



LED based Cavity Enhanced DOAS for NO₃ detection.

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Cavity enhanced methods in absorption spectroscopy have seen a considerable increase in popularity during the past decade. Especially Cavity Enhanced Absorption Spectroscopy (CEAS) established itself in atmospheric trace gas detection by providing tens of kilometers of effective light path length using a cavity as short as 1 m. In our poster we present a compact and power efficient light emitting diode based broadband Cavity Enhanced Differential Optical Absorption Spectrometer (CE-DOAS) for in situ field observation of atmospheric NO₃. This device combines the small size of the cavity with the enormous advantages of the DOAS approach in terms of sensitivity and specificity. In particular, no selective removal of the analyte (here NO₃) is necessary. The instrument was compared to other trace gas detection techniques in an intercomparison campaign in the atmosphere simulation chamber SAPHIR at Forschungszentrum Jülich at NO₃ concentrations as low as 6.3 ppt.