



Science and Demonstration Executive Board

Introduction and overview

John Murphy

NWS/OS&T Programs & Plans Division Chief

Meeting Objectives

- Stimulate high priority scientific advancements for operations
- Understand and assess NWS operational experiences with GOES-R and JPSS Products in the Proving Ground
- Promote existing training, determine new training needs, and discuss collaboration on developing training, including migration of initial PG training to the broader community, to fill gaps in knowledge, skills, and abilities for enhanced performance
- Explore potential among NOAA observing system programs

NWS Plans to incorporate Proving Ground and Risk Reduction results into operations to achieve Weather Ready Nation Goals

Weather-Ready Nation

A Vision for the United States

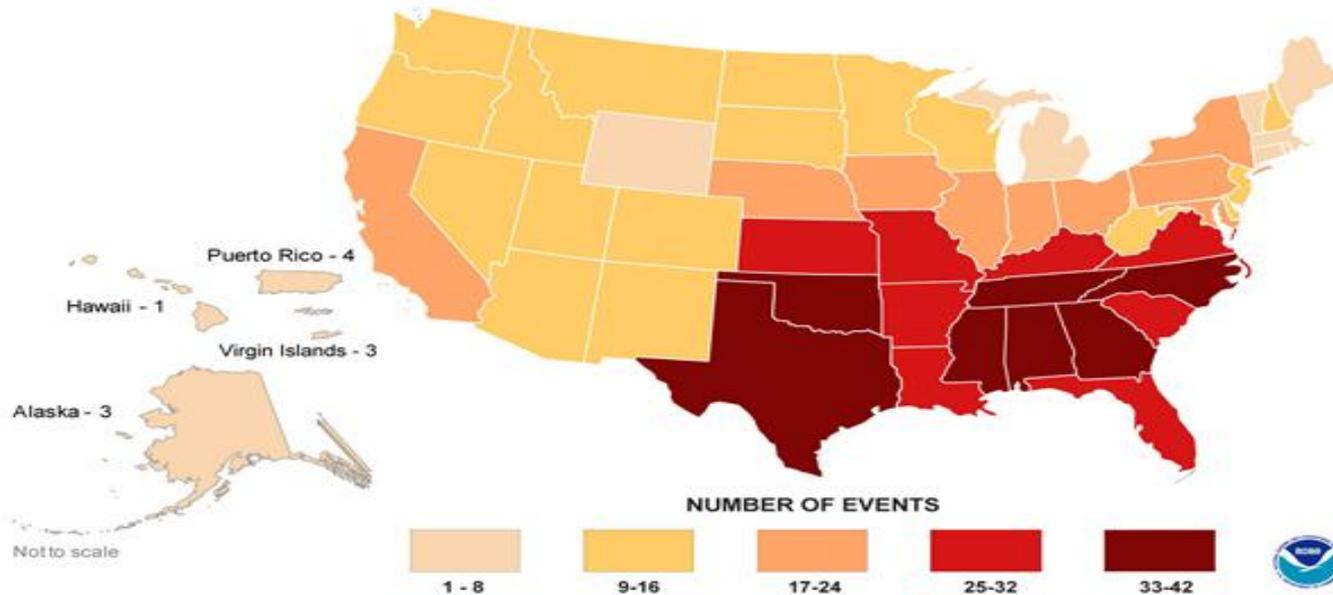
What is a Weather-Ready Nation?

- **Society is Prepared for and Effectively Responds to Weather-Dependent Events**
 - Far less loss of life
 - Far less impact to communities
 - Minimized economic disruption
 - Climate Adaptation

What will it take to build a Weather-Ready Nation?

