

## **A brief description of the map series**

Between 1998–2004 in the frame of the co-operation between the Geological Institute of Hungary (MÁFI) and the Mol Hungarian Oil and Gas Company (Mol) under the contract "Construction of the GIS-based geoscientific database system for hydrocarbon prospecting" MÁFI performed the compilation of 1:100 000 solid geological maps of different age surfaces and the updated reinterpretation of related boreholes for supporting the investigations of Mol in Hungary. Executed in 10 different regions, these activities embraced the main part of mountain and some of the hilly and lowland areas of the country.

In the frame of geological processing a borehole database was set up supporting the compilation of geological maps of different age surfaces. Geological processing was based on the uniform geological legend (for pre-Quaternary and Quaternary units formation and genetics-based assignment, respectively). It served as the basis for elaborating a uniform table of legend units supporting the digital reinterpretation of boreholes and

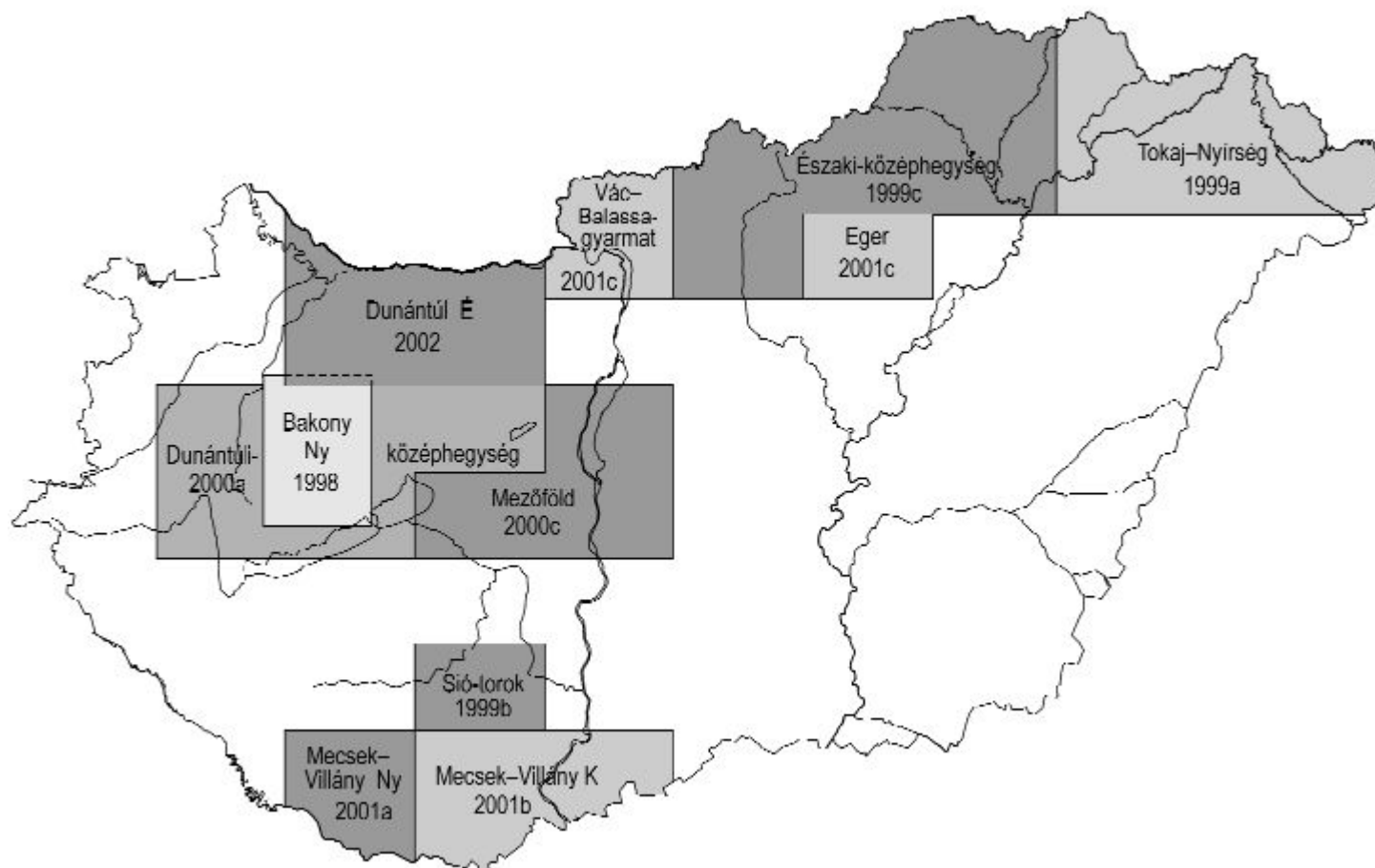
the compilation of maps. Starting from comprehensive borehole data in the Institute's data store we essentially went back to the source data in the process of re-evaluation. Making use of reinterpreted borehole data 1:100 000 pre-Quaternary solid geological maps of different age surfaces from the related areas were compiled. During the work all units encountered in boreholes or on maps in the processed areas were assigned to an existing one of the uniform legend or they were added to it as new ones. Quite a number of new units were proposed for adoption in Hungarian geology.

The project was closed by integrating the database of the different areas. Information processing started with setting up the borehole and map databases separately. The management of borehole and map information involved the treatment of point and polygon-type data sets, respectively. To set up the borehole database raw borehole data was transformed from dBASE to Oracle (later SQL Server) with a pre-defined, uniform structure. Technical data and the descriptive information of the geological section were put in separate tables respectively, connected by the unique WELL\_ID key. The compilation of geological and contour-line maps of different age surfaces was essentially supported by the borehole database.

