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Erratum: "The Influence of Surface Binding Energy on Sputtering in Models of the Sodium Exosphere of Mercury" (2022, PSJ, 3, 139)

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Equation (4) should be replaced with the following:

$$R_{\rm sputter} = 1.3 F_{\rm ion} f_{\rm m} y_{\rm i} n({\rm Na}). \quad (4)$$

The symbol ρ in the original equation is deleted.
The text directly before and after Equation (4) beginning with "The sputter rate..." should now read:
The sputter rate at each pixel is therefore given by

$$R_{\rm sputter} = 1.3 F_{\rm ion} f_{\rm m} y_{\rm i} n({\rm Na}), \quad (4)$$

where $F_{\rm ion}$ is the assumed FIPS-derived value, $f_{\rm m}$ is the value (between 1 and 0) of the sputter map at the pixel in question, $y_{\rm i}$ is the sputter yield for the assumed SBE, and n(Na) is the fractional sodium abundance, taken to be 0.05 in the cusp regions.

The y-axis in Figure 3 has been corrected.

The difference between the column abundances in the corrected Figure 3 and those in Figure 7 results in part due to the fact that Figure 3 is simulated at a true anomaly angle of 26° (0.313 au) whereas Figure 7 is simulated at a TAA of 144° (0.445 au). In addition, Figure 3 is simulated at a latitude of 67°, directly above the cusp, and Figure 7 is simulated above the equator to compare with the Cassidy et al. (2015) result.

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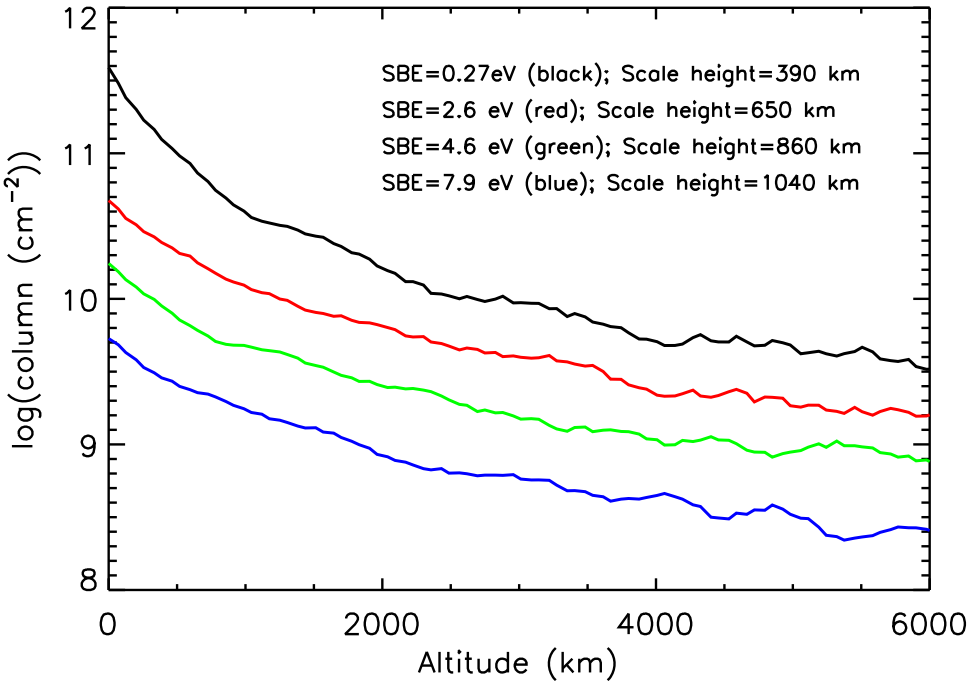

Figure 3. Altitude profiles measured radially from the planet directly above the center of the cusp at a latitude of 67° N. Four values of SBE were assumed: 0.27, 2.6, 4.6, and 7.9 eV. The plots have been smoothed, but the high altitudes still appear wavy owing to poor statistics. Above about 1000 km, the curves asymptote because all trajectories are escaping.

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Reference

Cassidy, T. A., Merkel, A. W., Burger, M. H., et al. 2015, Icar, 248, 547