

---

## Available spatial soil information in the Alps

---

A metadata collection of Alpine soil data



## Imprint

### What this is about?

This report provides an overview of existing spatial soil information in the Alpine countries and points out to which extent the information is useful for the consideration of soils in ecosystem service evaluations.

### Project and funding

Links4Soils (ASP399); EU Interreg Alpine Space

### WP, Task and Deliverable

WPT2 AT2.1 (D.T2.2.1)

### Lead

University of Innsbruck, Institute of Geography, Innrain 52f, 6020 Innsbruck, Austria



### Authors

Elisabeth Schaber<sup>1</sup>, Clemens Geitner<sup>1</sup>

<sup>1</sup>University of Innsbruck

### How to cite

Schaber, E. and Geitner, C. (2020). Available soil information in the Alps. A metadata collection of Alpine soil data. Links4Soils project report.

### Acknowledgements

We would like to thank Jean Babtiste, Emanuele Pintaldi, Jože Hladnik, and Lorenz Hänchen for collecting metadata of spatial soil information in France, Germany, Italy and Slovenia. We also thank Janez Bergant for his valuable comments to improve the report.

### Date

April 2020

## Abstract

To support decisions regarding more sustainable soil management, including sustaining and improving the ecosystem services of soils and reducing soil threats, spatial soil information is essential. Although many datasets do exist in the Alpine region, knowledge about their existence, characteristics, and accessibility is often lacking. To overcome this knowledge gap, a metadata collection of relevant soil data sets covering areas in the Alps was created within the Alpine Space Links4Soils project. An analysis of the metadata shows how fragmented the available soil information is, depending on countries, administrative regions, scale, classification, included soil parameters and covered land-use types. Considering the present data situation, it is not feasible to create a transnational harmonised dataset to evaluate soil ecosystem services. The results of this collection can be accessed via the Alpine Soils platform ([www.alpinesoils.eu](http://www.alpinesoils.eu)), where they are implemented in the form of a Web-GIS and a Geonet-work node.

|  |           |
|--|-----------|
| <b>Imprint</b>                             | <b>0</b>  |
| <b>Abstract</b>                            | <b>1</b>  |
| <b>1 Introduction: Soils in the Alps</b>   | <b>3</b>  |
| <b>2 Soil data collection</b>              | <b>4</b>  |
| 2.1 Used procedure to collect the metadata | 4         |
| 2.2 Results of the metadata collection     | 5         |
| <b>3 Soil data and ecosystem services</b>  | <b>7</b>  |
| <b>4 Outlook</b>                           | <b>8</b>  |
| <b>References</b>                          | <b>9</b>  |
| <b>Attachment</b>                          | <b>10</b> |
| <b>About the Links4Soils project</b>       | <b>37</b> |

# 1 Introduction: Soils in the Alps

As in other regions, soils in the Alps perform a myriad of functions and contribute thereby to numerous vital ecosystem services. Soils support agricultural and silvicultural production, regulate water, nutrient and carbon cycles, support local cooling, purify water and can serve as natural or cultural archives (*Alpine Convention 1998*). According to the high variability of soil-forming factors, i.e. parent material, climate, topography, vegetation, land use and time, soils develop quite divers in the Alps (*Jenny 1980; Baruck et al. 2016*). This pedodiversity – and the respective variety of soil properties – causes a spatially differentiated fulfilment of soil functions and hence, provision of soil-based ecosystem services. Apart from the performance of soils regarding soil functions and ecosystem services, soil properties also determine how susceptible soils are towards soil threats, such as erosion, compaction, loss of organic matter and nutrients, or acidification (*FAO 2015; Geitner et al. 2017*).

In order to maximize the provision of ecosystem services provided by soils and to minimize soil threats, spatial soil information, which allows the respective assessments, is required. Thereby, a great challenge is the search for and the subsequent access to existing data sets because soil data sets in the Alpine countries are created, owned, and managed by various institutions, often on the regional scale. The lack of central data management centres, e.g. on a national or even international basis, impairs the search for and the subsequent access to existing soil data sets.

This report shall overcome this shortcoming by providing a collection of metadata to all relevant soil data sets covering areas in the Austrian, French, German, Italian and Slovenian Alps. It also provides a summary of the feasibility to consider soils in ecosystem service assessments based on those data sets.

