DIGITAL CARTOGRAPHY AND G.I.S. ACTIVITIES AT METHANA PENINSULA, GREECE: A COMPILATION OF REMOTE SENSING DATA AND LAND DATA FOR ENVIRONMENTAL EMERGENCY AND PLANNING

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G.I.S. are useful not only as designing tools for map presentation but also for data processing and coordination of a multidisciplinary study. Methana Peninsula (Northeastern Peloponnesos, Greece) located in the western part of the Hellenic Volcanic Arc, a geodynamically active region as well as a popular tourist area. For that, the development of a G.I.S. database for Methana Peninsula is a useful tool for emergency organization and planning related to the environmental risk (landslides, floods, earthquakes e.t.c.).

A large number of various data from different sources in different format, scales and map projections was been compiled. The input data were as follows:

Topographic data: contours lines 20m, 10m partially 5m, trigonometrical points, spot heights, paved and unpaved roads, trails and traces of trails, villages, hotels, restaurants, tavernas, cementaries, monasteries, churches, chapels, buildings, ruins, harbours, beaches, thermal baths e.t.c.
Morphological data: scree talus, drainage network e.t.c.
Geological data: geological formations, tectonic contacts and features, faults (major and minor), e.t.c.
Volcanic structures: domes, fissures, inferred flow directions e.t.c.
Remote Sensing data: A digital satellite image (Landsat 5 TM).

The topographic and geological data were obtained in layers in Intergraph format from an earlier mapping project. All these data were processed in Arc/Info, 8.2 and categorized in different layers. Each set of these data was characterized by its geographical position (spatial information) and its descriptive attributes. Three categories were distinguished: points, arcs, polygons.

The Landsat image was processed in ERDAS 8.3 Imagine, and a rectified image was produced. The image interpretation consisted of the recognition of morphological and tectonic features as well as geological contacts. These data were categorized in different layers as an input in the G.I.S.

Also, a digital elevation model was produced with a resolution of 20m, as well as many 3-D maps in different sun azimuth and sun elevation including different layers like geological data, morphological data as well as the Landsat image.

As main result, G.I.S. in a scale of 1/25000 was developed for Methana Peninsula. All data were transformed in a common cartographic projection system. The result is not only the compilation and presentation of new layers and thematic or synthetic maps based on older maps, but also the creation of a decision making system on emergency plans. Usimg this system, analysis and management of a relational data base can be constantly updated and improved, so that information about geology, volcanology, topography is available and hazards maps, land use maps e.t.c. can be produced any time.