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DIGITAL IMAGE PROCESSING, PHOTOGRAMMETRY AND GIS METHODS IN EVIRONMENTAL STUDIES

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ABSTRACT

New technologies related to digital image processing and geographical informational systems add vast potentialities to the process of collecting, managing and analysing environmental data. In this study we specifically used Image Analyst (Image Processing software), Image Station (photogrammetric software) and MapInfo Professional (geographical Information system), in order to study the geomorphological and environmental changes at the coastal zone of Naxos island, mainly produced by human activities.

All environmental and geomorphological changes were traced through the use of two different date aerial photos, taken on 1960 and 1988. Aerial photographs, after being enchancment through appropriate algorithms, were photo-interpretated within the environment of Image Station, were we accurately recorded all changes to the MapInfo GIS database. Fianly, field work observations were imported to the GIS database to provide data for the present state (2000) of the above chaneges.

GIS technology (MapInfo Prof. and Vertival Mapper), were utilized for the qualitative and quantitative analysis of all changes (years 1960, 1988, 2000). As a last output, thematic maps were produced to help us visualize the present state and the changes that were taking place from period to period.