

TUTORIAL: **A reporting format** **for field** **measurements of** **soil respiration**

ESS-DIVE Data Workshop
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Need for this reporting format

- Increasing volumes of data from e.g. automated systems
- Ameriflux BADM and related FLUXNET work
- Instrument manufacturers eager to build in support for standardized formats
- Recognition that ‘ancillary’ carbon fluxes valuable constraints on ecosystem to global scale structure and function
- Need to accelerate and democratize science

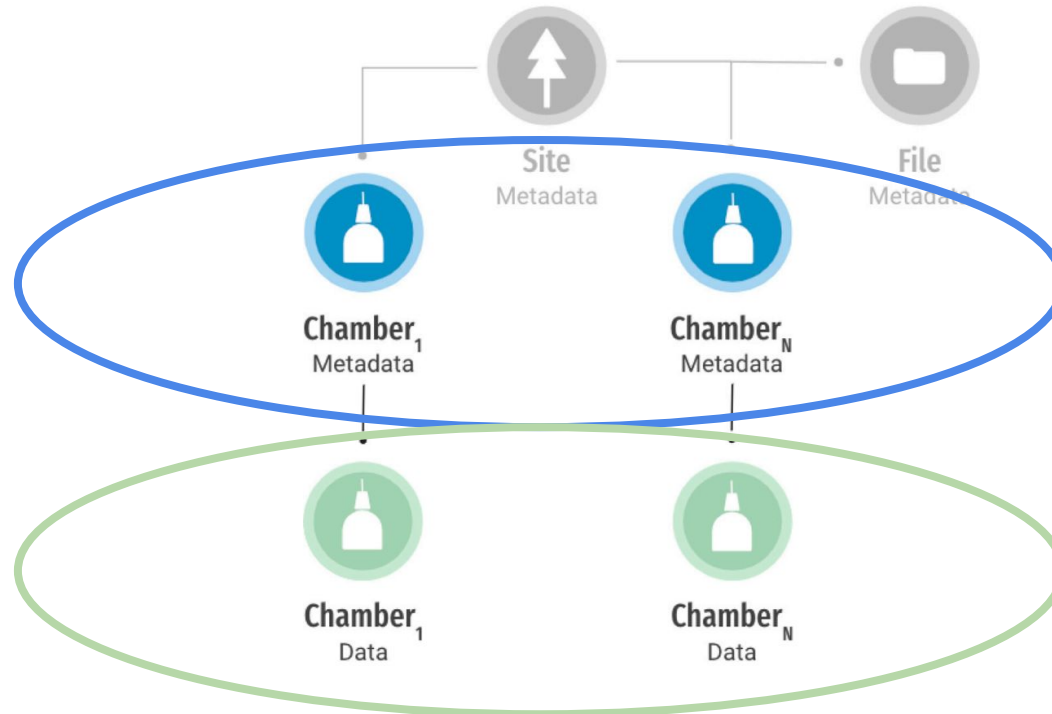


Principles

- Parsimony
 - Cover 95% (?) of use cases
 - Minimize burden on data providers
- Community feedback and buy-in
- Future-proof
 - When possible



File, site, chamber, observations





Chambers



Chamber₁
Metadata



Chamber_N
Metadata

Chamber_ID	Unique chamber label; must appear in data table as well
Msmt_Var	Flux should be interpreted as: “Rs” (soil respiration), “Rh”, “Reco”, or “NEE”
Treatment	Soil or ecosystem treatment applied at measurement location; default is “None”
Instrument, Opaque, Fan, Plants_Removed Longitude, Latitude Area, Volume, Collar_Depth, Sensor_Depths Species, Notes	



Observations



Chamber₁
Data



Chamber_N
Data

Chamber ID	Unique chamber label; must appear in chamber metadata table as well
dateTime_Start	ISO timestamps of beginning and end of averaging period (standard time; UTC offset specified at the site level) — YYYY-MM-DD HH:MM:SS
dateTime_End	
Flux_CO2	CO2 flux (positive = to atmosphere)
Dry_CO2, Flux_SE_CO2, CrvFit_CO2, R2_CO2, Error, CO2_Amb, Tair_Amb, Tair, PAR, RH, PAR_Amb, VPD_Amb, Precip_Amb, Tx, SMx, Soil_O2, WTD, Record, Notes	



Let's look at the templates

(flip over to Excel and look at the templates)



More info, questions, feedback

- This format is online:
<https://github.com/ess-dive-community/essdive-soil-respiration>
- We have worked with a number of individuals and groups in developing it but **further community feedback is welcome**
 - [\(via GitHub\)](#)
- There also is a peer-reviewed paper for reference:
 - Bond-Lamberty, B., Christianson, D. S., Crystal-Ornelas, R., Mathes, K., and Pennington, S. C.: A reporting format for field measurements of soil respiration, *Ecol. Inform.*, 62, 101280, 2021.
<http://dx.doi.org/10.1016/j.ecoinf.2021.101280>



Take-home points...

- Using this format can help more people find and reuse your data
- Balance: simplicity, flexibility, and future-proofing
- **ESS-DIVE folks are here to help**

