



Comparison of OMI NO₂ data in Helsinki (Finland) and their weekly and seasonal cycles with ground-based column amounts and in situ surface concentrations

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OMI (Ozone Monitoring Instrument) NO₂ satellite-data are compared with ground-based observations from Pandora spectrometer in Helsinki (Finland) during 2012. This provides information about satellite NO₂ data quality at high latitude location. The Pandora NO₂ total column values corresponding to the satellite overpass in Helsinki usually range between 0.2 DU and 0.5 DU. The difference between satellite- and ground-based NO₂ column amounts is on average -0.03 DU and -0.008 DU for all skies and clear sky conditions, respectively. The clear sky overpasses mainly correspond to summer days and, thus, to smaller solar zenith angles.

The in situ NO₂ surface concentrations in Helsinki are analysed together with the vertical column amounts. The seasonal and weekly cycles from satellite, Pandora and in situ data are compared. The different datasets show a similar wintertime peak and a lower signal during the weekend, as compared to the other weekdays. The changes in the NO₂ levels over the last 10 years are also evaluated.