Auxiliary material for

Temperature and velocity measurements of a rising thermal plume

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Introduction

The auxiliary material contains a video, showing the three-dimensional finite-time Lyapunov exponent (FTLE) field computed in backward-time, as well as slices of the temperature field for a rising thermal plume at a Rayleigh number of 1.37×10^6. The experimental details of the measurements are detailed in Section 2 of the main article.

The temperature field was estimated using thermo-chromatic liquid crystals; the horizontal plane was within 2 mm of the base of the tank, and the vertical planes

have are offset by 30 mm from the plume axis. The temperature field in all three planes is shown for a range $25.2 - 26.2°C$ (where $25.2°C$ is the ambient temperature), as indicated by the colour bar on the left.

The strength of the FTLE field is indicated by the colour of the points, and has a range $0.001 - 0.0026 \ s^{-1}$, as indicated by the colour bar on the right. Points at which the FTLE field was below $0.001 \ s^{-1}$ are not shown.