NASA Applied Sciences Program: ROSES 2008 Proposal Teleconference

Applied Sciences Program Team
Earth Science Division

May 30, 2008

Earth Science Serving Society

Applied Sciences – 2008 Solicitation

Today's Agenda

- Introduction and welcome
- NASA Applied Sciences Program Overview
- ROSES 2008 Solicitation Overview
- Tips and Suggestions
- Questions & Discussion

Logistics and Information

- During presentations from NASA HQ, phone participants will be in a “listen only” mode. The lines will be opened for questions after the NASA HQ presentations are completed and a selection of web interface questions are answered. Please put your phone on mute when not speaking, and do not put us on hold as music may play at your location.
- Questions will be submitted through the web interface first and then voice as time permits.
- Opening presentations will not last more than 30 minutes, we will have about 1 ½ hours for questions.
- Answers to questions will be provided later on the NSPIRES website and NASA’s Applied Sciences Program websites.
- We encourage you to read the solicitation completely and access our website for more information.

NASA
Applied Sciences Program
Overview

National Aeronautics and Space Act of 1958:

To pioneer the future in space exploration, Scientific discovery, and aeronautics research.

NASA Strategic Goal 3

Develop a balanced overall program of science, exploration, and aeronautics consistent with the redirection of human spaceflight program to focus on exploration.

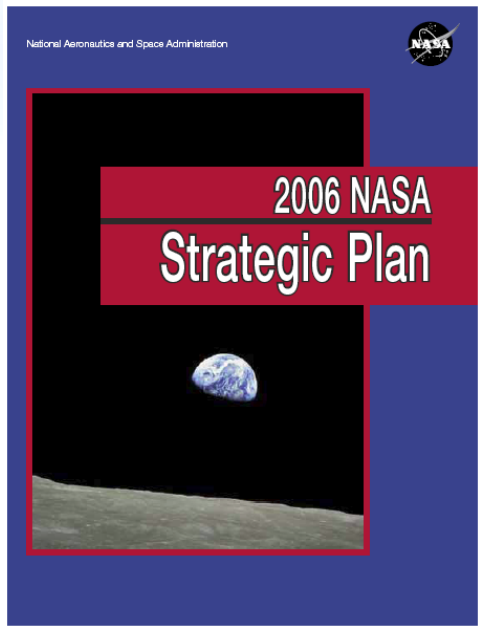
NASA Science Goals:

1. ***Study Earth from space to advance scientific understanding and meet societal needs. (Earth Science)***

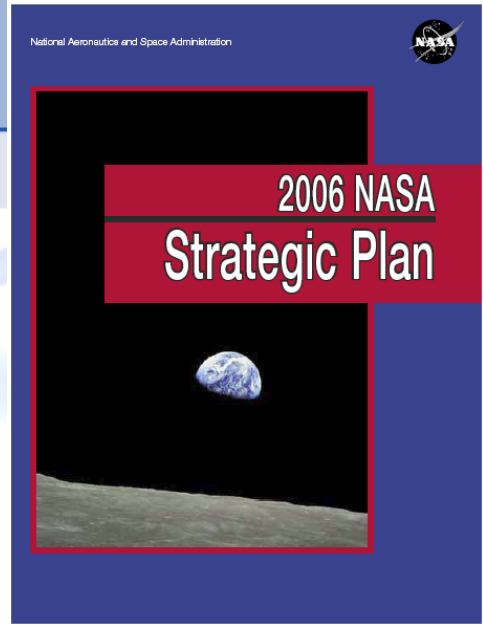
2. Understand the Sun and its effects on Earth and the solar system. (Heliophysics)

3. Advance scientific knowledge of the origin and history of the solar system, the potential for life elsewhere, and the hazards and resources present as humans explore space. (Planetary Science)

4. Discover the origin, structure, evolution, and destiny of the universe, and search for Earth-like planets. (Astrophysics)



