



Modeling Aerosol and Cloud Chemistry using CRMs

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Clouds play a critical role in aerosol physics and chemistry as well as in tropospheric chemistry by serving as a major sink for aerosols and fast soluble gases, and by redistributing aerosols and other important chemical species in the troposphere through various cloud dynamical and physical processes. On the other hand, aerosol concentration and chemical composition and the tropospheric chemical processes leading to the production of aerosol precursors can significantly impact on the formation and development of clouds and precipitation. Due to the relatively small temporal and spatial scales of the above aerosol-cloud and aerosol-chemistry interactions, the cloud-resolving model (CRM) makes an excellent platform for the studies of these processes. This presentation gives a brief review of various science issues and currently adopted modeling techniques in modeling aerosol-cloud and aerosol-chemistry interactions using the CRMs. Selected interesting results from related studies using CRMs will be also introduced. Certain future critical issues required the use of CRMs and the potential modeling solutions of these issues will be discussed.