June 26, 2013

The Honorable Jim Bridenstine  
The Honorable Lamar Smith  
The Honorable Andy Harris  
The Honorable Chris Stewart  

United States House of Representatives  
Washington DC 20515  

Dear Representatives Bridenstine, Smith, Harris and Stewart:  

As you know too well, communities across our nation have suffered significantly from recent extreme storms. The Consortium for Ocean Leadership, which represents approximately 100 of the nation’s leading ocean research and education institutions, shares your commitment to improve weather forecasting and prediction of high impact weather events. Consequently, I am writing to share our recommendations for refining the Weather Forecasting Improvement Act of 2013 (H.R.2413) so that our nation can be better prepared to protect lives from extreme weather events, while adapting to a changing environment.  

We greatly appreciate the bill’s recognition of the need for collaborations between NOAA’s Office of Oceanic and Atmospheric Research (OAR) and the academic weather research community; the need for high performance computing networks; as well as the need for advanced radar technologies for fine-scale sensing of the boundary layer. However, we are concerned that the legislation diverts resources and research focus from much needed oceanic research and observations to better understand the ocean’s role in driving global weather patterns. We believe the greatest improvement to models and forecasts can be achieved through better monitoring of the primary driver of storm intensity, the heat content of the ocean, from which storms derive their energy. Despite the fact that there is 1,000 times more heat in the top 10 meters of the ocean than there is in the atmosphere, currently the National Climate Prediction Center collects roughly 1,000 times more atmospheric than sub-surface ocean measurements for their storm models.  

While forecasting the path of hurricanes has improved significantly in recent years, we have not made nearly as much progress in predicting the intensity of hurricanes – which of course significantly influences the magnitude and variability of the impacts from wind, storm surge, flooding and coastal erosion. Since hurricanes derive much of their power from the warm waters of the ocean, it is essential that we have more widespread ocean measurements to improve our forecasts. The lack of progress is in part attributable to a dearth of real-time, sub-surface ocean measurements. Given that satellite measurements are limited to surface water temperatures, we need additional resources to develop, deploy and evaluate sensors and other ocean monitoring and technology assets to procure critical ocean data.
Furthermore, improved understanding of ocean processes, especially in major current systems such as the Gulf Stream or the El Nino-Southern Oscillation, are clearly linked to changes in storm tracks, yet we are losing important data with the decline in the Tropical Atmosphere Ocean (TAO) array, and we have inadequate data to comprehend the rapidly changing Arctic. Such large-scale ocean/atmospheric interactions play a role in large-scale storm tracks, variations in the jet stream and persistent high pressure systems. Such processes can lead to a range of events, such as wildfire-favorable conditions of strong winds and low humidity or persistent droughts over large regions of the US. Even severe storms, such as Superstorm Sandy, were steered westward in an unusual path by a persistent high pressure system, resulting in a direct hit on the New Jersey coast. Our weather forecasting system must be comprehensive in its scope and global in its extent. Focusing on a small set of improvements will hinder the nation’s ability to forecast a wide range of severe weather events.

Given the austere fiscal environment, the proposed increase in OAR investments in weather research at its laboratories and cooperative institutes as well as in weather and air chemistry research would likely result in a net loss of at least $33.8 million to non-weather research – research that arguably is critical to a balanced research portfolio that improves weather forecasts. This anticipated cut could undermine our ability to obtain and integrate more comprehensive oceanographic data into the operational atmospheric models required for the U.S. to regain its role as a world leader in weather forecasting. We hope that you can make the necessary adjustments to the legislation to ensure that NOAA will have the capacity to look more precisely beyond the 3-5 day forecast with a scientifically justified balanced research and observational portfolio to support more accurate weather and extreme event forecasting.

We appreciate your consideration of our recommendations and I hope we can work with you to ensure that our coastal and inland communities can be better prepared for weather-derived disasters.

Sincerely,

Robert B. Gugisian, Ph.D
President and CEO
Consortium for Ocean Leadership

cc: The Honorable Eddie Bernice Johnson
The Honorable Larry Bucshon
The Honorable Suzanne Bonamici