Climate Connections: Visiting Students in North Carolina

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Jessica Robertson: Hi! I'm Jessica Robertson and this is USGS Climate Connections, where your climate change questions are answered by USGS scientists. In this episode, we talked to middle and high school students from Mount Airy, North Carolina. We were beyond impressed not only by how many questions they had, but how advanced and challenging the questions were. Let's go ahead and meet the students and see some of the questions they had for our scientists.

Question 1.

Elizabeth Dinkins: My name is Elizabeth Dinkins. I go to Mount Airy High School. I would like to know if all scientists agree that climate change is actually occurring.

Robert Hirsch: I'm Bob Hirsch of the U.S. Geological Survey. Elizabeth, let me try to answer your question. There is a strong scientific consensus that there is global warming occurring and that human activities are at least a part of the driving mechanisms for that. We know a few things particularly well like that there is more warming occurring near the poles than there is in the mid-latitudes. And one of the very difficult parts of climate change research is really trying to untangle the part which is natural variability from the part that is driven by human activities. But as I said, the scientific consensus is quite strong that humans are contributing to that warming.

Question 2.

Hassan Moore: Hi, my name is Hassan Moore and I'm a sixth grader at Mount Airy Middle School. I like to fish. Will climate change affect the water levels and populations of fish?

Elda Varela-Acevedo: Hi Hassan! I'm Elda Varela-Acevedo from the USGS and I'm the Climate Change and Fish Habitat Project Coordinator. To address your question, we do expect to see certain changes with climate change. Warm-water fish such as smallmouth bass are expected to expand their range, which means they might be found further north and you'll be able to catch them in more areas. However, other fish species that are cold-water fish species such as lake trout will probably see their habitat area decline, meaning that they'll be found in less areas.

Also, the season in which you fish may be affected by climate change. For example, for people that ice fish, they’ll probably find that the earlier ice melt in the spring will probably decrease their ice fishing season. So in summary, the type of fish you fish for and when and where you fish it may be affected by climate change. Thank you, Hassan. That was a great question and I hope I answered it today.

Question 3.

Hayden Culler: My name is Hayden Culler. I'm in eighth grade. Could the climate dramatically or abruptly change? Or will it happen slowly overtime?

Joan Fitzpatrick: So Hayden, the answer to your question is yes in both instances. The climate of the Earth has been shown to change both rapidly and slowly. Those slow changes can take as long as millions of years to hundreds of thousands of years to tens of thousands of years. And those abrupt changes can take place in a matter of one to two years in certain locations.

Jessica Robertson: Thank you Joan. So Hayden, as an example, research has shown that there may be an abrupt period of increased drought in the southwest during the 21st century. Also, sea level may rise slowly or rapidly depending on how much and how fast the ice sheets and glaciers around the world melt. Abrupt changes in climate, should they occur, will cause substantial disruptions to society and natural systems with little time to prepare.

Question 4.

Joao Bellon: Hi, my name is Joao Bellon and I go to Mount Airy High School. The floor that we are in currently is heated by geothermal energy and my question was what are the advantages and disadvantages of geothermal energy and the climate affects that it has?

Brenda Pierce: Hi! I'm Brenda Pierce. I manage the Energy Resources Program at the U.S. Geological Survey. You've asked a very advanced question and so let me breakdown the answer into several parts. First, let me define a couple of terms. Geothermal energy is energy harnessed from the internal heat of the Earth and used to produce energy sources or electricity.

Geothermal is a form of renewable energy and renewable energy is that type of energy that is constant or replenishable like wind, solar, and geothermal. Second, your question about its relationship to climate change. Geothermal energy emits very little CO2, which a greenhouse gas that has been linked to global warming. So, that means geothermal energy may have the potential to offset higher CO2 emitting energy sources in the future.

Jessica Robertson: That's it for this episode. Join us again next time for USGS Climate Connections. I'm Jessica Robertson.

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