

Longterm observations of surface, atmospheric boundary layer and atmospheric/cloud properties in the Lindenberg Column

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Since more than 100 years, vertical profiles of temperature, humidity, wind and pressure were measured with kites and balloons and in present time with radiosondes and with ground based remote sensing instruments (cloud radar, wind profiler, raman lidar, microwave profiler, FTIR). Additionally surface narrow-band and broad-band radiation as well as surface energy fluxes (based on various towers in different environments representative for the Lindenberg area and on scintillometer measurements) were carried out to complete our measurements in Lindenberg. Today, the routine, longterm monitoring programme in Lindenberg provides 30 minute resolved data sets 24 hours a day and 365 days a year. The focus of this work is to ensure a very high quality of measured properties, where a detailed quality control is applied to all data sets. Thus, Lindenberg is a reference site for various international programmes (CEOP, GABLS, GVaP, GUAN, GSN, BSRN, Eumetnet WINPROF).

So, these measurements allow the observation of water vapour variabilities and cloud properties on routine basis. Together with the other measurements the development of clouds, the occurrence of clouds, their microphysical properties, and the end of cloud lifetime is monitored in the Lindenberg column. The column is located at Lindenberg (South-East of Berlin, Germany) and has an extension of 20x20x40 km³. For specific experiments, a much higher time resolution (up to 1 minute) allows detailed cloud life cycle studies. In the presentation, some examples of specific cloud events will be presented. This will also give a detailed view to all measurements of the longterm measuring programme at the Lindenberg site.