NEAR-IR BAND STRENGTHS OF MOLECULES DILUTED IN N_2 AND H_2O ICES

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In order to determine the column density of a component of an ice from its infrared absorption features, the strengths of these features must be known. The peak positions, widths, profiles, and strengths of a certain ice components infrared absorption features are affected be the overall composition of the ice (Quirico et al. 1999). Many satellites within the solar system have surfaces that are dominated by either N_2 or H_2O (Roush 2001). The experiments presented here focus on the near -infrared absorption features of CO, CO_2, CH_4, and NH_3 (μ=10,000-4,000 cm^1, λ=1-2.5 μm) and the effects of diluting these molecules in N_2 and H_2O ice (dilution of 5:1). This is a continuation of previous results published by the Astro- and Solar-System Program at UAB by Gerakines et al. (2005). These data may be used to determine ice abundances from observed near-IR spectra or to predict the sizes of near-IR features in astrophysical environments.