# eosAC-LT/LO

# Large Footprint Soil Gas Flux Chamber

- Field Ready, Durable Design
- Large Chamber Footprint
- Opaque (-LO) or Transparent (-LT)
- Optional Base Extension
- Long-term Continuous Measurements
- Compatible with Leading GHG Analyzers
- Included Flux Analysis Software

The large footprint, fieldready design and continuous measurement capabilities of the eosAC-LT/LO allows researchers to capture variability related to hot spots and temporal dynamics for trace gas emissions, including $CH_4$ and $N_2O$. When coupled with compatible gas analyzers, even the smallest changes in gas flux can be captured. The large and field-ready design of the eosAC-LT/LO allows you to cover more area at your field site. The extra chamber volume, optional base extension and transparent or opaque design options mean you can now observe the effects of vegetation on trace gas fluxes.

## Chamber Technology

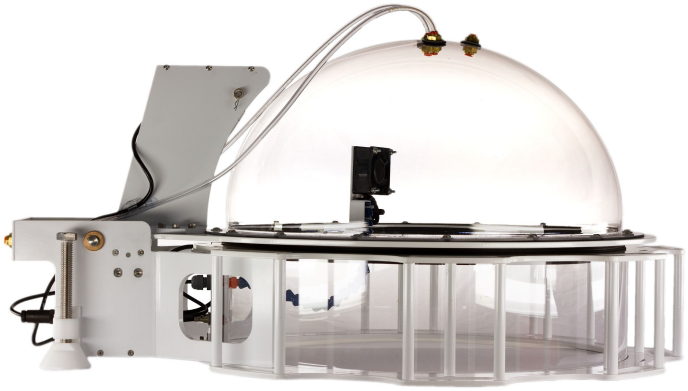
The soil gas flux chamber uses the automated closed dynamic chamber technique (Pumpanen et al., 2004) for measurement of soil gas flux (e.g. $CO_2$, $CH_4$, $N_2O$). Using the eosMX recirculating multiplexer, up to 16 eosAC-LT/ LO devices can be connected to a single gas analyzer for optimal spatial coverage. The chamber is based on a proven design that has been relied on by researchers for over 20 years (Drewitt et al., 2002).

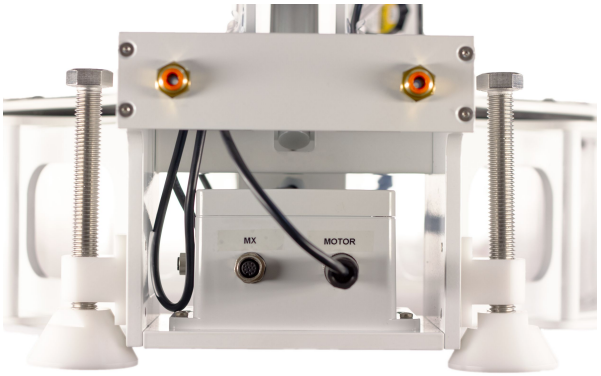
## Potential Applications

- Net Ecosystem Exchange (NEE)/ $CO_2$ Flux
- Agricultural $N_2O$ Emissions
- Wetland $CH_4$ Emissions

## Field Replaceable Components

The eosAC-LT/ LO is designed so that all critical components are field replaceable with minimal effort. This modular design saves time and money on repairs and minimizes data loss caused by instrument down time.





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## Flawless Integration

Setup of the new soil gas flux chamber is remarkably simple, so you are up and running quickly. Each chamber can reach up to 30 m / 100 ft from the analyzer, giving you a huge coverage area of about 2800 $m^2$ / 30,000 $ft^2$. When paired with the eosMX recirculating multiplexer, users can connect up to 16 eosAC-LT/LO chambers to a single compatible GHG analyzer for continuous measurement of multi-species gases including $CO_2$, $CH_4$ and $N_2O$. The chamber's two auxiliary ports allow you to connect additional sensors (e.g. PAR, soil temperature, soil moisture) to collect environmental data from your sites, and the eosAnalyze software enables processing of logged data on any Windows-based computer.

