



DISCCRS V Symposium
Mesa, AZ

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The slide features a background image of Earth from space, showing the curvature of the planet and the atmosphere. The NASA logo is in the top left corner. The title and speaker information are centered in white text. The date is in the bottom left corner.



The Climate is Changing

- Earth's changing environment will impact every aspect of life on our planet
 - *Climate change has profound implications*
- Humans are the only creatures able to analyze, anticipate, and act now to influence events that will occur generations into the future
 - *Climate change poses profound societal challenges*
- Detecting and separating secular global changes from small-scale variability requires technological skill and deep understanding of the Earth as an integrated system
 - *The fact that we **know** the climate is changing is a profound testament to our human skills and intellect*

The slide has a white background with a blue header bar at the top. The title is in a large, bold, black font. The list items are in a standard black font, with sub-points in italics. The background image shows the Earth's horizon from space.

The Earth System Science Endeavor

- The Earth is an integral, complex system
 - Many processes, with varying time and spatial scales
 - Quantitatively describing the *interactions between processes* is key
- **Measurements** must span all important variables, and all important scales
- **Research** leads to greater understanding, which is codified in numerical models – **prediction**
- Societal benefits result when **understanding** is combined with measurements to generate **useful information products**

NASA's Approach

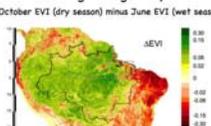
- **Space**-borne measurements feature global coverage, high spatial resolution, and frequent revisit
 - Indirect measurements must be validated
 - Stability and accuracy are essential for trend detection
 - Multiple missions needed for proper sampling
- A comprehensive suite of missions and instruments is required to measure all important quantities
- Inter- and cross- disciplinary research and applications programs are needed to (among other things):
 - Synthesize complementary measurements from multiple missions
 - Advance the use of space-borne measurements by non-mission scientists and other stakeholders

Earth Science @ NASA

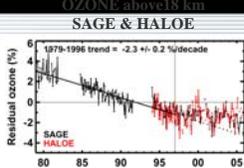
- Overarching goal
 - To advance Earth System Science, including climate studies, through *space-borne data acquisition, research and analysis, and predictive modeling*
- Six major activities
 - Building and operating Earth observing satellite missions, many with international and interagency partners
 - Making high-quality data products available to the broad science community
 - **Conducting and sponsoring cutting-edge research in 6 thematic focus areas**
 - Field campaigns to complement satellite measurements
 - Analyses of non-NASA mission data
 - Modeling
 - Applied science
 - Developing technologies to improve Earth observation capabilities
 - Education and public outreach

Six Thematic Focus Areas

Basin-wide greening in dry season
October EVI (dry season) minus June EVI (wet season)

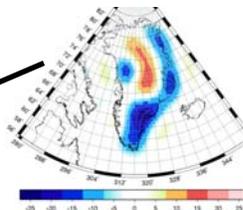


OZONE above 18 km
SAGE & HALOE

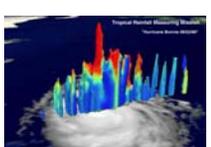


Atmospheric Composition

Carbon Cycle and Ecosystems



Regular Northern Hemisphere Wintertime

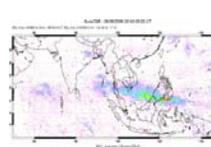


Climate Variability and Change

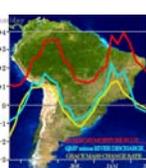
Weather

Water and Energy Cycle

South America



Earth Surface and Interior



NASA Research Opportunities (NRA)

- All research opportunities from the Science Mission Directorate (SMD) at NASAHQ are posted at <http://nspires.nasaprs.com/>
 - Omnibus **Research Opportunities in Space and Earth Sciences (ROSES)** issued annually
- NASA consists of the Headquarters (HQ), nine (9) Centers and the Jet Propulsion Laboratory
- Four (4) Mission Directorates at NASA/HQ
 - Aeronautics
 - Science (SMD)
 - Exploration Systems
 - Space Operations
- Four (4) science Divisions in SMD
 - Astrophysics
 - Heliophysics
 - Earth Science (ESD)
 - Planetary Science
- All Earth Science opportunities in **ROSES Appendix A**

NRA Evaluation Criteria

- **NASA Relevance**
 - How does the proposed investigation addresses the goals and objectives of the most recent NASA strategy document or a specific program element?
- **Intrinsic Merit**
 - Overall scientific/technical merit, unique/innovative methods, approaches, concepts, or advanced technologies demonstrated by the proposal
 - Offeror's capabilities, related experiences, facilities, techniques, or unique combination of these
 - Qualifications, capabilities, and experiences of the PI and key personnel
 - Evaluation against state-of-the-art
- **Cost**
 - Realism and reasonableness of the proposed cost, and comparison of the proposed cost to available funds

Successful vs. Unsuccessful Proposals

What, Why, How, When, How Much, So What?

Clarity

vs.



Tips

- When you think you understand the program announcement or solicitation, **read it again**.
- **No need to annoy the reviewers.**
- **No need to take the risk** of finishing and/or submitting the proposal at the last minute.

Of Interest

- New Investigator Program (NIP) in Earth Science
 - Single-investigator proposals solicited every two years
 - Max. \$120K/year for 3 years
 - Research : Education ~ 2 : 1
- NASA Earth and Space Science Fellowship (NESSF) Program
 - Applications solicited annually
 - \$30K/year up to 3 years; approx. 50 new awards per year
- Guidebook for Proposers Responding to a NRA
<http://www.hq.nasa.gov/office/procurement/nraguidebook/>
- NASA Earth Science
<http://nasascience.nasa.gov/earth-science>