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First observations of the solar wind – Moon interaction onboard Chandrayan-1 mission

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The SARA instrument (Sub – keV Atom Reflecting Analyzer) onboard the Indian Moon mission Chandrayan-1 comprises a low energy neutral atom sensor for the energy range 10 eV – 3.3 keV and an ion mass spectrometer (10 eV – 15 keV). It is the first ever experiment to study the solar wind – surface interaction via measurements of the sputtered atoms and neutralized back-scattered solar wind hydrogen. The neutral atom sensor uses conversion of the incoming neutrals to positive ions, which are then analyzed via surface interaction technique. The ion mass spectrometer is based on the same principle. The neutral atom sensor performs low energy neutral atom imaging of the Moon's elemental surface composition including imaging of permanently shadowed areas, and imaging of the surface magnetic anomalies. The ion mass spectrometer characterizes the plasma environment at the Moon. SARA was commissioned in January 2009. In our talk we describe the instrument in detail and present the first observations.