

PICARRO

# Field-deployable N<sub>2</sub>O Concentration and Isotope Analyzer

The World's Highest Performance and Easiest to Use Analyzers

# What if...

- You could measure N<sub>2</sub>O concentration and isotopes with the same device?
  - At levels required for WMO intercomparability
  - In the field without cryogenics?
  - With long-term stability unmatched by any other existing method?

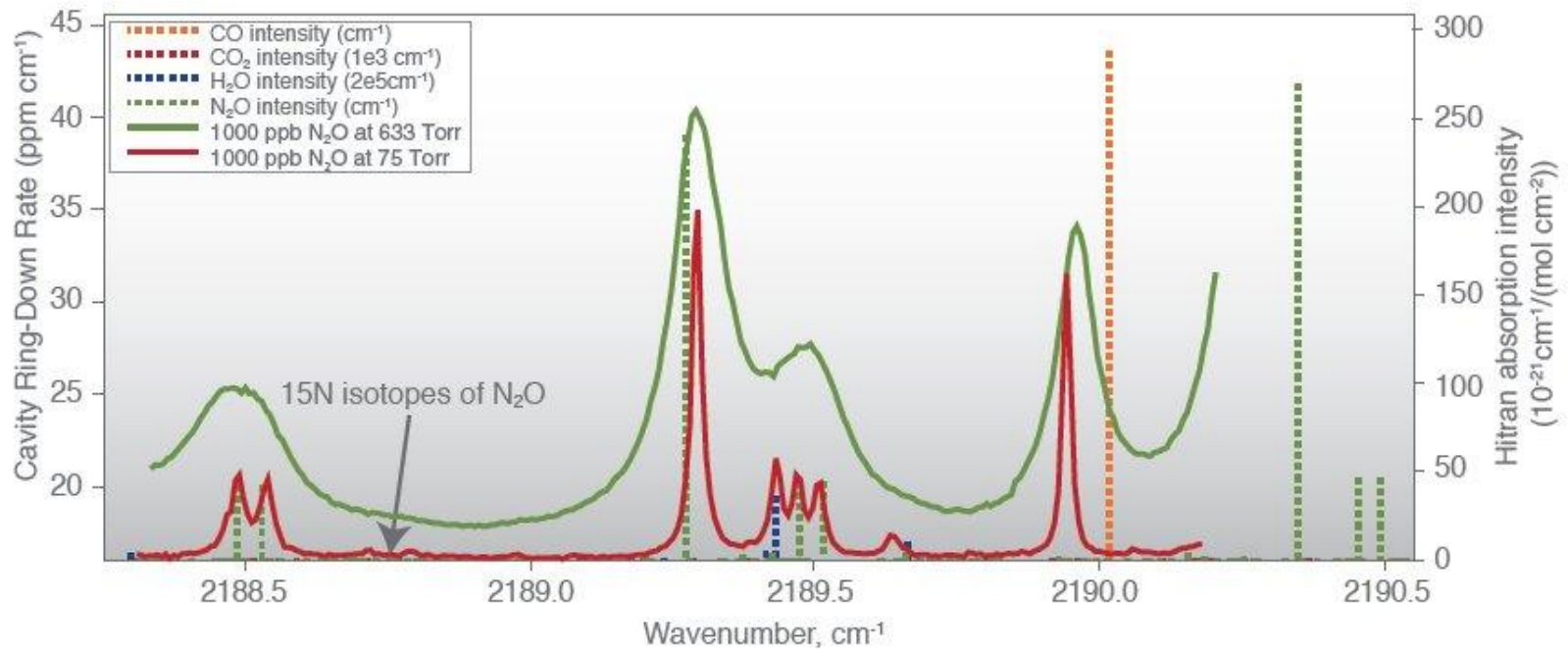
# With Picarro, you can

- N<sub>2</sub>O Concentration and Isotope Analyzer
  - A new class of CRDS Analyzer based in the Mid-infrared (Mid-IR) wavelength region
  - Concentration precision:  $1\sigma$ :  $< 0.2$  ppb
  - Drift:  $< 0.2$  ppb (peak-peak) in 24 hrs,  $< 0.5$  ppb in 1 month (w/o calibration)
  - Isotope precision:  $1\sigma$ :  $\delta^{15}\text{N}$  and  $\delta^{18}\text{O}$   $< 1\text{‰}$  (5 min.)

