



The sodium distribution anisotropies in the exosphere of Mercury

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The Na exosphere of Mercury, since its discovery in mid '80s from Earth-based telescopes, has revealed a high dynamicity and variability.

In the present work we speculate on the Hermean exosphere sodium distributions, as observed by the THEMIS telescope (Tenerife, Spain) and presented at EGU 2015 and further published in Mangano et al., PSS, 2015. In that paper, taking advantage of a database of observations between years 2009 to 2013, we performed a comprehensive statistical study of the recurrent patterns. In addition, for a subset of data (2011-2013) a detailed analysis in view of the local IMF was done (thanks to the in-situ measurements of MESSENGER). In such way, 8 different Na exospheric patterns have been identified.

Given the previous results, by looking at time profiles within the collected database, we here focus on two of the previously cited patterns with basically opposite configurations: when the sodium signal is concentrated above both high latitudes or above the subsolar region, respectively.

We compare the two different configurations with the corresponding time profiles of the IMF and analyse them with higher detail.

Finally, we also try to evaluate the consistency of these anisotropic observations with respect to long-time volatile depletion of the Mercury's surface from ancient times, as investigated in a previous work (Orsini et al., 2014).