



Alternative interpretation of combined backscatter and humidity measurements of stratospheric particles during the SCOUT-AMMA balloon campaign

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Analysis of Wyoming Backscatter Sonde data from Niamey, August 23, 2006 shows that there was indeed a distinct particle cloud above the tropopause at 18 km. The backscatter signature is consistent with relatively small solid particles of radius = 0.5-10 μm and the Lyman alpha Flash B hygrometer measured a distinct water vapour sub-saturation with respect to ice (saturation ratio less than 0.5). Radar images and MCS-tracking images, overlayed with ECMWF back trajectories, show that there were no deep convective overshoot immediately upwind from the observation point, which implies that the particles must have been there for at least 4-5 hours, and possibly longer. This is a mystery because 0.5-10 μm ice particles should sublimate within a few minutes under these circumstances. We suggest that the observed particles could be stabilized by electric charge.