



Air Resources Laboratory Summary

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Air Resources Laboratory

ARL Laboratory Review
May 3-5, 2011



Science Themes

**Dispersion /
Boundary Layer**

Air Quality

Climate



Integration Among Themes

Dispersion / Boundary Layer

Modeling for toxics, ash, smoke, dust
Flows around sound barriers

Air-land fluxes
Climatology of the boundary layer
Urban climate

Air Quality

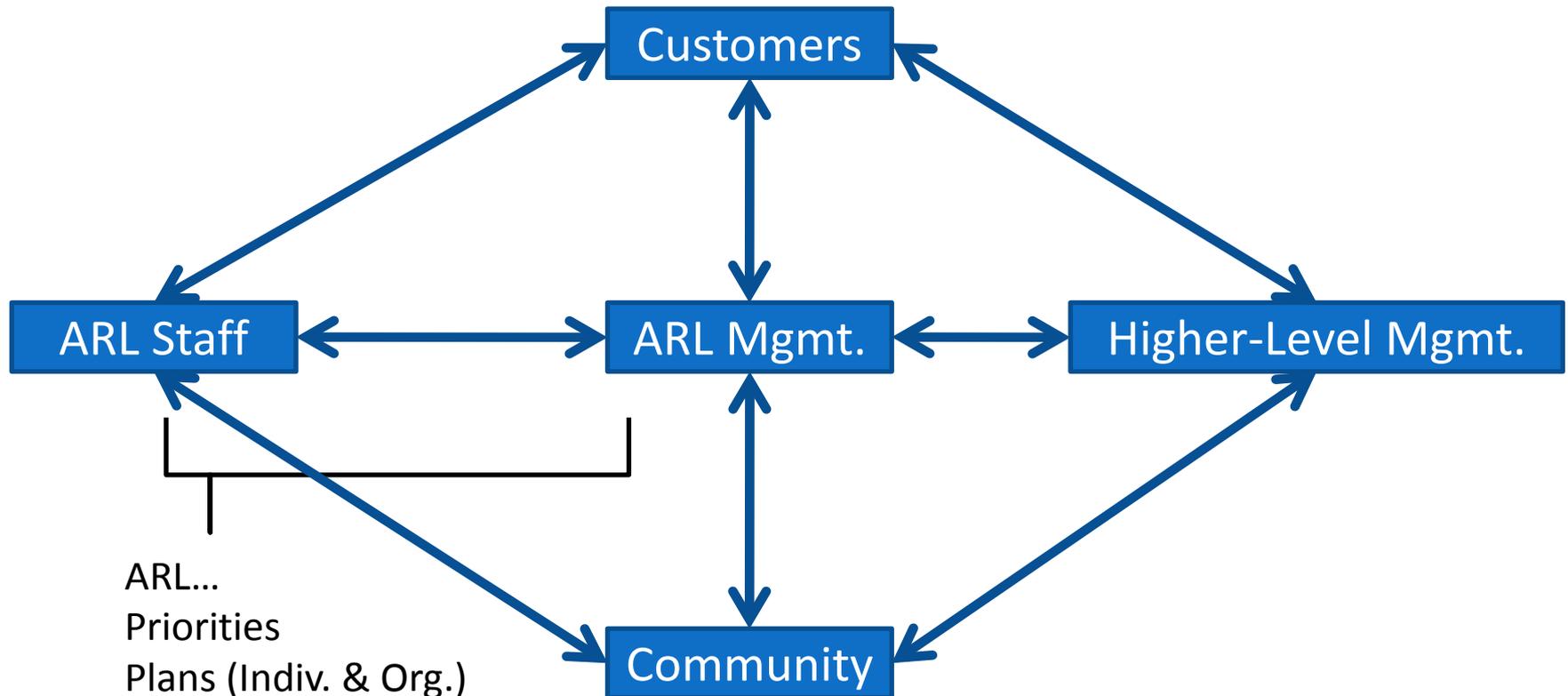
Climate-air quality modeling
Co-location of observing sites

Climate



Planning Process:

Communicate, Assess, Prioritize



- ARL...
- Priorities
- Plans (Indiv. & Org.)
- Proposals
- Activities
- Termination of activities



