

Best Practices in Climate Change Education and Outreach

Strategies from the UCAR Center for Science Education (SciEd)

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WHAT WE DO

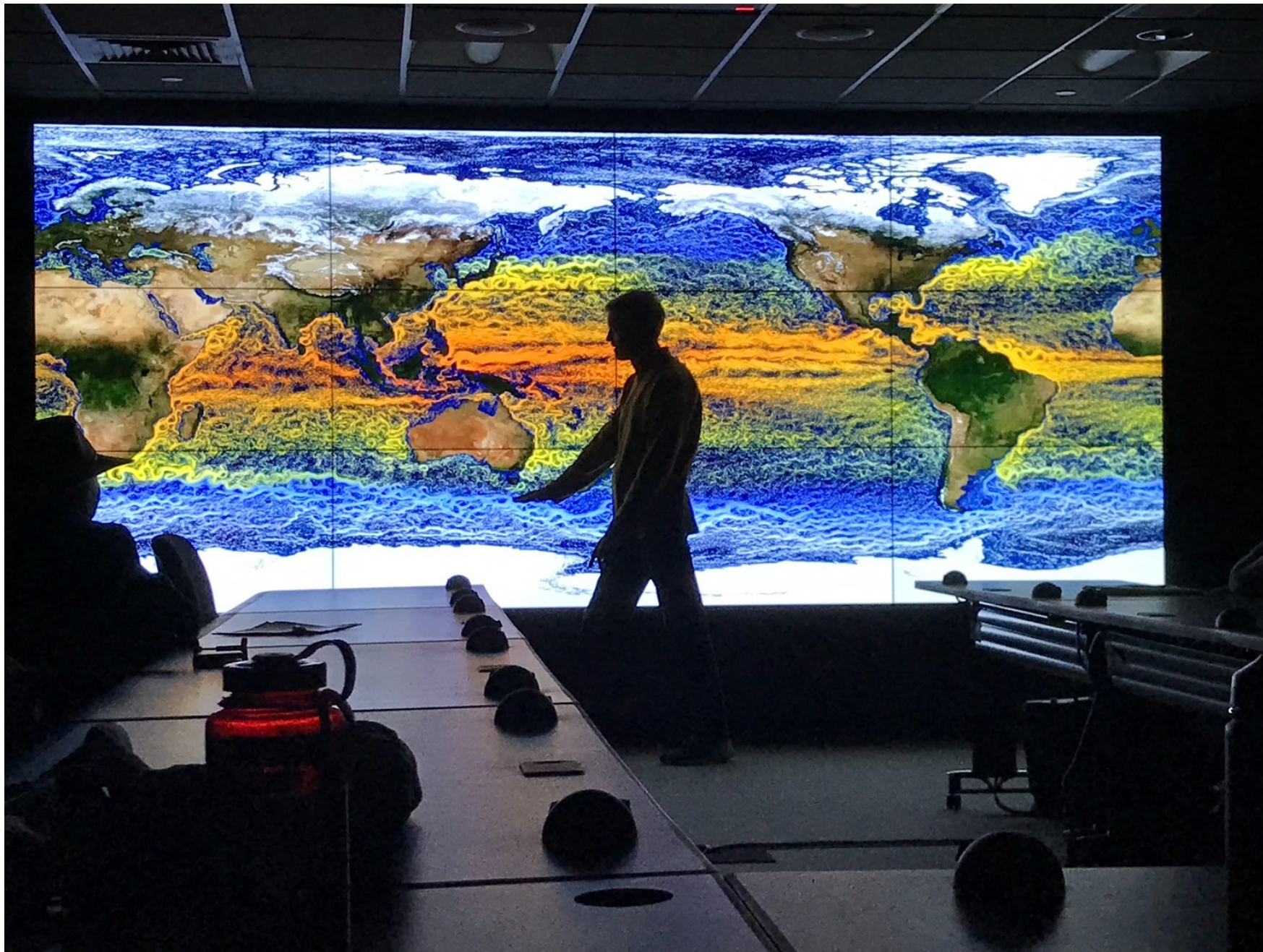
We develop state-of-the-art educational experiences that connect NCAR|UCAR science to diverse learners, creating pathways towards a scientifically literate society.



