Supplement of

Cloud droplet number closure in tropical convective clouds during the ACRIDICON–CHUVA campaign

Ramon Campos Braga et al.

Correspondence to: Ramon Campos Braga (r.braga@mpic.de) or Mira L. Pöhlker (m.pohlker@mpic.de)

1   SM- Tables

Table S1. Characterization of aerosol size distributions. Measurements were performed during Flight AC07. Time frame of averaged below cloud period: 6-09-2014 17:53:00 to 17:55:25 UTC

Parameter	Mean
Altitude [m asl.]	1800
Air Temperature [^{o}C]	18
Pressure [hPa]	820
Relative Humidity [%]	95
N_a [cm^{-3}]	1825
N_{acc} [cm^{-3}]	1825
d_{acc} [nm]	147

Table S2. Characterization of aerosol size distributions. Measurements were performed during Flight AC09. Time frame of averaged below cloud period: 11-09-2014 15:31:31 to 15:38:20 UTC.

Parameter	Mean
Altitude [m asl.]	933
Air Temperature [^{o}C]	22.5
Pressure [hPa]	938
Relative Humidity [%]	87
N_a [cm^{-3}]	785
N_{acc} [cm^{-3}]	785
d_{acc} [nm]	145

Table S3. Characterization of aerosol size distributions. Measurements were performed during Flight AC18. Time frame of averaged below cloud period: 28-09-2014 16:39:00 to 16:43:59 UTC.

Parameter	Mean
Altitude [m asl.]	1286
Air Temperature [^{o}C]	20.7
Pressure [hPa]	876
Relative Humidity [%]	81.8
N_a [cm^{-3}]	657
N_{acc} [cm^{-3}]	657
d_{acc} [nm]	140

Table S4. Characterization of aerosol size distributions. Measurements were performed during Flight AC19. Time frame of averaged below cloud period: 30-09-2014 17:23:38 to 17:27:31 UTC.

Parameter	Mean
Altitude [m asl.]	452
Air Temperature [^{o}C]	23.5
Pressure [hPa]	960
Relative Humidity [%]	93.7
N_a [cm^{-3}]	488
N_{ait} [cm^{-3}]	224
N_{acc} [cm^{-3}]	264
d_{ait} [nm]	37
d_{acc} [nm]	136

