TopoL for Windows –
new tool for remote-sensing

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TopoL a the general Land/Geographic Information System software which allows the creation, maintenance and analysis of geographical data. TopoL for Windows represents an extended version of the system, which is intended for complex raster data manipulations. This original Czech product integrates the traditional vector-based GIS system with a powerful tool for remote-sensing. It can meet many needs for GIS and remote-sensing image-analysis software in one package. In this paper, we would like to introduce this system and show our experience from its development and use.

TopoL for Windows is based on the long-term experience of its authors from remote-sensing research. It is capable of handling both vector and raster data equally well from a display, query and functional perspective. Additional descriptive information can be attached to this graphical data and stored in local or external databases. TopoL for Windows is especially strong in its ability to create composite black-and-white or colour raster-and-vector output as well as to provide complex analyses of combined geographical data.

TopoL for Windows is able to process raster data in internal format RAS with the following variations: binary, four-bit, eight-bit (one-byte), two-byte and four-byte raster up to 256 colours. The system is able to import and export all these variations of data in various formats, such as TIFF, CIT, BMP, PCX.

TopoL for Windows provides an exhaustive range of raster operations, which includes image processing and classification. The system supports the following groups of raster operations: geometric manipulations, raster editor, image processing (arithmetic and logic raster operations, local preprocessing, edge operators, texture processing), spectral analysis (multispectral edge detection, color raster compositions), statistical analysis as well as supervised and non-supervised image classifications. Extended raster capabilities of the system are usually used for remote-sensing, but can be used for analyses in various areas.

TopoL for Windows also enables users to perform various combined analyses of raster and vector data and also supports various tasks for conversion between these sorts of data. Digital model of terrain and orthophoto processing currently add a new important quality to the system. TopoL for Windows can fulfill needs for full complex processing of geographical data and is now used especially for complex classifications and analyses in forestry and ecology.