- **Improved science & technology** – Better models; adequate HPC
 - **Outcomes:** Improved threat detection; more precise forecasts and warnings
- **Reliable probabilities** -- estimated through ensembles that enable:
 - **Actionable** and understood threat thresholds to support critical decisions
 - **Reliable** risk-based decision making
- **Integrated social sciences** -- that help communicate risk and lead to action
- **Combined national effort** – Governmental partnership with academic and private sectors

1980 - 2011: Weather and Climate Billion Dollar Disasters



Total # of years	Total # of Events (damage/cost ≥ \$1 billion)	Total CPI-Adjusted Damages (billions of dollars)
31	134	881.2

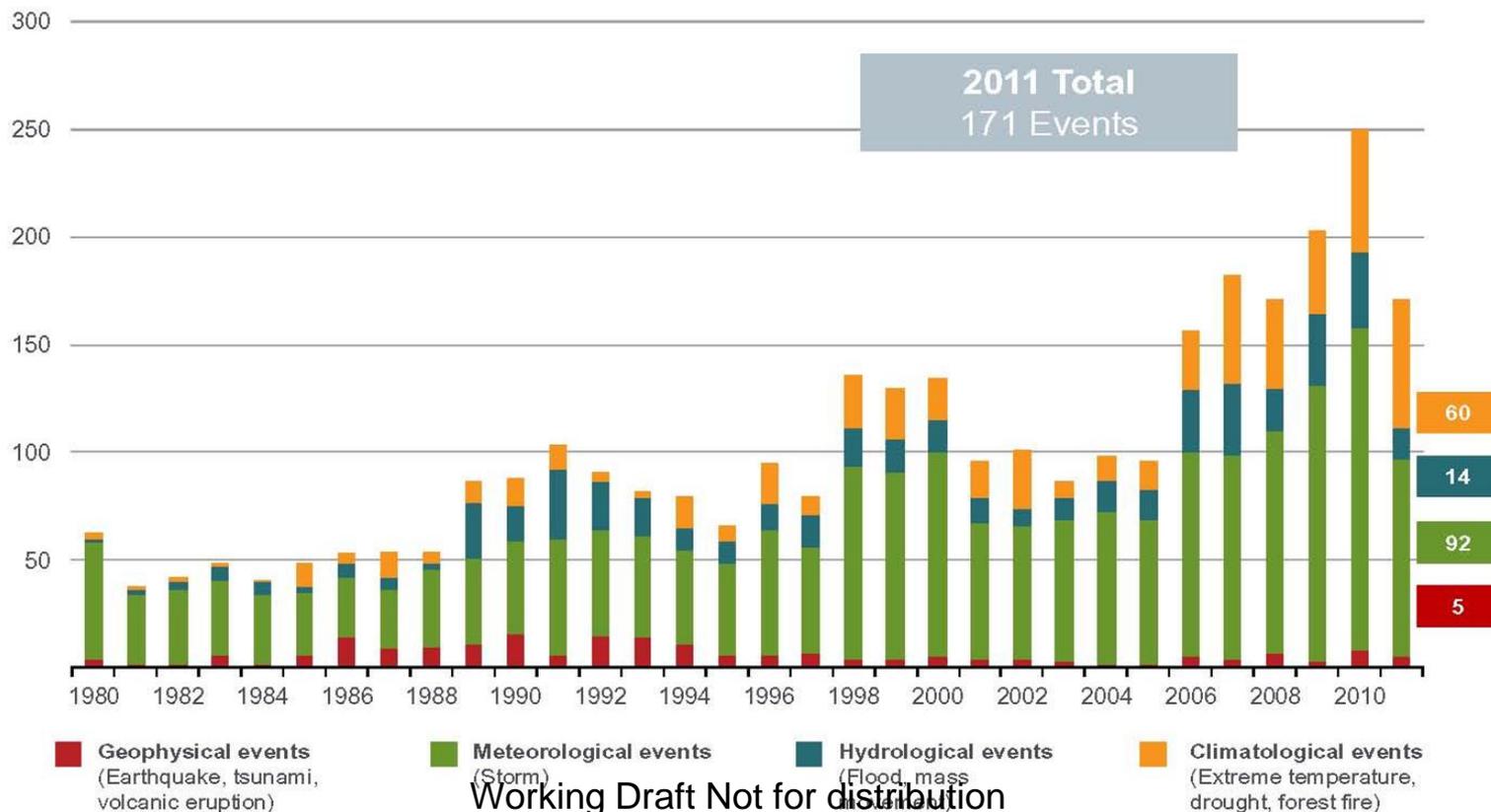
Increased US Vulnerability to High-impact Weather

Since 1980: Number Increased 3X; Cost Increased 5X

U.S. Natural Catastrophe Update

Natural Disasters in the United States, 1980 – 2011

Number of Events, Annual Totals



Keeping our Eye-on-the-Ball

Reducing Societal Impacts of Hazardous Weather

- Move to integrated forecast system focused on High Impact Weather
- Identify major regional extreme weather potential 3-5 days in advance
 - East Coast winter nor'easters
 - Midwest regional tornado outbreaks (April 2012)

April 13, 2012 was only the 2nd time a Day 2 High Risk was Issued by SPC. The only other Day 2 High Risk prior to April 13th was issued at 1730Z on 6 April 2006, for the 7 April 2006 event.

