

THE IONOSPHERE UNDER AN EXTREMELY QUIET SUN

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Recent observations in the ionosphere and thermosphere reveal the behavior of the system under extremely quiet solar conditions. During late 2008 and early 2009 the euv ionizing flux was as low as it has ever been and the state of the ionosphere is quite different from expectations. In this presentation we will review some of the features of ionospheric composition and dynamics that are influenced by interactions with the neutral atmosphere. After discussing the underlying physical processes we examine observations made from the CNOFS and DMSP satellites that reveal how these interactions can produce behaviors that are unique to extremely quiet conditions.

These behaviors include the topside ionospheric composition and temperature, which suggest the nighttime ionosphere is extremely cold (600K) and the layer occupies a much smaller volume than usual, and the ionospheric dynamics parallel and perpendicular to the magnetic field, which are affected by thermospheric neutral winds and magnetospheric influences.

Ionosphere, Composition, Dynamics

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