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Isotopic Abundance Considerations for Enceladus' Plumes

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Abstract

Brown et al. [1] have conducted theoretical and experimental studies of the vacuum sublimation of water ice that allow predictions of some of the physical properties and isotopic ratios of the material comprising Enceladus plumes if they are driven by vacuum sublimation of water ice. In addition, Rayleigh fractionation of H_2O and HDO in any putative, liquid-water reservoir driving Enceladus' plumes also sets constraints on some isotopic ratios of the vapor and solids issuing from Enceladus. Such considerations will be discussed and their implications for the ultimate source of the water vapor in Enceladus' plumes will be explored.

References

[1] R. H. Brown, D., Lauretta, B., Schmitt, and J., Moores, (2009) *Icarus*, submitted.