

**Projectnr** Projecttitle  
**CS4** **The regional climate impact of aerosols**  
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## The importance of ammonium-nitrate aerosol as regional CCN-agent

### Main conclusion

We infer from recent monitoring data in the Netherlands and supporting campaign in neighbouring countries the unexpected importance of local/regional ammonium nitrate as a component in the class of aerosols that serve as CCN (Cloud Condensation Nuclei).

### Background

“IPCC” assumes that aerosol the dominant component of CCN is ammonium-sulphate act as the so-called Cloud Condensation Nuclei (CCN).

Earlier we showed that in our region (ammonium-)nitrate is of equal importance as (ammonium-)sulphate for the *Direct Aerosol Cooling Forcing* (AR4, TAR).

Thus of more importance in the future due to a drastic decrease in ammonium-sulphate in near future.

### Approach

A novel prototype tool (*MARGA-sizer*) was developed for continuous monitoring.

The monitor was employed in at the top-level of the 200m meteo-tower at Cabauw.

We analysed the data in this project.

We measured the mass-concentrations in the aerosol-particles smaller than 0.2 micrometer.

This is a proxy for the particles that serve as CCN.

### Results

In the figure the ratio of nitrate to sulphate is shown in the CCN-range of the aerosol in the monitoring experiment.

NOTE: only those ratios are included for which the concentrations (especially those of sulphate) exceeded the lower detection limit of the novel monitoring tool.

