

Comments on Climate Change Joint Resolution HJR12  
Thomas Reichler  
Assistant Professor of Atmospheric Sciences  
University of Utah

February 11, 2010

I am an Assistant Professor in Atmospheric Sciences at the University of Utah. Through research and teaching I am actively engaged in the making of climate sciences. A few days ago when I was asked if I would like to give a statement about Utah's "Climate Change Joint Resolution" I initially hesitated to do so. I feared that my comments might jeopardize my integrity as a climate scientist. But after rethinking the request I reminded myself that as a scientist I not only have the obligation to perform cutting-edge research but also the responsibility to inform the public about the implications of my findings. Consequently, I agreed to give this statement.

When I first read the resolution I noticed that many factual errors and false claims were made in the bill. To me, this was surprising given the importance of climate change for our society and given the amount of information available about the nature, causes, and consequences of climate change. This information, which has been collected by thousands of dedicated scientists from all over the world, is easily accessible through the various information channels. In the following, I would like to take the opportunity and highlight four reasons why climate change is real and why it is of concern for Utah:

First, 2009 was one of the warmest years on record. In terms of globally averaged temperatures 2009 ranked either second or fifth, with the exact ranking depending on details of analysis. The 2000-2009 decade taken as a whole was the warmest on record, followed by the 1990s as the second warmest. Hence, there is no reason to believe that the long-term global warming trend has come to a halt.

Second, there is plenty of additional evidence suggesting that the atmosphere is warming and that this warming affects the entire Earth climate system. The most vivid evidence comes from the worldwide shrinking of glaciers and the melt of Arctic sea ice. In 2007, Arctic sea ice dropped to a record low of 38% below average, and during last year it was 24% below average.

Third, the destabilization of the Greenland and Antarctic ice sheets and the subsequent rise of global sea levels might be a distant albeit possible consequence of global warming. During the last interglacial about 130,000 years ago, when the climate was warmer than today, sea level was at least 10 feet higher than it is now. This can only be explained with a partial melt of the ice sheets. Although it is highly uncertain whether we will ever face such a scenario, it is of concern that various recent satellite-based studies have detected a shrinking of the Greenland ice sheet.

Finally, climate change may also have more direct impacts on Utah. The biggest concern is a decrease in our already limited supplies of water. We have strong reasons to believe that the

atmosphere responds to global warming with a poleward shift of precipitation patterns and a subsequent drying over the Southwestern United States. This leads us to conclude that the current warming trend might lead to increased aridity over Utah. This notion is supported by evidence from paleo-data, indicating that in the past periods of increased aridity and mega-droughts coincided with periods of relative warmth.

In conclusion, it is my strong believe that the best available science should be considered by our policy-makers when coming to decisions about how to respond to the problem of climate change.