Remote sensing change detection of vegetation: a case study from Palestinian West Bank using GIS and Landsat TM data

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Analysis of vegetation and detection of changes in vegetation patterns are keys to natural resource assessment and monitoring. Thus it comes as no surprise that the detection and quantitative assessment of vegetation is one of the major application of remote sensing for environmental resource management and decision making. For this reason, large area land use and land cover changes (LULCC) derived from satellite images play a key role in global, regional and national land cover and land use assessments, carried out for example by the United Nations Organization (ONU), the Food and Agricultural Organization (FAO), or the United States Geological Survey (USGS).

In West Bank (Palestine) LULCC represent a major aspect of the pressure on the limited land resources that is driven by different biophysical and anthropogenic factors particularly political ones. For the last 40 years and since the Israeli occupation, West Bank has witnessed a dramatic LULCC and landscape fragmentation, mainly due to colonizing policies such as building of Israeli settlements. West Bank Wall and check points have turned West Bank into large number of isolated patches.

This papers shows the first results of a GIS – IDRISI (Geographic Information System) and long time series of Landsat TM images (year: 1989; 1999; 2000; 2008) applications. This with the aim to analyze vegetation dynamics in West Bank – Palestine (5762,6 km2), through the application of the Normalized Difference Vegetation Index (NDVI) and the Perpendicular Vegetation Index (PVI).