee (Taiwan), Oswaldo Massambani (Brazil)

3. Regional Air Pollution and Tropospheric Ozone Retriever (RAPTOR)

PI: William Brune (Penn State University)
Co-I's: James Gleason (NASA GSFC), P.K. Bhartia (NASA GSFC) *

4. Windsat Mission

PI: Robert Atlas (NASA GSFC)
Co-I's: C. Laurence Korb (NASA GSFC), Cristina Flesia (Universite de Geneve), John Anderson (Space Science and Engineering Center), Michael Hardesty (NOAA Environmental Technology Laboratory), Ross N. Hoffman (Atmospheric and

Environmental Research, Inc.), Arthur Hou (NASA GSFC), Donald R. Johnson (University of Wisconsin), Daniel Keyser (State University of New York), R. N. Krishnamurti (Florida State University), Bruce Gentry (NASA GSFC)

5. Synchronous Technology, Operations, and Research Mission (STORM)

PI: Paul Menzel (NOAA/NESDIS)
Co-PI: Robert F. Adler (NASA GSFC) *
Co-I's: D. Keyser (SUNYA), T. VonderHaar (CSU), H. Christian (NASA/MSFC),
R. Dickerson (UMD), E. Smith (FSU), C. Brown (NOAA/NESDIS)
Mission Manager: Del Jenstrom (NASA GSFC)
Imager Instrument PI: Dennis Chesters (NASA GSFC)
Infrared Sounder PI: Bill L. Smith (NASA LaRC)

6. Cloud and Aerosol Satellite Experiment (CASE)

PI: James Spinhirne (NASA GSFC) *
Co-I's: Jay Herman (NASA GSFC), Gerald Heymsfield (NASA GSFC), Robert Cahalan (NASA GSFC), Yoram Kaufman (NASA GSFC), Si-Chee Tsay (NASA GSFC), Brian Cairns (NASA GSFC), James Wang (NASA GSFC), Graeme Stephens (Colorado State Univ.), Steven Ackerman (Univ. of Wisc.), Henry Revercomb (Univ. of Wisc.), Edward Eloranta (Univ. of Wisc.), Bruce Wielicki (NASA LaRC), Patrick Minnis (NASA LaRC), Thomas Charlock (NASA LaRC), David Winker (NASA LaRC)

7. Volcanic Research & Applications Experiment (V-RAX)

PI: Arlin Krueger (NASA GSFC)
Co-I's: William I. Rose (Michigan Tech University), P.K. Bhartia (NASA GSFC), Gregg Bluth (Michigan Tech University), Peter Francis (Open University), Fred Prata (CSIRO), Stephen Schaefer (UMBC), Steven Self (University of Hawaii)

8. Satellite Occultation Laser Experiment (SOLEX)

PI: Paul Newman (NASA GSFC)
Co-PI: John Burris (NASA GSFC)
Co-I's: Richard Stewart (NASA GSFC), Bill Heaps (NASA GSFC), P.K.Bhartia (NASA GSFC), John Kumer (Lockheed Martin)

Earth Systems Science Pathfinder (ESSP)

1. Atmospheric Pollution Aerosol & Chemistry Satellite (APACS)

PI: P. K. Bhartia (NASA GSFC)
Deputy: E. Hilsenrath (NASA GSFC)
Co-I's: V. S. Connors (NASA LaRC), J. Fishman (NASA LaRC)

2. Volcanic Ash Mapper (VOLCAM) **

PI: A. J. Krueger (NASA GSFC)
Co-I's: P. K. Bhartia (NASA GSFC), S. J. Schaefer (UMBC), G. P. Ellrod (NOAA),
J. Fishman (NASA LaRC), S. Q. Kidder (Colorado State Univ.), N. Krotkov (Raytheon STX), J. Luhr (Smithsonian Institution), M. M. Millan (Center for Environmental Studies in the Mediterranean), F. Prata (CSIRO), W. I. Rose (Michigan Technological Univ.), G. Bluth (Michigan Technological Univ.), V. Realmuto (NASA JPL), S. Self (Univ. of Hawaii), J. D. Spinhirne (NASA GSFC), J. L. Stanford (Iowa State Univ.)
Inter-Agency Partner Reps: B. H. Ramsay (NOAA/NESDIS), G. Stephens (NOAA/NESDIS), H. M. Wood (NOAA/NESDIS), M. Guffanti (US Geological Survey), P. P. Leahy (US Geological Survey)
Commercial Partnership Reps: G. Wilson (Ball Aerospace), E. L. Vande Noord
(Ball Aerospace)

Instrument Incubator

1. A Small, Lightweight Radiometer to Improve the Temporal Sampling of Rainfall **

PI: C. D. Kummerow (NASA GSFC)
Co-I's: T. Wilheit (Texas A&M Univ.), C. Ruf (Penn State Univ.), S. Neeck (NASA GSFC), J. Shiue (NASA GSFC)

2. Compact Hyperspectral Mapper for Environmental Remote Sensing Applications **

PI: S. Janz (NASA GSFC)
Co-I's: E. Hilsenrath (NASA GSFC), G. Mount (Washington State Univ.),
D. Heath (Research Support Instruments)

