RELATIONSHIP OF A GLOBAL VEGETATION INDEX TO WORLD SOILS

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ABSTRACT

A global vegetation index was compared with information on soil properties by using a geographic information system. The soil properties were interpreted from the FAO/UNESCO Soil Map of the World (1:5,000,000 scale), compiled by the Food and Agriculture Organization of the United Nations and published by the United Nations Educational, Scientific, and Cultural Organization. This map is the most complete source of digital soil data available on a worldwide basis.

The global vegetation index was produced as a composite of Normalized Difference Vegetation Index (NDVI) data derived from the National Oceanic and Atmospheric Administration's Advanced Very High Resolution Radiometer (AVHRR). The NDVI was computed as the difference between the reflectance data in the infrared and visible wavebands divided by their sum.

Preliminary results of statistical analyses of relationships between the two data sources show that variations in the vegetation index data are related to the soil map units. The soil map units were used to stratify the vegetation index data. The vegetation index data were cumulated over the period of a year to create a data set of NDVI days. The mean NDVI days were significantly different between soil map units.

1/ TGS Technology, Inc. Work performed under U.S. Geological Survey contract 14-08-0001-22521.

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