December 11, 2013

The Honorable Mark Begich  
Senate Commerce, Science and Transportation Committee  
Oceans, Atmosphere, Fisheries and Coast Guard Subcommittee  
Washington DC 20510

The Honorable Marco Rubio  
Senate Commerce, Science and Transportation Committee  
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Dear Chairman Begich and Ranking Member Rubio,

As you prepare to hold a hearing regarding U.S. weather readiness, I would like to share with you the perspective of the academic oceanographic community. As you may know, Ocean Leadership represents 95 of the nation’s leading ocean research and education institutions, including thousands of researchers working to better understand the ocean’s role in driving weather and climate systems.

Naturally, when we think of weather and storms we look to the sky and clouds. Yet the most powerful influence on weather resides in our ocean, which contains 1,000 times more heat in its top seven feet than is held in the entire atmosphere. The ocean is truly the flywheel of the Earth’s climate system, driving the transfer of massive amounts of heat and water across the globe. Despite these facts, the National Climate Prediction Center collects roughly 1,000 times more measurements in the atmosphere than the sub-surface ocean for their storm models. This is a reflection of the difference in the level of investment in observing systems and the difficulty of maintaining comprehensive systems in the marine environment. Recent scientific research and analyses of the Earth's climate and weather systems leads to the conclusion that critical advances in weather models and forecasts will be achieved through better monitoring of ocean processes that drive coupled ocean/atmosphere heat transfer dynamics.

While storm intensity forecasts will be improved with additional ocean observations, so will our ability to understand crucial oceanic processes such as El Nino-Southern Oscillation, thermohaline circulation, sea-ice dynamics, and sea-surface heat exchange, all of which are vital in predicting regional and seasonal weather patterns. Beyond protecting lives and property, these forecasts are critical for many sectors of our economy including agriculture, transportation, energy, and tourism. While many are urging prioritization of short-term weather forecasts, the reality is that these forecasts are dependent on longer-term sustained observations of both the ocean and the atmosphere.
Unfortunately, there are many examples of how the dearth of oceanographic data has impacted communities and economies. For instance, forecasts for Superstorm Sandy underestimated the amount of storm surge in Manhattan by nearly eight feet, largely because the models underestimated the winds because they did not account properly for ocean temperatures. Inaccurate forecasts of waves over the Columbia River Bar (known as the Graveyard of the Pacific) can cost shippers over $100,000 for each day that a container ship is tied up in Portland, Oregon, rather than setting sail. Rapid acceleration in sea-level and ocean temperatures along with changes to ocean currents and chemistry will put our predictive capabilities to the test, with increasing impacts on society and economies hanging in the balance.

While our nation and the world has suffered mightily from recent ocean-derived storms such as Sandy, Katrina, and Haiyan, there are also non-weather related threats from the sea that have also devastated communities and economies such as the Deepwater Horizon oil disaster, the Fukushima nuclear catastrophe, and the great Indian Ocean tsunami of 2004. So, as you craft legislation to help improve the nations’ ability to forecast extreme weather events, we hope you will not do so at the expense of our ability to be better prepared for the next tsunami, oil spill, red tide, or fishery disaster. Ultimately, improved forecasts require additional research, continuous observations, advanced modeling and powerful computing of both the atmosphere and the ocean. We hope you will advance legislation that promotes and sustains a balanced research and observational portfolio, while also fully leveraging the scientific expertise within and outside of the federal government.

We appreciate your consideration of our recommendations and the ocean science community remains committed to working with the Committee to ensure that our nation can be better prepared for weather-derived events.

Regards,

Robert Gagosian
President and CEO
Consortium for Ocean Leadership

cc:
The Honorable John Rockefeller IV
The Honorable John Thune
The Honorable William Nelson
The Honorable Maria Cantwell
The Honorable Richard Blumenthal
The Honorable Roger Wicker
The Honorable Kelly Ayotte
The Honorable Dan Coats
The Honorable Tim Scott
The Honorable Ted Cruz