



# EUCLIPSE intercomparison study on stratocumulus albedo estimated by different climate model radiation parametrizations

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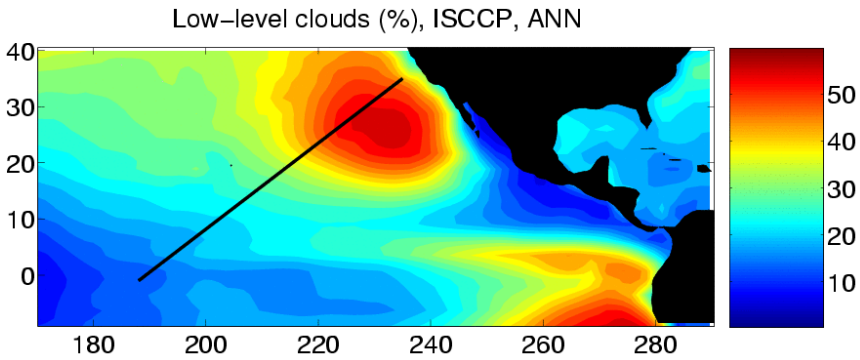
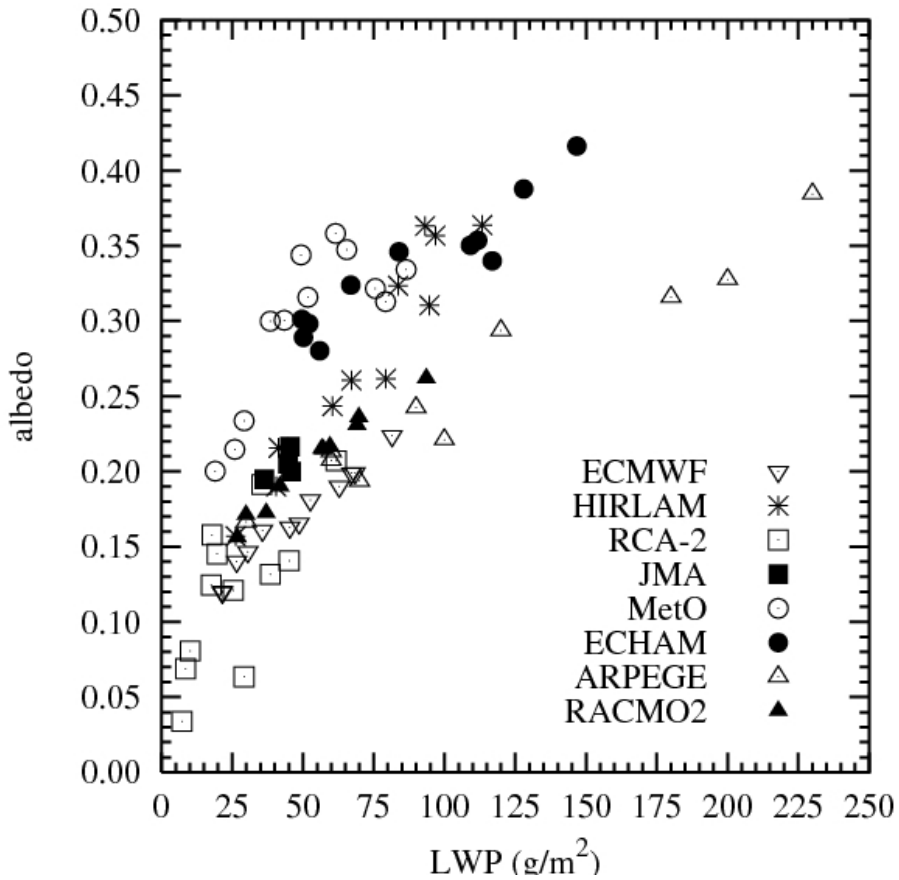
# Outline

- introduction and motivations;
- brief description of the set-up;
- news about the set-up;
- planning and discussion.

# Introduction and motivations



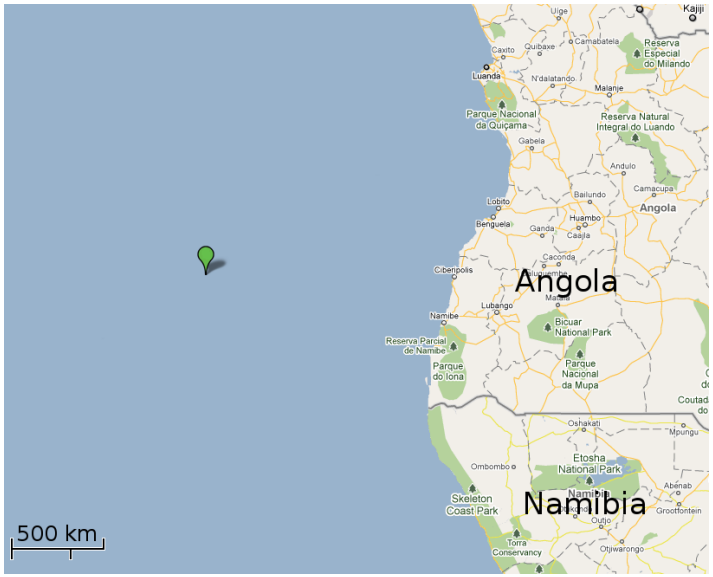




*Siebesma et al. 2004*

# Scientific questions

1. How large is the spread in broadband shortwave albedo calculated by the different climate model radiative parametrizations for the marine stratocumulus topped boundary layer?
2. How critical are the assumptions on the internal microphysics for the radiative properties of stratocumulus clouds?