## 2 Soil data collection

For all kinds of soil management and soil conservation, there is a need for spatial soil information. Only the knowledge about inherent and manageable soil properties allows to optimally manage soils and sustain the provision of soil-based ecosystem services.

However, to find out which soil information is available in the area of interest and how it can be accessed often turns out as quite complicated. The main obstacle is that soil data sets are managed by various institutions. Thus, there is no standardized presentation of data and metadata and as a consequence, no search engine or something similar can be installed. Further, the provided metadata is often quite rudimentary lacking important information such as mapping scale, date of survey, and format. Even the crucial information, i.e. which soil properties are included in a data set, is sometimes missing.

### 2.1 Used procedure to collect the metadata

In the scope of the Alpine Space project “Links4Soils,” a team of soil experts from Austria, France, Germany, Italy and Slovenia collected information about 134 existing soil datasets that cover areas within the Alpine Space region. Datasets that only contained information about soil-forming factors, e.g. geology, topography, vegetation, land use, were not included in the selection of soil datasets. The search for datasets in Austria, France, Italy and Slovenia was done before autumn 2017; the metadata about German datasets was collected until autumn 2019. Therefore, new datasets might not be included in the collection. Furthermore, it cannot be ruled out that some datasets were missed, especially local ones. Information on Swiss datasets were not collected for two reasons: First, there was no Swiss project partner in Links4Soils and second, most of the information is scattered over 26 cantons and an overview is not existing.

As listed in Table 1, the metadata of interest was title, owner, author, date created and updated, country, covered area, covered land use, data type (raster/polygon/point), scale, included site and soil parameters, access conditions, link to the data source, contact information, and additional comments.

Concerning the data type, it was classified into three categories, i.e. raster, polygon, and point. Traditional soil surveys are based on soil profile descriptions, thus, as a result, point-related soil information is obtained. To get area-based information, an upscaling process is required. This can be done by manual delineation of soil units by soil experts or model-based by so-called digital soil mapping (DSM). The idea of both approaches is similar: the point-related information is transferred to other locations by considering the spatial distribution of soil-forming factors (*McBratney et al. 2003*). Consequently, soil information is available in different formats. Original information is point-related and derived information is linked to polygons (created expert-based or by DSM) or raster cells (scan of analogue, expert-based map or created by DSM).

Table 1: Metadata category with an explanation used to harmonise the presentation of the information.

| Metadata category        | Explanation  |
|--------------------------|--|
| Title                    | Title of the dataset in the original national language   |
| English title            | Title of the dataset in the English language   |
| Owner                    | Owner of the data and rights   |
| Author                   | Authors and editors of data  |
| Date created             | Period of the initial survey: xxxx-yyyy or<br>Date of first publication: yyyy  |
| Date updated             | Year of the last update: yyyy and/or<br>Period of revision: n years / constantly   |
| Country                  | Country or Alpine wide   |
| Covered region(s)        | List of covered regions (comma separated) OR "all" if all Alpine regions of the respective country OR defined part of regions, municipalities  |
| Covered land-use type    | Forest/Agriculture/Urban/Others  |
| Data type                | Points/Polygon/Raster/Analogue   |
| Mapping scale            | Map resolution: 1:XXX or<br>Grid dimension: XXxYY m or<br>Number of points: No. or No./ha  |
| Included soil parameters | Included primary and secondary (derived) soil parameters   |
| Included site parameters | Exposition, slope, relief unit, substrate,...  |
| Access conditions        | Free access / User registration needed/ Free access for non-commercial usage/ Data ownership need to be attributed / Access fee / case-by-case.<br>More information about how to access the soil data can be found in the comment of each metadata sheet.  |
| Contact                  | Contact details: address, email, phone and responsible/ contact person if applicable (to access/acquire/refer dataset)   |
| Weblink                  | Weblinks (URL) to data description, viewer or download.  |
| Comments                 | The comments section covers descriptive information about the dataset that is not included in the above-mentioned items. Examples for further information are: <ul style="list-style-type: none"> <li>• Motivation of data set creation</li> <li>• Spatial or thematic limitations</li> <li>• Information if the data is parcel-specific?</li> </ul> |

## 2.2 Results of the metadata collection

In the attachment, the metadata of the 138 found data sets is presented in a table. The table contains with a few exceptions – due to space restrictions – all items that were introduced in chapter 2.1.

