

The Martian atmospheric circulation and numerical simulation: A review

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Characteristics of atmospheric circulation in present Mars are (1) dry atmosphere, (2) condensation and sublimation of major atmospheric component, and (3) dust which always exists in the atmosphere. In particular, the first characteristic is important, since it will be useful for understand the terrestrial atmospheric circulation from the stand point of view how water vapor affect on atmospheric circulation to reveal features of dry atmospheric circulation by studying on present Martian atmosphere. Understanding of present Martian atmospheric circulation will be also useful to consider role of atmospheric circulation in warm and wet climate of past Mars and evolution from past to present Mars. Recent space craft missions and numerical simulation studies bring us many data about the Martian atmospheric circulation. In this presentation, meteorological observations of the Martian atmosphere obtained by space crafts and numerical simulations of the Martian atmospheric circulation are reviewed. Based on the review, future problems for understanding of circulation structure of planetary atmosphere with and without water are discussed.