- Alerts public, emergency responders, and major industries to the potential threat 1-2 days in advance
 - Followed by watches hours in advance
 - Warnings 10s of minutes in advance
- GOES-R, NWS, and OAR are partners in the improved assimilation of observing systems to improve storm scale NWP

This is all Part of our Weather Ready Nation Improvement Strategy

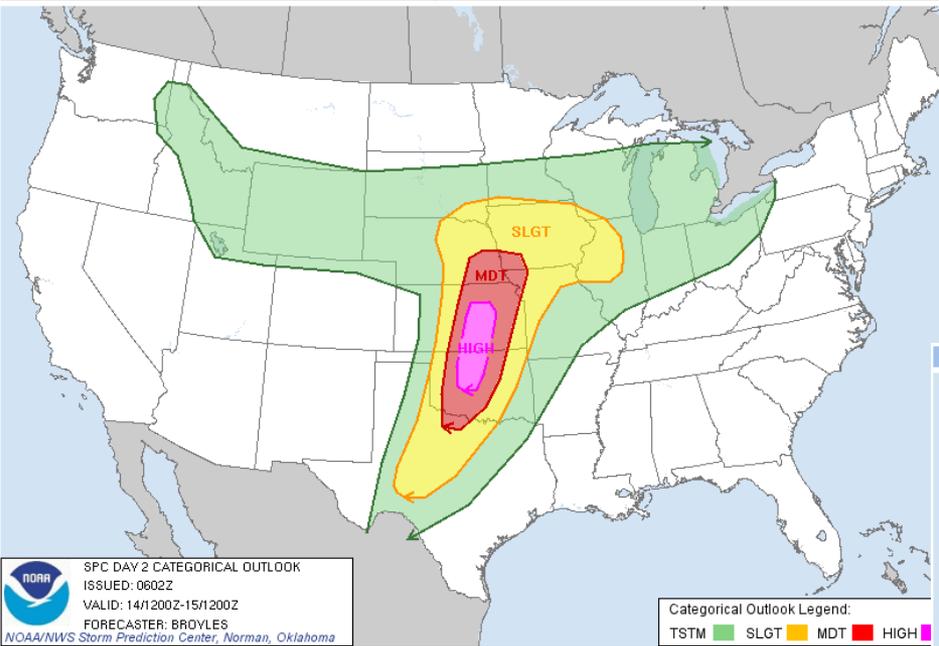
SPC April 13, 2012 0600 UTC Day 2 Convective Outlook