It is also possible to access the results online on the Alpine Soil Platform ([www.alpinesoils.eu](http://www.alpinesoils.eu)), which was established in the scope of the Links4Soils project, through the Alpine WebGIS viewer and the Geonetwork node:

The Alpine WebGIS viewer: <https://alpinesoils.eu/soil-info/alpine-soil-web-gis/>

This viewer shows the spatial extents of the datasets. It further provides a link to the metadata record in the geonetwork node implemented on the Alpine Soils Platform.

The geonetwork node: <https://alpinesoils.eu/geonetwork-node/>

The geonetwork node enables to search for particular soil data sets and contains almost all collected metadata including a weblink to the data source itself. Some of the collected metadata information not included in the geonetwork node, i.e. 'covered regions' (visually by showing the extent of a dataset (WebGIS viewer) and as a keyword (geonetwork node)), 'covered land use' (only as a keyword), and 'grid dimension' of 'mapping scale'.



### 3 Soil data and ecosystem services

The question of whether it is possible to create a transnational soil dataset with the most important soil parameters has been brought up in different regions. However, it depends on the focus of interests and particular research questions, which soil parameters we identify as most important. If the focus lies on the consideration of soil information in ecosystem services evaluations – as within Links4Soils – a small number of soil properties can be identified as so-called key soil properties. Those properties are essential for the evaluation of soil functions or the contribution of soils to the delivery of ecosystem services. An analysis of numerous studies allowed *Greiner et al. (2017)* to identify the most relevant soil properties as humus content, pH-value, texture, stone content, bulk density, and hydromorphic properties.

A closer look at the datasets of the individual countries shows that it is at the moment not possible to provide this data. In some region, e.g. the France Alps, maps of soil properties are completely lacking and in others, e.g. the Austrian Alps, such information is only existing for agricultural soils.

## 4 Outlook

Towards more sustainable soil management, a high density of sound soil information is required. Only on this basis, soil threats can be avoided and soil ecosystem services can be sustained or improved.

The current data situation in the Alps is still inadequate for a widespread and comparable soil evaluation. Neither the density nor the quality meets the requirements. Some selected pilot areas or progressive regions are exceptions and can serve as case study areas for further research regarding soil ecosystem services and soil threats.

Two approaches can help to reduce the lack of data: a) soil surveys and b) digital soil mapping. With digital soil mapping, new soil data can be derived from existing data of other soil parameters or soil-forming factors. In comparison to traditional soil survey – where soil experts need to dig soil profiles, take and analyse samples – digital soil mapping usually needs fewer resources but on the other hand, is prone to uncertainties. A combination of both approaches is the most promising way to establish a basis of soil information that can help to protect the valuable, yet vulnerable soils in the Alps.

## References

- Alpine Convention (1998). Protocol on the implementation of the Alpine Convention of 1991 in the field of soil conservation (Soil Conservation Protocol). [<http://www.alpconv.org/en/convention/protocols/Documents/SoilProtocolEN.pdf>, last accessed 27.01.2019].
- Baruck, J., Nestroy, O., Sartori, G., Baize, D., Traidl, R., Vrščaj, B., Bräm, E., Gruber, F.E., Heinrich, K. and Geitner, C. (2016). Soil classification and mapping in the Alps: the current state and future challenges. *Geoderma* 264 (Part B), 312-331.
- FAO (2015). Understanding Mountain Soils: A contribution from mountain areas to the International Year of Soils 2015, by Romeo, R., Vita, A., Manuelli, S., Zanini, E., Freppaz, M. & Stanchi, S. Rome, Italy.
- Geitner, C., Baruck, J., Freppaz, M., Godone, D., Grashey-Jansen, S., Gruber, F.E., Heinrich, K., Papritz, A., Simon, A., Stanchi, S., Traidl, R., von Albertini, N. and Vrščaj, B. (2017). Soil and land use in the Alps – Challenges and examples of soil survey and soil data use to support sustainable development. In: Pereira, P., Brevik, E.C., Munoz-Rojas, M., Miller, B. (eds.). Soil mapping and process modelling for sustainable land use management. Amsterdam, Elsevier, 221-292.
- Greiner, L., Keller, A., Grêt-Regamey A. and Papritz A. (2017). Soil function assessment: review of methods for quantifying the contribution of soils to ecosystem services. *Land Use Policy* 69, 224-237.
- Jenny, H. (1980). *The Soil Resource, Origin and Behaviour*. New York, Springer-Verlag.
- McBratney, A.B., Mendocas Sanots, M.L. and Minasny, B. (2003). On digital soil mapping. *Geoderma* 117, 3-52.

