



NATIONAL OCEAN
SCIENCES BOWL®

2018 NOSB THEME OUR OCEAN SHAPING WEATHER

It's clear to those in a hurricane's path that they are seeing the effect of the ocean on their weather. It's less clear – but equally true – that those in non-coastal areas also witness the effect our ocean has on their weather.

How? The ocean absorbs half of the sun's heat that reaches the Earth, therefore influencing weather on a global scale as currents move water and heat around the planet and as the evaporation of ocean water leads to precipitation. One small change in ocean conditions can produce variations in weather patterns (in the short-term) and climate (in the long-term) over large portions of our planet. The consequences of these changes can have direct impacts (e.g., floods, storms, droughts) as well as indirect impacts (food insecurity, human health issues, etc.) far inland as well as in coastal areas. For example, during an El Niño, warm sea surface temperatures along the equator in the Pacific cause warmer-than-average temperatures in the western and northern United States, wetter-than-average conditions on the Gulf Coast, and drier-than-average conditions in the Ohio Valley and the Pacific Northwest. Its impacts are felt throughout nearly our entire country (and beyond). While scientists understand relationships between the ocean and the atmosphere, such as El Niño events, there is still much to learn about air-sea interactions. Meteorologists and climatologists are building our understanding of processes in the coupled ocean and atmosphere system and how these linkages affect weather and climate variability. Advances in global models of ocean currents bring us one step closer to comprehending ocean-atmosphere connections and providing improved local and regional forecasts and predictions.

Hosting the 2018 NOSB finals competition with the Cooperative Institute for Research in Environmental Sciences (CIRES) at the University of Colorado Boulder is especially timely.

The influence of ocean-atmosphere interactions on inland weather is more evident than ever – in Colorado, there are milder winters in the Rocky Mountains, lower water levels in the Colorado River, and fewer snowfalls atop Vail mountains. Additionally, Boulder serves as a hub for weather research, both private and federal, with organizations including the University Corporation for Atmospheric Research (UCAR), the National Center for Atmospheric Research (NCAR), and the National Oceanic and Atmospheric Administration's (NOAA) Earth System Research Laboratory. Researchers at each of these institutions are striving to understand the dynamics and interplay between weather and climate, as well as their short and long-term effects on biological, physical, and social systems.

"Our Ocean Shaping Weather" theme includes many science disciplines and will encourage increased awareness and understanding of topics such as:

- Air-sea dynamics
- Relationships between weather and ocean conditions and currents
- Technologies used to predict global climate patterns
- Challenges in mitigating the impact of severe weather events
- Impact of sea ice levels on climate change
- The phenomena between events such as EL Niño-Southern Oscillation (ENSO) and the Pacific Decadal Oscillation (PDO)
- Organizations and groups focused on weather systems research and data products
- Policy related to weather research and forecasting

2018

Regional Bowls:
February 3 & 17, Across the Nation

National Finals:
April 19 - 22, Boulder, Colorado

Please visit **www.NOSB.org**
for more information.