

Online supplementary information

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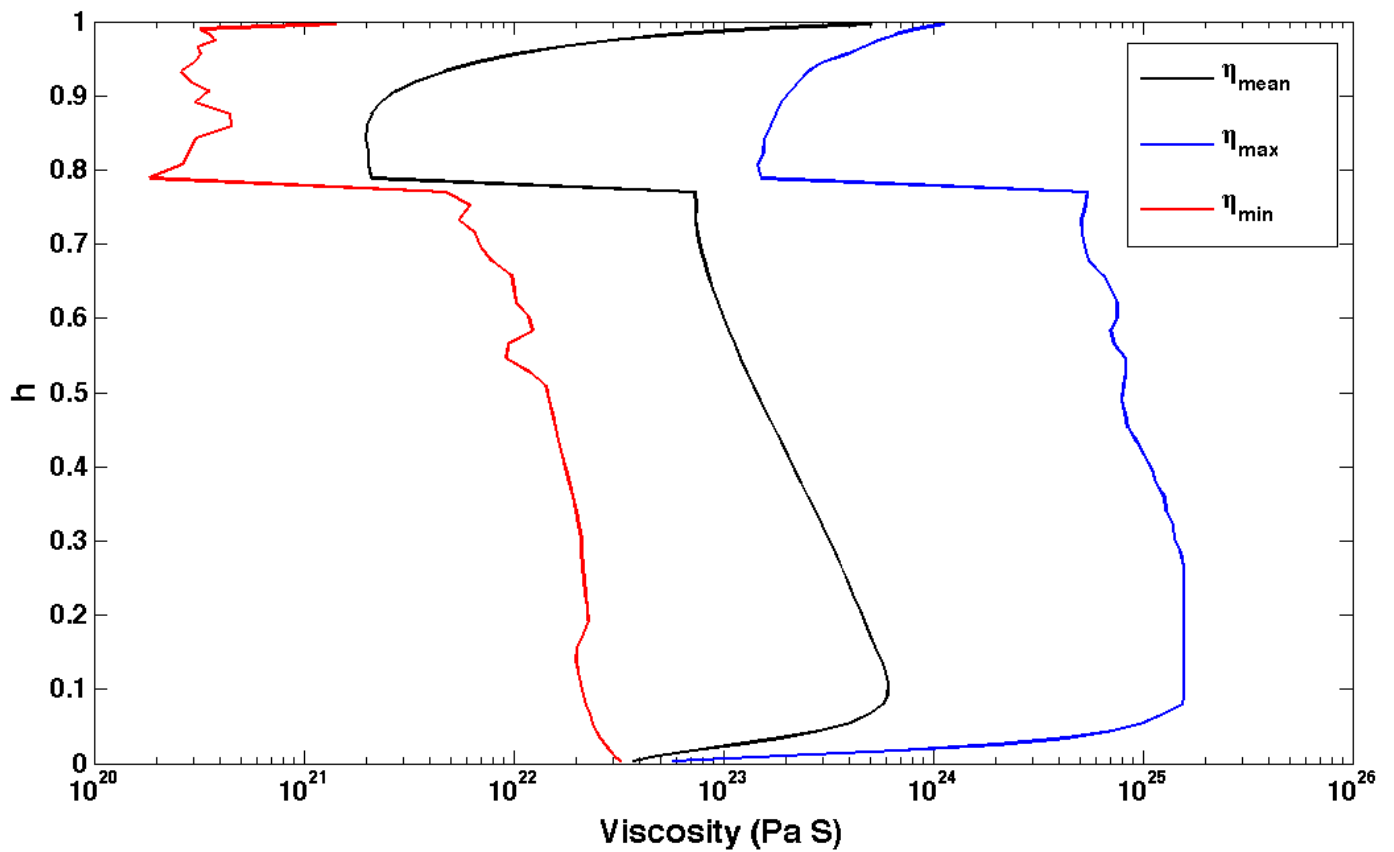


Figure S1. 1-D viscosity profile for the reference case. The black, blue, and red curves show the horizontally averaged viscosity, the maximum and minimum viscosity, respectively.

