



## **Pre-industrial charcoal production in southern Brandenburg – A landscape laboratory for studies on the fate of terrestrial organic carbon**

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Within the scope of the intensive landscape changes caused by modern lignite mining in southern Brandenburg and northern Saxony (East Germany) large-scale archaeological surveys and excavations are carried out to get information about past land uses and historic to prehistoric cultures.

The hunger for energy of modern society leads us to a historical case of energy production: On the Jänschwalde hill area (Jänschwalder Höhe) one of the biggest archaeological investigated charcoal production areas - at least in Germany - was discovered. More than 400 production units (charcoal piles) were excavated during the last years. Approximately 4,000,000 square meters of woodland were necessary to charge those piles. The charcoal was probably used nearby in the iron works of Peitz where bog iron ore was smelted since 1567.

The clearing of huge parts of the forest certainly had major environmental impacts and changed the character of the landscape tremendously – not only for the short-term but also on the long-run. At least for a while vegetation was substantially missing in the landscape and the open land was used as farmland although the soils are poor in nutrients and very sandy. Wind-blown sediments covering the charcoal piles traces prove that clearing and agricultural use has induced soil erosion and eolian remobilisation of Quaternary sands.

By now the piles are not well dated. One of the main targets of the ongoing investigation is to build up a chronological framework of the local charcoal production. These findings have to be correlated with the major phases of the landscape dynamics which are documented by the relicts of soil erosive landforms, human-induced eolian sediments, and buried soils (palaeosoils).

The Jänschwalde area may be used as an ideal test site to study the biogeochemical fate of organic carbon in soils and soil sediments in order to improve our understanding of the abiotic and biotic processes responsible for the cycling of terrestrial carbon. We intend to build up a research network of scientist interested to take advantage of the research opportunities offered by this unique “landscape laboratory” in Central Europe.