An open-source tool for automated geodiversity assessment

Márton PÁL & Gáspár ALBERT

ELTE Eötvös Loránd University
Institute of Cartography and Geoinformatics
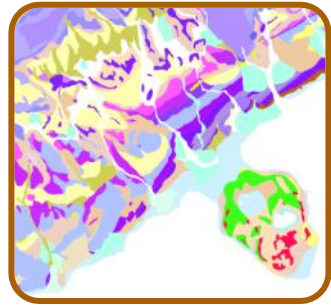
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This presentation participates in OSPP

Outstanding Student & PhD candidate Presentation contest

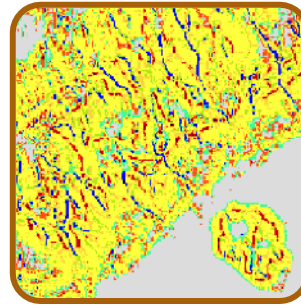# Geodiversity assessment of Hungarian mountainous areas

Geology
Hungary 100k map,
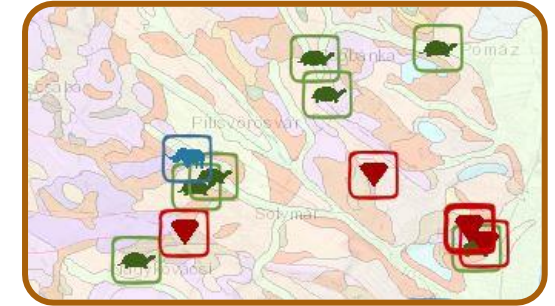AT-SK: 50k map

Pedology
Agrotopo 100k,
AT-SK: 500-750k

Geomorphology I.
Relief: **MERIT** with
geomorphons)

Geomorphology II.
Hydrogr.: derived
from **MERIT** data

Mineral & fossil occ.
MBFSZ + **EGDI data**, fossil
occ. Book (Carp. Bas.)

Country-specific data
(small scale internat.)

Country-specific data
(small scale internat.)

Universal
(variable scale)

Universal
(variable scale)

Partly universal
(fixed scale – data
density is not constant)

Data for producing 5 thematic grids: their sum is the geodiversity index

Automated geodiversity assessment as a QGIS plugin

Geodiversity Calculator v0.95

Automated evaluation based on the Portuguese method.

Test applications:
- The surroundings of Sopron (a master thesis)
- Geoheritage and geotourism course

Automated geodiversity assessment as a QGIS plugin

Choose working folder for resulting files: → **The folder where the plugin will place the results**

Making a grid for the thematic data (grid.gpkg):

Choose a boundary layer: → **A boundary polygon of the area to be evaluated**

Horizontal spacing: m

Vertical spacing: m → **The spatial resolution of the resulting grid**

Rasterize geological & pedological vector data (geol.tif, pedo.tif):

Choose a vector geological layer:

Column name of geological indices: → **The vector layer containing geological formation polygons and the column name that contains formation attributes**

Choose a vector soil map layer:

Column name of soil types: → **The vector layer containing soil type polygons and the column name that contains soil type attributes**
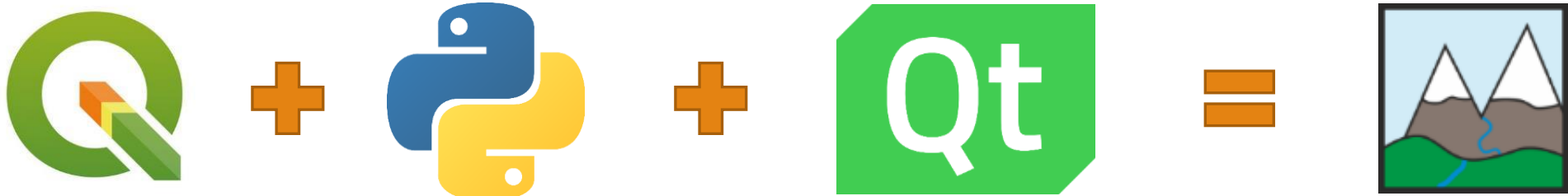
Automated geodiversity assessment as a QGIS plugin

DEM based analysis and evaluation (geomorphon.tif, strahler.tif), and lakes:

Choose a DEM covering your sample area: ➡️ The DEM of the area

Choose vector lakes/seas (polygons) layer: ➡️ Vector water polygons (lakes & seas)

Evaluation of mineralogical and palaeontological features:

Choose vector mineralogy (points) layer: ➡️ Vector point layer of minerals and building stones

Column name of unique minerals:

Choose vector palaeontology (points) layer: ➡️ Vector point layer of fossils

Column name of unique fossils:

Resulting grid layer with calculated geodiversity values:

Name the result geodiversity grid layer: ➡️ The name of the resulting geodiversity layer

Available at: https://github.com/marchello-map/geodiversity_plugin

It will be shortly available from the official QGIS repository too.

Novohrad-Nógrád UGGp

Bükk Region Geopark

Eperjes–Tokaj Mts

Börzsöny

Visegrád, Budai, Vértes, Gerecse, Velence Mts

Fertő, Sopron, Leitha and Kőszeg

Aggtelek, Szalonna and Slovak Karst

Mecsek & Tolna Region

Bakony–Balaton UGGp

Legend:
- 3 - 10
- 10 - 15
- 15 - 19
- 19 - 23
- 23 - 39