2006 NASA Strategic Plan



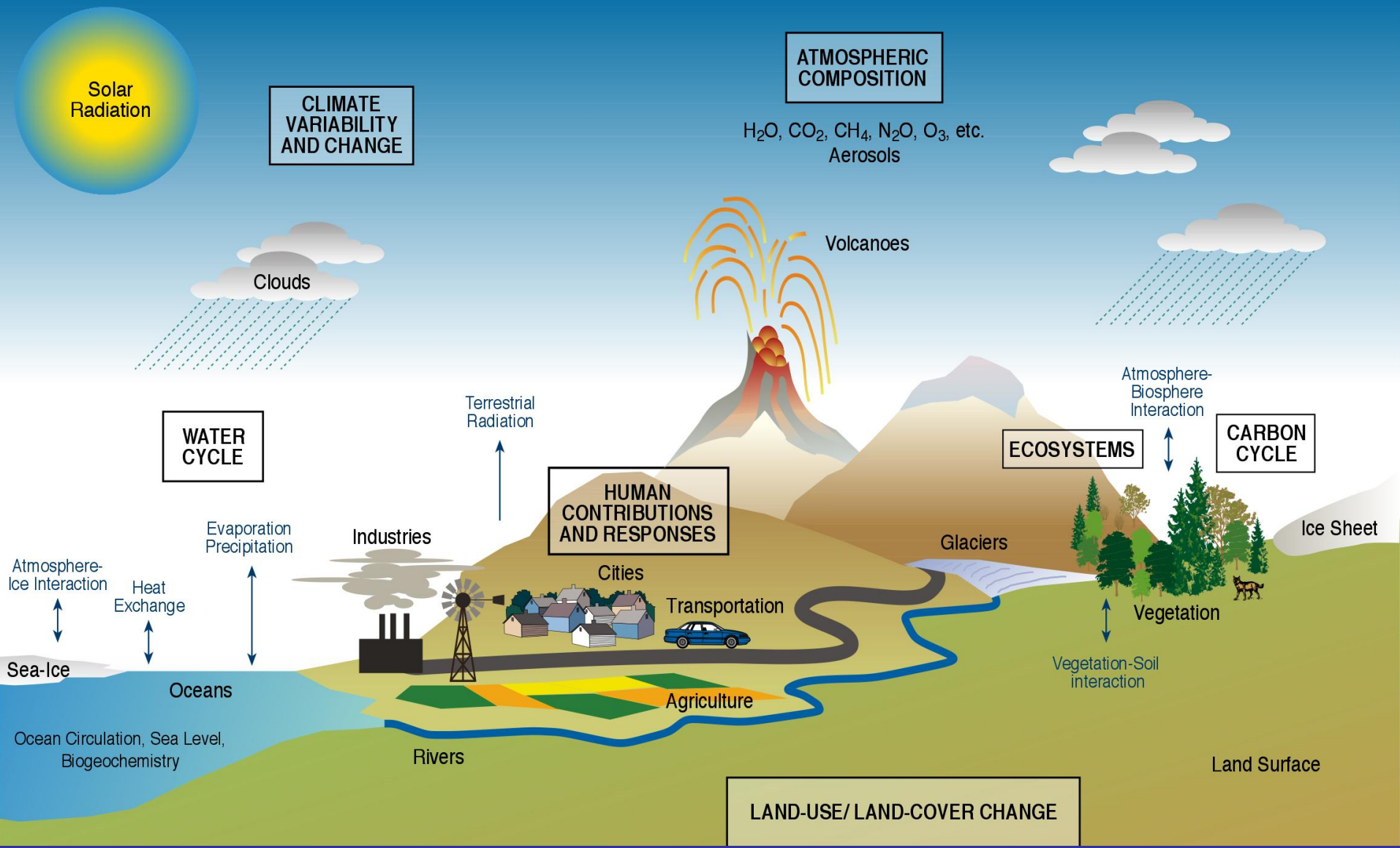
NASA Strategic Goal 3

Develop a balanced overall program of science, exploration, and aeronautics consistent with the redirection of human spaceflight program to focus on exploration.

NASA Sub-Goal 3A:

Study Earth from space to advance scientific understanding and meet societal needs.

NASA's partnership efforts in global modeling and data assimilation over the next decade will shorten the distance from observations to answers for important, leading-edge science questions. ***NASA's Applied Sciences program will continue the Agency's efforts in benchmarking the assimilation of NASA research results into policy and management decision-support tools that are vital for the Nation's environment, economy, safety, and security****. NASA also is working with NOAA and inter-agency forums to transition mature research capabilities to operational systems, primarily the polar and geostationary operational environmental satellites, and to utilize fully those assets for research purposes.*



NASA Earth Science

Understanding Climate Change
Advancing Earth System Science
Providing Societal Benefits

Earth Science Division

Five major activities:

1. **Conducting satellite missions**
2. **Sponsoring cutting-edge research in 6 Focus Areas**
3. **Making high-quality data products available**
4. ***discover and demonstrate* practical applications of NASA Earth science research and capabilities.**
5. **Developing new technologies to improve Earth observation capabilities**

