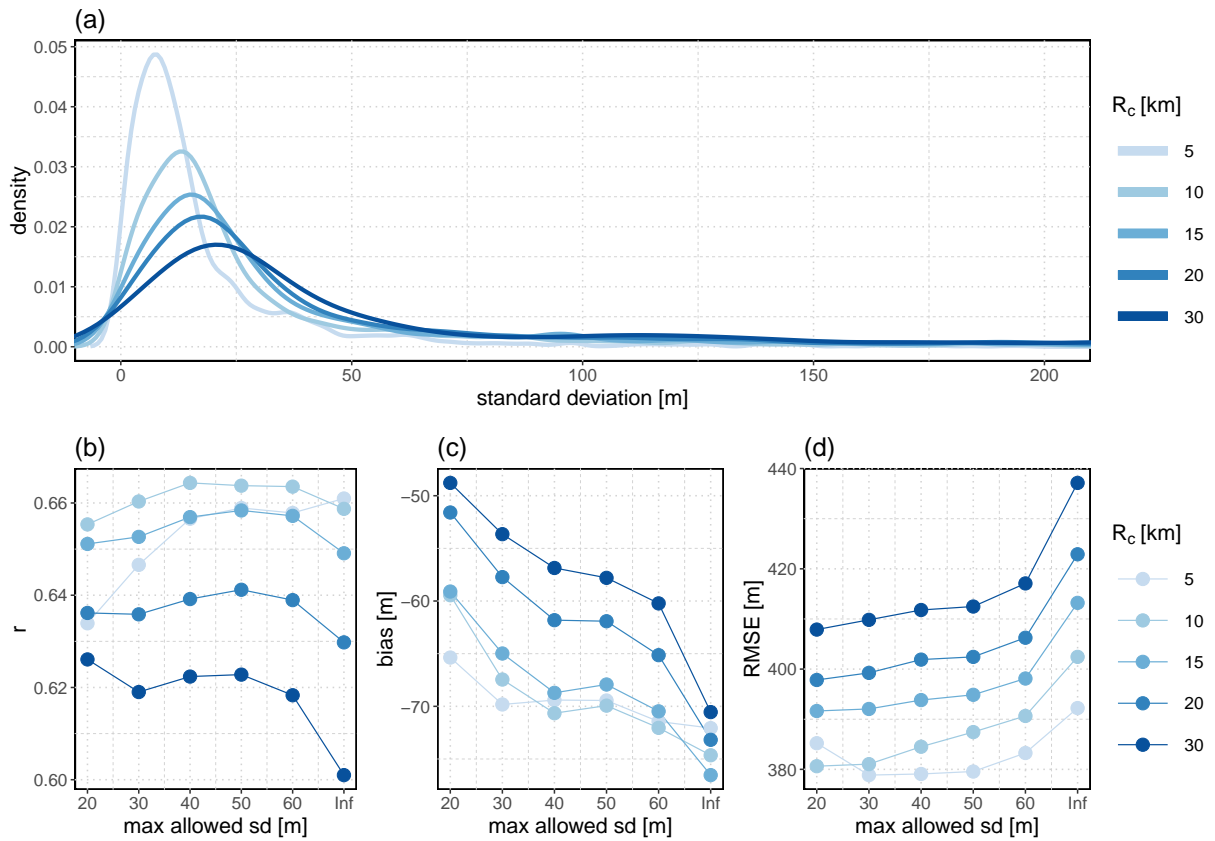*Supplement of*

Cloud base height retrieval from multi-angle satellite data

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Figure S1: a) Normalised frequency of occurrence of the occurring standard deviations (sd) of the average scene elevation (ASE) for various radii. The ASE is provided by the MISR ancillary product. Recalculated are the correlation coefficient r, bias, RMSE using only ceilometer stations below a threshold sd as denoted on the abscissas.