Lab in Transition

- Motivations
 - Improve value to NOAA and other customers
 - Improve critical mass
 - Respond to/anticipate evolving societal needs
 - Respond to recommendations from last review
- Transitions
 - Greater Integration with NOAA Priorities and Activities
 - Establish Boundary Layer as Another Focus Area
 - Greater Integration Among Divisions
 - Integration of Research and Technical Services
- Significant progress made



Major Ongoing Challenges for ARL

- Continuing to implement transitions
- Maintaining and improving the quality and value of R&D in current fiscal environment
- Increasing investments in key areas for the Nation and NOAA
 - Dispersion—integrated, enhanced NOAA capabilities
 - Boundary layer—wind energy, initiation of convection, etc.
 - Climate—analysis, air-land interactions, regional modeling
 - Nutrients
- NOAA Climate Service—ensuring that ARL climate-relevant activities are appropriately integrated



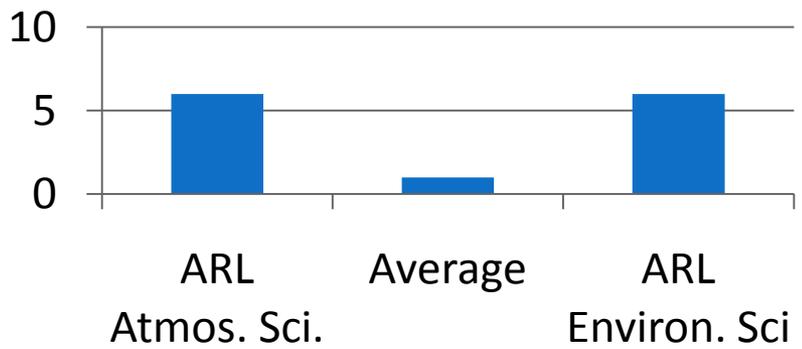
Highlights of Quality, Relevance, and Performance



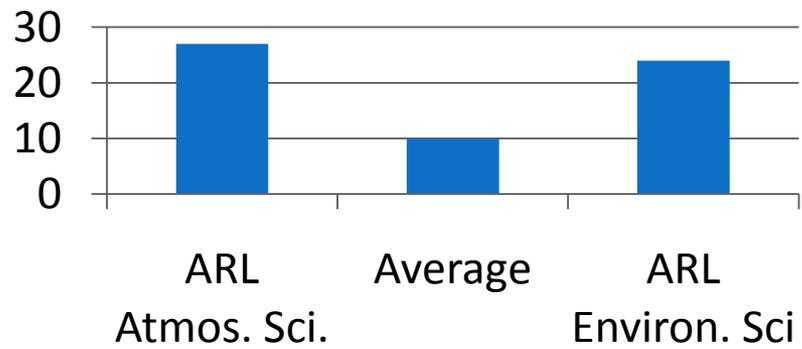
ARL Publications Cited More Frequently than Average

