Workshop 1 – Geomorphological mapping

Objectives

1. Create and organize a GIS for geomorphological mapping
2. Apply and possibly complete/modify a GM key
3. Draw a geomorphological map from digital documents (topo map, aerial photography, geological map, digital terrain model)

Area

Group A: around Mellingen, river Reuss https://goo.gl/GPjMMK

Group B: around Kleinandelfingen, river Thur https://goo.gl/ndYtgR

Tutorial

QuantumGIS official tutorial: http://docs.qgis.org/2.14/pl/docs/training_manual/

Preparation: base data

Create a new QuantumGIS project. For groups A + B, set CRS **CH1903/LV3 (EPSG:21781)** in Project/Project Properties menu. All data are in this projection system.

Open and organize the base data (topo map, aerial photography, geological features, digital terrain model)

Create an hillshade layer from the DEM (terrain folder) using Raster/Analysis menu.

[optional] Create other layers from the DEM: slope, aspect, roughness, TPI using same menu (or SAGA).

Preparation: own data

Create the data structure for your map using shapefiles; options:

1. **Recommended: 3 shapefiles: points, lines, polygons**
2. 3xN shapefiles, N is the number of mapped geomorphological processes
3. N shapefiles, N is the number of mapped landforms (1 shapefile for each form)

Options 1 and 2 necessitate to use a Rule-based symbology. Option 3 is the most basic (no real data structure), but creates a lot of shapefiles (think about naming policy for the many files).

In order to use rule-based symbology, each shapefiles should have 3 attributes:

1. PROCESS (string, 3) >> will control the color
2. FORM (string) >> will control the symbols
3. ANGLE (int, 3) >> will control the orientation of symbols

Preparation: color and legend

Colors: load geomorpho_colors.gpl from Settings/Options/Colors.

Symbols: load geomorpho_symbols.xml from Settings/Style Manager (optimized for 1:10'000 scale).

In the Style Manager, you can create new symbols (or modify the existing ones) using the Standard colors you have firstly loaded. Proposed symbols are very basic, but you can improve graphic quality using self-made SVG symbols (tutorial: http://docs.qgis.org/2.0/ca/docs/training_manual/basic_map/symbology.html).

Let's map!

Choose you're layer of reference (hillshade or photo).