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Highly extended planetary O^+ escape region near Venus

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Abstract

Solar wind interaction with Venusian ionosphere can drive planetary oxygen ions (O^+) escape into the interplanetary space. The in-situ observations near Venus have shown that O^+ can escape through the magnetosphere and the magnetosheath [1]. O^+ escape through unshocked solar wind, i.e., outside of the magetosheath, has been observed at the other unmagnetized celestial bodies, such as Mars [2] and near-Sun comets [3], but never been observed at Venus.

We show first observational evidences that such an escape region outside the bowshock indeed exists at Venus. Venus Express observations suggest that this region can extend outside of bowshock, even beyond 5 Venusian radii.

References

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