**Abstract**

Agricultural production as well as semi-natural environment in the semi-arid Guadalentin basin are threatened by land degradation. The main process which causes degradation in this area, is water erosion. In this research an assessment is made on land degradation in the semi-natural environment in the Guadalentin basin. The different stages of degradation are mapped during fieldwork. Also, laboratorial analyses have been carried out to research the soil organic carbon (SOC) content of 225 soil samples, taken during the fieldwork. A high negative correlation was found between SOC and the land degradation classes. Also, the average reflection values of the hyperspectral pixels, which represent the degradation classes, were researched. Hereby, two sorts of hyperspectral images were used; HYMAP and DAIS images. Again, a high negative correlation between SOC and the pixel reflection values was found. It was concluded that the hyperspectral images can well be used to map the spatial distribution of the land degradation classes, using SOC as an indicator. The spectral information regarding organic carbon differs between the HYMAP and DAIS images. Both images thus need a different approach with the classification.