



Agricultural terraces and their influence on sediment storage, transport and reworking

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Agricultural field terraces are an important landscape feature in the mountains of Central Europe. Since people settled in these areas the narrow valleys and small plateaus forced the population to farm on steep slopes. This study aims to quantify the importance and timing of the different sediment storage areas within a gully catchment, including agricultural terraces. We find that terraces developed by parallel tilling, which turns over the soil, creates an effective sediment trap at the lowest topographical property border. Sheet erosion, shown by thin layers in the stratigraphy of the field terraces, resulted in gradual growth of the terraces, and due to a lowering of slope at this point created a positive feedback whereby the terrace is able to continuously trap sediment. These terraces developed from ~1100 until ~1850 AD, and by building up artificial storage areas, substantially increased the potential for catchment sediment storage compared to natural slopes which had already reached their storage capacity. Nevertheless, sediment was still transported to the thalweg of the adjacent gully, and this probably prevented further incision by increasing the carriage capacity of the runoff. Over time the increase in slope in the gully thalweg and a change of land use in the catchment lead to a new, much smaller 'parasitic' gully in the lower reaches of the talweg, which transported much smaller amounts of sediments to the fan where they intersect with floodplain deposits.