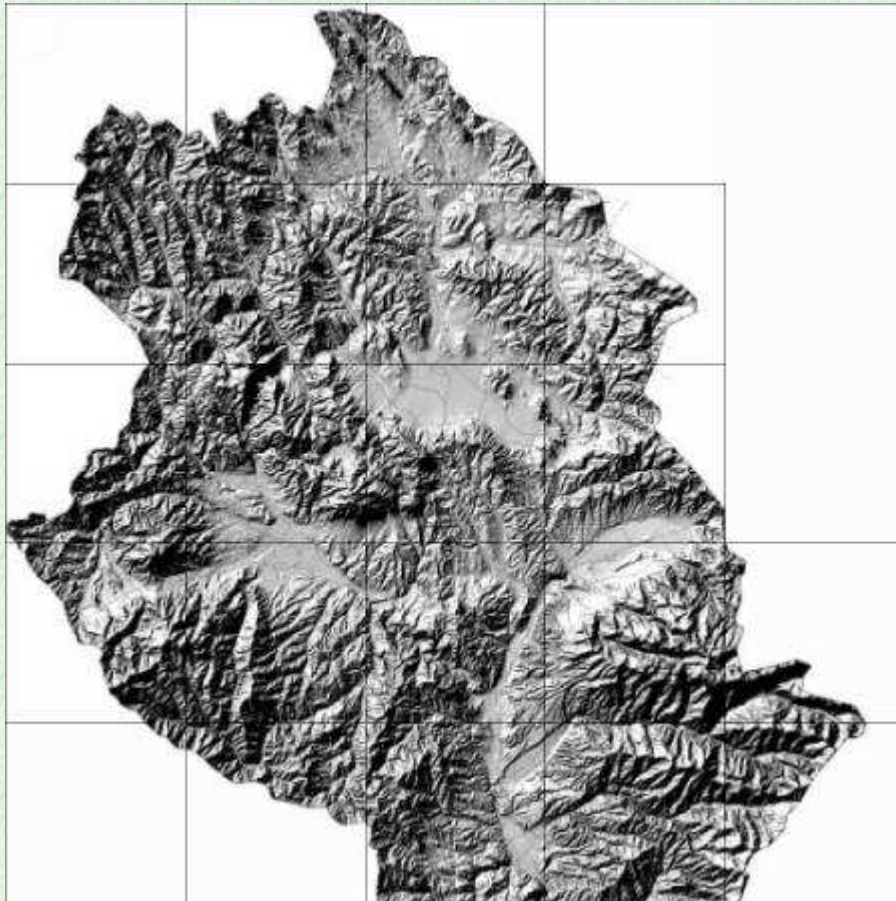


GIS AND 3D MODELLING - 3D DIGITAL MODEL OF STRUMA RIVER BASIN.  
**PHARE PROJECT "FLOOD FORECASTING AND WARNING SYSTEM IN THE STRUMA RIVER BASIN"**  
International PHARE CBC project Bulgaria-Greece.

A precise 3D digital model with complete information for southwest Bulgaria was created in six months starting in January 2000, as a result of the close collaboration of specialist from different Bulgarian companies and governmental organizations - National Institute of Hydrology and Meteorology, Sofia Ing. Ltd. and Geoprecise Engineering Ltd.

It covers the area of the Struma river basin and includes some territories from Macedonia and Greece as well. The area of the digital model is about 9600 km<sup>2</sup> (part of FYROM's territory inclusive).



The surface consists of more than 6 000 000 elevated points. On that base, a grid from more than 33 000 000 nods is calculated with accuracy in XY plan more than 15 m, which represent the surface.

The model serves as a base for development of a GIS base related to the PHARE Project of Bulgaria and Greece, funded by the European Bank.

Information presented in the model is structured on different layers according to their content. The structure covers the following basic parts:

