



## **Variability of land degradation along topographic transects in two Mediterranean areas**

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This study aims to investigate the influence of topography, soil factors and climate conditions on land degradation along topographic transects in two Mediterranean areas: Seville (southern Spain) and El-Fayoum (northern Egypt). Elevation and slope gradient information from both study sites were obtained from Shuttle Radar Topography Mission (SRTM) data, processed using ENVI 4.7. Additionally, topographic transects were developed using ArcGIS 10 software. To represent the highest variability in elevation, lithology, soil and land use in each site, one representative topographic transect from El-Fayoum and two topographic transects from Seville were selected. Soil characteristics along each of the topographic transect were obtained by mapping land surveying and laboratory analyses data. MicroLEIS DSS (Pantanal and Raizal submodels) was used to assess soil contamination with phosphorus, nitrogen, heavy metals and pesticides and water erosion vulnerability along the topographic transects for each study site using soil data, including depth, texture, drainage, carbonate content, salinity, sodium saturation, organic matter content and acidity (pH). Additionally, monthly average values of climate variables (mean temperature, maximum and minimum rainfall and number of rainy days) have been used. The results obtained by Raizal and Pantanal models suggest that lower elevation areas from transects show low vulnerability classes in both degradation processes (water erosion and soil contamination), when compared to uplands. The variation of climate conditions and soil factors along the Seville and El-Fayoum transects were responsible for the observed variability in both soil degradation processes (erosion and contamination).

**Key words:** MicroLEIS DSS, soil degradation, soil factors, topography, DEM