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A statistical study of proton precipitation at Mars

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A statistical study of proton precipitation onto the Martian atmosphere using data from the Aspera-3 (Analyzer of Space Plasma and Energetic Atoms) instrument onboard the Mars Express spacecraft will be presented. The work is focused on proton fluxes detected on dayside, at altitudes below the induced magnetospheric boundary. The data coverage will be from early 2004 to at least end of 2005, in order to beneficiate from the measurements of the Mars Global Surveyor spacecraft. Both proton fluxes accompanied and not accompanied by high energy electron spikes are searched. Studies of the asymmetries due to the convective electric field, the influence of solar wind speed, interplanetary magnetic field clock angle, crustal magnetic anomalies, maps of flux and energy flux, energy spectra, distribution over solar zenith angle and altitude will be presented.