

EARTH OBSERVATION SYMPOSIUM (B1)
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AN ASSESSMENT OF THE RELATIONSHIP BETWEEN LINEAMENT AND GROUNDWATER
PRODUCTIVITY IN A PART OF THE BASEMENT COMPLEX, SOUTHWESTERN NIGERIA**Abstract**

The study area is a basement complex environment with its associated difficulties in groundwater supply as a result of lateral discontinuity in basement lithologies. This study assessed and established the relationships that exist between lineaments and borehole yields. Five Hundred and thirteen (513) lineaments were extracted and analyzed from remote sensing data obtained from global land cover facilities of which several lineament maps were generated using ArcGIS software. Twenty seven (27) borehole yield data were interpreted, correlated and evaluated with the produced lineaments. Results indicated three (3) categories of yields exist in the study area: low yields (less than 0.2 l/s), moderate yields (between 0.5 -1.0 l/s) and high yields (greater than 1.0 l/s). Thus, the high yielding boreholes are found at the center of the study area where lineament density is high. Further analyses carried out show that the productivity of a borehole is strongly affected by its closeness to an extensional lineament but insignificantly influenced by its closeness to a lineament intersection points in the area. The study also indicated that the presence of thick overburden to bedrock is also a key factor in controlling groundwater productivity.