



# **Economic Valuation of NOAA Products & Services**

A Presentation to the  
NOAA Science Advisory Board

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# Overview of NOAA Efforts



- Introduction
- Social Science Committee Priorities
- Communication Materials
- Projects
- Community of Practice
- Group on Earth Observation Side Event



# Value of NOAA Products

- NOAA products are used by both private and public sectors
- Value to Private Sector: leads to private sector productivity gains and creation of new products and businesses
- Value to Public Sector: contributes to protection of life and property, management of coastal resources, safety, security, etc



# Why is Valuation Important?

- Justification for government funding
- Alignment of mission and operations to public value
- Provide information for the decision-making process (resource allocation process)
- Help prioritize investments in observing systems and information policy



# Social Science Committee Priorities



Priority #1: Economic Impact and Return  
on Investment

Priority #2: Decision Science and Risk  
Communication

Priority #3: Integrated Assessment  
Approach



# Priority #1

## Economic Impact and ROI



- Strategic Plan:
  - Value Communication
  - Collection and management of needed information
  - Quality and consistency of estimates of the economic impact of NOAA's products and services





# NOAA by the Numbers



## NOAA by the Numbers

*Economic Statistics Relevant to NOAA's Mission*

October 2017  
Seventh Edition

Office of the NOAA Chief Economist  
Performance, Risk and Social Science Office (PRSSO)  
Office of the Chief Financial Officer (OCFO)



# Story Map

The Story Map presents economic statistics relevant to NOAA's mission

*NOAA Protects Every American ...  
Powers Our Economy*







# Story Map Link

- <https://noaa.maps.arcgis.com/apps/Cascade/index.html?appid=e7a6d27352d7446aabd2e53f519c2a9a>



# Economic Impact Report



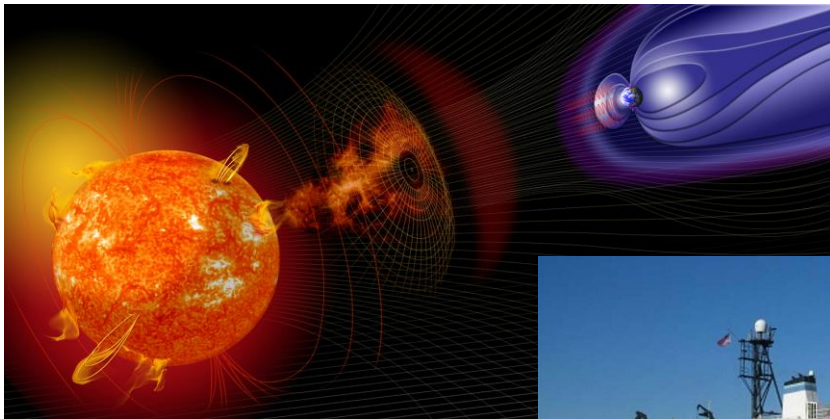
- Showcases NOAA's role in transforming livelihoods, operationalizing businesses, public safety and boosting the National Economy
- Presents estimates of value added by NOAA programs to national and local economies
- Includes narratives on the economic impact of NOAA's products by economic sector





# Projects

- Cooperative Research and Development Agreements (CRADA) Economic Impact Study
- Economic Value of Marine Vessel Observations
- Economic Impacts of Space Weather





# CRADA Economic Impact Study



- Expand the Technology Partnership Office (TPO) to include direct and indirect beneficiaries of the program
- Identify the benefits realized by users (market and non-market)
- Analyze potential benefit value chain for selected products
- Completion May 2018



# Economic Value of Marine Vessel Observations



- Supported fleet recapitalization study
- Developed qualitative value chains for 12 fleet dependent products based on the NOAA Observing System Integrated Analysis (NOSIA-II) Value Tree, and conducted in-depth interviews with subject matter experts from the various line offices within NOAA
- Selected five products for monetary estimates of the benefits
- Under NOAA's clearance



# Economic Impact of Space Weather



- Understand and quantify the impacts of extreme and moderate space weather events
- Gathered information from users on impacts to
  - Electric power distribution
  - Global Navigation Satellite System signal
  - Aviation, including health risks, and
  - Damage or anticipated damage to satellites
- Results:
  - Description of the value chain from observation to socioeconomic impact
  - An estimate of the socioeconomic benefits
  - A reusable model





# Value of Information: Community of Practice

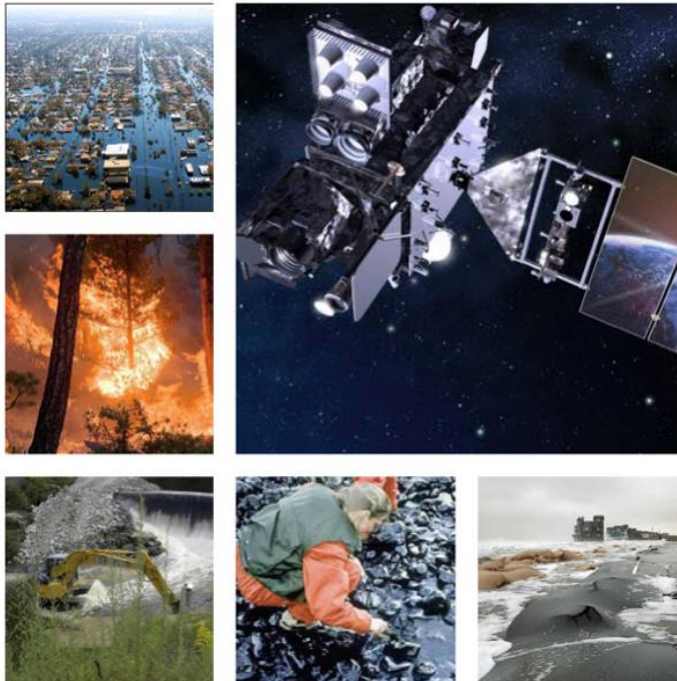


- Improve the quality and consistency of VOI studies
- Coordinate input from US agencies for use in international discussions
- Advance implementation of strategic goals set by the international body
- Provide a forum for information sharing and consultation for VOI studies





# GEO Plenary Side Event



Demonstrating the  
Value of Earth  
Observations:  
Methods, Practical  
Applications and  
Solutions

October 23-24, 2017







# Objective

- Identify methods and solutions for developing robust and reliable estimates of earth observations (EO) values in decision making
- Help policy makers and investors to assess and prioritize investments in EO research, development, and operations



# Participants

- Wide array of disciplines:
  - Social and Natural Science
  - Engineers
  - Environmental planning
- Geographical distribution of participants:
  - USA
  - Europe
  - Australia
- Affiliation:
  - Government
  - Academic
  - Private Sector
  - Professional Societies
  - NGOs



# Major Outcomes

- Developed draft value chain models for EO's application to:
  - Flooding
  - Harmful Algal Blooms
  - Extreme Temperatures
  - Energy and Mineral Supply
  - Transportation
- Increased visibility of VOI efforts within GEO
- Initiated international “best practices” community



# Major Challenges

- **Complexity:** Multiplicity of timescales, actors and uses
- **Non-linear relationships:**
  - Ex: economic value of forecast does not increase linearly with the lead time (nor with the quality of the forecast)
- **Human behavior**
- **Establish counterfactuals**
- **Communicating in basic terms**



Thank you!