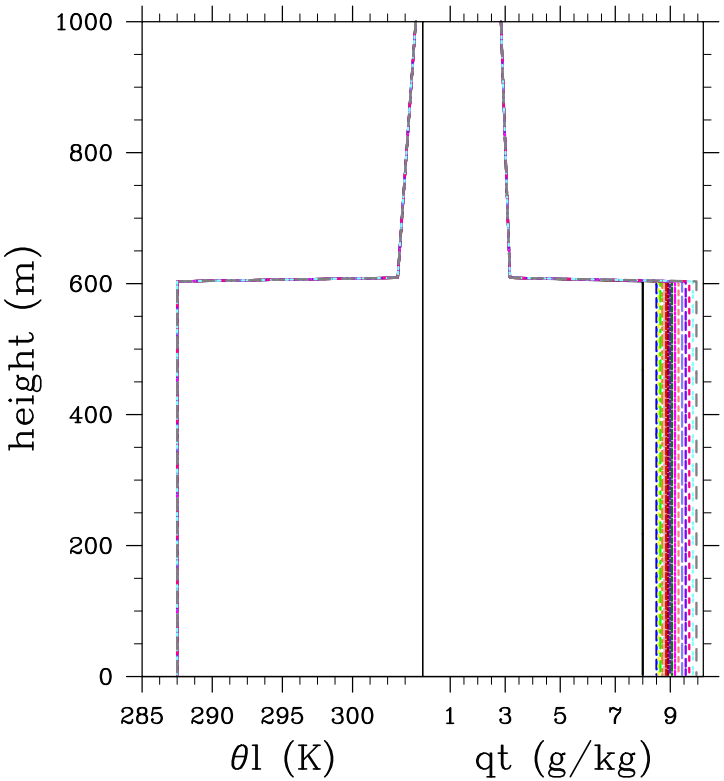
# Simulations set-up




| | |
|---|---|
| solar constant ($W/m^2$) | 1325.8 |
| cos zenith angle | 0.813 |
| albedo (-) | 0.026 |
| $p_s$ (hPa) | 1017. |
| SST (K) | 288.4 |

Position: LAT=14.S
LON=6.5E
Duration: one time step 11.30
UTC (local noon)
Date: 15 July 2006

# Initial conditions



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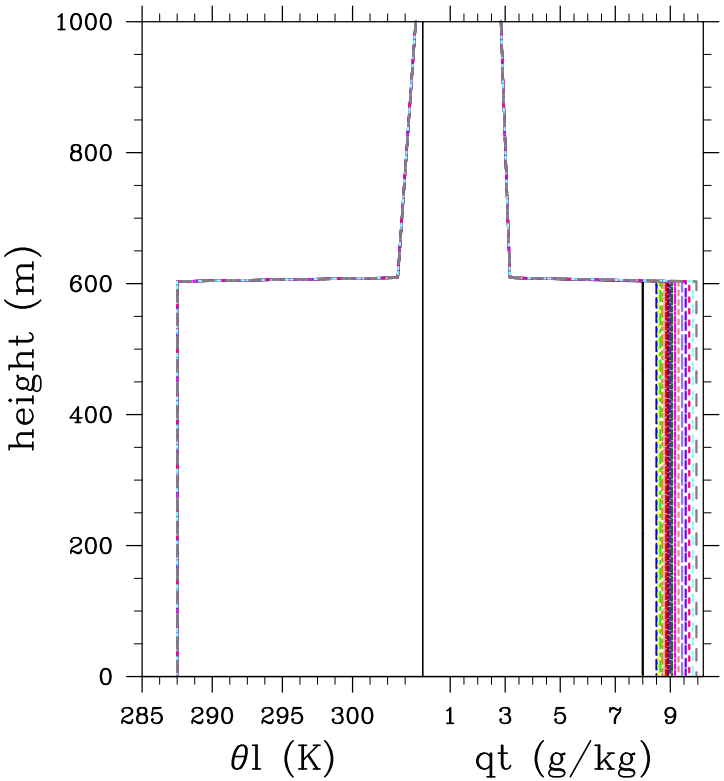


