

SAGA GIS



Case Study – *DEM-based 3D Visualization in SAGA GIS*

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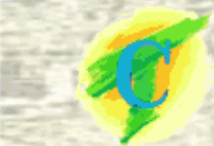
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SAGA GIS

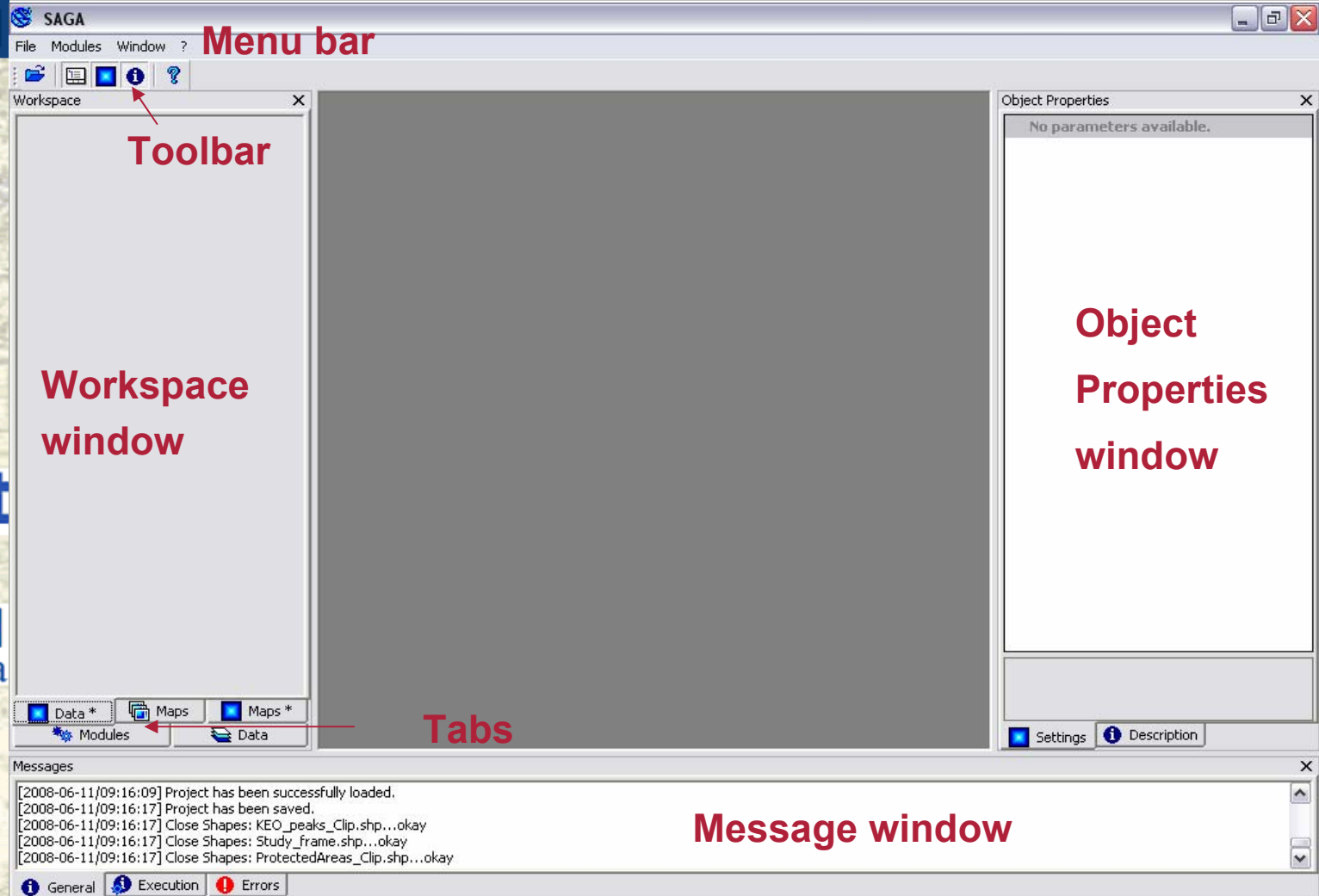
- SAGA is a free and open source geographic information system (GIS).
- The SAGA API supports grid data, vector data and tables .
- SAGA is created and developed by a small group of developers from the Goettingen Univerisity in Germany (e.g. Andre Ringeler, Olaf Conrad).
- The first SagaGis was released in February 2004, the last one in September 2007.
- SAGA is written in the C++ programming language.
- Program code relies on the GNU General Public License.

Modules



- There are about 120 modules available in SAGA standard edition. This list gives an overview of the variety of implemented methods for:
 - **terrain analysis** (slope, aspect, curvatures, curvature classification, analytical hillshading, sink elimination, flow path analysis, catchment delineation, solar radiation, channel lines, relative altitudes)
 - **simulation of dynamic processes** (nitrogen distributions, erosion, landscape development),
 - **projections, grid tools** (merging, resampling), grid discretisation, grid calculator,
 - **geostatistics** (residual analysis, ordinary and universal kriging, single and multiple regression analysis, variance analysis) etc.

Graphic User Interface



Menu bar

Toolbar

Workspace window

Object Properties window

Tabs

Message window

Case Study: 3D Visualization in SAGA GIS

- During this exercise we will present a sequence of analyses on the dataset for the study area located in the Carpathian mountains.
- We would like to present several analyses performed on the input digital elevation model and several additional datasets.
- Operations on grids and shapefiles will be included.
- From the DEM, analytical hillshading and visibility (viewshed) maps will be created.
- Finally, 3D visualization of the DEM for the Tatra mountains with several additional layers overlaid, will be made.

Case Study: DEM-based 3D Visualization in SAGA GIS

- STEP 0: Importing and displaying DEM of the Carpathians mountain
- STEP 1: Importing and displaying DEM of the Dunajec Valley
- STEP 2: Overlay of protected areas on the DEM
- STEP 3: Creation of DEM for Tatra Mountains
- STEP 4: Analytical hillshading
- STEP 5: Displaying peaks in Tatra Mountains
- STEP 6: Visibility analysis
- STEP 7: 3D View