NASA Applied Sciences

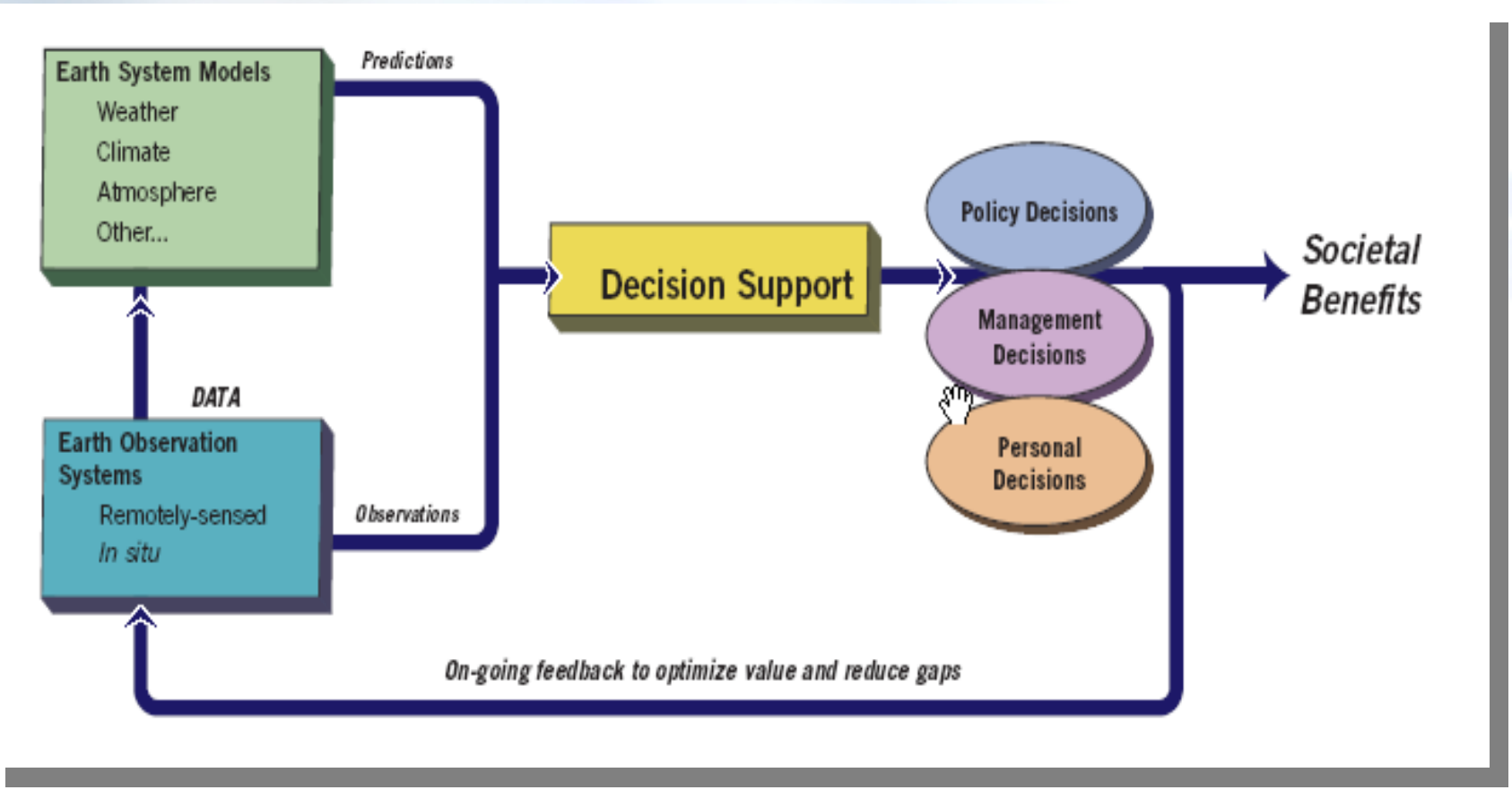
The NASA Earth Science Applied Sciences program *discovers and demonstrates* practical applications of NASA Earth science research and capabilities.

