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Kinetic Modeling of Plasma formed during Aerobraking in the Martian Atmosphere EVAN SMITHWICK, DEREETH DRAKE, Valdosta State Univ — During Martian atmospheric aerobraking the plasma that forms around a spacecraft can be considered a high-volume plasma reactor that is sustained by the dissipation of the spacecraft's kinetic energy. At altitudes below 100 km, it has been shown that the plasma parameters vary considerably depending on the spacecraft's trajectory. However, in range which is applicable to aerobraking, $100 \text{ km} < h < 200 \text{ km}$, little of this work has been completed. We have evaluated a simple kinetic model to determine a probable range of plasma parameters for altitudes between 100 and 200 km using existing Martian atmospheric data and all recorded probe trajectories.

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