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Climate Change Conversations

THE THOUSANDS OF PRESENTATIONS AT NEXT WEEK'S MEETING OF THE AMERICAN CHEMICAL SOCIETY (ACS) in New Orleans exemplify one of the many ways scientists converse among themselves about the most recent advances in science. Science and technology continue to reshape the world we live in, and appreciating how these changes, both intended and unintended, come about is a necessity for all citizens in a democratic society. Scientists have a responsibility to help their fellow citizens understand what science and technology can and cannot do for them.

Communicating the science of climate change provides one example where the scientific community must do more. Climate change affects everyone, so everyone should understand why the climate is changing and what it means for them, their children, and generations to follow. Scientists are already members of groups that can facilitate this communication: neighborhoods, school boards, religious groups, service clubs, political organizations, and so on. These groups present opportunities to engage in respectful conversations on climate change and on the policies and actions that individuals, communities, and nations might take to mitigate and adapt to what is happening to our planet.

We know that the concentrations of greenhouse gases in Earth's atmosphere are higher and increasing faster than at any time in the past 1 million years.* The average temperature of Earth is increasing, ice is melting, oceans are acidifying, and extreme weather events are more frequent. Human activities, principally the combustion of fossil fuels, are a major source of greenhouse gases and a major driver of climate change. To share this knowledge with the public and be credible as a "scientist-citizen," a scientist must acquire a good grasp of the science of climate change.

In recent years, U.S. scientific institutions and societies, including the National Academies, Environmental Protection Agency, National Aeronautics and Space Administration, and American Institute of Physics have prepared Web-based materials on the science of climate change suitable for communicating with the public.† Last year, the ACS released a Climate Science Toolkit on greenhouse gases, atmospheric and planetary warming, and Earth's energy balance, among other topics.‡ The Toolkit provides a succinct intellectual foundation at an introductory level that can be a guide to more extensive resources. Some of the materials are in forms (such as slide shows) that scientists may use to present this subject to the public, and there is a series of brief narratives designed to help scientists initiate informal conversations with others. Implicit in this resource is the message that the world must make adaptations to changes that have already occurred and that reducing emissions is required to avoid a warmer planet. Scientist-citizens can stress how lifestyle decisions that reduce energy consumption are actually meaningful steps. Supporting elected officials who promote policies and practices aimed to decrease the effects of global warming is another step that individuals and citizens' groups should take.

F. Sherwood Rowland was a central figure in the late-20th-century controversy about the effect of chlorofluorocarbons on stratospheric ozone. For years, he engaged audiences ranging from students to members of the U.S. Congress. As an exemplary scientist-citizen, his focus eventually led to the worldwide ban on these compounds. Rowland spoke to all scientist-citizens when he asked: "Isn't it the responsibility of scientists, if you believe that you have found something that can affect the environment, isn't it your responsibility to do something about it, enough so that action actually takes place?... If not us, who? If not now, when?"§

We pose these same questions and ask you to join the conversations now.

— Bassam Z. Shkhashiri and Jerry A. Bell

10.1126/science.1238241

*www.copenhagendiagnosis.com. †<http://nas-sites.org/americasclimatechoices/sample-page/>; www.epa.gov/climatechange/; climate.nasa.gov/evidence/; www.aip.org/history/climate/index.htm. ‡www.acs.org/climate-science. §<http://www8.nationalacademies.org/onpinews/newsitem.aspx?RecordID=03122012>.

