Sep 15th, 5:40 PM - 6:00 PM

Use of Remotely Sensed Data in Modelling Environmental Quality: Case Study of Selected Kenyan Groundwater Basins

Silvance Abeka

Jaramogi Oginga Odinga Univers

iEMSs International Congress on Environmental Modelling and Software

10th International Congress on Environmental Modelling and Software
Brussels, Belgium, Ann van Griensven, Jiri Nossent, Daniel P. Ames (Eds.)
https://scholarsarchive.byu.edu/iemssconference/2020/

Use of Remotely Sensed Data in Modelling Environmental Quality: Case Study of Selected Kenyan Groundwater Basins

Maurice O. Nyadawa[a], Silvance O. Abeka[b]
[a]*School of Engineering and Technology, Jaramogi Oginga Odinga University of Science and Technology (nyadawaomaurice@gmail.com)*
[b]*School of Informatics and Innovative Systems, aramogi Oginga Odinga University of Science and Technology (silvancea@jooust.ac.ke)*

Abstract: Kenya is classified as a water scarce country with available annual per capita water of less than 1000m^3. Quality of environment has drastically deteriorated in the recent past as population increases and by extension increase of unsustainable economic developmental activities. One phase of environment which has suffered quality deterioration in Kenya is water. Groundwater sources which majorly support water needs in arid and semi-arid zones of Kenya which is about seventy five percent of the country is now threatened by pollution. Interactions of surface, subsurface systems and human systems require that integrated studies become the preferable way forward for studying groundwater vulnerability mapping. This study has reviewed effectiveness of GIS-based environmental models in mapping groundwater quality of basins along the Kenyan coast which suffer from seawater encroachment and hinterland basins which suffer salt intrusion geologic unconformities. Softwares as GALDIT and DRASTIC are applied to assist in overlaying relevant thematic maps. Overlaying of carefully selected thematic digital maps derived from remotely sensed information was done for selected basins to produce vulnerability maps which can provide useful insight or effective groundwater management of the study areas.

***Keywords**:* Vulnerability mapping; Seawater intrusion; GALDIT method; DRASTIC modelling; GIS; Groundwater pollution; Coastal aquifer; water quality index