2 SM- Figures
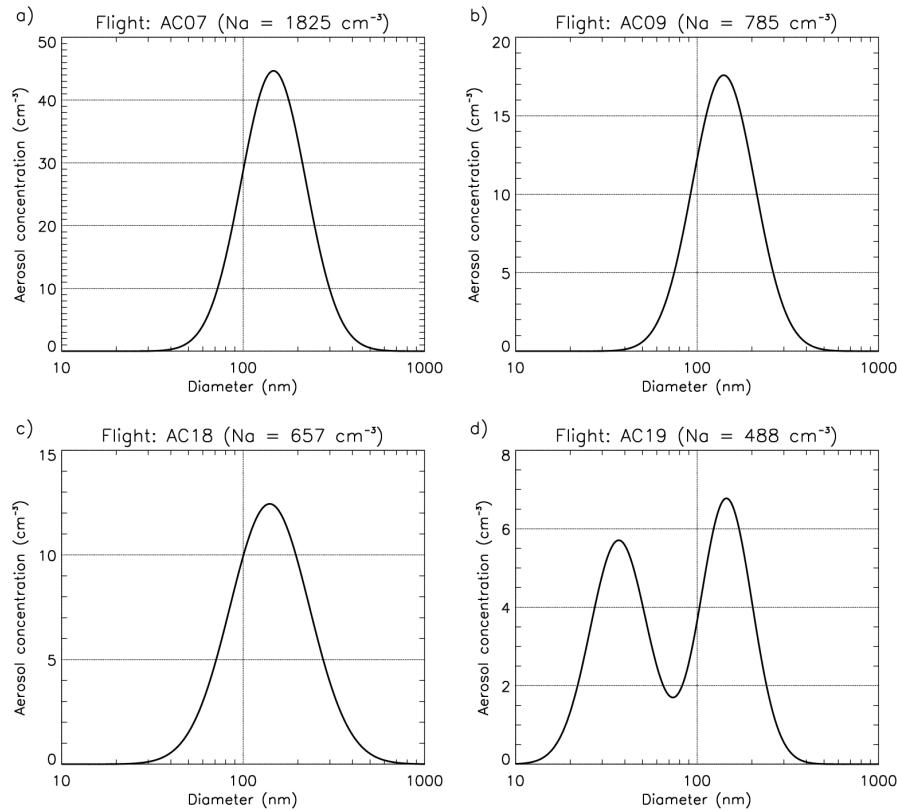
Figure S1. Average aerosol size distribution measured below cloud bases during flights: a) AC07, b) AC09, c) AC18 and d) AC19. The number concentration of aerosol particles (N_a) is shown on the top of each panel. The regions of measurements are shown in Fig.1.
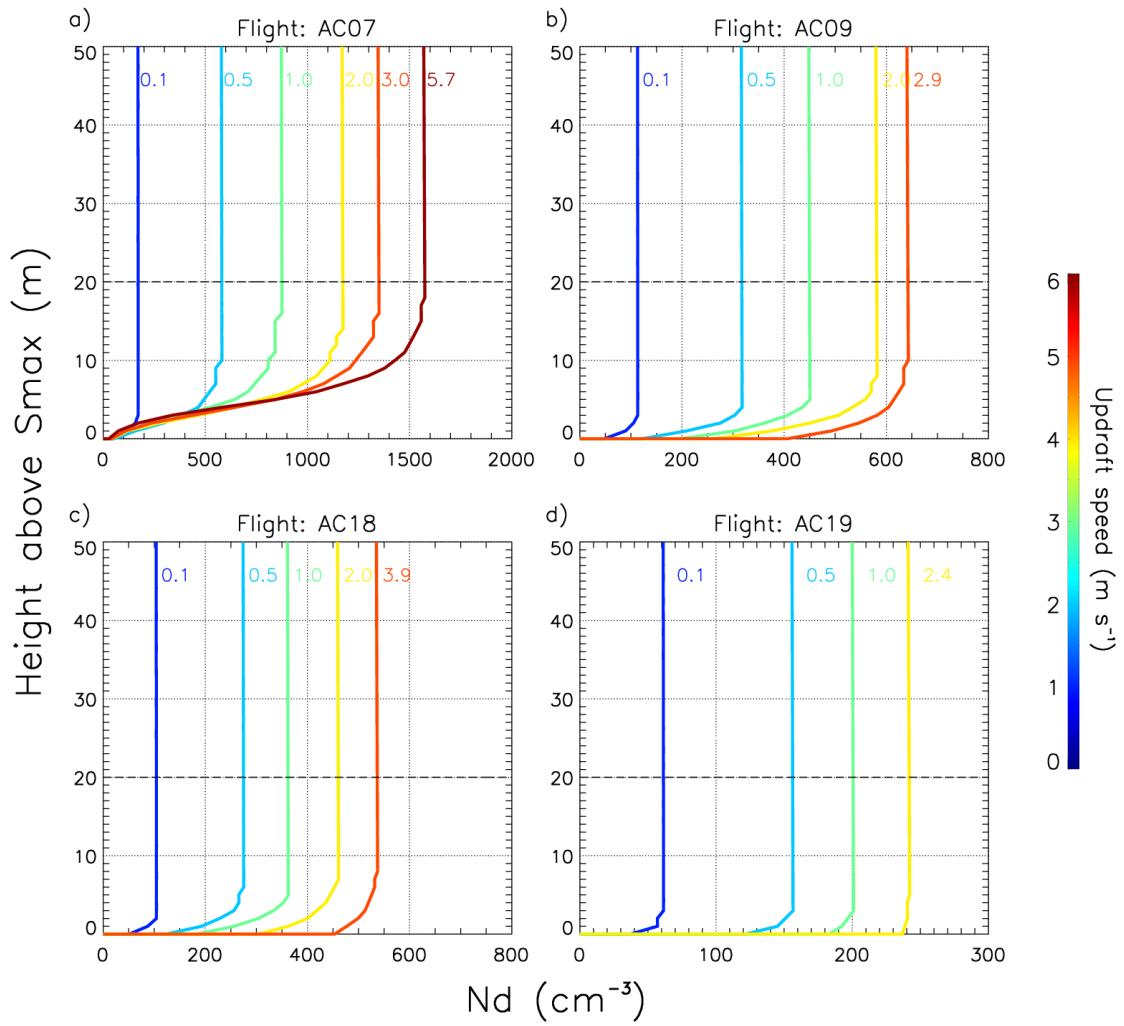
Figure S2. Predicted Nd for heights above the level of S_{max} as a function of w (indicated on the right side of each line) for flights: a) AC07, b) AC09, c) AC18 and d) AC19. The values of w assumed on simulations range the measured values during cloud passes near cloud bases in each flight. The horizontal dashed line indicates the level of 20 m above S_{max}.
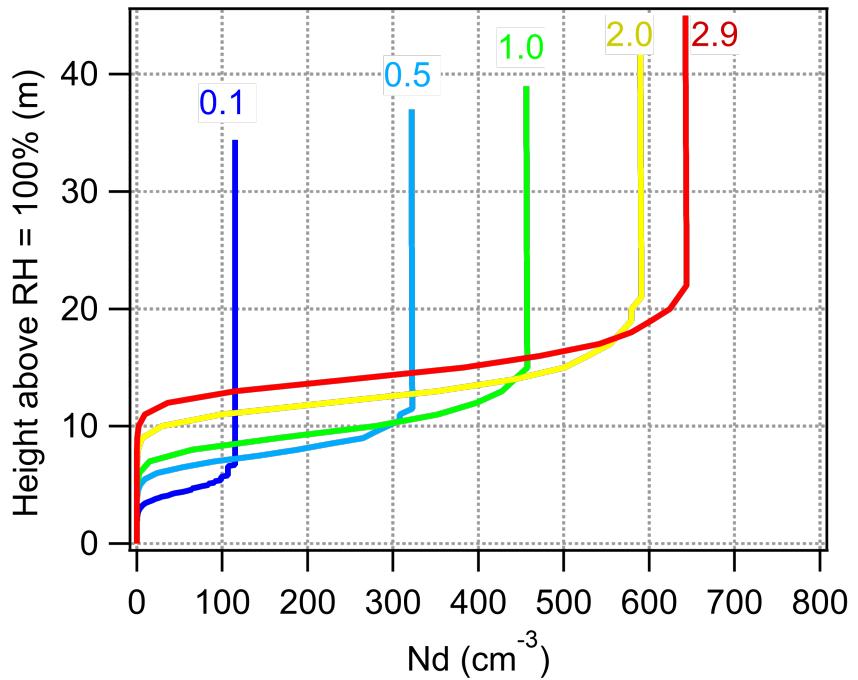
Figure S3. Predicted N_d for AC09 at heights [m] above the level at which RH = 100% in order to demonstrate the various absolute heights above S_{max} as a function of updraft speed. These are the same $N_{d,p}$ values as shown in Figure S2b. Updraft speeds in m s^{-1} are indicated at the top of the colored lines.