

A lysimeter-based approach to quantify the impact of climate change on soil hydrological processes

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1 MOTIVATION

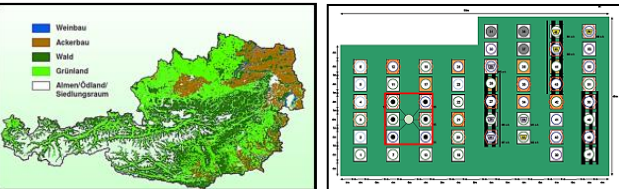
The predicted climate change involving CO₂ concentrations and increasing temperatures will have effects on vegetation and soil properties and thus on the soil water balance.

The aim is to quantify the effects of changes in these climatic factors on soil hydrological processes and parameters.

2 LYSIMETER

Experimental approach for a climate experiment under free air conditions with **6 high precision weighable lysimeters**

→ situated on the „Clim Grass Site“ at the HBLFA Raumberg-Gumpenstein (Styria, Austria):

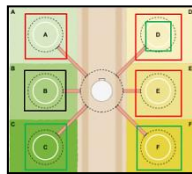


Lysi-T-FACE concept:

54 experimental plots where free air will be enriched with CO₂ and temperature will be enriched with infrared heaters

Lysimeter Combinations:

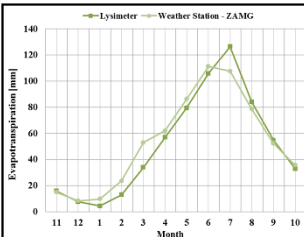
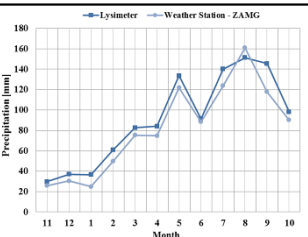
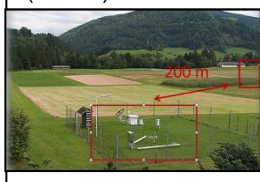
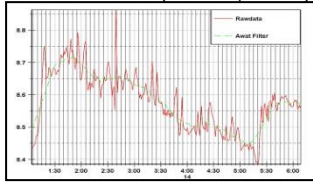
- A+E: +3°C
- B: CO₂ ambient, °C ambient
- C+F : +300 ppm
- D: +300 ppm, +3°C



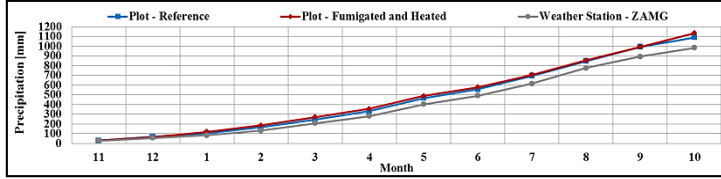
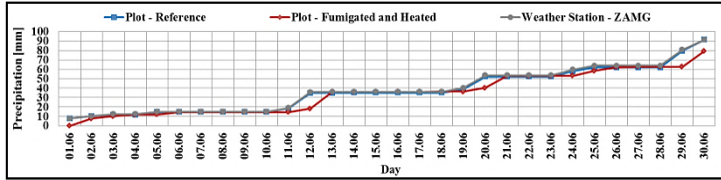
3 DATA CONTROLLING

1. Technical Data Control
2. Manual Data Control
3. AWAT Filter (Peters, 2015)

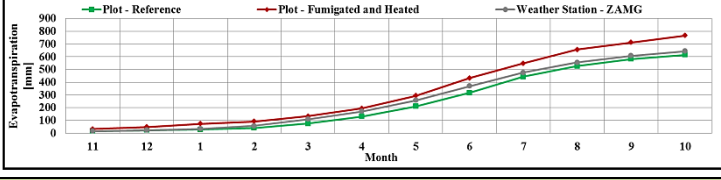
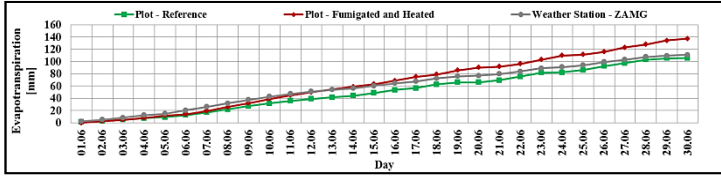
Lysimeter / Weather Station (ZAMG):



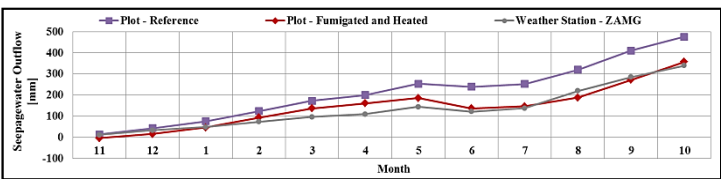
4 WATER BALANCE PARAMETER – PRECIPITATION



5 WATER BALANCE PARAMETER - EVAPOTRANSPIRATION



6 SEEPAGE WATER OUTFLOW



7 CONCLUSION

An adequate data correction is the precondition to identify changes of soil hydrological processes and properties.

REFERENCES:

