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Climate change over China in the past, present and year 2030

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Climate change over China in the past, present and year 2030

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Population and human emissions in the globe have been increasing for the last 50 years. It might cause the climate change, disasters and the risks, especially extreme events. The evidences of population, urbanization and human emissions in China have been shown in this paper. The climate change in China for the last 1000, 100 and 50 years were studied. The results indicated that the 1990's was the warmest in China for the last 1000 years. The 20th century was the warmest century during the last 1000 years. A warming of 0.2-0.8°C/century in China for the 20th century has been detected, especially 0.6-1.1°C for the last 50 years. The changes of precipitation, wind speeds, extreme events (such as maximum and minimum temperature, floods/droughts, typhoons) are also indicated in this research. 43 global and regional climate models with a number of human emission scenarios (such as 2XCO₂, greenhouse gases increasing, both greenhouse gases and sulfate aerosols increasing, SRES A1, A2, B1, B2, A1B) have been used to project the climate change in China for 1990-2030. The annual mean temperature, maximum and minimum temperatures are projected to increase by year 2030 obviously (see figure), especially over North China and winter season. The precipitation changes in China by year 2030 are disagreement as projected by the different models with several human emission scenarios (see figure). The changes of glacial, water resources, water pollution over China and typhoons over Northwestern Pacific Ocean are projected to be changed responding to the global warming. At last, the impacts of the land-use change (such as Three Gorges dam and desertification) on climate change in China have been simulated by the regional climate models and to compare it with the human emissions.



