



Modeling heavy solar wind ions with an exospheric kinetic model

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Great improvements have been made over the last decade on measuring abundances of solar wind ions in different locations throughout the Heliosphere. In particular, observations of X-ray emission from cometary atmospheres using the Chandra X-ray Observatory have been modeled under the assumption of charge exchange interaction and offer very accurate diagnostics of minor ion abundances due to their high signal-to-noise ratio. Here, we are using an exospheric kinetic model including heavy solar wind ions in an effort to understand whether the observed abundances based on charge-exchange interaction are of solar wind origin. More specifically, based on the work of Pierrard et al. (2003, 2004) we use the new high-accuracy observations and extend our study to heavier ion-species up to iron. This new exospheric kinetic study will provide valuable insights on the close-to-Sun solar wind conditions appropriate to explain the high abundances of heavy ions measured with cometary observations at greater distances. The timing of these insights is particularly important as the Parker Solar Probe will be launched in the following months.