HOW WE DO IT

- Develop educational resources for grades K-12
- Create museum exhibits about weather, climate, air quality, and other Earth science topics
- Lead tours and field trips for school and public visitors at the NCAR Mesa Lab Visitor Center
- Mentor future scientists





Learning Zone

How does a cloud form? What's a sunspot? Why is climate changing? At The UCAR Center for Science Education's Learning Zone, you can explore these questions and more.

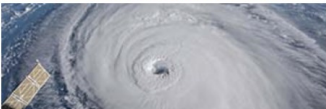
CLOUDS



HOW WEATHER WORKS



STORMS AND OTHER WEATHER EVENTS



AIR QUALITY



CLIMATE



ATMOSPHERE

CLASSROOM ACTIVITIES



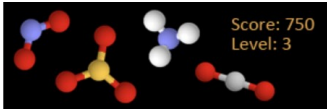
IMAGES



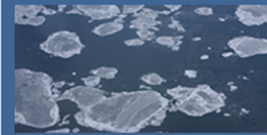
VIDEOS



GAMES AND SIMULATIONS



Climate & Water Teaching Box



Recent climate change is already having impacts - from melting Arctic sea ice and glaciers, to the lack of rainfall in the southwest and central United States, and the impacts of sea level rise on coasts worldwide. This teaching box is filled with explorations and readings that help secondary students learn how climate change is affecting the water cycle.

Teaching Boxes are collections of classroom-ready and standards-aligned activities, content, and multimedia that build student understanding of science, technology, engineering, and math.

[View All Teaching Boxes »](#)

Overview

The Big Picture

Melting Glaciers

Sea Level Rise

Less Rainfall

Dwindling Sea Ice

Goal: Students learn how projected sea level rise threatens coastal areas.

Engage students with the potential consequences of sea level rise.

- Watch the [Rising Sea Level video](#) (6 min) from the National Science Foundation and NBC Learn: Ask student to note (1) how much sea level has changed in recent years, (2) how much sea level change is projected for this century, and (3) the two reasons that sea level rises due to climate change.
- Look at the [Impact of Sea Level Rise on Bangladesh Map](#): Have students compare maps and describe which heavily populated areas are at risk of sea level rise. Ask students to consider how different amounts of sea level rise will impact Bangladesh.

Explore maps to investigate the projected impacts of sea level rise in different geographic areas.

- Have students choose a location in the continental U.S. that they think will be vulnerable to sea level rise (city or state). If you have a wall map, have each student mark the location they will research with a sticky note.
- [Surging Seas Interactive Map](#): Instruct each student to investigate his/her chosen location on the interactive map, taking note of how many people, places and things are vulnerable to one, two, and three feet of sea level rise. Have students present their findings to the class and record the data in a table with columns for the number of people, homes, and acres that will be vulnerable to flooding with the different amounts of sea level rise.
- Have students brainstorm what communities could do to keep people safe. If time permits, allow students to research whether communities have tried these strategies and whether they worked.

Evaluate learning by having students articulate the possible impacts of sea level rise on a place.

- Evaluate student learning by having each student write a letter to the mayor or governor of the location that they researched. Instruct students to explain how sea level rise may impact the community, provide information about the different scenarios that might occur over this century, the short term (a few years) and long term (a century) impacts, and how many people and homes could be affected. Have students include suggestions in their letters for how the community might keep people safe in the





Mentoring future scientists: Significant Opportunities in Atmospheric Research and Science (SOARS)

SOARS is an undergraduate-to-graduate bridge program designed to broaden participation in the atmospheric and related sciences through building a strong and supportive learning community, strong scientific and career mentoring, and providing hands-on experiences in research.



