

Session H: Education and Public Outreach  
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Since Sputnik, science education reform in the United States has been a perennial issue – from innovations such as Harvard Project Physics and the “new math” approaches of the 1960’s to more recent national strategies such as No Child Left Behind. However, little has resolved into a coherent, widely accepted approach. For all reform effort, science literacy lags behind expectations. A 2009 national survey commissioned by the California Academy of Sciences found that U.S adults do very poorly on the most basic of science literacy test questions such as how long it takes the Earth to revolve around the sun. While only 53% answered correctly, 4 out of 5 thought science education is “absolutely essential” in arenas from health, national stature, and for the U.S. economy. Just as the U.S. adult population struggles with science literacy, the U.S. ranks below average for 15-year-old student test scores in math and science compared to participating OECD countries.

Recently efforts such as the National Research Council’s Board on Science Education are developing a set of new science standards that emphasize a focused set of core concepts that could be adopted by all states. Developing core standards is part of a broader national reform movement initially focused on math and English language arts– the Common Core State Standards Initiative. A new report by the Carnegie Institution and the Institute for Advanced Studies characterizes how critical it is to improve learning in Science, Technology, Engineering and Math (STEM) so that young Americans are better prepared “...no matter where they live, what educational path they pursue, or in which field they choose to work.”

We explore some elements of how people learn, what modes of learning are particularly useful in science education, some highlights of recent reform efforts, the roles scientists can play in public understanding, and strategies they can employ to improve communicating science. The science of global change is very complex, especially for the scientifically-challenged lay person. In addition, the topic has been significantly politicized over the past decade, which has introduced a strong polarization of public thought on the issues. Given this situation, the science community must take a careful and active role in communicating scientific findings as they unfold. This is important for all global change science and especially for the reporting of solar-terrestrial effects on global change. How AGCI is developing modules in Earth system science will be presented along with an exploration of how solar dynamics and sun-earth interactions as discussed at this workshop could be incorporated into this effort.