TOWARDS A NEW FRM4DOAS SITE IN PO VALLEY (ITALY)

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PURPOSE

Although the Po valley (Italy) is one of the most polluted regions in Europe with high NO_2 concentrations due to both industrial and urban activities and to its particular geographical position, a DOAS (Differential Optical Absorption Spectroscopy) instrument, compliant to the Fiducial Reference Measurements for Ground-Based DOAS (FRM4DOAS) standards is not yet present. Hence, in the frame of QA4EO ESA CCN04 activities, the purpose is to fill this gap by using an existing custom-made spectrometer named TROPOGAS (Tropospheric Gas Analyzer Spectrometer).

TROPOGAS FEATURES

WHAT DOES TROPOGAS MEASURE?	Zenith and off-axis diffused solar spectra
SPECTRAL RESOLUTION	0.4 nm
SPECTRAL WINDOWS	365 nm (O_3, HCHO, O_4), 461 nm (NO_2, CHOCHO), 486 nm (NO_2, O_3, O_4)

CONCLUSIONS

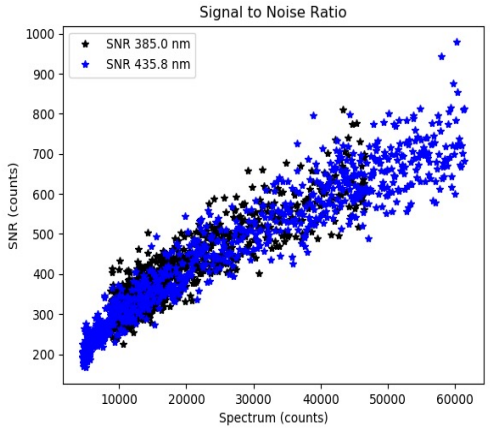
TROPOGAS meets all the FRM4DOAS requirements except the Field Of View (FOV) dimension that is too wide. However, its impact, that will be evaluated through radiative transfer simulations, does not prevent the use of this instrument for the mentioned objectives. As last step, TROPOGAS will be inter-calibrated with other instruments in the BAQUNIN supersite in Rome. Moreover, another new DOAS instrument compliant to the FRM4DOAS standards will be soon operative.

Signal to Noise Ratio

TARGET SNR: 3000

Spectra must be averaged

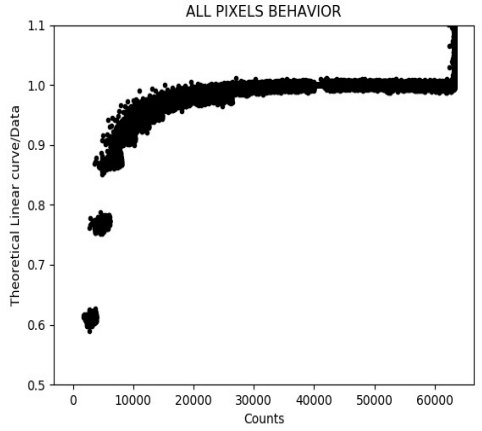
V



Non-Linear Response

TARGET is to correct for the non-linearities

V



FOV

TARGET FOV: 1.5°

The estimated FOV is 3.6°

X