

NOAA Chief Scientist's Annual Report - 2016



The NOAA Chief Scientist's Annual Report provides a corporate-level overview of NOAA's Research and Development (R&D) activities, including a clear expression of the agency's research portfolio logic. As the nation's environmental intelligence agency, with a legacy reaching back more than 200 years, NOAA supports a research enterprise that is a rich blend of disciplines, methods, and objectives. This document, a first of its kind, highlights NOAA's progress towards meeting agency priorities in R&D, scientific integrity, and workforce development.

From daily weather forecasts, severe storm warnings, climate monitoring, fisheries management, coastal restoration, and supporting marine commerce, NOAA's products and services support economic vitality and affect more than one-third of America's gross domestic product. NOAA's dedicated scientists use cutting-edge research and high-tech instrumentation to provide citizens, planners, emergency managers, and other decision makers with reliable information they need, when they need it -- and all for less than 5 cents per day for each American.

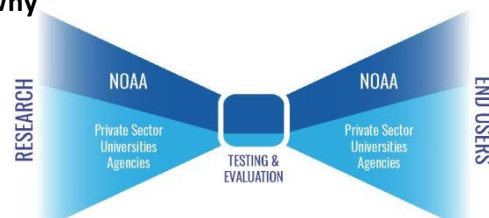


The report is comprised of the 1) NOAA research portfolio logic model, 2) five themed chapters with 54 vignettes highlighting scholarly research results, 3) a presentation of comprehensive research analytics evaluating the agency's research, and 4) an assessment of the quality and performance of NOAA's scientific workforce.

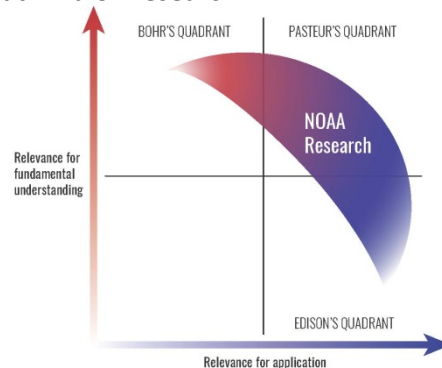
NOAA Research Portfolio Logic

- **Why NOAA Invests in Research** – NOAA transforms basic conceptual research into data, tools, and information to support our mission priorities.
- **What Kind of Research NOAA Supports** – NOAA's R&D addresses the needs of the user community, while advancing fundamental scientific understanding.
- **Where NOAA Invests in Research** – NOAA maintains both intramural and extramural research investments.
- **What Principles Guide NOAA Research** – NOAA strives to direct, formulate, and evaluate all agency research in light of key principles.
- **What is the Budget for NOAA Research** – NOAA dedicated \$560 million in Fiscal Year 2016 to provide requisite environmental intelligence and services to the American public.
- **How NOAA Research Transitions into Operations, Applications, Commercialization, and Utilization** – NOAA continues to improve its processes and provide the needed resources to accelerate the transition of R&D outputs into operations, applications, commercialization, and other uses.

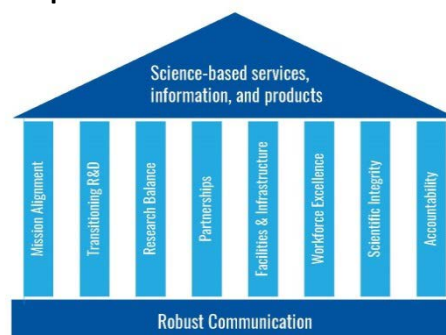
Why



What Kind of Research



Principles of Research Investments

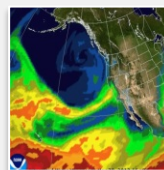


NOAA Chief Scientist's Annual Report - 2016 Highlights

Compilation of NOAA R&D Activities (Theme Chapters and NOAA Research Study Examples)

Integrated Earth System Processes and Predictions

- El Niño Rapid Response Campaign Yields New Discoveries on Weather Phenomena
- Last Place on Earth Where CO2 Exceeds More than 400ppm
- *Nine other examples*

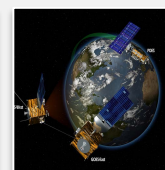


Integrated Earth
System Processes and
Predictions

Environmental Observations and Data

- Next Generation Satellite Provides Enhanced Observational Capabilities
- Ocean Exploration Activities Reveal New Discoveries
- *17 other examples*

Environmental
Observations and
Data



Decision Science, Risk Assessment, and Risk Communication

- Assessing the Vulnerability of the California Current Ecosystem to Ocean Acidification
- Impact of Ocean Noise on Marine Life
- *10 other examples*



Decision Science, Risk
Assessment, and Risk
Communication

Water Prediction

- Increased Capability in Water Prediction Nationwide
- In-situ Water Collection Instrument Sequences Samples in Near Real-time
- *Two other examples*

Water Prediction

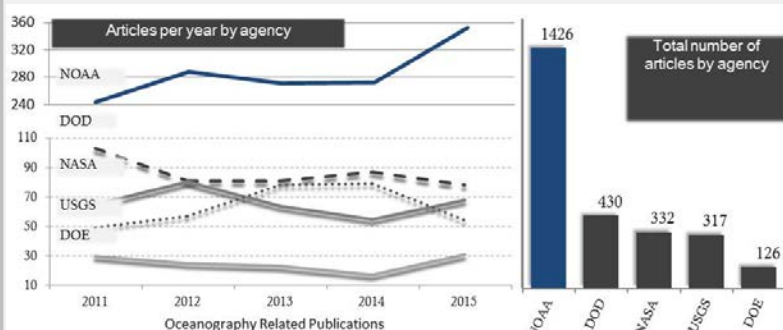


Arctic

- Innovative Technology for Arctic Exploration
- Forecasting Sea Ice
- *Six other examples*



Arctic



Research Analytics

This report provides one of the most comprehensive performance assessments of NOAA's scholarly research conducted to date, measuring both productivity and impact in seven key research areas. Between 2011 and 2015, NOAA scientists authored or co-authored 10,663 articles spanning 144 research areas.

Scientific Workforce

A creative and vibrant workforce is the foundation of NOAA's research enterprise. Today, NOAA houses over 11,300 federal employees, 1000's of contractors, and collaborates with over 10,000 researchers in academia and non-governmental organizations; between 2015 and 2016 the agency had over 400 individual awardees and over a dozen team accolades.

In short, this report provides a singular cross-section of the research investments that impact our lives and our planet and give the reader a representation of how taxpayer investments are resulting in both immediate and long-term benefits. You can access the entire report at <http://tinyurl.com/NOAACSAR2016> or download it using the following QR code.



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