File Revision Date: 2024-10-09

Data Set Description:

PI: Xiaoyi Zhao - Environment and Climate Change Canada

Instrument: UV-Vis MAX-DOAS

Site(s): Toronto.Downsview, Canada, 43.7810°N, -79.4680°W, 187 m altitude ASL

Measurement Quantities: NO2, HCHO

Data Version description: FRM4DOAS centralized processing system

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Reference Articles:

Instrument Description:

The instrument operated in ECCC's Toronto headquarters (Downsview) is an Airyx Skypsec 1D dual-channel MAX-DOAS spectrometer. The instrument is installed on the roof of our department and has been in continuous operation since 2016. Multi-Axis measurements are performed at a viewing azimuth angle of 240 degrees, with elevation angles of 1, 2, 3, 5, 7, 10, 15, 20, 30, 40, and 90 degrees. Zenith-sky measurements are performed during twilight.

Technical Data

Location: Toronto.Downsview 43.7810°N, -79.4680°W, 187 m altitude ASL Instrument: Airyx Skyspec 1D – see https://airyx.de/item/skyspec/ **Operational since: 2016** Spectrometer: Avantes, CCD with 2048 channels Spectrometer temperature: +20°C (thermoelectrically stabilized) Telescope: Motorised 1D-Telescope Rotatable prism for elevation scans Field of view: ~0.3° Spectral range and resolution: UV: 295-460 nm, 0.6 nm FWHM, back-thinned detector Vis: 440-585 nm, 0.6 nm FWHM Measurement sequence: Elevation angles: 1, 2, 3, 5, 7, 10, 15, 20, 30, 40, and 90 Azimuth angle: 240° Integration time: 1 minute during daytime, up to 3 minutes during twilight Zenith-only measurements: for 85° < SZA < 95° **Direct sunlight: Hourly measurements** Calibration measurements: Frequency: Each night Measurements: Offset, dark current Algorithm Description: Spectra are analyzed by NDACC's FRM4DOAS centralized processing system.