Economic Valuation of NOAA Products & Services

A Presentation to the NOAA Science Advisory Board

Dr. Monica Grasso
Chief Economist
Office of Performance, Risk and Social Science

October 30th, 2017
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

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)
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!