

The Venus thermosphere and ionosphere

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The Venus thermosphere is an interaction region between Venus atmosphere and solar wind because the Venus has no intrinsic magnetic field. The Venus ionosphere in the thermosphere, therefore, is the region directly interacting with the solar wind, where there are transfers of energy and momentum between the atmosphere and the ionosphere and the solar wind. While a part of the solar wind plasma enters into the Venus atmosphere, some of the ionospheric plasma can escape to the interplanetary space. The Venus ionosphere may interact strongly with the atmosphere as well as the solar wind but we do not have enough information to understand such physical processes.

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Pioneer Venus spacecraft has investigated in details the Venus thermosphere and ionosphere during 14 years from 1978. We know that the spacecraft discovered lots of interesting phenomena on the atmosphere and the ionosphere. However, we do not still understand some physical processes such as dynamics, energetics and instability of thermosphere and ionosphere because we do not have detailed and accurate data in space and time.