



## Seasonal variation of relative moisture in anthropized histosols using electrical tomography at the Experimental Farm of the Federal Brasilia University (FAL/UnB)

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### Abstract

The Brazilian Cerrado sequesters and stores a significant amount of carbon from the atmosphere, and its wetlands with histosols concentrate most of these reserves. The general objective of this work is the dynamics of relative moisture variation in histosols in anthropized areas using electrical tomography. Acquisitions occur along orthogonal profiles at the Experimental Farm of the University of Brasília (FAL/UnB), where it is possible to identify anthropic and non-anthropic areas. Non-anthropized areas will be used for comparison—the equipment to be used as the SuperSting R8 (AGI instruments). The dipole-dipole (DD) and Wenner-Schlumberger (WS) electrode arrays with 28 electrodes spaced every 1.0m are used. The raw field data were filtered and inverted following the sequential transformation steps from .stg to .dat format, insertion of altimetry, standard deviation, inversion with least squares, graphical analysis, and percentage reduction of divergent points between the measured and calculated electrical resistivity values. In parallel with this research, soil samples will be collected to analyze the laboratory's moisture content and organic carbon. The partial results of the first acquisition campaign at the beginning of the dry season (May) in the anthropized area show a soil profile that presents two irregular horizons of electrical resistivity. Horizon 1 is more superficial and has a thickness ranging from 0.85 m to 2.70 m, but smaller thicknesses predominate along the profile. The resistivities of this horizon are >2000.00 Ohm.m, predominating values close to 10,000 Ohm.m in the superficial part. Horizon 2 has resistivity ranging from 1000 to 2000 Ohm.m. These lateral and vertical electrical resistivity and thickness variations in a profile of only 28 meters indirectly indicate the relative humidity variation in the histosols, which the organic carbon content may control.