



Structure and length scales of a stratocumulus deck and during its transition into an organized cumulus field: The BBC case 23.09.01

M. Quante(1), V. Matthias(1), D. Nagel and M. Schröder(2)

(1) GKSS Forschungszentrum, Institut für Küstenforschung, Geesthacht, Germany, (2) Institut für Weltraumwissenschaften, FU Berlin, Germany (markus.quante@gkss.de / Fax: +49 4152 871501)

A stratocumulus topped boundary layer is a feature of many marine and coastal as well as of some continental environments. During the Baltex Bridge Campaign (BBC) in 2001 the development of a stratocumulus field over the experimental site of Cabauw, NL, has been extensively observed by cloud radar and airborne radiometry as well as by *in situ* measurements. The cloud field developed under continental influence before it reached the observational site nearer to the coast, where around noon a break-up and transition into an organized cumulus field could be observed.

Here we report on the detailed structure of the stratocumulus as deduced from high resolution reflectivity and Doppler measurements obtained by a vertically pointing cloud radar, from airborne microphysical observations at several altitudes in the cloud layer and from high resolution multi-wavelength airborne radiometer measurements. The inferred length scales from point measurements (radar) are related to the length scales obtained by the moving platform (aircraft), which represent a spatial sampling.

The cloud structure will also be related to the development of the boundary layer, which is assessed from local wind profiler measurements and hourly radiosonde ascents.

Typical scale lengths are obtained from maximum entropy spectral analysis and one- and two-dimensional wavelet analysis of the parameter fields. The relevance of the observed inhomogeneities and scaling aspects for radiative transfer calculations and its representation in a regional model will be discussed. BBC 23.09.01 is a target case

of the WMO cloud modelling initiative.