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LANDSAT AS A DATA SOURCE IN THE ANALYSIS OF SOIL SALINIZATION ON THE UPPER NILE

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Desertification is caused by two major factors--climatic variation and human modification of the environment. Irrigation in arid regions may play a role in causing desertification by increasing the amount of land that undergoes the process of soil salinization, thereby decreasing the ability of a region to support vegetation.

The purpose of this paper is to report preliminary studies, incorporating Landsat data, on the location, magnitude and collateral effects of salinization. The study area is the Kom Ombo region of the Upper Nile valley about forty miles north of the Aswan High Dam. Landsat data are studied using a microcomputer-based interactive digital analysis system (IMPAC). Classifications of multispectral scanner data are used to delimit major landscape units. By this method of stratification, the alluvial Kom Ombo basin is separated from other major scene components, and the analysis then is concentrated on classification of the alluvial basin. Within the basin, it is possible to identify a series of spectrally unique regions of different vegetation and soil associations. One of these regions is found to be coincident with locations that a soil-hydro-geomorphological model predicts is subject to salinization.

Continued research will expand the study area, will test and soil-hydro-geomorphological model against other regions within the basin, and will use multiple dates of Landsat data to monitor changes in salinized areas.