% of Pubs in Field's Top 1%, 10%, and 50% Most Frequently Cited

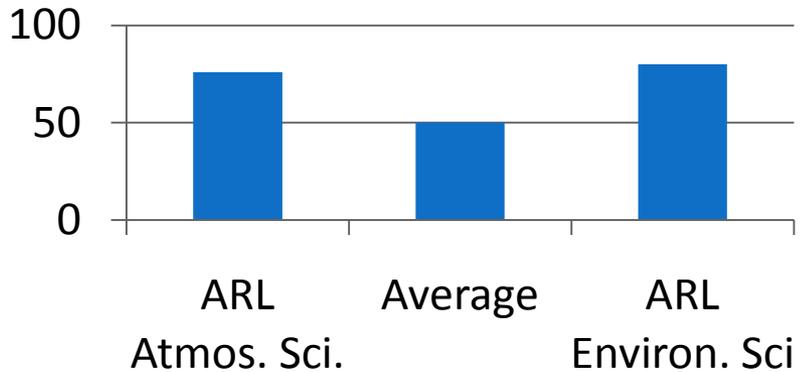
1%



10%



50%



Source: Belter, NOAA Central Library



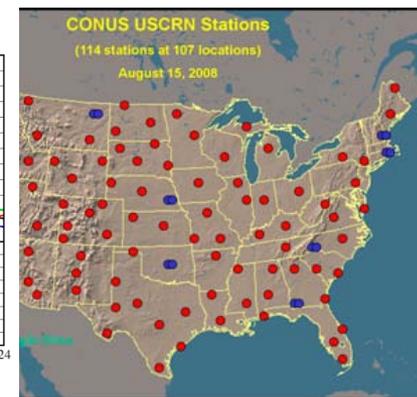
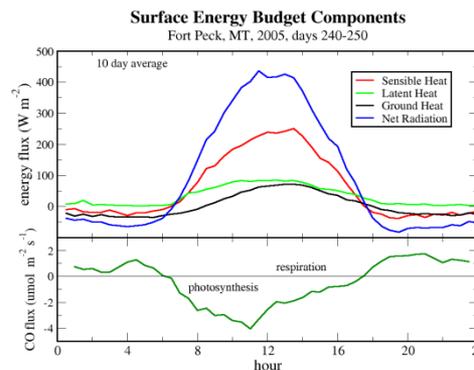
Quality: Contributions to International and National Data Sets

- Dispersion
 - Tracer data sets widely used by dispersion community
- Air Quality
 - Leadership in WMO intl. precip. chemistry efforts
 - Leadership in national mercury observation network
- Climate
 - Implementation of reference surface observations
 - Leadership in establishing international reference observations aloft
 - Data sets transitioned to NCDC: RATPAC, extreme heat, ...

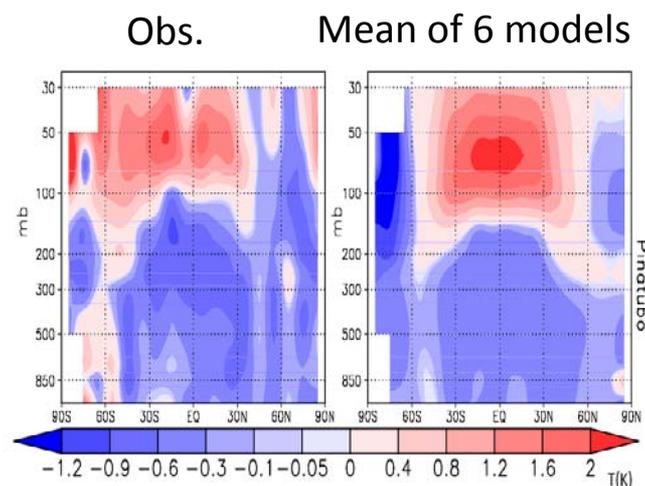
Relevance & Performance:

Selected contributions to NOAA's Climate Goals

- Objective: Improved scientific understanding of the changing climate system and its impacts
- Objective: Assessments of current and future states of the climate system that identify potential impacts and inform science, service, and stewardship decisions



