

A New Perspective on the Lunar - Solar Wind Interaction

Anil Bhardwaj

Space Physics Laboratory, Vikram Sarabhai Space Centre

In the recent years our understanding about the interaction of solar wind with Moon has undergone a serious change. The lunar regolith which was assumed to absorb almost all the incident solar wind is now known to backscatter a significant portion of impacting solar wind back to space, which is largely in neutral form (called energetic neutral atom, ENA) but a small fraction is also in ionized state. The information revealed by the backscattered ENAs has added new dimensions to the solar wind-Moon interaction process. Further, the near-lunar plasma wake (<few 100 km from surface on nightside), which was known to be devoid of plasma, is found to contain ions under varying interplanetary magnetic field conditions. These recent observations will be discussed in context of plasma-regolith interaction, with implications for other atmosphere-less bodies covered with regolith in the solar system as well as in the extra-solar system.