GIS and Remote Sensing for Gold Prospects in El Fitrga Area, North Kordofan State, Sudan

Dania Ibnoner Mohamed Ahmed*  Mutaz Hassan Khallafalla*
mutz_hsn@gmail.com
Badr-Eldin Taha Osman**
btosman@hotmail.com

* Student-GIS M Sc. Program 2013-2014
** Associate Professor- Instructor-GIS M Sc. Program 2013-2014
Dept. of GIS and Cartography, Faculty of Geographical and Environmental Sciences- University of Khartoum-POB 321 Khartoum-Sudan

Abstract:

The objective of the present work is to recognize and locate the mineralization zones bearing major gold ore deposits in Block 34, El Figra area, North Kordofan, Sudan. Landsat-7 ETM+ satellite imagery were utilized and subjected to several image processing techniques and producing some derivatives such as band ratio images 5/7, 5/4,3/1 and 5/7,3/1,4/3 as well as R: G: B colour composite images 7:4:1, 3:2:1,5:4:1. A Geographic Information System (GIS) environment was used to integrate processed images, structural data, drainage and geochemical maps. These two methods have played an important role in identifying different gold potential areas for Block 34. The result was a mineral potential map showing potential areas for gold prospects which may be aimed for in the advanced stages of gold exploration. The potential zones were found in the central and north western part of the concession area and were elongated in the shape, most of them were trending NE SW and following the shearing zone trend of Sodari Shear Zone (SSZ). The mineralization zone which is found in green