Response to volcanic eruptions

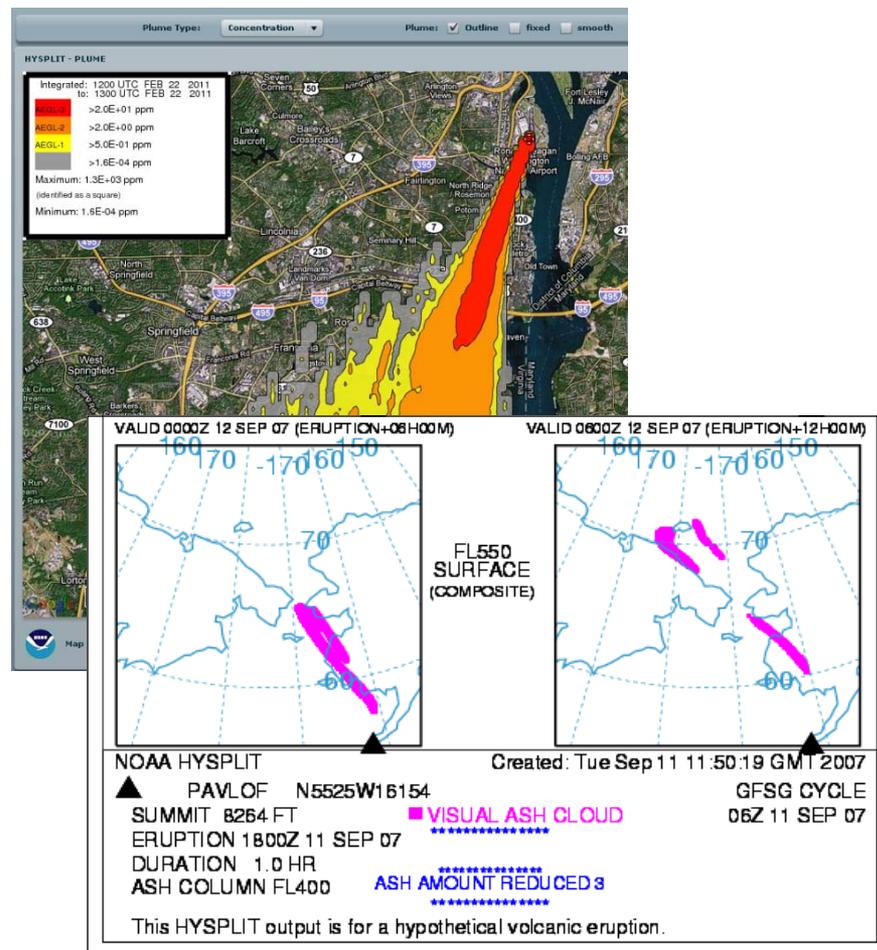


Free and Lanzante 2008

Relevance & Performance:

Selected contributions to NOAA's Weather Goals

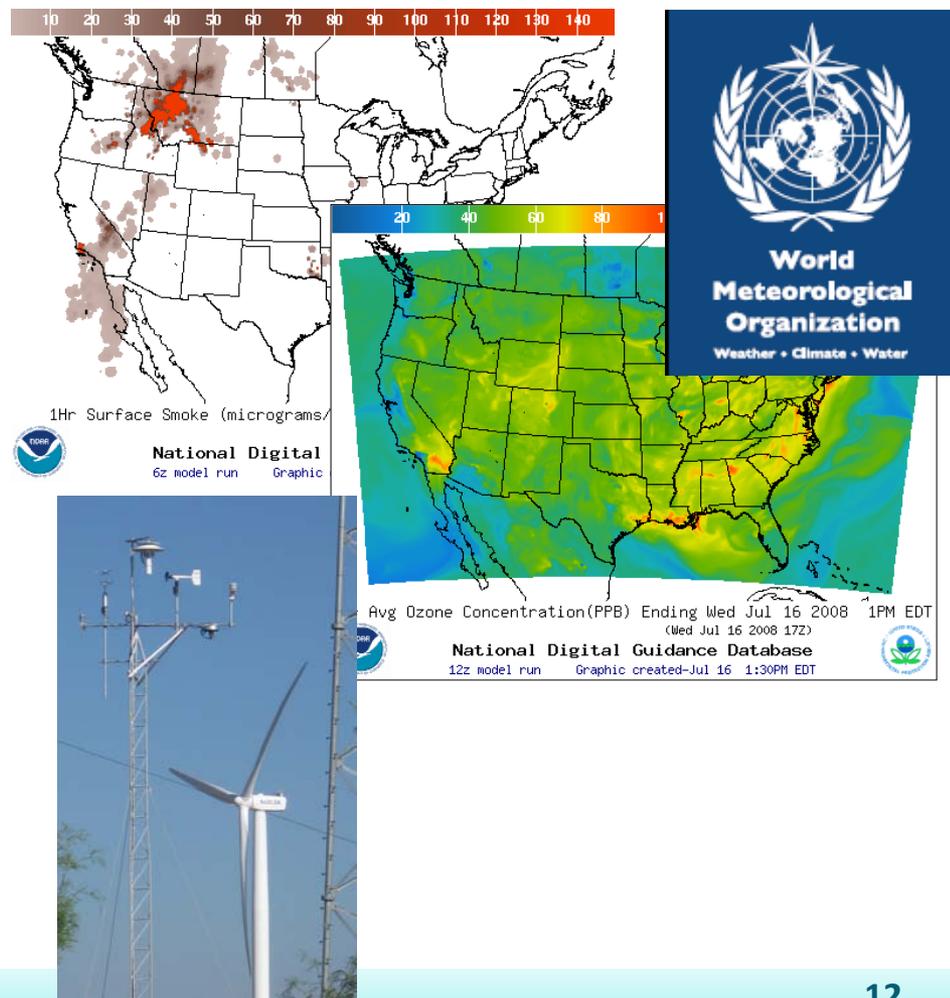
- Objective: Reduced loss of life, property, and disruption from high-impact events
- Objective: Improved transportation efficiency and safety