## Designed for Accuracy

The eosAC-LT/LO leads the way in automated chamber design with:

- Slow raising/lowering to minimize pressure effects
- Vent design that ensures steady atmospheric pressure without compromising samples through back diffusion
- Integrated fan to promote efficient mixing

## NEE Measurements

Measurements of net ecosystem exchange (NEE) are straightforward with the eosAC-LT chamber. The large size and optional base extensions allow it to be deployed over vegetation at many field sites. Example data gathered using two chambers with varying enclosed vegetation density are shown in **Figure 1**.

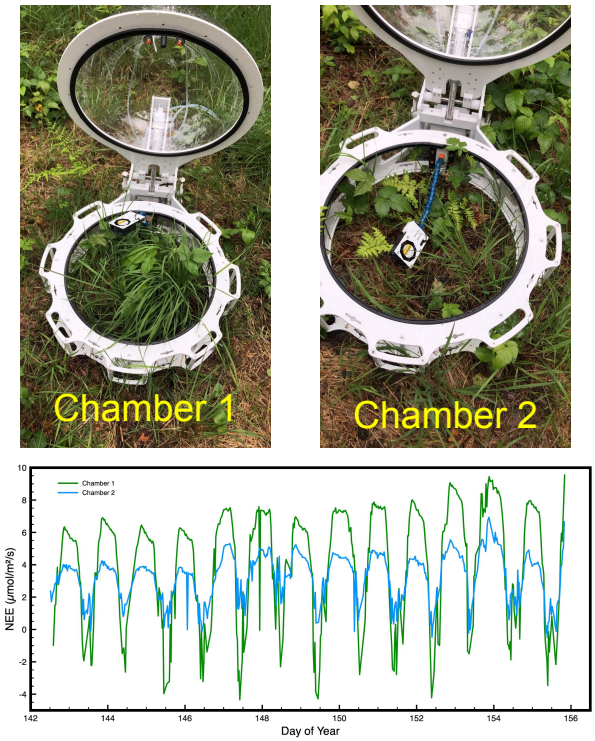


***Figure 1:*** *NEE from chambers with varying vegetation density - note the difference in diel NEE amplitude between the two locations.*

## Reliable Trace Gas Fluxes

The chamber's large footprint, proven design and automated measurement capabilities allows researchers to capture variability related to hot spots and temporal dynamics for trace gases including $CH_4$ and $N_2O$. With the high resolution provided by the compatible analyzers, even the smallest changes in gas flux can be captured (**Figure 2**).

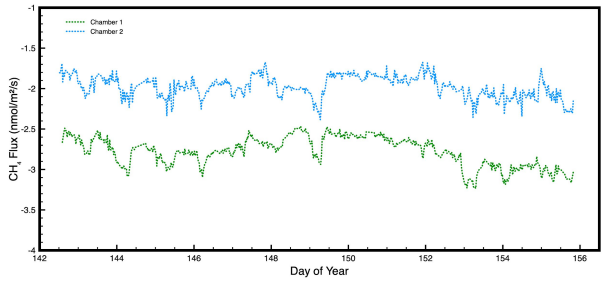


***Figure 2:*** *$CH_4$ fluxes measured using the Picarro G2508 showing highly resolved measurements of small diel perturbations in $CH_4$ uptake.*

## Specification Highlights

| | |
|---|---|
| Chamber volume | 0.072 $m^3$ / 2.5 $ft^3$ |
| Chamber surface area | 0.21 $m^2$ / 2.3 $ft^2$ |
| Operating voltage | 12 V DC |
| Mass (approx.) | 18 kg / 40 lb |
| Reach (analyzer to chamber)<br>*Reach is analyzer and pump specific | Max. 30 m / 100 ft |
| Auxiliary sensor ports<br>(PAR, soil temperature, soil moisture) | 2 |
| Exterior | Transparent / Opaque |
| Collar depth | 10 cm / 20 cm |
| Base Extensions (optional) | 30 cm and 70 cm lengths available |



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