A sinkhole field experiment in the Eastern Alps.

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ABSTRACT

Because sinkholes are an excellent natural laboratory for studying physical processes leading to the formation, maintenance and dissipation of temperature inversions, an extended set of meteorological field experiments was conducted in limestone sinkholes of various sizes and shapes in the Eastern Alps during the period from 17 October 2001 through 4 June 2002. The experiments were conducted in an area surrounding the Gruenloch sinkhole, which in earlier years had recorded the lowest surface minimum temperature in Central Europe, -52.6°C. A dense array of surface temperature sensors and three automatic weather stations were operated continuously during the experimental period, and special experiments enhanced with tethersondes and other equipment were conducted from 2 to 4 June 2002. An overview of the experiments is presented and first results are given.