Relevance & Performance:

Selected contributions to NOAA's Weather Goals

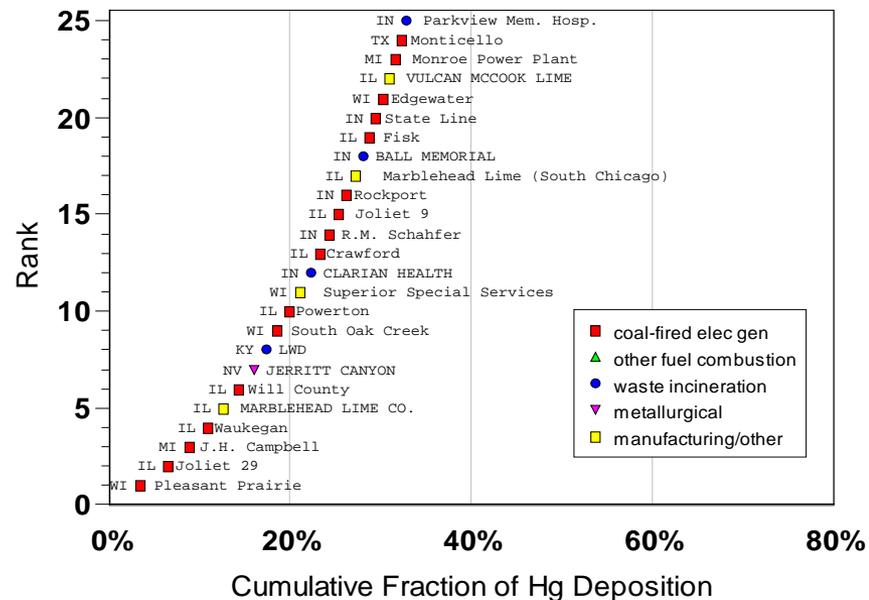
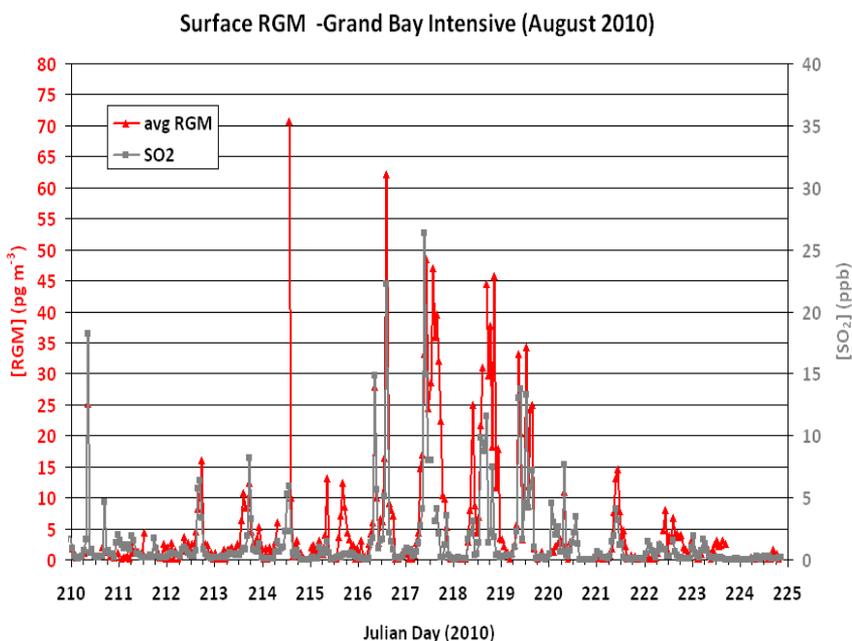
- Objective: Healthy people and communities due to improved air and water quality services
- Objective: A more productive and efficient economy through environmental information relevant to key sectors of the U.S. economy