Apr 13, 2012 0600 UTC Day 2 Convective Outlook

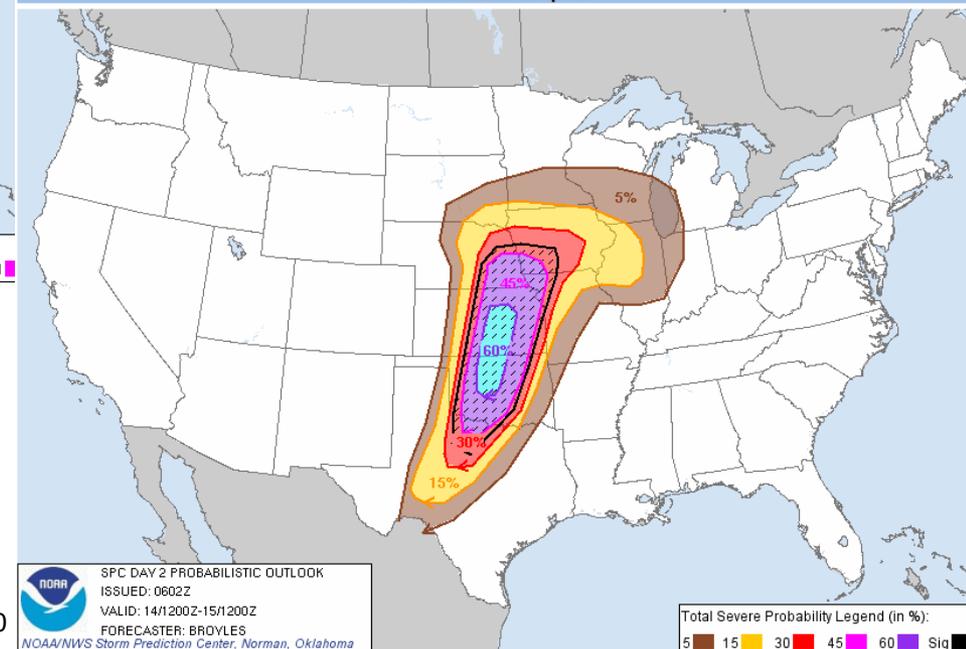
Updated: Fri Apr 13 06:03:41 UTC 2012

Probabilistic to Categorical Outlook Conversion Table

Categorical Graphic



Probabilistic Graphic



Snippet from New York Times

April 15, 2012

“I really think people took the warnings and they took them very seriously,” Gov. Sam Brownback of Kansas said Sunday. “We had more notice on this system than you normally do. You normally are looking at a couple of hours’ notice. Well, this one had almost two days’ notice.”



The Oaklawn neighborhood of Wichita was damaged

Source: http://www.nytimes.com/2012/04/16/us/violent-storms-cut-across-the-central-plains.html?_r=1&pagewanted=all

Satellite Related Efficiency Activities

The NOAA Observing System Council (NOSC) and Observing System Committee (OSC) is managing several assessment activities related to making satellite activities more efficient:

1. High Priority Observing Systems
 - Prioritized NOAAs Critical Observing Systems
2. NOAA Integrated Satellite Priorities Effort
 - Provided the foundation for identifying priorities among the observing systems needed to meet NOAAs highest mission priorities
3. Non-NOAA Leveraged Satellite Data Initiative
 - Provided non-NOAA satellite data product prioritization.
4. Science Advisory Board Satellite Task Force (SATTF)
 - Tasked with recommending a way forward for NOAA's satellite program, starting with initial NESDIS recommendations and seeking a more affordable, flexible and robust satellite and services architecture...
5. Tools used in assessment
 - Observing system evaluations (OSEs)
 - Observing system simulation experiments (OSSEs)
 - Portfolio Analysis Machine (PALMA)



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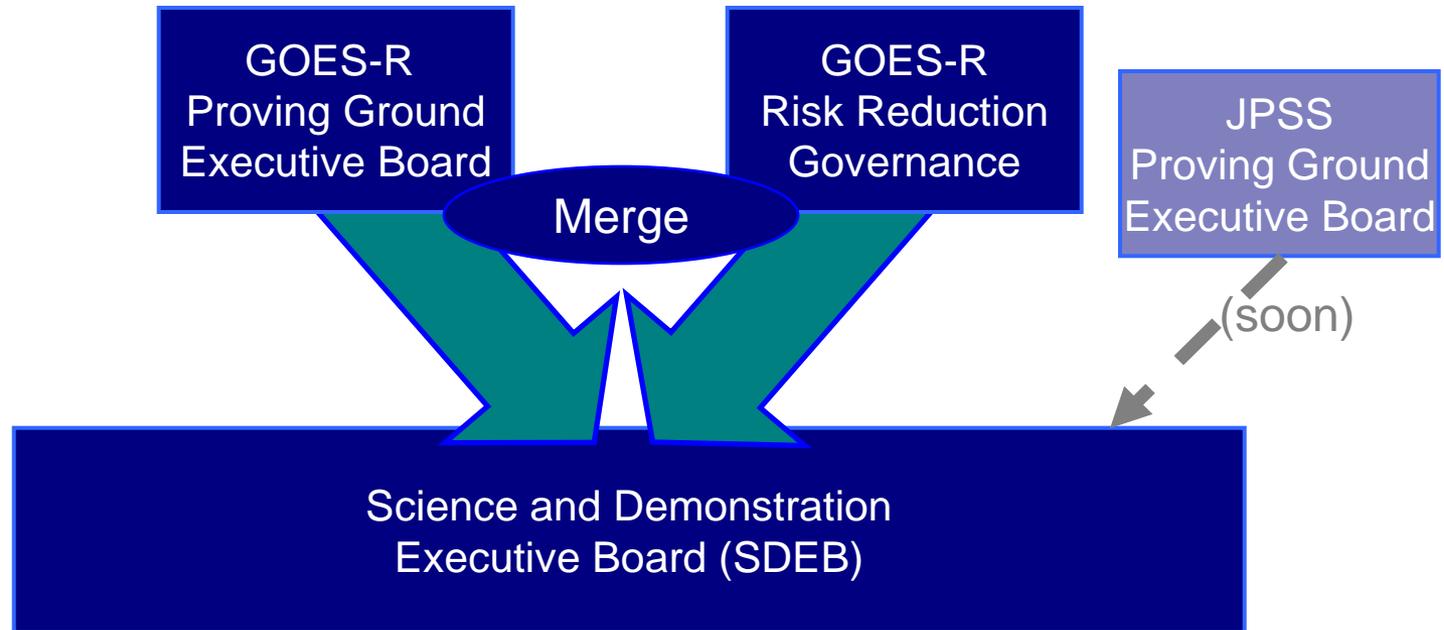
Steve Goodman

