Elfatih Mohamed Abdel-Rahman

42 – 21/11/1971

Environmental Science

Sudan

elfatihabdelrahman@gmail.com; alfatih100@hotmail.com +27738799363

I received my B.Sc (Agric., hons, Class one) and M.Sc. (Crop Production, Distinction) from Faculty of Agriculture, University of Khartoum and PhD in Environmental Sciences from University of KwaZulu-Natal. I'm an Assistant Professor at the Department of Agronomy, Faculty of Agriculture, University of Khartoum and on leave for Postdoctoral Research Fellowship. My research interests include applications of GIS and remote sensing techniques in different agricultural, forest and vegetation aspects such as monitoring vegetation health (e.g., nutritional status, insect pests damage and diseases), crop growth and yield analysis, land cover/land use mapping and change detection.

CURRENT RESEARCH

Topic	Methodology	Application
The use of GIS and remote sensing on forest health. The use of hyperspectral data on Swiss chard yield and nutrients monitoring	• Remotely-sensed data (aerial photographs and handheld sensors). • GIS and image processing softwares • Machine-learning classification and regression algorithms such as random forest, support vector machines, partial least square (PLS) and sparse PLS regressions	Forest health monitoring Crops yield forecasting models Crops nutritional status monitoring Precision agriculture

UKZN main Publications

1. **Abdel-Rahman**, E. M., Mutanga, O., Adam, E., and Ismail, R. *Accepted*. Detecting *Sirex noctilio* grey-attacked and lightning-struck pine trees using airborne hyperspectral data, random forest and support vector machines classifiers. *ISPRS Journal of Photogrammetry and Remote Sensing*.
2. Adam, E., Mutanga, O., **Abdel-Rahman**, E. M., and Ismail, R. *Accepted*. Estimating standing biomass in papyrus (*Cyperus papyrus* L.) swamp: exploratory of in situ hyperspectral indices and the random forest regression. *International Journal of Remote Sensing*.
3. **Abdel-Rahman**, E. M., Way, M., Ahmed, F., Ismail, R., Adam, E., 2013. Estimation of thrips (Fulmekiola serrata Kobus) density in sugarcane using leaf level hyperspectral data. South African Journal of Plant & Soil, 30, 91–96.

Past Researches

The application of remote sensing techniques in southern African sugarcane agriculture

1. **Abdel-Rahman**, E. M., Ahmed, F. B. and Ismail, R., 2013. Random forest regression and spectral band selection for estimating sugarcane leaf nitrogen concentration using EO-1 Hyperion hyperspectral data. *International Journal of Remote Sensing*, 34, 712–728.
2. **Abdel-Rahman**, E. M., Ahmed, F. B., van den Berg, M. and Way, M. J., 2010. Potential of spectroscopic data sets for sugarcane thrips (*Fulmekiola serrata* Kobus) damage detection. *International Journal of Remote Sensing*, 31, 4199–4216.

Future Interests

1. Multidisciplinary kind of research (I eager to work on a multidisciplinary project and I will be doing the spatial modeling and remote sensing part of it).
2. Community service projects

Extra Interests

Sports (Football), Reading, Travelling and Community Engagement