Relevance & Performance:

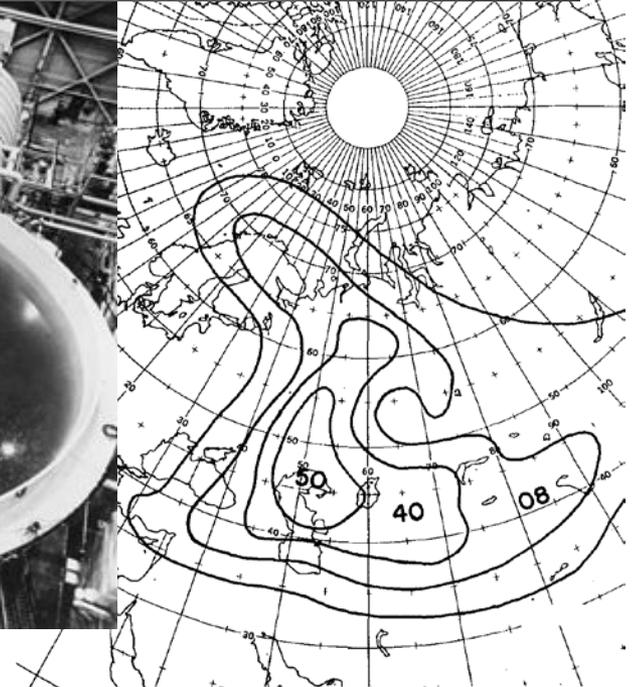
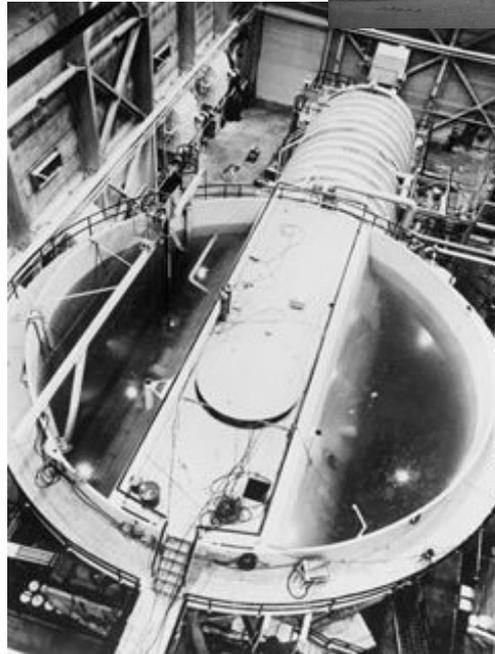
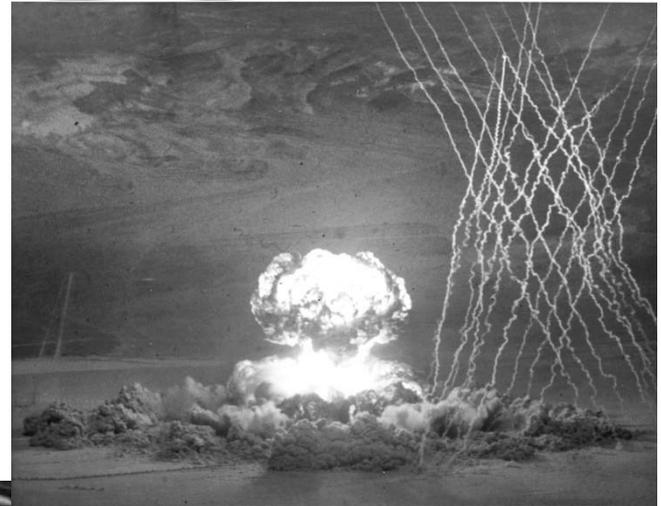
Selected contributions to NOAA's Coastal Goals

- Objective: Improved coastal water quality supporting human health and coastal ecosystem services



Final Thoughts

- ARL founded early in the nuclear age to provide service to other agencies



Final Thoughts

- ARL founded early in the nuclear age to provide service to other agencies
 - Retained
 - Strong science
 - Commitment to supporting applications
 - Effective partnerships
- while evolving to continue to meet society's changing needs