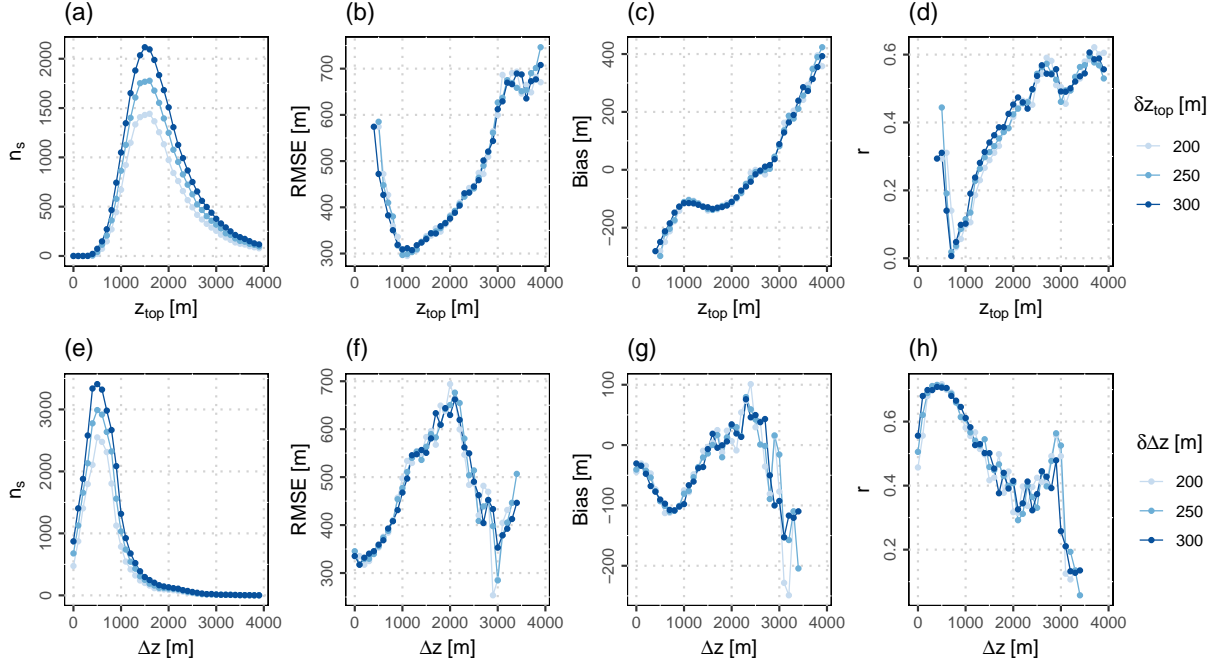
Figure S2: Number of samples n_s, RMSE, bias, correlation coefficient r for the comparison of MIBase and ceilometer retrievals in dependence on z_{top} (top row) and cloud vertical extent Δz (bottom row). Each data point is calculated for a sub sample which includes only $z_{top} \pm \delta z_{top}$ or $\Delta z \pm \delta \Delta z$, respectively. The various widths of the considered z_{top} or Δz windows are indicated by the blue shading.
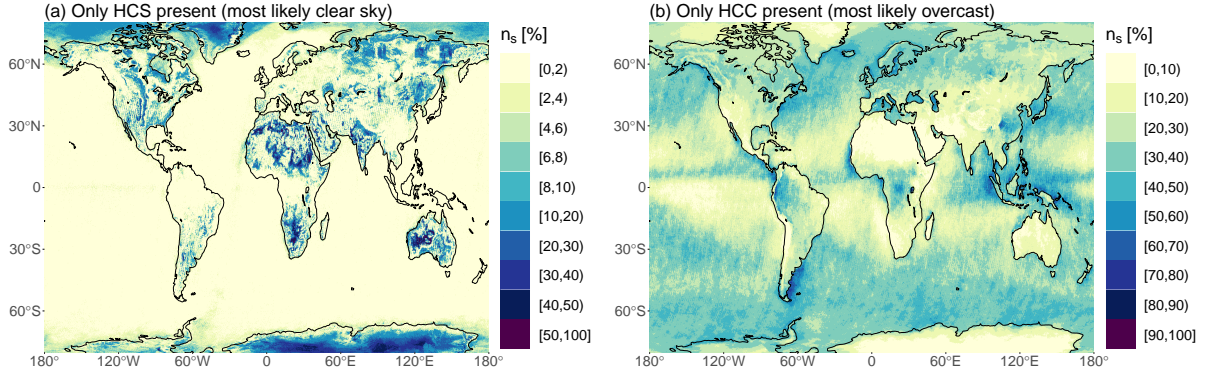
Figure S3: Relative occurrences of different stereo-derived cloud mask (SDCM) configurations within the three-year period (2007–2009). The reference sample size n_s includes all overpasses per grid cell which contain valid z retrievals and corresponds to $100\,\%$. These configurations are: (a) Only high confidence surface (HCS). These cases should be mainly clear sky cases. (b) Only high confidence cloud (HCC). These cases should be mainly cloud scenes with apparent overcast.
