



The GLOBE-Aerosol monitoring Project at KNMI

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Aerosols play a key role in the radiative balance of the Earth's atmosphere, and are therefore linked to global climate change. In the GLOBE-aerosol monitoring project at KNMI¹, secondary school students take ground measurements of aerosol optical thickness (AOT) to get hands-on experience with atmospheric remote sensing, and to learn about satellite aerosol remote sensing. KNMI has been actively involved in this project since 2002 and currently about 30 schools participate.

Measurements are taken with a simple, hand held Sun photometer that provides AOT in two wavelength bands (508 and 625 nm), at the moment of overpass of the OMI instrument on the NASA-satellite Aura. Students can enter their data and additional meteorological observations on the international GLOBE website. Data are sent to KNMI where an aerosol algorithm is applied which converts the output voltages of the Sun photometer to AOT's. This algorithm also takes satellite observations of ozone into account.

Boersma and de Vroom have investigated the reliability and accuracy of the student measurements² and they found that the degree of precision (0.03 AOT) was similar to that of professional validation instruments. The instrument MODIS on the NASA-satellite Terra compared well with GLOBE AOT's. Furthermore, the GLOBE measurements confirmed that the MODIS aerosol retrieval for pixels over land was better than for pixels over water and that MODIS had difficulties to retrieve the AOT for coastal pixels over half land, half water.

In this talk an outline of the project will be given: the cooperation between students, teachers, GLOBE international and KNMI; the algorithm of the Sun photometer; the calibration of the GLOBE photometers by comparison with professional Sun pho-

tometers such as CIMEL and SPUV; first results of the validation of the OMI aerosol multi-wavelength product through comparison with the ground measurements by students.

¹ *The GLOBE aerosol monitoring project at KNMI is a part of the international GLOBE program. See: www.globe.gov. The Dutch GLOBE-project is coordinated by SME-advies (organization for environmental education and counseling).*

² *Boersma, K. F., and J. P. de Vroom (2006), Validation of MODIS aerosol observations over the Netherlands with GLOBE student measurements, *J. Geophys. Res.*, 111, D20311, doi:10.1029/2006JD007172*