

**AN EVALUATION OF NIGERIA SAT-1 IMAGE FOR  
GEOLOGICAL MAPPING OF PART OF PLATEAU STATE,  
NIGERIA**

**<sup>1</sup>J.A.A. OLOGUN, <sup>2</sup>C.O. ADEOFUN, <sup>1</sup>A.U. ONWUSULU AND  
<sup>1</sup>A.T. ALAGA**

---

<sup>1</sup>National Centre For Remote Sensing, Jos, Nigeria.

<sup>2</sup>University of Agriculture, Abeokuta, Nigeria

---

**ABSTRACT**

Remote Sensing and Geographic Information System (GIS) techniques were applied in the geological mapping of part of Jos, Plateau State, Nigeria in this paper. The study was mainly through structural, lithological and topographic analysis of the NigeriaSat-1 image of the study area. Simple digital image processing techniques which involve classification and linear/edge enhancement were applied on the image to enhance edges of linear features. These were followed by computer aided visual interpretation of geological structures and lithological units. The processing led to the production of drainage patterns fractures/lineaments, and geological maps. Younger Granite Ring Complexes comprising of Kagoro and Ganawuri – Kigom complexes) were mapped. The (lineament/fracture, ring dykes) structural analysis indicated that the area has numerous long and short fractures. The geology generated from the integration of various thematic layers show that the area is underlain by Younger Granite rocks of Jurrasaic age, basement complex rocks; older Granites (porphyritic granite) and undifferentiated rocks, newer basalt and Dolerite dykes.

**Key words:** Nigeria Sat-1 – Geological mapping – Digital Image Processing.