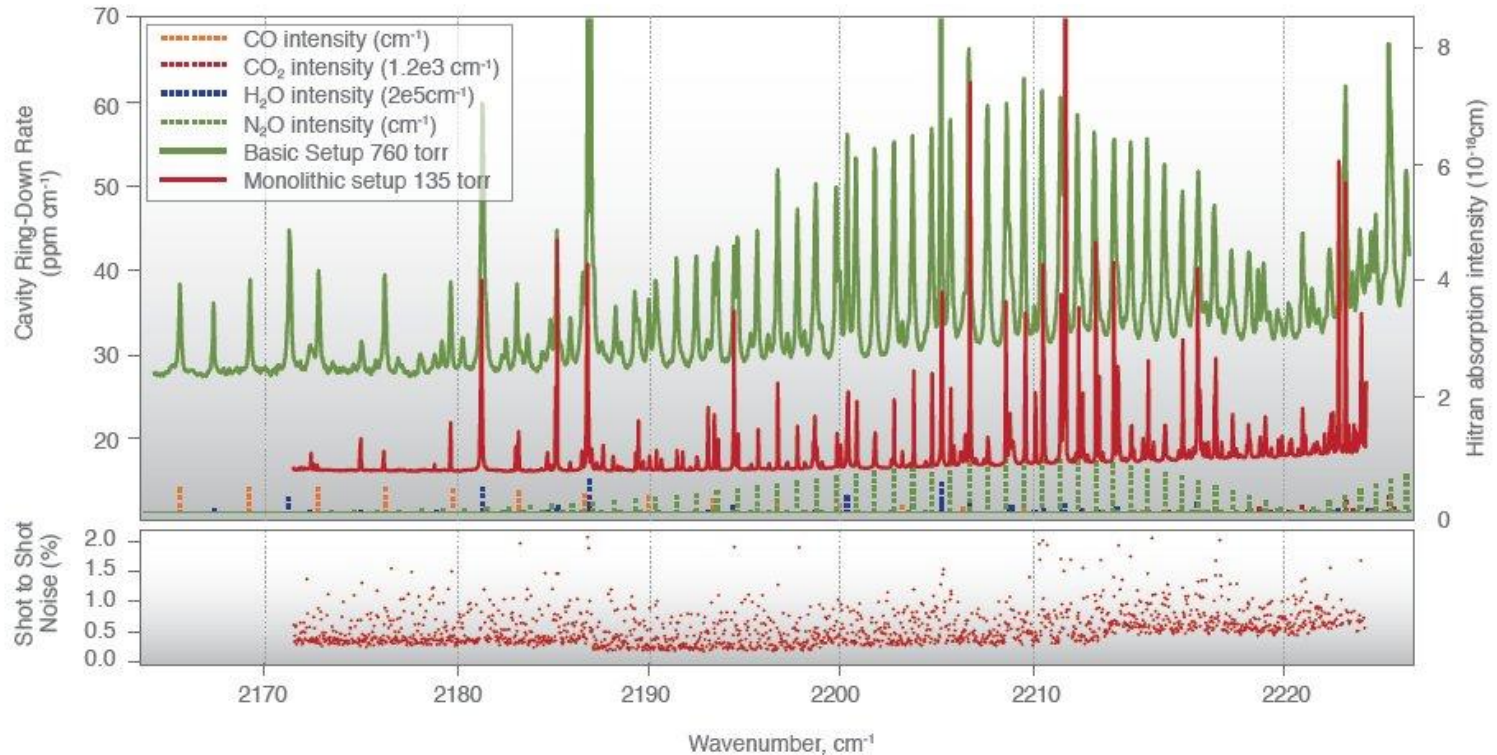


# N<sub>2</sub>O measurements without interference

- Fine-scan of spectral region showing lines used for analysis
- Lines free from common interferences



# Low-noise analyzer performance



- Wide scan showing the ring-down rate vs. laser wavenumber
- Inset: Negligible variation in ring-down time (Shot to Shot Noise)
  - an important measure of instrument performance

# N<sub>2</sub>O concentration /isotope analysis in the field

- Analyzer fully field-deployable for stable, long-term measurement campaigns



*Planned Field Testing*

*1-2 months at agricultural test site in Jylland, DK*

# Conclusion

- With Picarro you can ....
  - Measure N<sub>2</sub>O concentration *and* isotopes with the same device
  - Make these measurements with unprecedented long-term stability and ease of use
  - Avoid the requirement of cryogenics for analyzer operation