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Airglow and Auroral Emission from Ganymede

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In term of space environment Ganymede is a unique object in the solar system. Its own magnetic field in the jovian magnetosphere gives rise to particles precipitation. Although these object have a very faint atmosphere, their exosphere can show some emissions features due to both solar UV flux and precipitating particles. We recently calculated the effects of the solar UV flux (Cessateur et al 2012). However, in the case of the polar region of Ganymede the precipitating electrons play an important role in the emission features as measured by Hall et al. (1997) and Feldman (2000) for the O 130 nm triplet. To calculate these emissions, we use the atmospheric model produced by Marconi (2007). We use a simple primary ionization calculation. This is justified by the fact that the atmosphere is essentially non collisional except at very low altitudes and latitudes. By comparison between the data of Feldman et al., we constrained the electrons fluxes precipitating in the atmosphere of Ganymede. These calculations give strong information on the processes involved in the Ganymede environment. In particular, we will be able to produce constraints on the electrons spectrum precipitating in Ganymede atmosphere.