Our goals are to:

- Expand the benefits of NASA Earth Science across a broad range of societal needs.
- Demonstrate new decision support tools for resource managers and policy makers for potential operational use.
- Provide the applications view point in the design of new missions and research.
- Provide a strong interface to the external community: the public, the interagency community, policy and law makers

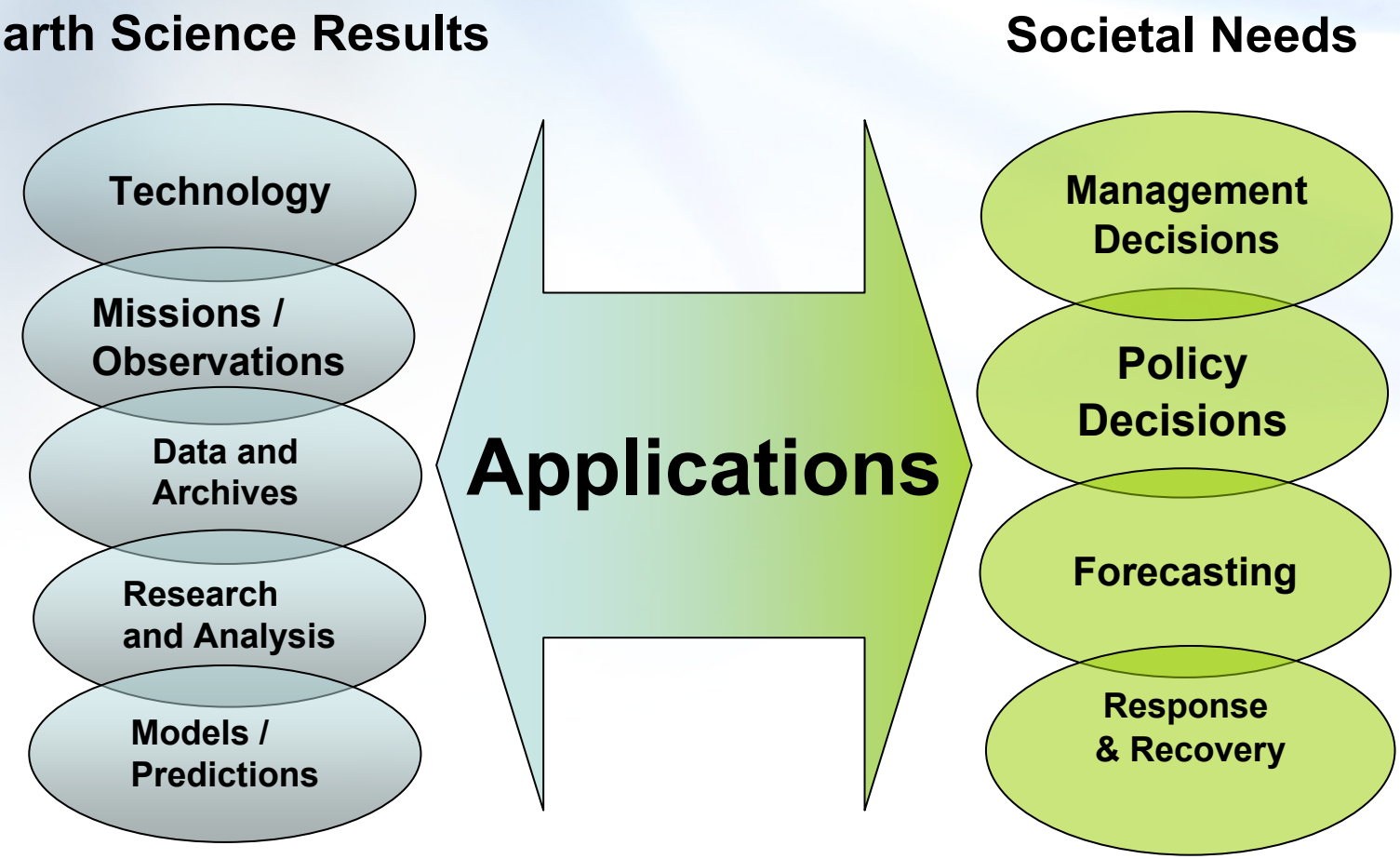
Applied Sciences Program

Linking Earth Observations to Societal Benefits



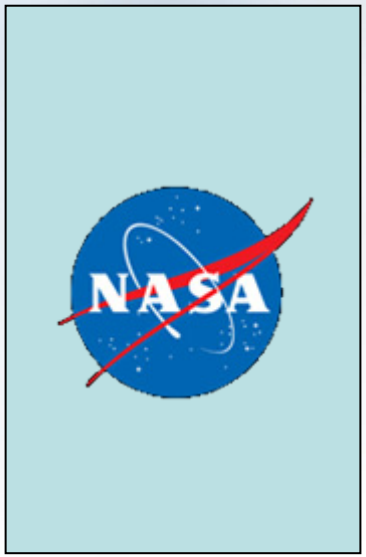
NASA Earth Science Applications

Applied Sciences will work across the "gap" and will utilize all means to utilize Earth Science results, within the limits of NASA's mission