## Attachment

The following table contains all metadata that was collected until September 2019 with two exceptions: Due to space restrictions, the weblinks are only included if no other contact details are provided. Comments, which are sometimes quite extensive, were also omitted.

Also due to a lack of space, individual soil properties of some Austrian datasets are summarized. In particular, only 'organic pollutants' is listed, if the soil properties contain one, a set, or all of the following pollutants: acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, dibenzo(a,h)anthracene, fluorene, indeno(1,2,3-c,d)pyrene, phenanthrene, benzo(e)pyrene, coronene, triphenylene, T4CDD, P5CDD, H6CDD, H7CDD, O8CDD, T4CDF, P5CDF, H6CDF, H7CDF, O8CDF, 2,3,7,8-T4CDD, 1,2,3,7,8-P5CDD, 1,2,3,4,7,8-H6CDD, 1,2,3,6,7,8-H6CDD, 1,2,3,7,8,9-H6CDD, 1,2,3,4,6,7,8-H7CDD, 2,3,7,8-T4CDF, 1,2,3,7,8-P5CDF, 2,3,4,7,8-P5CDF, 1,2,3,4,7,8-H6CDF, 1,2,3,6,7,8-H6CDF, 1,2,3,7,8,9-H6CDF, 2,3,4,6,7,8-H6CDF, 1,2,3,4,6,7,8-H7CDF, 1,2,3,4,7,8,9-H7CDF, sum PCDD, sum PCDF, TCDD-equivalent BGA, TCDD-equivalent I-TEF, PCB 28, PCB 52, PCB 101, PCB 138, PCB 153, PCB 180, PCB 77, PCB 126, PCB 169, PCB 81, op' DDT, pp' DDT, op' DDE, pp' DDE, hexachlorbenzol, op' DDD, pp' DDD, pentachlorophenol (PCP), alpha-HCH, beta-HCH, gamma-HCH (Lindan), delta-HCH, epsilon-HCH, sum-HCH Isomers.

The table also holds ns and N/A values, which means that the information was not specified or not available, respectively.