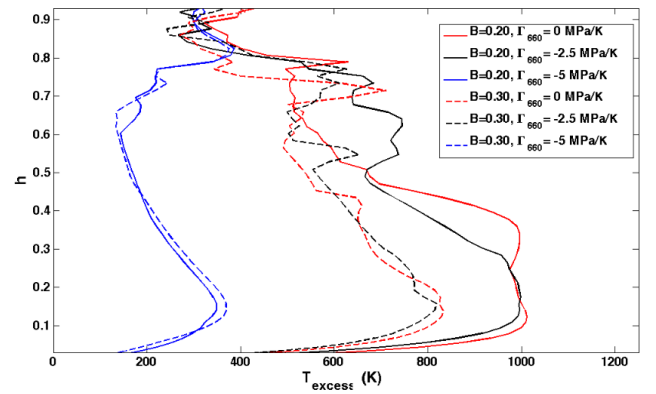
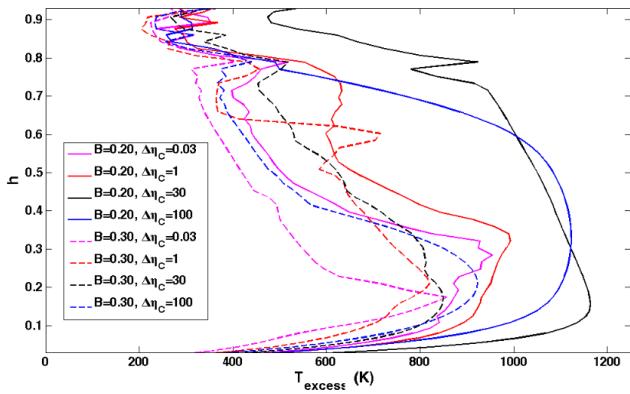
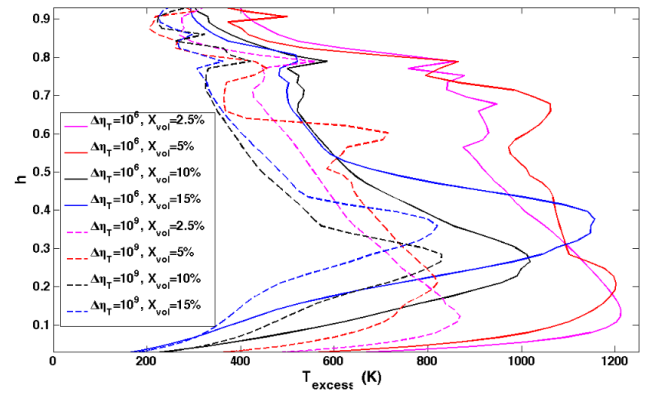
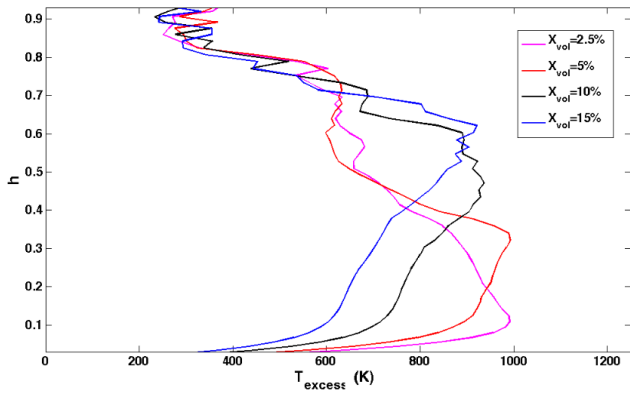
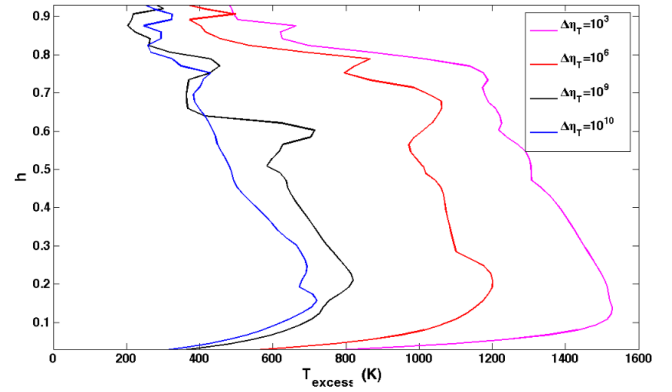
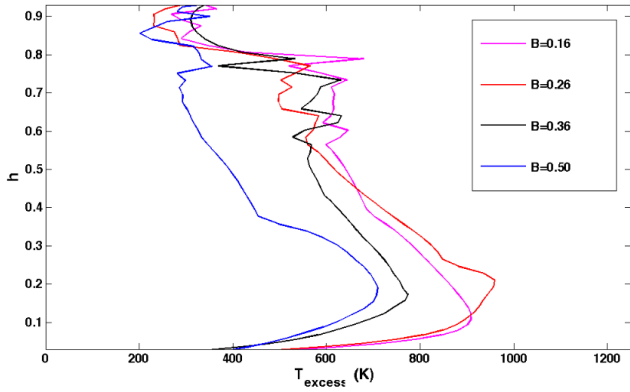


Figure S2. Radial profiles of the excess temperature in plumes for the cases in table 2.