Applied Sciences Program

Overview of Program



National & International Organizations, Private Sector, Federal Agencies

Western Governors Association

American Water Resources Association

Coastal States Organization

Companies

…

- State Agencies
- Regional Organizations
- Local Entities
- Tribal Authorities
- Economy
- Society

NASA works with organizations with management responsibilities and established networks …

… to extend benefits of Earth science products to their end users and society.

Applied Sciences Program

Eight Program Elements

Agricultural Efficiency

Air Quality

Climate

Disaster Management

Ecological Forecasting

Public Health

Water Resources

Weather

Applied Sciences Program

Overview of Program - Climate

Climate application area:

- **Use of Earth science products to support policy approaches, analyses, and decisions the nation will consider in responding to climate change**
- **Use of Earth science products to assess benefits and impacts from alternative policies and implementation approaches**
- **Incorporating long-range Earth science predictions and model predictive capabilities into decision-making.**
- **Addresses national to regional decision-support activities, carbon and energy management applications, adaptation and mitigation, etc.**

Note: Goal IS NOT the development of a policy

Goal is the application of Earth science products to help assess potential benefits and impacts of possible policies

Applied Sciences: Operating Guidelines

Applied Sciences focuses on those areas where NASA can have greatest impact:

- ***NASA capability and expertise***
- ***Demonstrated societal need***
- ***Receptivity to application—strength of partnerships***

- Select projects through open, competitive solicitations.
- Use existing infrastructure for data archiving, distribution and product generation.
- Define projects, and identify decision support tools, through ***partnerships with organizations with operational responsibilities. e.g.***

ROSES 2008
Solicitation Overview

Applied Sciences – 2008 Solicitation

ROSES-2008

A.18 <u>Decision Support through Earth Science Research Results</u>

Results-oriented projects focused on the integration of Earth science research results into decision making activities related to one or more of the eight applications areas.

A.19 <u>Earth Science Applications Feasibility Studies</u>

Short-term, feasibility studies of applications of Earth science research results that will improve decision-making activities.

<u>Decision Support Projects and Feasibility Studies:</u>

1. **Projects that *enhance the performance of decision-making activities* and processes through the integration of NASA Earth science products;**
   - **decision making activity may be existing or in development by the owning organization**

2. **Projects that develop *new capabilities for decision making,* provided**
   - **need and activity can be clearly defined, and**
   - **end users are strongly involved in the project and expressly committed to maintaining, supporting, and using the decision-making activity.**

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ROSES-2008 - General

- **Potential national impact and/or of U.S. national importance**
  - International, regional, sub-regional certainly allowed
  - Onus on proposal to articulate the national importance of the decision – making project whether international or regional in nature
  - Project should show progress in demonstrating national importance during project lifetime
- **Document improvements in the performance of the decision making**
  - Have quantitative performance measures
  - Have a a baseline performance
- **Solicitations do NOT support basic science research**
  - "Research" to integrate Earth science products in decision tools is fine

• This solicitation is for new awards. NASA will not accept proposals for successor proposals to solicited projects whose periods of performance are ending nor proposals for supplemental funding of existing, solicited projects in response to this solicitation

- **Solicitations focus on applying the current "State of the Knowledge" and/or "State of the Practice" in Earth science**

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ROSES-2008 - General

Project Teams:

Organizations and collaborations spanning organizational sectors and expertise
- Sectors: academia, private, Federal, public, nonprofit, etc.
- Expertise: technical, management, scientific, etc.

Strongly encourage non-Federal organizations (e.g., companies, associations, universities, nonprofits) to also be part of teams (especially on Federal-led projects)
- Provides continuity after NASA funding ends

End user organizations with the decision-making responsibilities must be explicitly identified and involved as active participants in the project.

Be creative in use of Co-Is, Collaborators, Advisors to play key roles:
- Statisticians
- Economists
- Representatives from key associations

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ROSES-2008 - General

Earth Science Products and Research Results:

• Proposals must include some NASA Earth science products.

• Proposals may use multiple Earth science products from other sources in conjunction with the NASA products:

- Appropriate products and environmental data
- Other agencies, commercial entities, and international organizations
- Weather satellites and model analyses
- Long term environmental surface data records
- European satellites, etc.

