

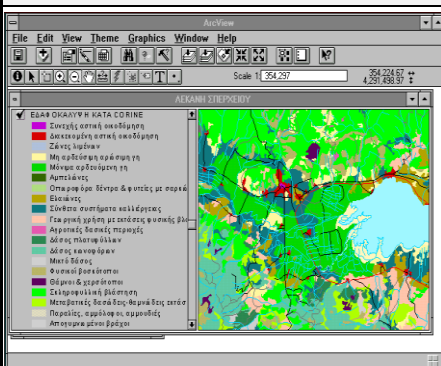
Acronym: NPS-AVICENNE
Project No: C-EC-AVI-CT93.0006

Project Title: Non-Point Source Pollution & Management: Mediterranean & Black Sea Basins

Name of legal entity	Countries	Overall project value [m€]	% carried out by EPSILON	No. of staff provided	Name of Client	Origin of Funding	Dates [start/end]	Name of partner(s) [if any]
EPSILON	GREECE TURKEY BULGARIA EGYPT GERMANY	2,3	40 %	12	European Commission	European Commission	01.01.1997 30.12.2001	EPSILON (GR) NTUA (GR), TUM (D) PbS (D) Unv. Izmir (TR) Unv. Alexandria (EG)

Project Description

Type of Services Provided [Outlined]



Non-point source pollution from land-based operations is a major environmental concern in the Mediterranean & the Black Sea Basins. The NPS research project:

- (1) Establishes a network of Mediterranean & Black Sea scientific organisations on state-of the-art GIS technologies as remote sensing and mathematical modelling integrated in a GIS database for the control and surveillance of Mediterranean & Black sea coastal water resources and the estimation of NPS pollution impacts,
- (2) Establishes a methodology assisting in integrated coastal zone management for the sustainable use of water resources in the relevant countries,
- (3) Delivers a GIS s/w for the extension of the EC CORINE database and provides technology transfer Non EC Member Mediterranean & Black sea countries. Major deliverables of NPS project are: (1) A software package in standard ARC/INFO GIS format to the EC for the extension CORINE and EUROSTAT databases, (2) A software package and ARC/INFO maps for test

areas of partners, (3) MED-NPS methodologies and technologies used in an extended format for Mediterranean application in the Gediz (TR), the Sperchios (GR), and the Nile-Delta (EG) river-basins, (4) Dissemination and information material in the participating countries and across other Mediterranean countries. The Research efforts involved:

- **NPS pollution parameters and database:** Identification, definition and quantification of eight dominant water quality parameters such as total suspended soils, total nitrogen, total phosphorus, BOD, faecal coliform, total organic carbon etc. Design of a relational database compatible to EC CORINE and other EC Databases.
- **Land-use recognition & classification via remote sensing:** Test of methodology in selected watersheds using satellite data and field data; total climatic and water quality data analysis for the watersheds. Land use pattern recognition, classification and simulation in watershed and coastal zone via digital satellite image processing.
- **GIS MED-NPS thematic mapping and mathematical modelling:** Land use mapping from images using ARC/INFO (raster & vector, GRID module) on PC and UNIX workstation; application and calibration of NPS pollution and hydrodynamic models; calculation of total NPS runoff loads from watersheds and pollution prediction.
- **Database development, data storage and delivery:** Data stored in a database and linkage to ARC/INFO. Remote sensing analysis (SPOT, TM, ERS-1) analysis that precisely defines land-use types, runoff parameter, water quality parameters etc. vectored as input to the database. Models and software interacted with database.
- **Workshops, training, networking, dissemination:** Seminars and workshop organisation in different countries involved and information dissemination.
- **Control measures, surveillance and closure:** Formulation of strategies and control measures for sustainable use of water resources, design database extension.

Achievements-Innovation

- Monitoring of the environment
- Production of information on the environment
- Cataloguing of the environmental information for future use and planning
- Establishment of links of organisations aimed at protecting the environment
- Dissemination the information on the status of the environment
- Production or recommendations on the protection of the environment
- analyses in an integral way large catchment basins and Mediterranean waters
- contribution to other integrated Mediterranean management actions (MAP-UNEP, MEDNET etc.) and EC programmes (MEDSPA, MED CAMPUS, MED URBS).

Key Words

Agricultural pollution, Black Sea, Bulgaria, Egypt, European Commission, GIS methods, Greece, Image processing, LANDSAT, Mathematical modelling, Mediterranean, Non-point source pollution, Pollution, Pollution, Remote sensing, Russia, Sperchios, SPOT, Surveillance, Turkey.

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