



U.S. HOUSE OF REPRESENTATIVES COMMITTEE ON
SCIENCE, SPACE, & TECHNOLOGY

Opening Statement

Chairwoman Eddie Bernice Johnson (D-TX)

Full Committee Hearing:

Earth's Thermometers: Glacial and Ice Sheet Melt in a Changing Climate

Thursday, July 11, 2019

Good morning. I would like to welcome our witnesses to the Science, Space, and Technology Committee's hearing entitled "Earth's Thermometers: Glacial and Ice Sheet Melt in a Changing Climate."

It seems as though we're bombarded on an almost daily basis with news articles and reports saying that the world's ice is melting faster than ever. Pictures show ice sheets in Greenland and Antarctica crashing into the oceans before our eyes. Just last month, a piece of ice the size of Delaware broke off of Antarctica, and Greenland was reported to have experienced the biggest June ice melt event on record with temperatures 40 degrees above normal.

The rate of change in the Arctic and Antarctic has been quickening in recent years, according to the Intergovernmental Panel on Climate Change and numerous other scientific bodies. For example, a study published in *Nature* in January that was led by an international team of more than six dozen researchers tells us that melt rates have more than tripled in Western Antarctica in the last 25 years.

Mountain glaciers are also experiencing rapid rates of change. Just a few weeks ago, declassified U.S. spy satellite data clearly showed that Himalayan glaciers lost 25% of their ice over the last 40 years. That is equivalent to eight billion tons of water each year. This puts the hundreds of millions of people in that region who depend on glacial melt as a fresh water source at risk.

According to the 2014 IPCC Assessment Report, without significant reductions in global greenhouse gas emissions, mountain glaciers will lose 35 to 85% of their ice by the end of the century under a high emissions scenario. Newer reports indicate that the IPCC estimates might even be conservative and that glacial and ice sheet melt rates could be even higher.

We need to be listening to Earth's glaciers and ice sheets and what they're telling us about the changing climate. Glacial and ice sheet melt is responsible for two-thirds of the 8 inches of sea level rise we've seen in the last 200 years from anthropogenic warming, and that sea level rise is only expected to continue. The Western Antarctic Ice Sheet, which everyone is watching because it is thought to be the most unstable ice sheet, could add another 11 feet of additional sea level rise if it collapses, which some experts expect could happen at some point. Such an increase

would mean many coastal cities would be flooded and the world as we know it would be different.

What's happening in Greenland, Antarctica, and in high mountain regions matters to us all. Glaciers and ice sheets play vital roles in regulating Earth's climate and weather, provide over two-thirds of Earth's freshwater supply for drinking and agricultural uses, support fisheries and ecosystem health, and run hydropower plants. I'm glad we have the opportunity to hear today from some of the nation's leading glacial and ice sheet experts. We're lucky to have five distinguished glaciologists here today, and I would like to welcome back Dr. Richard Alley, who last testified before this Committee in 2010.

I also want to announce that later today we will be hosting a screening of the award-winning documentary *Chasing Ice* that documents changing ice in the Arctic. It will be followed by a question and answer session with two of our witnesses, Dr. Pfeffer (FEFF-er), who was a scientific advisor to the film, and Dr. Moon. The screening is free and open to the public, and I hope you can join us.

This Committee plays an important role in authorizing both climate science and the research needed to better understand glaciers and ice sheets. Since the 1990s, NASA's ice monitoring satellites have led to major discoveries of ice sheet dynamics and melt, while the National Science Foundation has funded major field expeditions to ice sheets. I look forward to today's discussion with our distinguished panel to understand how Congress, and this Committee in particular, can address the critical research gaps in this field.

Thank you.