• The consultation with or inclusion of satellite mission science team members on these proposals is very strongly encouraged.

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ROSES-2008 – General

New for ROSES-2008 – A.18 & A.19:

No requirement for an existing operational decision support system; that is, proposals can focus on working with operational partners in developing new decision support systems

NASA tools can include current, upcoming, and planned missions

Multiple Principal Investigators are encouraged (e.g. operational PIs and research and project management PIs)

Research elements can now be included; however, any research proposed must be a necessary step toward achieving the application – ***proposals that are research only will be considered noncompliant***

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ROSES-2008 - General

Applications Areas & Climate:

All of the Applied Sciences applications address climate issues in some way

Climate Application seeks to apply of Earth science products to help assess potential benefits and impacts of possible policies

Proposal teams should first assess whether their proposal topic best aligns with one of those program elements

Guideline to determine which application area:

Focus on the decision making activity rather than the type of Earth science products used

ROSES-2008 – A.18 Decision Support

A.18 Overall objectives

Sustained use of Earth science products in decision making activities and an assessment of the value and benefit of the Earth science products.

All proposals must demonstrate a strong interest and commitment by the end users of the decision-making activity to adopt the results from the proposed work (assuming project results are beneficial).

ROSES-2008 – A.18 Decision Support

A.18 – Key Considerations:

- Results-oriented projects
  - Targeted work rather than exploratory
- Integration of Earth science research results into decision making activities
  - Transition plan is very important
  - Focuses on partners that have decision-making & resource management responsibility
  - Project topic is a ***priority*** for organization
- Document improvements in the performance of the decision making
  - Define baseline performance to enable analysis of improvement
- Encourage use of an array of Earth science results
- Section 1.3 has priority topics for each Application Area; contact application program manager for any further clarifications

ROSES-2008 – A.18 Decision Support

A.18 Decision Support through Earth Science Research Results

Total Amount of Funding (FY09-12)	$20M total ($5M per annum)
Anticipated Number of Awards	20 – 23 projects
Expected Range of Award per project	$230K - $310K per annum **
Period of Performance	up to 4 years *
Expected Project Start Date	circa February 1, 2009
Contributions from Partner Organizations	Strongly encouraged. However, partner funding does not count toward funding level guidelines.

* Actual length should be the minimum time needed to perform the project, so the decision-making organization(s) can utilize the improvements and society can begin accruing the benefits of the project as soon as possible.

** Funding profile should average to this range per year

ROSES-2008 – A.19 Feasibility

A.19 Overall objectives

Generate and test preliminary ideas for applications of Earth science products to determine their potential value and readiness for a more in-depth project

The objective of a proposed project must be to test the initial feasibility of a concept for potential application of specific NASA Earth science research results to a decision-making activity.

ROSES-2008 – A.19 Feasibility

A.19 – Key Considerations:

- Short-term, results-oriented projects
- Assess, quantify, and document the potential utility of Earth science products for a potential application

- Identify issues for integration of products into decision making
  - Project can identify critical transition issues to address in a full project
- Encourage use of an array of Earth science results

- Section 1.3 has priority topics for each Application Area; contact application program manager for any further clarifications

- Innovation encouraged – higher-risk, high-return projects

ROSES-2008 A.19 Feasibility

A.19 Earth Science Applications Feasibility Studies

Total Amount of Funding (FY 2009)	$1M total
Anticipated Number of Awards	9-15 projects
Expected Range of Award per project	$60K - $110K
Period of Performance	12-18 months
Expected Project Start Date	circa October 1, 2008
Contributions from Partner Organizations	Encouraged; however, partner funding does not count toward funding level guidelines.

Applied Sciences – 2008 Solicitation

Tips and Suggestions

Tips & Suggestions

General

1. Read the solicitation and criteria ***carefully*** & Respond to the solicitation
2. Sections 4.4 & 4.5 are there to help project teams prepare an Applied Sciences proposal
   a. *Sec. 4.4: solicitation-specific information for proposal content*
   b. *Sec. 4.5: solicitation-specific criteria*
3. Satellite sensors and products have limitations; be clear re: sensor capabilities and limitations
4. Start early to develop well-constructed project/teams/partnerships
   a. *Incorporate well-conceived management approach to project/partnerships*
5. Interdisciplinary teams help; involve end-users in project design
6. Include Co-Is and Collaborators **only** as needed
7. Keep your audience in mind
   a. *Be succinct; don't justify the obvious*
   b. *Explain details, especially technical approach*
8. Don't under price (don't over price either)
9. Contact and communicate with the program manager

