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## EFFECTIVENESS OF SOIL AND WATER ASSESSMENT TOOL MODEL TO SIMULATE WATER FLOW IN A LARGE AGRICULTURAL COMPLEX WATERSHED: CASE OF BUYO LAKE BASIN, WEST OF CÔTE D'IVOIRE

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### Abstract

The objective of the study is to set up and calibrate a model using the soil and water assessment tool (SWAT) in order to simulate the water flow in the Buyo Lake located in west of Cote d'Ivoire and to test and evaluate the usefulness and the performance of the model. In this study, we had used the ArcSWAT graphical user interface to manipulate and execute the major functions of SWAT model from ArcGIS tool. Hydrological modeling of Buyo Lake Basin was carried out with the ArcSWAT interface for SWAT 2009. The analysis shows that the surface water flow in the basin is less sensitive to the parameters linked to groundwater flow. Therefore, the water flow was tributary to the surface runoff. The calibration model of the flow in the watershed was performed by running about 500 and 1000 runs in SUFI2 on the period 1985-1988. The statistics showed that there is a good correlation between the monthly observed and simulated river discharge. The obtained results are generally acceptable, and the ability of the SWAT model to simulate the flow in very large complex and heterogeneous watersheds like those of Buyo Lake was highlighted.

*Key words:* assessment, Buyo, landuse, model, SWAT, water

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