Geophysical Research Abstracts
Vol. 16, EGU2014-17028, 2014
EGU General Assembly 2014

Abrupt Impacts of Climate Change: Anticipating Surprises

James W. C. White (1), Richard B. Alley (2), David E. Archer (3), Anthony D. Barnosky (4), Edward Dunlea (5), Jonathan Foley (6), Rong Fu (7), Marika M. Holland (8), M. Susan Lozier (9), Johanna Schmitt (10), Laurence C. Smith (11), George Sugihara (12), David W. J. Thompson (13), Andrew J. Weaver (14), and Steven C. Wofsy (15)

(1) University of Colorado, Boulder, United States, (2) Pennsylvania State University, University Park, United States, (3) University of Chicago, Illinois, United States, (4) University of California, Berkeley, United States, (5) U.S. National Research Council, United States, (6) University of Minnesota, Saint Paul, United States, (7) University of Texas at Austin, United States, (8) National Center for Atmospheric Research, Boulder, Colorado, (9) Duke University, Durham, North Carolina, United States, (10) University of California, Davis, United States, (11) University of California, Los Angeles, United States, (12) University of California, San Diego, United States, (13) Colorado State University, Fort Collins, United States, (14) University of Victoria, British Columbia, Canada, (15) Harvard University, Cambridge, Massachusetts, United States

Levels of carbon dioxide and other greenhouse gases in Earth's atmosphere are exceeding levels recorded in the past millions of years, and thus climate is being forced beyond the range of the recent geological era. Lacking concerted action by the world's nations, it is clear that the future climate will be warmer, sea levels will rise, global rainfall patterns will change, and ecosystems will be altered. However, there is still uncertainty about *how* we will arrive at that future climate state. Although many projections of future climatic conditions have predicted steadily changing conditions giving the impression that communities have time to gradually adapt, the scientific community has been paying increasing attention to the possibility that at least some changes will be abrupt, perhaps crossing a threshold or "tipping point" to change so quickly that there will be little time to react. This presentation will synopsize the new US National Research Council Report, Abrupt Impacts of Climate Change: Anticipating Surprises, highlighting areas of increased and decreased concern, as well as areas of new concern. Emphasis is placed on not only abrupt change in physical climate, but on abrupt changes in human and natural systems that can occur as a result of a slowly changing climate. The report calls for action now on an abrupt change early warning system (ACEWS) if societies are to be resilient to climate change.