Tips and Suggestions

A Few More

10. Submit a well written proposal (organized, legible, proof-read, …)
11. Think about how you'll document improvements in decision making
    - Have a hypothesis; have performance measures
12. Engage Researchers and Science Teams as appropriate
13. Show substantive interest and involvement by end-users
    a. End users should be CoIs and collaborators
    b. Indicate interest/commitment to use results in their decision-making on a sustained basis
    c. Unique letter(s) preferred to multiple letters with nearly-identical words
14. Identify efforts and activities that will benefit both partner organizations and NASA

Tips and Suggestions

The Last Batch

15. Clear understanding of the user community
16. Familiarity of NASA Earth system science and results
17. An array of Earth science research results (especially from recently launched missions and/or simulated products from future missions)
18. Extend NASA science products to decision support tools
19. Well-conceived approach to transition project results (“exit strategy”)
20. 20 – 99 Call the program manager with questions

Questions and Discussion

Back Up Slides

Applied Sciences – 2008 Solicitation

General Terms

- ROSES: Research Opportunities in Space and Earth Sciences
  - Umbrella structure for all Requests for Proposals for NASA Science programs
  - Each ROSES appendix is specific to a program element
  - All Earth Science topics are listed in Appendix A
- ROSES-2008 A.18: Decision Support through Earth Science Results
  - a.k.a., “Decisions”
- ROSES-2008 A.19: Earth Science Applications Feasibility Studies
  - a.k.a., “Feasibility”
- NSPIRES: *http://nspires.nasaprs.com/external*
  - NASA system to access proposal materials & submit proposals
- SMD: Science Mission Directorate
- ESD: Earth Science Division

Applied Sciences Program

Solicitation Process

Typical Applied Sciences Panel Composition:

- Technical & Scientific Aspects (2/3rd of panelist)
- Management and Programmatic Priorities (1/3rd of panelists)

State when space limits your ability to discuss items fully.

If not enough room to include everything, prioritize:

- What information is needed to convey your idea
- What information to convince panel you understand technical issues

Not trying to push the research envelope (panels understand this)

Panelists will check citations and references to see if project team is familiar with important papers

Panelists will look at levels of effort of project team members to assess commitment to the project

Applied Sciences Program

Solicitation Process

- Program manager categorizes proposals
- Program manager assigns mail/panel reviewers
- Program manager chooses panel (primary & secondary reviewers)
  - *4-5 people on a panel reads each proposal*
- Panel evaluates proposals
  - *Criteria from solicitation (Intrinsic Merit, Relevance, Cost)*
  - *Panel discusses and scores each proposal separately*
  - *Panel discusses overall results (proposals to fund, not fund, etc.)*
- Program Manager chooses proposals to recommend, based on:
  - *Panel evaluation and recommendations*
  - *Programmatic considerations (portfolio balance, risk, PI, cost, …)*
- Recommendation presented to selecting official and/or committee
- Selecting official chooses proposals for funding
- NASA announces awards and funding paperwork process begins

Applied Sciences – 2008 Solicitation

ROSES-2008 – A.18 Decision Support

A.18 Section 4.4: Proposal Format and Contents

- Proposal Summary
- Decision-making Activity (Description and Baseline Performance)
- Earth Science Research Results
- Technical Approach (including charts/figures/tables)
- Transition Approach/Activities
- Performance Measures
- Anticipated Results (i.e., hypothesis)
- Project Management
- Schedule
- Statements of Commitment – Co-Is
- Letters from End-User Organizations
- Budget Justification: Narrative and Details
- Facilities and Equipment (if applicable)
- Curriculum Vitae
- Current/Pending Support
- References and citations

Applied Sciences – 2008 Solicitation

ROSES-2008 – A.19 Feasibility

A.19 Section 4.4: Proposal Format and Contents

- Proposal Summary
- Decision-making Activity (Description)
- Earth Science Research Results
- Technical/Scientific/Management Approach (including charts/figures/tables)
- Feasibility Criteria
- Anticipated Results/Improvements (i.e., hypothesis)
- Schedule
- Statements of Commitment – Co-Is
- Budget Justification: Narrative and Details
- Facilities and Equipment (if applicable)
- Curriculum Vitae
- Current/Pending Support
- References and citations

Applied Sciences – 2008 Solicitation

ROSES 2008 FAQ Clarification

Public Health

Q: Does Section 1.3.6 (Public Health) of A.18 preclude proposals that deal with public health focus areas other than "Oceans and Human Health" and "Public Health Impacts of Climate Change"?

