



Life-cycle of a deep convective macroburst observed by the C-band MIT radar during AMMA Special Observing Period

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The Massachusetts Institute Technology (MIT) radar clear air data allow us to study the dynamics of the lower layers in 3D up to more than 60 km away. For several days in July 2006, the MIT measurements showed coherent eddies (rolls) forming within the convective boundary layer every morning and evolving to cells in the early afternoon. On 10 July, a few cells bursted to deep convection 15 km to the east of the radar, initiating a gamma-meso-scale system that propagated westward (in link with the Afrincan Easterly Jet) through the radar vicinity. It was associated with a textbook macroburst with an astonishingly circular gust-front diverging in time very rapidly. Since the extension of the density current surge was about 80 km diameter maximum, and its center remained close to the radar during its propagation, the MIT observations enable us to follow the entire life cycle with a temporal resolution of 10 minutes and a horizontal resolution of 250 m, from the evenly-spaced rolls, to individual cells, and to the outbreak of the deeper convective system, its propagation and growth and the evolution of its density current until its dissipation.