

## **Atmospheric Field Measurements Using Cavity Enhanced Spectroscopy**

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Field measurements of atmospheric trace gases and aerosol particles are necessary to understand the chemistry and radiative properties of the atmosphere. The key trace gases are present at small concentrations, ranging from parts per trillion (pptv; approximately  $2 \times 10^7$  molecules  $\text{cm}^{-3}$ ) to parts per million (ppmv; approximately  $2 \times 10^{13}$  molecules  $\text{cm}^{-3}$ ), and their detection requires sensitive analytical techniques. During the past two decades, cavity ringdown spectroscopy and other cavity enhanced spectroscopy techniques have provided important new measurements of trace gas concentrations and aerosol optical extinction. I will give an overview of atmospheric field instruments and the scientific problems they are being used to address.