水星ナトリウムテイルの観測から推測される大気放出量の時間変動

亀田 真吾 [1]; 鍵谷 将人 [2]; 岡野 章一 [3]
[1] 立教大; [2] 東北大・理・地球物理; [3] 東北大・理・PPARC

Temporal variability of source rate of Mercury’s sodium from the result of the observation of Mercury’s sodium tail.

Shingo Kameda[1]; Masato Kagitani[2]; Shoichi Okano[3]
[1] Rikkyo Univ.; [2] Dep. of Geophys., Tohoku Univ.; [3] PPARC, Tohoku Univ.

Mercury has an unstable sodium exosphere. It has been observed many times using the ground-based telescope. The ionization lifetime of sodium atoms at Mercury is only 1-3 hours and they are lost to the interplanetary space after ionized. This suggests that sodium atoms are constantly supplied to Mercury’s atmosphere.

We started the ground-based observation using a telescope and spectrograph at the top of Mt. Haleakala in Maui, Hawaii in April, 2010. From now on, we got a lot of data on the distribution of Mercury’s sodium exosphere. After released from the surface, sodium atoms move to the anti-sunward due to the solar radiation pressure. The sodium exosphere extended to the anti-sunward is called ’s sodium tail.

On March 26, we found two peaks in the density distribution to the anti-sunward, though only one peak has been seen on the other dates.

In this presentation, we will show our observation results and discuss the cause of the observed density distribution.