

Dr. Eric Barron
Chairman, National Academy of Sciences
Board on Atmospheric Sciences and Climate (BASC)

Perspective

The focus of BASC since it published the 21st Century report in 1998 has been on the need for a major transition from research to operational capability in the atmospheric sciences. The time is right for this transition because significant improvements in capability have been made and because of the demonstrated importance of atmospheric information for decision making. The transition will comprise two elements, an expansion of the forecasting family into new areas (air quality, lightning, energy demand, UV, severe weather, evacuations, agriculture, etc.) and an expansion into new time scales of interest (instrumented and pre-instrumented records, weather forecasts, seasonal- to inter-annual outlooks, and long-term climate change). In order for the transition to succeed, several focused efforts will be required. The community must recognize that it will take a determined effort—the transition will not be effective if left to happen "naturally." We must learn how to effectively communicate uncertainty to users without impacting the integrity of forecasts. We must also learn how to deal with multiple forecasts, which, depending on how they are used, can be a blessing or a curse. A vigorous interface with the user must be built and maintained. The user provides the "requirements pull." We must not develop products in a vacuum and "throw them over the transom." In addition, the concept of "service" must be added to "climate."

Regarding the final point, the issue of developing climate services must be addressed on several fronts. All agencies should identify relevant climate-related observing systems, management structures, and decision-makers. Regional "laboratories" to investigate climate service applications should be established, and these laboratories (and other climate service entities) should be encouraged to conduct user-oriented experiments. Opportunities should be sought to combine efforts with other disciplines to conduct studies, perform experiments, or generate products that serve multiple purposes. Incentives must be created to encourage the use of data from systems designed by states and regions. Incentives could be offered for following the 10 principles (i.e., the "Ten Basic Climate Monitoring Principles," Karl, et al., 1995) and for facilitating open exchange of data. Finally, a multifaceted (public/producer/user) education initiative will be required.