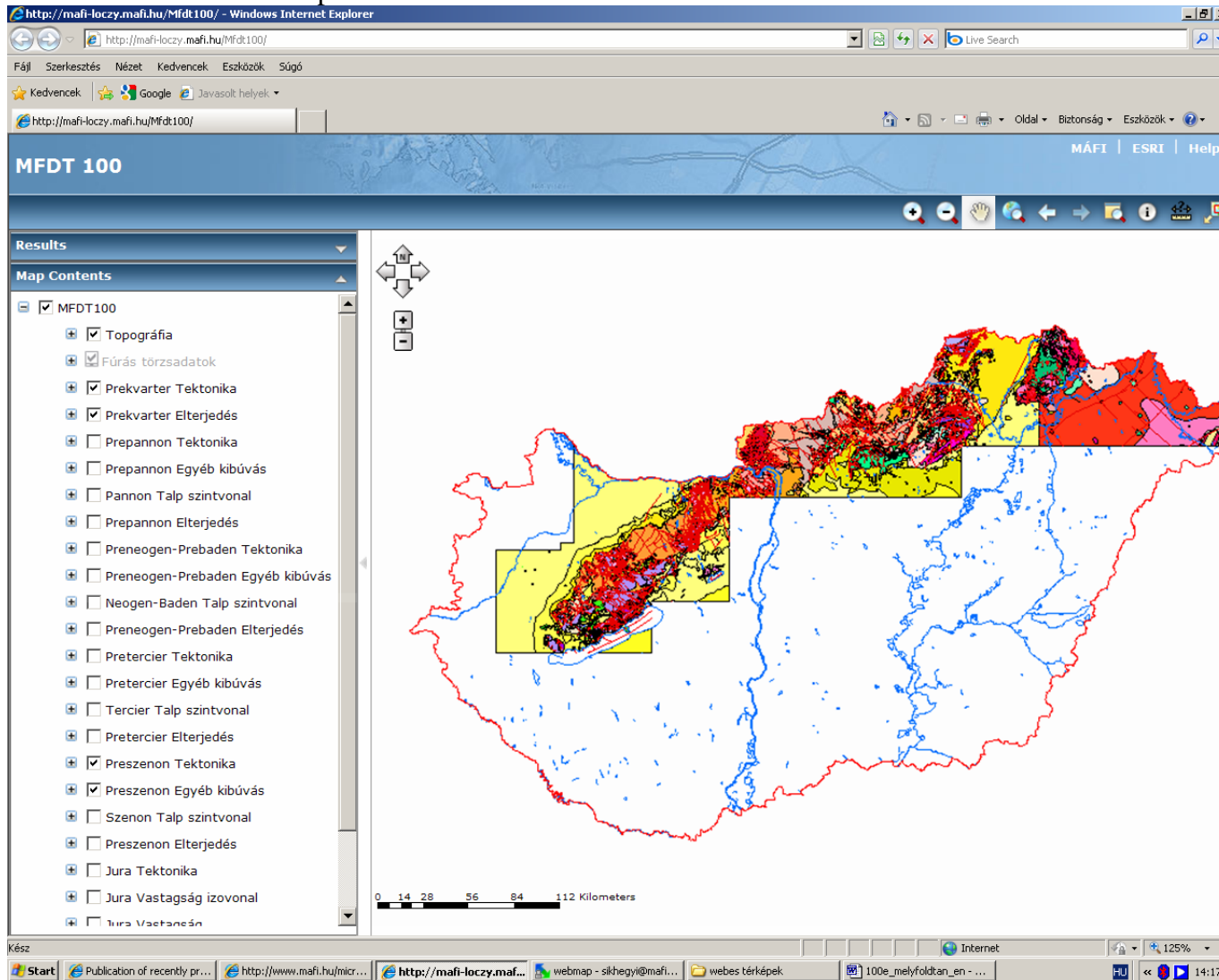
In the case of several geological age surfaces compilation started from the bottom and the related overlying sets of sequences were added subsequently one-by-one. During data integration the comparative analysis of borehole and map data was performed by the topological overlay of point- and polygon-type information. Maps were processed in MicroStation-Intergraph MGE- Oracle-SQL Server environments and converted to ESRI ArcView-dBASE for delivering to Mol.

The application of the system set up by MÁFI experts supported the efficient planning of oil- and gas exploration by Mol in the so far rather unexplored mountain and hilly regions. The uniform approach of the database provides assistance to hydrocarbon-geological modeling, optimal layout of exploration activities (seismic lines, magnetotelluric measurements) and to the analysis of the results. This system makes up the core of a Mol-database under development.

**Literature:** Gyalog László, Tullner Tibor, Turczi Gábor, Turtegin Elek: Magyarország hegyvidéki területeinek fúrési és földtani térképi adatbázisa (a Magyar Állami Földtani Intézet és a Mol Rt. közös projektje). — The borehole and map database of hilly areas of Hungary (joint project of the Geological Institute of Hungary and the Mol Hungarian Oil and Gas Company) – A Magyar Állami Földtani Intézet Évi Jelentése, 2004 (2007) – Annual Report of the Geological Institute of Hungary, 2004 (2007), pp. 145-166



## Translation of the main map elements



Topográfia  
 Tektonika  
 Elterjedés  
 Kibúvás  
 Szintvonal  
 Izovonal  
 Vastagság

Topography  
 Tectonic lines  
 Distribution  
 outcrop  
 contour line  
 isoline  
 thickness