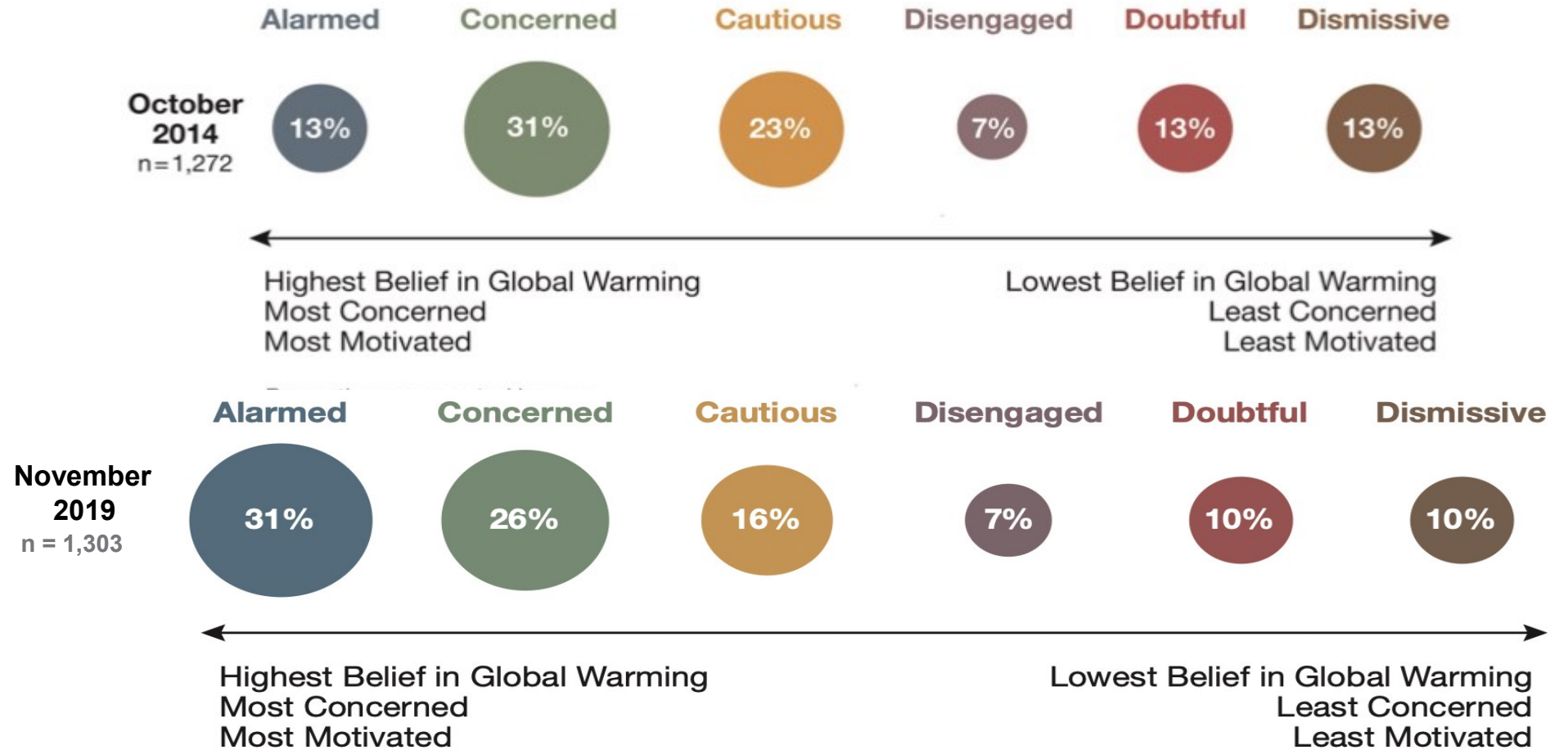


Strategies for Climate Change Outreach



Identify the audience

The Six Americas Audience Segments



November 2019. Base: Americans 18+ (N = 1,303).



Focus on values, not data



Clarify what uncertainty implies



Highlight solutions, action and hope.



Education itself is an intervention strategy



Thank You!
Questions?

<https://scied.ucar.edu/>