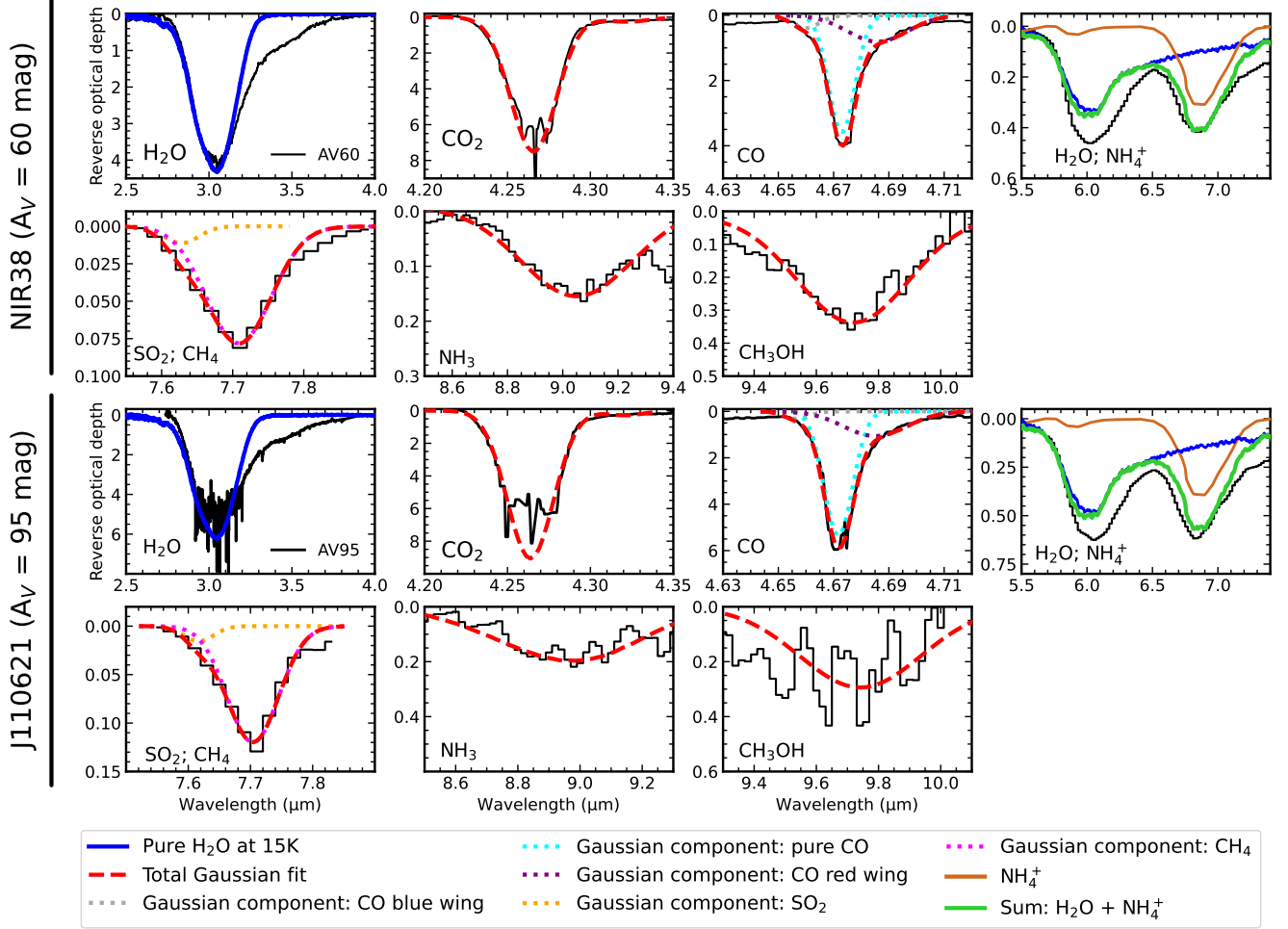


An Ice Age JWST inventory of dense molecular cloud ices

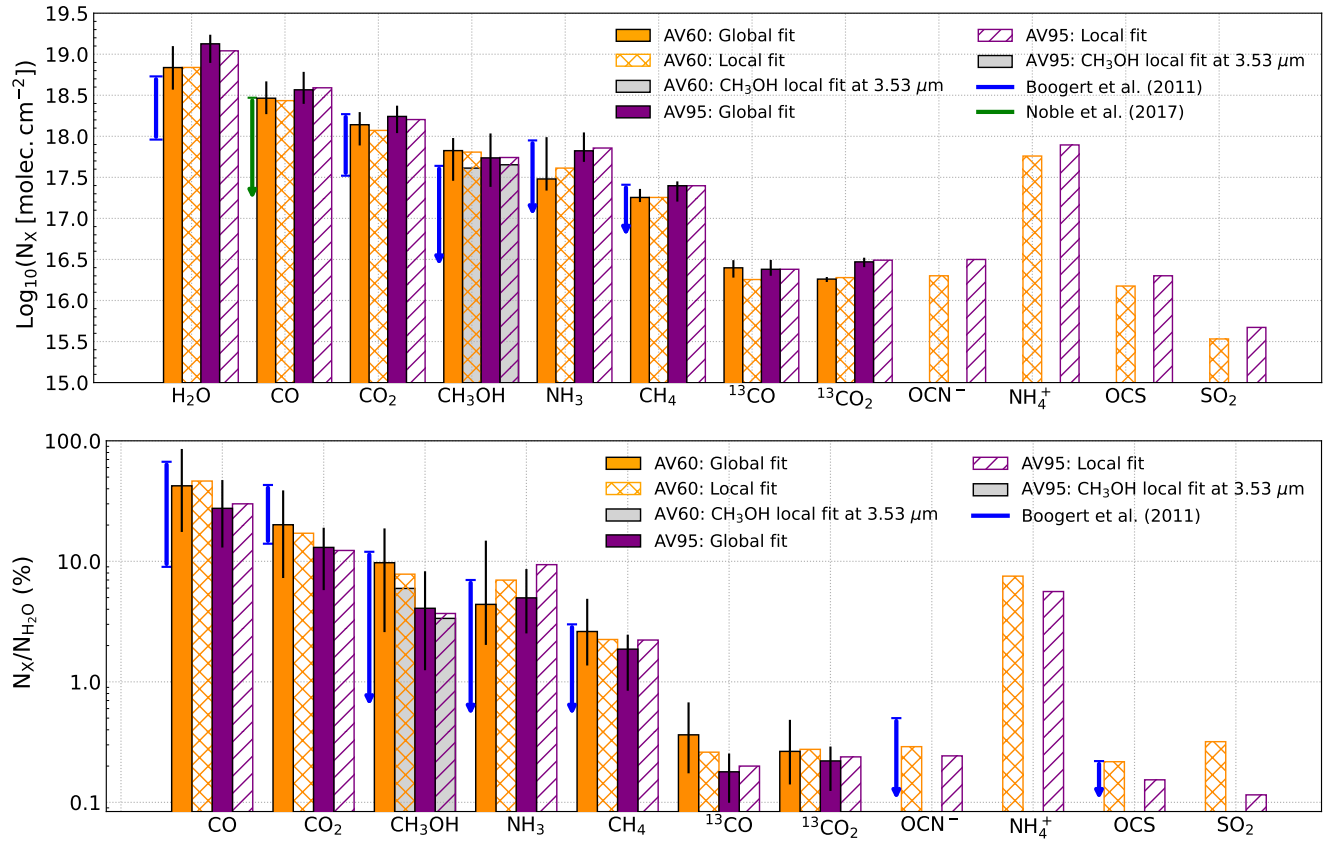
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1 Supplementary Information

To validate the column densities derived from the global fitting using multiple features and mixed ice species, in Supplementary Figure 1 we show the local fits derived in the Main Text. In Supplementary Figure 2 we compare those results with the column densities determined from the local fits. The column densities from the local fits agree with those from the global fits to within the listed uncertainties.



Supplementary Figure 1. Local fits of the major ice components in NIR38 and J110621. At 3 μm, we scale the H₂O ice spectrum at 15 K to match selected wavelengths that are not saturated (see Methods). Between 5.5 and 8.0 μm, we sum the NH₄⁺ band and H₂O scaled to the 3 μm profile. For the other absorption bands, we perform a Gaussian fit. In the cases of CO and SO₂/CH₄, more than one Gaussian profile is adopted.



Supplementary Figure 2. Barplot comparing individual column densities of ices derived from local fits to those derived from global fitting. (Top) Ice column densities towards NIR38 ($A_V = 60$ mag) and J110621 ($A_V = 95$ mag) derived from global (full bars, best of $n=112$ models) and local (hatched bars) fits. Blue and green lines indicate the range of values in the literature. Arrows are used for upper limits and error bars are from the 3σ confidence intervals. **(Bottom)** Relative column densities barplot of the detected ices, normalized to H₂O ice. Full and hatched bars are from global and local fits, respectively. Blue lines are from literature values, and arrows indicate upper limits. Error bars are from the 3σ confidence intervals.