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## Towards the CO2Image mission: performance studies using AVIRIS-NG

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Monitoring of anthropogenic carbon dioxide (CO<sub>2</sub>) emission sources with air- and space-borne remote sensing instruments relies on high-spatial resolution measurements. Such observations can be achieved at the expense of decreasing the spectral resolution of the instrument, which in turn complicates CO<sub>2</sub> retrieval techniques due to the reduced information content of the spectra.

In preparation for the CO<sub>2</sub>IMAGE mission ( $\Delta\lambda \sim 1.3$  nm) – a compact satellite proposal currently in phase A at the German Aerospace Center (DLR) – we present here a dedicated study of CO<sub>2</sub> monitoring capabilities with the airborne AVIRIS-NG sensor ( $\Delta\lambda \sim 5$  nm). We conduct CO<sub>2</sub> retrievals of several clear-sky AVIRIS-NG point source observations with the RemoTeC algorithm, based on the short-wave infrared absorption bands of CO<sub>2</sub>. Favorable state vector and spectral retrieval window configurations are identified that reduce correlations between the carbon dioxide and water vapor column concentrations and surface reflection properties. We also discuss the use of a posteriori correction methods to minimize biases in the retrieved CO<sub>2</sub> fields and, finally, we carry out source rate estimates for these case studies.