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High-amplitude dissipation event in a turbulent convection cell JANET SCHEEL, Occidental College, Los Angeles (USA), JOERG SCHUMACHER, TU Ilmenau (Germany) — A high-amplitude dissipation event in the bulk of a closed three-dimensional turbulent convection cell is found to be correlated with a strong reduction of the large-scale circulation flow in the system that happens at the same time as a plume emission event from the bottom plate. The reduction in the large-scale circulation allows for a nearly frontal collision of down- and upwelling plumes and the generation of a high-amplitude thermal dissipation layer in the bulk. This collision is locally connected to a subsequent high-amplitude energy dissipation event in the form of a strong shear layer. Our analysis illustrates the impact of transitions in the large-scale structures on extreme events at the smallest scales of the turbulence.

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