GOES-R Program Senior Scientist

From PGEB to SDEB

- NWS and NESDIS/GOES-R made changes to existing GOES-R PG governance to better address operational requirements
- Governance changes provided a mechanism for NWS Corporate Priorities to guide both PG and R3 activities.
- Increases the NWS ownership “pull” of products from the satellite research community.

PGEB and R3 Governance Board Merged to form the SDEB



SDEB

Steve Goodman
Jaime Daniels
Jim Gurka
Ingrid Guch
Mike Johnson
Marty Ralph
Kevin Schrab

The SDEB:

- (1) Oversees future Proving Ground (PG) and Risk Reduction (R3) activities
- (2) Is chaired by the GOES-R Program Senior Scientist
- (3) Includes membership from NWS, NESDIS, and OAR

Provides guidance to ensure that the science development and demonstration activities are aligned with operational priorities.

NOAT focuses on Operational Priorities

NOAT
Rusty Billingsley
Pete Browning
Andy Edman
Ken Johnson
Carven Scott
Bill Ward
Jim Yoe

**NWS Operational
Advisory Team
(NOAT)**

Advises

**Science and Demonstration
Executive Board**

NOAT Chair:

- NWS SSD Chief

Membership:

- 6 Regional SSD Chiefs (plus one alternate per Region)

-- Representing 6 Regional Directors of NWS Corporate Board

- 1 NCEP Science Representative (plus one alternate)

-- Representing NCEP Director Corporate Board Position

Facilitators:

- 1 from NWS/OCWWS

- 1 from NWS/OST

Provides a mechanism for the NWS Corporate priorities to guide both Proving Ground and Risk Reduction activities

IAC performs technical reviews of Science and Demonstration Projects

IAC

David Byers
Brant Foote
Jim Gleason
John LeMarshall
Paul Menzel
Rolf Stuhlmann
Alexander Trichtchenko
Tom Vonder Haar
John Zapotocnyc

Independent
Advisory
Committee

Reviews

Independent Advisory Committee (IAC)

- Made up of non-NOAA senior-level technical experts
- Perform technical appraisals of the projects developed under the Science and Demonstration