3. Development of a LEISA-like Earth-viewing Spectrometer: An Airborne Simulator for Leonardo Space Mission

PI: S.-C. Tsay (NASA GSFC)
Co-I's: M. D. Jhabvala (NASA GSFC), Y. J. Kaufman (NASA GSFC), M. King (NASA GSFC), L. A. Remer (NASA GSFC), D. C. Reuter (NASA GSFC), P. K. Shu (NASA GSFC), W. J. Wiscombe (NASA GSFC), P. A. Pilewskie (NASA Ames)

4. Zephyr Direct Detection Molecular Wind Lidar Ground and Airborne Field Validation Program

PI: B. Gentry (NASA GSFC)
Co-I's: G. Schwemmer (NASA GSFC), R. Atlas (NASA GSFC), A. Martino (NASA GSFC), S. X. Li (SES), M. McGill (NASA GSFC)

5. An Advanced Geosynchronous Imager (AGI) for NASA 's Earth Science Research Enterprise, Suitable for Infustion into NOAA 's GOES Program

PI: D. Chesters (NASA GSFC)

6. A Compact Multispectral Infrared and Visible Spectral Imaging Radiometer for Cloud and Surface Observations from Small Spacecraft, Engineering Model Development **

PI: J. D. Spinhirne (NASA GSFC)
Co-I's: V. S. Scott (NASA GSFC), K. F. Manizade (SSAI), P. K. Shu (NASA GSFC)

7. Airborne Scanning Raman Lidar System Based on a Holographic Optical Element Scanner/Receiver **

PI: D. N. Whiteman (NASA GSFC)
Co-I's: G. Schwemmer (NASA GSFC), R. Rallison (Ralcon Development Lab),
H. Plotkin (UMBC)
Collaborator: S. H. Melfi (UMBC)

8. High-Efficiency, All Solid-State Multi-Channel Doppler Lidar

PI: M. J. McGill (NASA GSFC)
Co-I's: V. S. Scott (NASA GSFC), J. D. Spinhirne (NASA GSFC), W. B. Cook (Univ. of Michigan), W. R. Skinner (Univ. of Michigan)

9. Thor Lidar: Cloud Thickness from Offbeam Lidar Returns

PI: R. F. Cahalan (NASA GSFC)
Co-I's: W. Heaps (NASA GSFC), M. McGill (NASA GSFC), J. Spinhrine (NASA GSFC), S. H. Melfi (UMBC), A. B. Davis (Los Alamos Nat 'l Lab), C. Ho (Los Alamos Nat 'l Lab), S. Love (Los Alamos Nat 'l Lab)

10. An Efficient, Compact Airborne Tropospheric Ozone Lidar Instrument for Validation of New Generation Satellite Ozone Sensors and Regional Ozone Transport Studies

PI: T. J. McGee (NASA GSFC)

Co-I's: J. Burris (NASA GSFC), L. Twigg (SAC), E. V. Browell (NASA LaRC),
J. Barnes (NASA LaRC), M. Storm (SAIC), W. Marsh (SAIC), T. Chyba (Hampton Univ.), T. Zenker (Hampton Univ.), S. Higdon (ITT Science & Systems), D. Richter (ITT Science & Systems)

11. A Study of Laser Occulation Technique to Measure Global Tropospheric Ozone

PI: J. Burris (NASA GSFC)
Co-I's: R. Stewart (NASA GSFC), W. Heaps (NASA GSFC), G. Chin (NASA GSFC),
D. Heath (NASA GSFC), P. K. Bhartia (NASA GSFC)

TRIANA

1. Triana Earth Radiometry and Imaging (TERI) **

PI: Dr. Francis P.J. Valero (Scripps Institution of Oceanography)
Co-I's: Dr. Jay Herman (NASA GSFC), Keith W. Ogilvie (NASA/GSFC), Mario Acuina (NASA GSFC), Ron Freedman (Triana Worldcast, Inc.)

New Millennium Program (NMP) EO-3

1. High-Resolution Microwave Imaging of the Earth Using Formation Flying in Geosynchronous Orbit for Aperture Synthesis

PI: Dennis Chesters (NASA GSFC)
Co-I: David Weidow (NASA GSFC)

2. Active Large Aperture Optical System to Provide High Resolution Thermal Imaging from Geosynchronous Orbit

PI: Del Jenstrom (NASA GSFC) *
Co-I: Dennis Chesters (NASA GSFC)

3. Intelligent Array Camera and Spectrometer (IACAMS)

PI: Jay R. Herman (NASA GSFC)
Co-I's: William Heaps (NASA GSFC), Larry Jason Paxton (JHU Applied Physics Laboratory)

4. Tropospheric Regional Air Quality Monitor (TRAQM)

PI: James Gleason (NASA GSFC) **
Co-I's: William Brune (Penn State), Jaohn Kumer (Lockheed Palo Alto Research Labs)

Responsible NASA official: Bob Theis