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 (High Resolution)

### Title: (Title of the abstract must be in sentence case)

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**Abstract:**

This study presents an analytical model to understand the dynamic behavior of surface-groundwater interaction in a stream-aquifer system in the presence of a clogging layer. The mathematical model consists of an unconfined aquifer of semi-infinite extent resting on a sloping impervious base and interacting with a stream of varying water level. The hydro-interaction is mediated by a thin clogging layer whose hydrologic properties are different from that of the aquifer. The unsteady groundwater flow is approximated by linearized advection-diffusion equation subjected to mixed boundary conditions, including a nonlinear Robin boundary condition. Closed from analytical expressions are developed for water head distribution, flow rate and volumetric exchange of water between stream and aquifer. In few limiting cases, the results reduced to earlier known results. Performance of analytical solution is compared with numerical solution of corresponding nonlinear Boussinesq equation. Sensitivity of the aquifer parameters is analyzed with an illustrative example. (*up to 300 words)*

**Biography:**

Dr. XXXX obtained his BSc (Geology) from the University of Lubumbashi and his PhD (Geology) from the University of Fort Hare. He is previously worked for the Ministry of Mines and Geology in the DRC-Zambia Copper Belt as exploration geologist. His PhD research was based on the application of Neo-tectonics for the exploration of groundwater in the South African Karoo aquifers. He currently lectures structural geology and geochemistry at the University of Fort Hare. His area of interest is differential equations, Hydrology, Numerical methods, Transforms. She has published various papers in peer reviewed journals. (*Up to 100-150 words*)

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