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A study of the impact of regional sulfate aerosol on East Asia climate with using CGCM

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An increase of anthropogenic greenhouse gases and atmospheric aerosols due to human activity is the main forcing responsible for a climate change over the globe. While effects of anthropogenic greenhouse gases have been studied extensively, a role of atmospheric aerosols is highly uncertain so far. Therefore, it is important to understand how sulfate aerosols are associated with climate variability to assess their impacts on climate change. In this study, we performed a number of simulations using a Community Climate System Model (CCSM) version 2.0.1 to identify a role of sulfate aerosol forcing on East Asian climate. It is found that a regional sulfate aerosol forcing could modify the rainfall variability over northeast Asia during spring and summer time. Based on a long term period of simulation, in addition, we could find that sulfate aerosol forcing is associated with changes in the North Pacific Ocean SST variability.