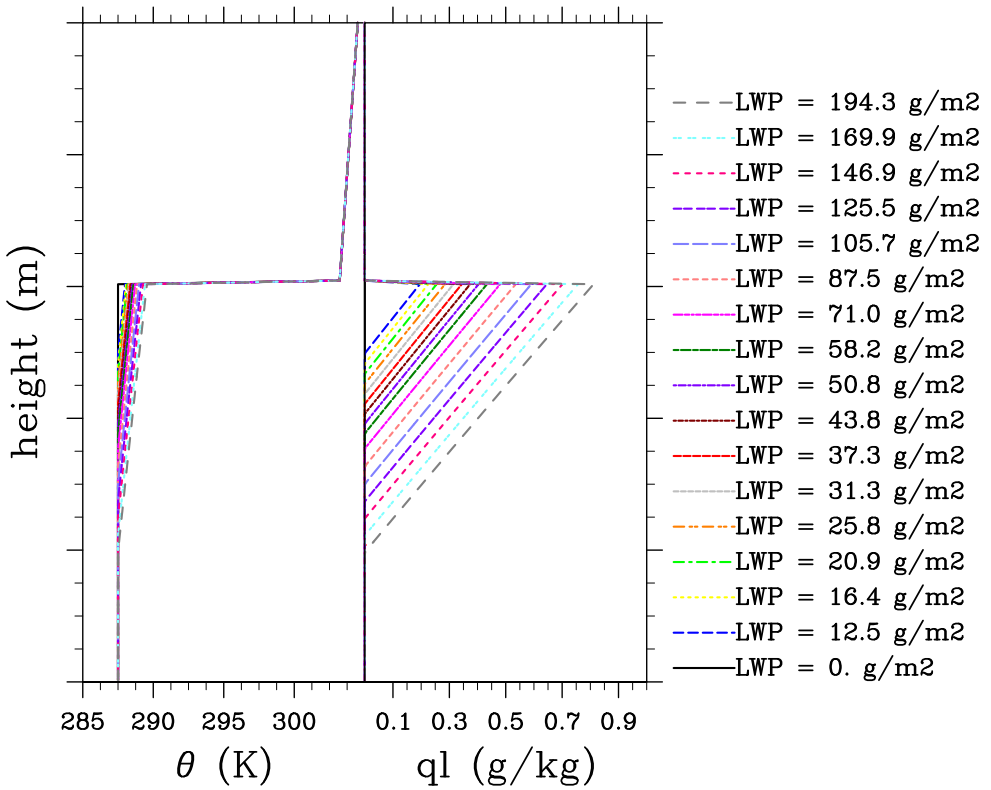

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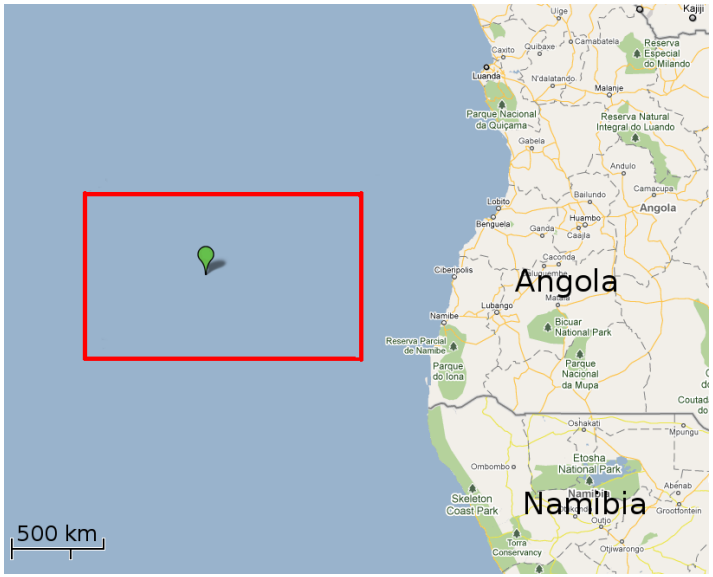
- SET C: constant cloud droplet number concentration: $N_c = 200.\mathrm{cm}^{-3}$ (so that $r_e = 9\mu m$ at cloud top)

$$\tau = \left(\frac{9}{2}\pi N_c \rho_l^{-2}\right)^{1/3}\int_0^{+\infty} (\rho_a(z) q_l(z))^{2/3} dz$$

no inhomogeneity

# Dataset description




Area: 3-10 E and 12-16 S divided in 50×50 $km^2$.
Time: 4 measurements between 11.00 - 12.00 UTC.
Date: July 2006.

- GERB: radiative fluxes and albedo;
- SEVIRI: cloud cover, optical thickness and effective radius;
- OMI: aerosol index.

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- ✔ high resolution?
- ✔ result submission by the end of April?

For further informations:
http://www.euclipse.nl/wp3/Radiation_Intercomparison/Introduction.shtml
gesso@knmi.nl

**Acknowledgements**

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