

Climate Change in the 20th and 21st Centuries

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Abstract

In this talk I will briefly review the evidence climate change observed over the past century, our understanding of the causes of those changes, projections of future change, and some of the implications of those changes. There is wide spread evidence that the climate has changed over the 20th century. This evidence is found in the oceans, at the surface, and in the free atmosphere. Climate change detection studies demonstrate that these changes result primarily from external influences on the climate system, including anthropogenic forcing from greenhouse gas and aerosol emissions, and to a lesser extent, from natural forcing that arises from changes in solar irradiation, volcanic activity, and perhaps other sources. Such studies also show that the response to anthropogenic forcing is now detectable on continental and subcontinental scales and that it may already have influenced some aspects of climatic extremes.