A review of recent studies using chemistry-climate models

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The chemistry-climate model (CCM) is now widely used to investigate the relationship and interaction between atmospheric chemistry and climate. Recent studies using CCMs on the middle-atmosphere chemistry and climate associated with ozone-layer variation are briefly reviewed and discussed. The main topics of this talk are ozone-science results from the Chemistry Climate Model Initiative (CCMI), ozone depleting substance (ODS) and greenhouse gas (GHG) dependences of the Arctic and Antarctic column ozone based on large-ensemble simulations representing the year-to-year variation of the mid- and high-latitude atmosphere, and ozone and NOx variations caused by solar proton events and volcanic eruptions. The research perspective associated with these topics is also given.

Keywords: chemistry-climate model, ozone, ODS, GHG, solar proton event, volcanic eruption

