## Data sources and data preparation

- The chemical and geological soil groups (CGSG resp. soil groups) were generated by combining the information from lithological maps and parent material maps with the geochemical signal from the GEMAS project samples. A more detailed description of the approach can be found in Birke et al. (2014). The chemical and geological soil groups were only determined for the Ap samples.

| Code_CGSG | Chemical and geological soil group |
|---|---|
| alk | alkaline rocks |
| chalk | calcareous rocks |
| green | greenstone |
| loess | loess |
| org | organic soil |
| other | other |
| granite | plutonic felsic rocks |
| prec | Precambrian rocks |
| quartz | quartz rich soil |
| schist | schists |

## Explanation of the downloadable graphic files (*.png, *.pdf)

- The map of the chemical and geological soil groups represent the distribution of chemical and geological soil groups in the project survey area. The presentation is only done for the Ap samples ("CGSG_Ap").
- The scale of the full size map is 1:25 000 000.
- The suffixes “_150_dpi” and “_600_dpi” indicate the native resolution of the graphics.

## Explanation of the ESRI-Shapefiles

- The shapefile is combined in one ZIP file.
- The attribute table of the shapefile includes the following fields:

| Field name | Format | Content |
|---|---|---|
| ID | Double | Each sample of the GEMAS project is uniquely identifiable via its ID. It was assigned at randomisation of the samples (see chapter 6.3.1 in Demetriades et al., 2014). The Ap samples have IDs between 3001 and 5585, the Gr samples between 1 and 2464. |
| Country | String | Country code of the country where the sample was collected[1] |
| Country_ID | Double | Sequential number of the sample within the country specified in the Field "Country". The numbers were assigned separately for the Ap and Gr samples and are not randomised. |
| Code_GCSG | String | Code of the chemical and geological soil group[2] |
| GeoChemSG | String | Chemical and geological soil group in plain text[2] |

[1] AUS - Austria, BEL - Belgium, BOS - Bosnia and Herzegovina, BUL - Bulgaria, CRO - Croatia, CYP - Cyprus, CZR - Czech Republic, DEN - Denmark, EST - Estonia, FIN - Finland, FRA - France, FOM - F.Y.R.O.M., now North Macedonia, GER - Germany, HEL - Greece (Hellas), HUN - Hungary, IRL - Ireland, ITA - Italy, LAV - Latvia, LIT - Lithuania, LUX - Luxembourg, MON - Montenegro, NEL - Netherlands, The, NOR - Norway, POL - Poland, PTG - Portugal, SRB - Serbia, SKA - Slovakia, SLO - Slovenia, SPA - Spain, SWE - Sweden, SIL - Switzerland, UKR - Ukraine, UNK - United Kingdom;
[2] sea table under data sources and data preparation.

- *The coordinate reference* system of the shapefile is EPSG:3035 (ESRI: ETRS_1989_LAEA). Further information can be found at https://epsg.io/3035.

## References


Birke, M., Rauch, U. & Reimann, C. (2014): Supporting Information for Interpretation of Geochemical Maps. In: Reimann, C., Birke, M., Demetriades, A., Filzmoser, P. & O'Connor, P. (eds.): Chemistry of Europe's Agricultural Soils, Part A: Methodology and Interpretation of the GEMAS Data Set. (Geologisches Jahrbuch). B102: 93-102; Stuttgart (Schweizerbart Science Publishers).

Demetriades, A., Reimann, C. & Filzmoser, P. (2014): Evaluation of GEMAS Project Quality Control Results. In: Reimann, C., Birke, M., Demetriades, A., Filzmoser, P. & O'Connor, P. (eds.): Chemistry of Europe's Agricultural Soils, Part A: Methodology and Interpretation of the GEMAS Data Set. (Geologisches Jahrbuch). B102: 47-60; Stuttgart (Schweizerbart Science Publishers).