

RELATIONSHIP BETWEEN LANDFORMS
INFORMATION LOSS AND MAP SCALES

An Abstract of a Thesis
Presented to the
Department of Geography
Western Illinois University

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts

by
Sidi Moctar Sangare
December 1980

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ABSTRACT

Reduction in scale, whether from the real world to a map or from larger to smaller scales of representation, result in loss of information. On general topographic maps, both the amount and the precision of landform information are influenced by this undesirable consequence of reduction. An attempt is made in this paper to develop a quantitative measure for this loss, and to relate it systematically to the degree of terrain irregularity represented. To that end, 62 pairs of contour line segments were measured on U.S.G.S. topographic maps at scales of 1/24,000 and 1/62,500. The collected data were analyzed statistically to determine the significance of the differences between the two map scales. It was found that there is a significant difference between the segment lengths of homologous contour lines. The line segments from the 1/62,500 maps were found to be shorter than their corresponding line segments on the 1/24,000 maps by an average of .219 inches. These differences were also found to vary among the texture classes of the terrain represented. The observed loss is comprised of several aspects of which generalization due to scale and variability of the landform are two.