Abrupt Impacts of Climate Change: Anticipating Surprises

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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.