

The Aventech AIMMS20AQ: a new low cost airborne probe for turbulence measurements

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Precursors to convective precipitation were studied during the Convective Storm Initiation Project . This took place during the summers of 2004 and 2005, centred on the research radar at Chilbolton, UK., using a comprehensive and broad-based range of fieldwork and modelling. The principal aim of the project was the detection of primary and secondary mechanisms for the initiation of convective cells by orography, land-use interfaces, variability in moisture fields and mesoscale instabilities in the free atmosphere. The UFAM Cessna 182 was used to map turbulence, temperature and humidity fields over a broad area both in- and outside of the Chilbolton radar beam. Air motion was measured using a new turbulence probe, the AIMMS20AQ. The performance of the probe is critically appraised, based on calibrations and test flights made independently of CSIP, and also on data flights flown during CSIP intensive operating periods. In general, the probe performed well, although some aspects require more careful data interpretation which we describe in detail. Several case studies highlighting very different pre-convection conditions prevailing over the measurement area will be described.