

Aerosols as an important link between large scale land use modification

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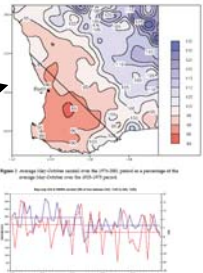
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Background

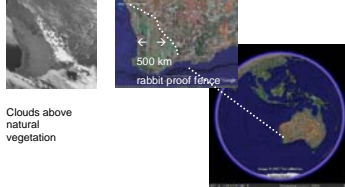
Regional change of precipitation distribution superimposing large scale trends (-)

Possibly caused by: (micro)meteorology, regional transport, aerosol

The **BUFEX** experiment: airborne investigations natural laboratory, 2 seasons agriculture <-> natural vegetation



Where in the world?



Results

Coarse particles very low $10/cm^3$ (> 300 nm), ~ 10 fold increase of fine particles above the agriculture

Fresh aerosols above salt lakes, not above native vegetation

No significant difference between summer (Dec 06) and winter season (Aug 07) despite different wind and H₂O transpiration and concentration

PBL-depth lower above agriculture (> Surface albedo)

CCN doubled above agriculture

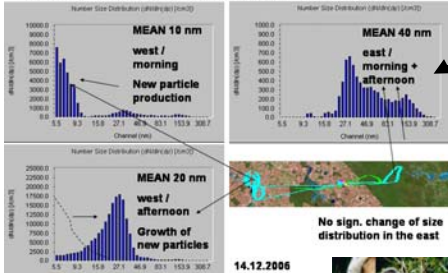
Cloud microphysics -> more and smaller droplets and less liquid water than above native vegetation
Condensation levels 1300/1800 m

Factors for regional precipitation

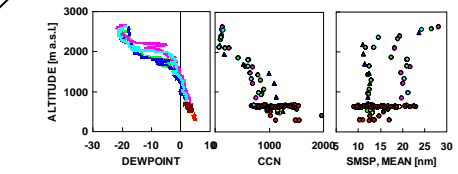
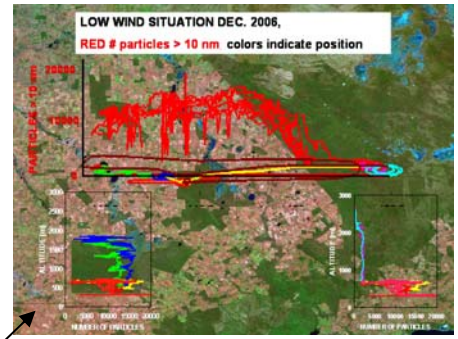
Albedo -> vertical stability local aerosol production ->CCN and cloud microphysics

Question Which factors are affecting the productivity of the salt lakes?

INDICATION OF NUCLEATION 14.12.2006, TWO FLIGHTS
Morning ~ 10:00-12:00 and afternoon ~ 13:30- 15:00



Numerous small salt lakes, source areas for ultrafine particles,



HIGH WIND CONDITIONS AUGUST 2007, NW WIND 20-30 kts