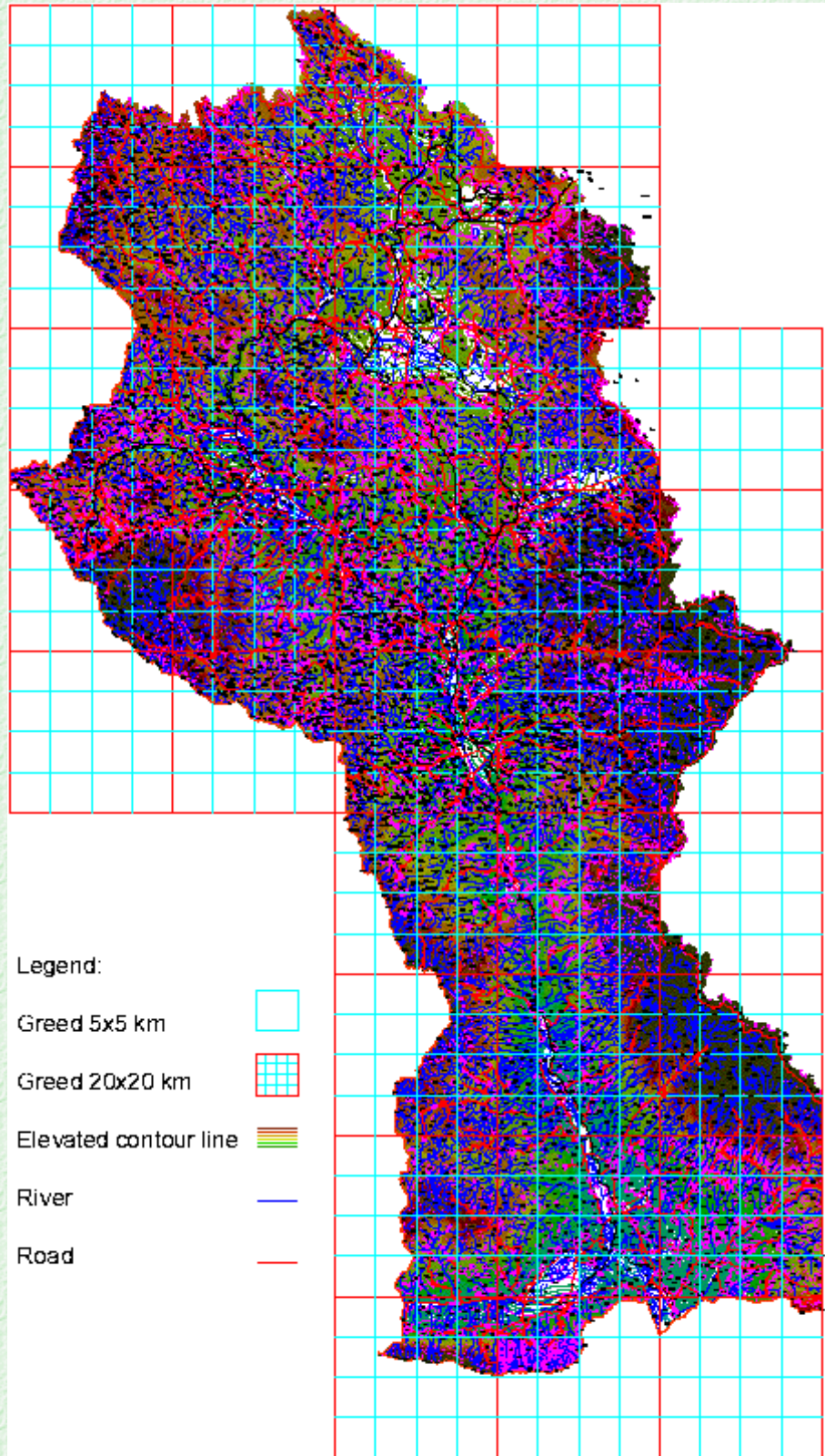
- Area surface, presented as elevated contour lines in 3D space with base section 20 m. above;

Pseudo satellite snapshot of the southwest area of Sofia - parts of Lulin Mountain. Simulated area 60x40 kilometers by greed 20x20 meters - 6,000,000 nods.

- Specific points from the surface;
- River net in 3D space, lakes and channels;
- Springs, wells and dug wells location, small artificial reservoirs in 3D format;
- Main road and railway network;
- Street pipeline taps, confluence of rivers, names of towns, villages, regions etc., contour lines of the settlements, Struma river watershed and approximate location of the state boundary.

The model could be successfully applied in preparation of general road plans, as a basis for geophysical, geological and geomorphologic, hydro-geological and hydrological research and different types of plans of work.

Another use of the digital model is the possibility it to be used for searching and identifying of destructed areas/zones in the research area, as well as for their analysis and interaction.



3D Digital model of South-West Bulgaria - Struma river basin.



**Organizations and companies that took part in the implementation of the project:**

- Agricultural University of Athens AUA, LAH, Greece;**
  - National Institute of Hydrology and Meteorology, Bulgaria;**
  - Geoprecise Engineering Ltd., Bulgaria;**
  - Sofia Ing Ltd., Bulgaria;**
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