

The stability of Martian atmosphere-polar cap system

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The planetary climate changes by exogenic and endgenic factors. The exogenic factors includes the changes of planetary orbital parameter and the atmospheric escape caused by the solar wind. The endogenic factors include the mass exchange processes between the atmosphere and the reservoirs at the planetary surface. In this study, we investigate the stability of martian climate by considering the mass exchange between the polar cap and the atmosphere. Our results are as follows; 1. the stable atmospheric pressure on Mars is strongly sensitive to the solar radiation absorbed by CO₂ polar caps, and 2. if exogenic factor such as the solar radiation is different from the present one, the different state of climate may have existed in the past.

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