Dear participant,

Thank you for joining in the meta-analysis with your datasets!

This excel should provide you with a **standardized way to enter your data** as explained below.

If you have any **questions** before entering data, do not hesitate to **contact me at *sybryn.maes@umu.se*** .

Please provide your data **before 31 October 2020.** Earlier submissions are very welcome!

Workflow:

1) Download the template and example dataset here (click on this cell).

2) Create a separate excel file per site and per flux year. Name your files: Site ID_Flux year.xlsx

3) Enter your data in excel:

Sheet	Procedure
1_READ_ME	READ info on requested data and format.
2_SITE_DATA	FILL IN general site information. CHECK the updated site list *(click on this cell).*
3_FLUX_DATA	FILL IN flux-level data. We request **day average values if you have multiple flux measurements per day**, and available environmental data linked to your flux measurements (e.g. soil temperature).
4_PLOT_METADATA	FILL IN plot-level metadata: data for which you only have **1 measurement per plot.**
5_CHECK_ME	FILL IN the final checklist.
6_Dropdowns	Do not look at this sheet. This contains info for the dropdown menus used.

4) Submit your data online through this link (click on this cell).

5) Send a confirmation email to sybryn.maes@umu.se

Notes:

1) **1 excel file** = **1 flux year per site.**

2) Green = INPUT REQUIRED FROM YOU.

2) Orange = fills in automatically based on other values. NO INPUT REQUIRED FROM YOU.

3) Black = not relevant. NO INPUT REQUIRED FROM YOU.

4) Either **choose** (from dropdown**)** or **fill in** (text/value) data. Push **Alt+↑ if dropdown disappeared**.

5) Enter **metadata that is as close as possible in time to the date of flux measurements**.

Eg flux data from 2017, 2019; veg data from 2016, 2019? => EXCEL 1 = flux data 2019 --> add veg data 2019; EXCEL 2 = flux data 2017 -->

6) For **missing** variables please fill in **"NA".**

7) The request for **microbial data** might come in a later stage.

More detailed info:

Sheet	Variable	Procedure
2_SITE_DATA	**Site_ID**	Fill in your site ID. Doublecheck your Site ID in this list (click on this cell).
	N_Coord (DD)	Fill in the northern coordinate in decimal degrees.
	E_Coord (DD)	Fill in the eastern coordinate in decimal degrees.
	Mean Annual Temperature (°C)	Fill in mean annual temperature in °C.
	Mean July Temperature (°C)	Fill in mean July (summer) temperature in °C.
	Mean February Temperature (°C)	Fill in mean February (winter) temperature in °C.
	Mean Annual Precipitation (mm yr-1)	Fill in mean annual precipitation in mm per year.

3_FLUX_DATA		
	Flux_Date	Fill in the date of your flux measurements in the **format dd/mm/yr.** (1 **day(-average) value** = 1 unique data point for the meta analysis = 1 row in the excel sheet)
	Treatment	Choose in which experimental plot treatment the flux measurement was taken.
	Treatment_If _Other	Fill in the "other" treatment if it was not in the dropdown list.
	Plot_ID	Fill in the unique plot identification you use.
	C_Loss	Choose which flux data you are providing for this date: CO2, CH4, or both CO2 + CH4.
	CO2	Fill in (average) CO2 flux data for the date and plot provided (**average if multiple measurements per day**). Choose in **row 3** whether your flux values come from **1 or > 1 measurement per day**, in **row 4** whether **linear or non-linear regression** was used to get the slope (flux), and in **row 5** the flux unit.
	R^2	If your flux value comes from 1 measurement in a day, fill in R^2 for each data point as %.
	CH4	Similar as for CO2. In addition, choose in **row 7** how you enter your CH4 flux values: **Negative values (-) = Incoming to soil vs. Positive values (+) = Outgoing from soil** or the other way around. Our **preferred option is - = incoming, + = outgoing.**
	R^2	Similar as for CO2.
	PAR	Fill in PAR data for the date and plot provided (same time of flux measurements). Choose the **unit** in **row 5.**
	Air_Temp	Air temperature: See PAR.
	Soil_Temp	Soil temperature: See PAR. In addition, choose in **row 8** the measurement **depth**.
	Soil_Moist	Soil moisture: See Soil_Temp. If you only have plot-level values, fill them in in PLOT_METADATA.
	Water_Table_ Depth	Water table depth: See PAR.
	Thaw_Depth	Thaw depth: See PAR. If you only have plot-level values, fill them in in PLOT_METADATA.

4_PLOT_METADATA		
	Treatment	Choose the plot experimental treatment. *You can copy this from your FLUX_DATA sheet.*
	Plot_ID	Fill in the unique plot identification you use. *You can copy this from your FLUX_DATA sheet.*
	N_Coord	Fill in the northern coordinate of every plot in decimal degrees.
	E_Coord	Fill in the eastern coordinate of every plot in decimal degrees.
	Soil_Moist	Fill in the soil moisture for every plot. Choose in **row 5** the measurement **year**, and in **row 6** the **unit**.
	SOM _1	Fill in soil organic matter for every plot. Choose in **row 4** whether measurements are from the **organic layer, mineral layer, or mixture organic-mineral**, in **row 5** the measurement **year**, and in **row 6** the **unit**.
	SOM _2	If you have a **2nd set of measurements** for soil organic matter from another soil layer, fill it in here similarly as SOM_1.
	SOC_1	Soil organic carbon (1st measurement): See SOM_1.
	SOC_2	Soil organic carbon (2nd measurement): See SOM_2.
	CN_1	Carbon/Nitrogen ratio (1st measurement): See SOM_1.
	CN_2	Carbon/Nitrogen ratio (2nd measurement): See SOM_1.
	pHH2O_1	pH (1st measurement): See SOM_1.
	pHH2O_2	pH (2nd measurement): See SOM_2.
	Bulk_Dens_1	Bulk density (1st measurement): See SOM_1.
	Bulk_Dens_2	Bulk density (2nd measurement): See SOM_2.
	Org_Layer_Depth	Fill in the depth of the organic layer for every plot in cm**.** Choose in **row 5** the measurement **year**.
	Thaw_Depth	In case of permafrost, fill in thaw depth for every plot in m. Choose in **row 5** the measurement **year.**
	Snow_Depth	Fill in the snow depth for every plot in m. Choose in **row 5** the measurement **year.**
	Mean_Plant_ Height	Fill in the community mean plant height for every plot **in cm**. Choose in **row 4** the height measurement **protocol used**, and in **row 5** the measurement **year.**
	Biomass	Fill in biomass for every plot. Choose in **row 4** whether values are from biomass **harvests**, or **calculated** based on vegetation community data**,** and in **row 5** the measurement **year.**
	Graminoids	Fill in %cover of graminoids for every plot. Choose in **row 4** if the values come from **pointframe** or **cover/abundance** measurements.
	Forbs	Forbs: see graminoids.
	Deciduous_Shrubs	Deciduous shrubs: see graminoids.
	Evergreen_Shrubs	Evergreen shrubs: see graminoids.
	Mosses	Mosses: see graminoids.
	Lichens	Lichens: see graminoids.