



Operational MAX-DOAS Tropospheric Column Observations of NO₂ used for Validation of OMI and SCIAMACHY

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Worldwide the number of observation sites where nitrogen dioxide (NO₂) columns are monitored on an operational basis by atmospheric remote sensing is sparse. Few small networks exist so there is no global coverage which is essential for satellite validation. Since November 2007 multi axes differential optical absorption spectroscopy (MAX-DOAS) observations of NO₂ are performed on an operational basis at the Royal Netherlands Meteorological Institute (KNMI). For this a Mini MAX-DOAS instrument is used. This poster will show the algorithm that is used to retrieve tropospheric vertical columns of NO₂ which includes a correction for aerosols. Information on the aerosol optical thickness (AOT) and the height of the boundary layer is derived from O₄ differential slant columns combined with observations of the radiation intensity at various viewing angles. The Doubling Adding KNMI (DAK) radiative transfer model is used to create a look up table for the AOT and boundary layer height retrieval. A comparison will be shown of retrieved AOT with CIMEL direct sun observations of AOT done at the CESAR site in Cabauw (25 kilometers from KNMI). Additionally we will show retrieved tropospheric vertical columns of NO₂ in this highly polluted region throughout more than one year of observations. Finally a comparison is shown with satellite observations of SCIAMACHY and OMI. The results show the potential of this relatively low cost instrument for a global network of NO₂ remote sensing sites.