Science and Demonstration
Executive Board

TAG advises SDEB and NOAT

Representation

NOAA
NASA
CIRA
CIMSS

Technical
Advisory
Group

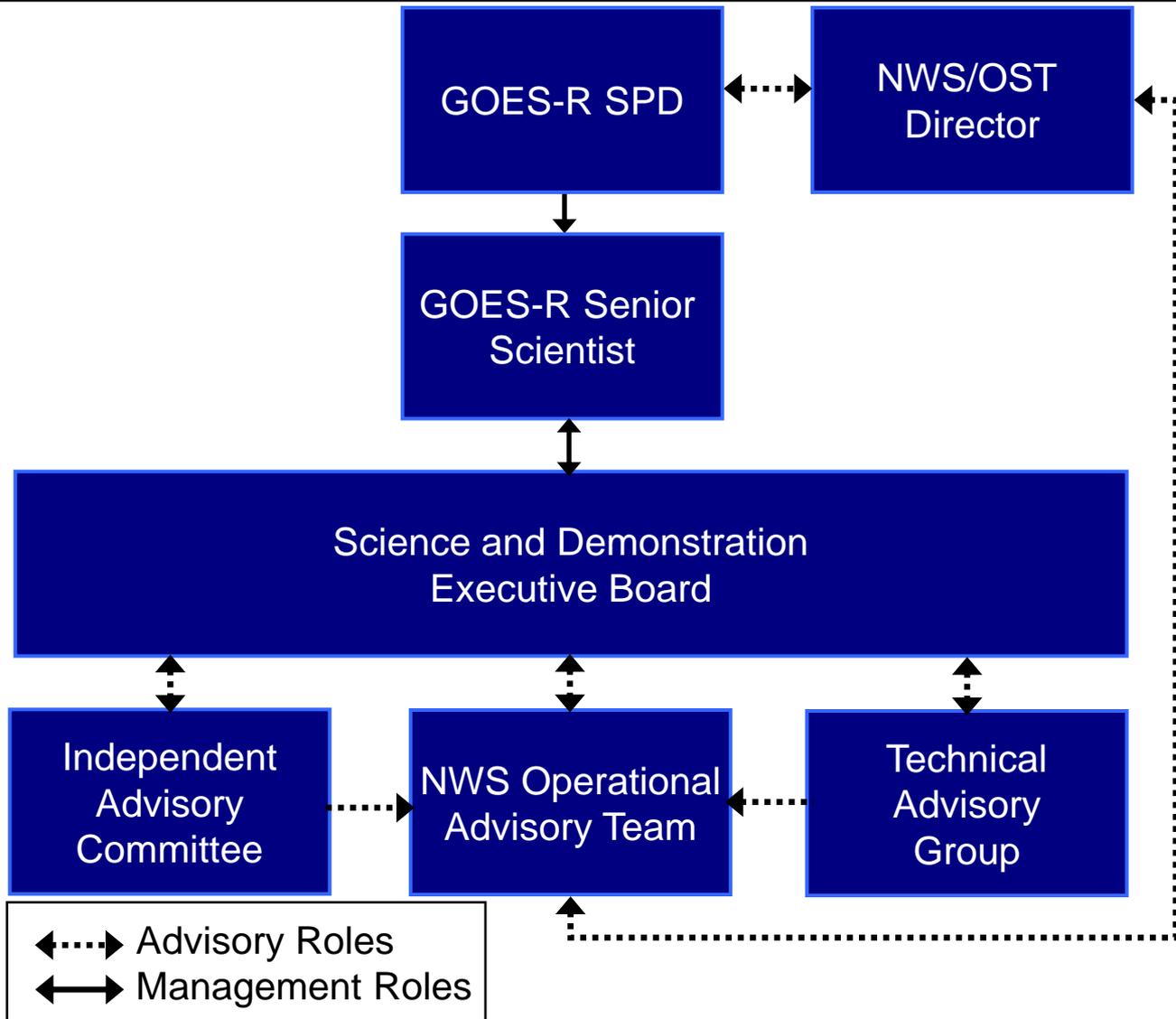
Advises

Science and Demonstration
Executive Board

Technical Advisory Group (TAG)

- Made up of subject matter experts from NOAA and NASA
- Serves as an advisory group to the SDEB and the NOAT during the proposal review process

Overall SDEB Management and Advisory Structure



SDEBs Role at Science Week

The **IAC** and the **NOAT**, with the help of the **TAG**, will be making recommendations to the **SDEB** about FY13 funding priorities and provide guidance on Year 2 Risk Reduction Science Projects that should be funded for the optional Year 3.

Charge to Participants

- Algorithm and Product Developers:
 - Discuss your research with the NOAT and IAC members
 - Address the benefit to operations. If leading the development of a Future Capability (formerly Option 2 Product) describe your ideas for the best science path forward, eg, fused satellite, in-situ, NWP).
- NOAT and IAC:
 - Visit all the posters- divide and conquer based on your subject matter expertise so the research can be represented fairly when the advisory committees meet each evening