



Effects of an increase of regional PM_{2.5} concentration in East Asia on the climate variability in the North Paicific for 1985-2010

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It is well known that atmospheric variables can be influenced to change by aerosol concentration. In spite of a wealth of studies, however, it is still remain unclear how the regional anthropogenic aerosol in East Asia affects the climate variability in the North Pacific. In this study, we examined the effect of anthropogenic aerosol forcing in East Asia (GEOS-Chem) on the climate variability in the North Pacific based on a global chemical transport model and three idealized experiments using an atmosphere model. GEOS-Chem is forced by the assimilated meteorology from the Modern-Era Retrospective Analysis for Research and Applications of the National Aeronautics and Space Administration for 1985-2010. Regarding three experiments, the first set used the historical SST for 1985-2010 with the time-varying emissions in East Asia. The second set used the historical SST without the emissions and the third set included the climatological SST with the time-varying emissions in East Asia. By comparing GEOS-Chem run with atmosphere model runs, we analyze the role of regional aerosol forcing in East Asia on the climate variability in the North Pacific.