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Laser absorption and photoacoustic spectroscopy of atmospheric trace gases in the near infrared

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In the near-infrared spectral region, external cavity diode lasers that are based on technology developed for optical telecommunication are easily available sources for spectroscopic *in-situ* measurements of atmospheric trace gas concentrations. In our laboratory, we have recently studied the use of such diodes for measurements of NH_3 and H_2O, both by long-path absorption spectroscopy (using White cells) and also photoacoustic spectroscopy, in the 830 nm and 1560 nm regions. In this contribution, we report spectroscopic parameters and sensitivity limits, confirming the previously reported H_2O spectral parameters in the 830 nm region and improving significantly those of NH_3 in the 1.5 μm region.