

The effect of solar illumination on ionospheric outflow.

Lukas Maes¹, Markus Fraenz¹, Romain Maggiolo², Stein Haaland^{3,1}

1 Max Planck Institute for Solar System Research, Göttingen, Germany

2 Royal Belgian Institute for Space Aeronomy, Brussels, Belgium

3 Birkeland Centre for Space Science, University of Bergen, Bergen, Norway

Solar illumination is the most important source of ionization and one of the most important sources of energy for the ionosphere. Therefore, it has a critical effect on ion escape and atmospheric erosion. It changes the ionospheric density, and thus the amount of ions available for outflow. It controls the temperature, and thus the energy for thermal escape, but also the basis for other escaping mechanisms. It alters the composition of the ionosphere, and thus also the composition of the outflowing ions. Solar illumination also affects the conductivity of the ionosphere and in this way has an influence on how the ionosphere interacts with its magnetic environment, which includes other escaping processes. In this presentation we will explore some of the effects solar illumination has on ionospheric outflow.