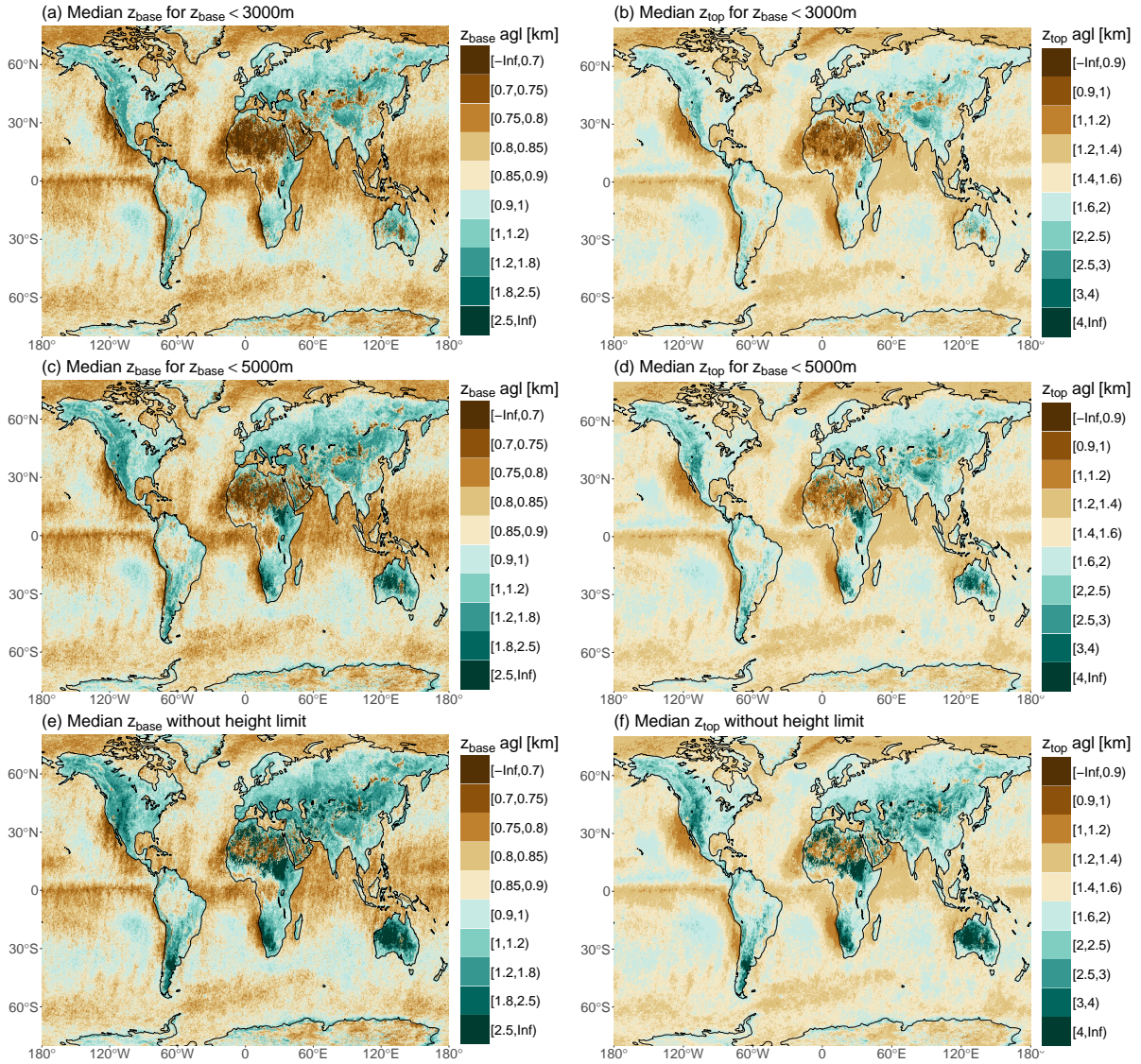
Figure S4: Global distribution of median cloud heights for a 3-year period (2007–2009). Shown are z_{base} (left) and z_{top} (right) on a $0.25° \times 0.25°$ latitude–longitude grid. z_{base} and z_{top} are above ground level (agl). z_{base} and z_{top} retrievals are only included in the statistic if z_{base} is below $3000\,m$ (a, b), $5000\,m$ (c, d). For (e) and (f), all z_{base} and z_{top} retrievals are included without an upper height limit.