



Crowdsourcing Austrian data on decomposition with the help of citizen scientists

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Decay of organic material, decomposition, is a critical process for life on earth. Through decomposition, food becomes available for plants and soil organisms that they use in their growth and maintenance. When plant material decomposes, it loses weight and releases the greenhouse gas carbon dioxide (CO₂) into the atmosphere. Terrestrial soils contain about three times more carbon than the atmosphere and, therefore, changes in the balance of soil carbon storage and release can significantly amplify or attenuate global warming. Many factors affecting the global carbon cycle are already known and mapped; however, an index for decomposition rate is still missing, even though it is needed for climate modelling.

The Tea Bag Index (TBI) measures decomposition in a standardised, achievable, climate-relevant, and time-relevant way by burying commercial nylon tea bags in soils for three months (Keuskamp et al., 2013). In the summer of 2016, TBI (expressed as decomposition rate (k) and stabilisation index (S)) was measured with the help of Austrian citizen scientists at 7-8 cm soil depth in three different land uses (maize croplands, grasslands and forests). In total ca. 2700 tea bags were sent to the citizen scientists of which ca. 50% were returned. The data generated by the citizen scientists will be incorporated into an Austrian as well as a global soil map of decomposition. This map can be used as input to improve climate modelling in the future.