A: No. Proposals regarding the public health focus areas of infectious disease, environmental health, and emergency preparedness/response are neither specifically encouraged nor discouraged in this solicitation.

Water Resources

Q. The recent Water Resources amendment said projects concerning flood and drought are discouraged. Does this mean proposals in the area will be rejected or non-compliant?

A. No, proposals concerning flood and drought will be accepted if they meet the solicitation requirements. The Water Resources programs desired proposals related to water quality and availability, but proposals can include flood and drought topics either in a water quality/availability area as well as stand on their own.

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ROSES 2008 FAQ Clarification cont.

Disaster Management

Q. Are Disaster Management proposals limited to Wildfire and Earthquake topics?

A. No, proposals can come from a variety of hazard areas. The desire is to increase the Program portfolio with wildfire and earthquake related projects, but all hazard types are welcomed if the proposal meets the requirements of the solicitation in using NASA data, focusing on areas of National Priority, and reap a significant potential for success in societal benefit.

Q. I have an AWIPS proposal that does not include wildfire or earthquake, but I heard AWIPS is a program focus area in the Applied Sciences Program, will my AWIPS related proposal be rejected?

A. No, AWIPS II or AWIPS Next Generation proposals are desired as the NWS moves to a new AWIPS platform, so AWIPS II related proposals will be accepted for submission in all weather, hazard, wildfire, coastal, marine, and any and all NWS mission requirements. One must be careful, however, that the AWIPS proposal supports the NWS move to the next generation system and the proposal is not to support the current AWIPS platforms currently installed at NWS Forecast Offices.

Applied Sciences Program

Solicitation Process

- Excellent – Outstanding. An opportunity for a major contribution to our field.
  I urge support.
- Very Good - Important contribution.
  I recommend support.
- Good – Competent. It will make a contribution, but the proposal is routine or has correctable deficiencies.
  I suggest support if funds are available.
- Fair - Satisfactory in part. The possibility for a contribution appears limited; routine in character.
  I suggest rejection in its present form.
- Poor – Unsatisfactory.
  I recommend rejection.

5	Excellent
4	Very Good
3	Good
2	Fair
1	Poor

NASA Applied Sciences References

- ROSES 2008 Decisions Solicitation (http://nspires.nasaprs.com/external/solicitations/summary.do?method=init&solId={CCEE5599-4975-1739-0252-7DAD45B6C9EF}&path=open)
- ROSES 2008 Feasibility Studies Solicitation (http://nspires.nasaprs.com/external/solicitations/summary.do?method=init&solId={FA714523-0902-8347-5B47-5D49C9D8A363}&path=open)
- NASA Science Mission Directorate
  - http://nasascience.nasa.gov/
- NASA SMD Earth Science Division
  - http://nasascience.nasa.gov/earth-science
- NASA SMD ESD Applied Sciences Program (additional ROSES info here)
  - http://nasascience.nasa.gov/earth-science/applied-sciences

Applied Sciences Program

NASA Applied Sciences -- Solicitations

Spread of Proposals and Awards by Solicitation and Application Topic

	Decisions-04		ROSES-05		ROSES-07	
	Proposals Reviewed	*Awards*	Proposals Reviewed	*Awards*	Proposals Reviewed	*Awards*
Agricultural Efficiency	23	*2*	8	*1*	21	*3*
Air Quality	11	*2*	13	*3*	20	*5*
Aviation	12	*3*	8	*1*	8	*3*
Carbon Management	7	*2*	1	*0*	6	*2*
Coastal Management	18	*0*	14	*2*	15	*3*
Disaster Management	52	*3*	18	*1*	13	*2*
Ecological Forecasting	29	*2*	7	*2*	11	*4*
Energy Management	2	*0*	3	*2*	4	*1*
Homeland Security	7	*2*	3	*2*	5	*1*
Invasive Species	10	*1*	4	*2*	5	*1*
Public Health	11	*2*	5	*1*	11	*3*
Water Management	22	*3*	10	*2*	23	*5*
Total Proposals * **	172	*22*	94	*19*	120	*33*

* Totals is less than Sum of Proposals Reviewed since a proposals could be reviewed by more than one application area.

** Decisions -04 had 15 Solutions Networks proposals; ROSES-05 had 10 Solutions Networks proposals and 2 awards