NOAA's Office of Oceanic and Atmospheric Research
Roundtable: Severe Weather Research

On November 7, 2007, Dr. Richard Spinrad, Assistant Administrator for Oceanic and Atmospheric Research (OAR), and Dr. Jack Hayes, Assistant Administrator for Weather Services (NWS), brought together a diverse group of high-level constituents to provide input on NOAA's research priorities to ensure NOAA is able to provide the observations, sophisticated forecast models, and state-of-the-art technologies our partners and customers will require in the future. Following is a summary of the major points discussed at the roundtable.

Opening Remarks

In his opening remarks, Dr. Spinrad welcomed the group and underscored the important role NOAA research plays in NOAA achieving its mission and goals. He stressed three messages – OAR supports preeminent research at all levels of the organization; OAR research provides value to society; and OAR operates in a culture of transparency, reaching out to constituents for input on research priorities and planning.

Dr. Spinrad discussed topics that "keep him up at night" including securing the resources required to carry out NOAA's mission, attracting and sustaining a preeminent scientific workforce, and supporting high-risk, high-payoff research.

Dr. Hayes began his remarks by outlining not what keeps him up at night, but what makes his day. He gets excited when a severe weather warning contributes to saving lives and property. What does keep him up at night are situations when perhaps things could have been done to better prevent loss of life. He spoke about the many advances in technology and forecasting that have yielded significant improvements in forecast and warning accuracy and timeliness. To continue improving weather services, he is relying on the research done within NOAA, and in collaboration with NOAA's many partners.

Constituent Observations

Participants welcomed the opportunity to learn more about existing NOAA research in severe weather, while some expressed an overall need for NOAA to improve how it communicates research advances to partners and customers. Participants also identified current and future areas where NOAA could focus resources and efforts to transition research to operations, to improve severe weather warning services.

Several themes emerged in the roundtable, including: Information Architecture, Communicating Risk and Uncertainty, Collaborative Research, and Severe Weather Climatology.

Information Architecture

- Several participants raised the challenge created by the ever-growing availability of both raw data and processed data.

Discussion touched on the need to develop automated approaches to data processing, packaging, and decision aids.

- One participant noted that the growth in observing platforms is causing an "avalanche" of data, particularly for the media, who have to make real-time decisions about which warnings to broadcast in a wide-scale event, and in what priority.
- NOAA should consider the dissemination means (pipeline) while researching new observational technologies, so data can be shared and not withheld due to priorities and bandwidth issues, according to several participants.
- Some participants said NOAA should continue to advocate internationally for unrestricted, free exchange of weather and climate data.

Communicating Risk and Uncertainty

- A few participants said that NOAA should focus more research and attention on the cognitive and social sciences – how, for example, should NWS warnings be shared when they reach a level where the warning is so far in advance of the tornado that the public will "go to a movie" first?
- Another participant raised the need for NOAA to focus more on continuing professional development to ensure forecasters are prepared to analyze and effectively use the next generation of observational data.
- Some participants said NOAA should consider responders and information providers, their roles, and how they can use extra warning time effectively, and involve them in the development of procedures for warning the public and communicating uncertainty.
- A few participants voiced concern with severe weather warnings stigmatizing mobile homes as unsafe, singling out one home type. They called for NOAA to develop new standard guidelines for describing safe shelters relative to the time available to take shelter before a tornado is expected to hit.
- NOAA needs to involve partners, broaden thinking on the subject of expressing risk, according to a few participants.

Collaborative Research

- A participant suggested NOAA should broaden the external participation in testbed research to include customers/decision makers. This would better ensure new technologies and forecast/warning approaches meet the needs of emergency responders, and improve the commercial utility of new observational data and forecast and warning information.
- One participant suggested that NOAA look for opportunities to involve other user communities in radar research (e.g., trackers of birds, insects benefit from "ground clutter" and their knowledge of migratory patterns, etc.), could help weather researchers.

Severe Weather Climatology

- Some participants expressed a great need for identifying the probabilities of tornadoes hitting particular geographic regions, and suggested that NOAA devote some resources to further developing severe weather climatology (comparable to FEMA's flood maps).

Conclusion

Participants who completed surveys on the value of this roundtable generally gave it high marks for bringing together a mix of high-level interests representing academia, the private sector, and government. The general consensus from survey respondents was that NOAA should hold more discussions like this so that partners and customers can exchange ideas, discuss needs and learn more about NOAA's priorities and plans on a given topic.