| Title                           | English title                                     | Owner  | Author  | Date created | Date updated                                  | Country        | Covered region(s)                                  | Covered land-use type | Data type          | Mapping scale                                 | Included soil parameters   | Included site parameters   | Access conditions | Contact or weblink  |
|---------------------------------|---|--|---|--------------|---|----------------|--|-----------------------|--------------------|---|--|--|-------------------|---|
| Carta ecopedologica delle Alpi  | Ecopedological Map of The Alps (ECALP)            | N/A  | Carried out by European Soil Bureau on behalf of Italian Ministry of Environment  | 2003         | N/A   | Alpine wide    | Piemonte, Lombardia, Veneto, Friuli Venezia Giulia | N/A                   | Points             | 1:250,000                                     | N/A  | N/A  | Free access       | <a href="http://geoportale.regione.liguria.it/geoviewer/pages/apps/repertorio/repertorio.html?id=151">http://geoportale.regione.liguria.it/geoviewer/pages/apps/repertorio/repertorio.html?id=151</a> |
| Bodenübersichtskarte            | General Soil Map (Austria)                        | Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW) | Institute of Water Management, Hydrology and Hydraulic Engineering (IWHW), University of Natural Resources and Life Sciences (BOKU), Vienna | 1997         | Year of last update: 2005                     | Austria        | Austria  | All                   | Polygon            | 1:1,000,000                                   | Soil type  | N/A  | Access fee        | Order: office@kunstundkulturverlag.at; Tel.:+43 1 587855  |
| Bodentypen Karte Tirol          | Soil Types of Tyrol, South Tyrol and East Tyrol   | Department of Geography, University of Innsbruck                             | Department of regional studies, University of Innsbruck   | 1972         | No update                                     | Austria, Italy | Tyrol, South Tyrol                                 | All                   | Analogue           | 1:300,000                                     | Soil type  | N/A  | Access fee        | Order and Information: Department of Geography, University of Innsbruck or <a href="http://tirolatlas.uibk.ac.at/analogue-boden.html">http://tirolatlas.uibk.ac.at/analogue-boden.html</a>            |
| Karte der Bodentypen Kärnten    | Soil Types Carinthia                              | Provincial government Carinthia  | Based on the map from: Hansely & Anderle  | 1973         | No update                                     | Austria        | Carinthia  | All                   | Polygon            | 1:50,000                                      | Soil type  | N/A  | Free access       | Amt der Kärntner Landesregierung; Abt8 - Kompetenzzentrum Umwelt, Wasser und Naturschutz; UA IT-Umweltdaten und KAGIS; Tel: +435053618356   |
| Bodentypen Karte Oberösterreich | Soil Types Upper Austria                          | Provincial government of Upper Austria                                       | ns  | ns           | ns  | Austria        | Upper Austria                                      | All                   | Points             | Number of Points: 19                          | Soil type  | N/A  | Free access       | Digitales Oberösterreichisches Rauminformation-System [DORIS]<br>E-Mail: <a href="mailto:doris.geol.post@ooe.gv.at">doris.geol.post@ooe.gv.at</a>   |
| Bodenschätzung                  | Soil Taxation Survey / Agricultural Soil Taxation | Finance authorities  | Financial administration in cooperation with the Federal Surveying Office   | 1947         | Period of revision: constantly (ca. 30 years) | Austria        | Austria  | Agricultural land     | Points and Polygon | 1:2,000 or 1:2,880 one boring every 40 meters | Standard sites: horizon sequence, horizon thickness, soil moisture, humus form, texture, coarse soil content, carbonate, storage, consistency, structure, pores, soil colour, other characterisations (concretions, rooting), soil type, water conditions, substrate, root penetration depth, and others | Standard sited: Number of cadastral community, property number, altitude, relief, exposition, climate level (macro and local (temperature, precipitation, wind)), cultivation type; Soil taxation map: Number of cadastral community, cultivation type | Access fee        | E-Mail: kundenservice@bev.gv.at; <a href="http://www.bev.gv.at/">www.bev.gv.at/</a> ; <a href="http://www.bev.gv.at/">http://www.bev.gv.at/</a>   |

| Title  | English title  | Owner   | Author  | Date created         | Date updated                                   | Country | Covered region(s) | Covered land-use type | Data type          | Mapping scale  | Included soil parameters  | Included site parameters  | Access conditions                         | Contact or weblink  |
|--|--|---|---|----------------------|--|---------|-------------------|-----------------------|--------------------|--|---|---|---|---|
| Bodenkartierung - eBOD - Digitale Bodenkarte | Soil Management Survey - Digital Soil Map eBod           | The Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management  | Austrian Research Centre for Forests (BFW)  | 1958                 | constantly                                     | Austria | Austria           | Agricultural land     | Polygon            | 1:25,000 on average one boring per hectare                             | coarse soil content, horizon thickness, dry bulk density, texture, humus content, humus form, lime content, soil reaction, substrate (redoximorphic features), water permeability, available water capacity (aFC), value level arable land, value level pasture, soil type. | slope, ground water influence/level, soil erosion   | Free access                               | Michael Wandl<br>michael.wandl@bfw.gv.at<br>Tel.: +43-1-878 38-1213   |
| Forstliche Standortkartierung                | Forest Site Mapping (Austria)                            | Institute of forest ecology, BFW; Institute of forest ecology, University of Agricultural Sciences; working group on site mapping; Oesterr. Forst Verein; forestry authorities and Chambers of Agriculture of the federal provinces | Institute of forest ecology, BFW; Institute of forest ecology, University of Agricultural Sciences; working group on site mapping; Oesterr. Forst Verein; forestry authorities and Chambers of Agriculture of the federal provinces | Late 1950s and 1960s | New site mapping in various regional projects. | Austria | Austria           | Forest                | Points and Polygon | 1:10,000, 1:5,000 or 1:25,000  | soil type, humus form, texture, horizon sequence, structure, coarse soil content, mottling/concretions, carbonates, rooting, earth worm activity and others   | exposition, slope, extend of relief unit, substrate,  | Only accessible under specific conditions | Abteilung für Standort und Vegetation<br>Seckendorff-Gudent-Weg 8, A-1131 Wien<br>Abteilungsleitung Dipl. ing. Michael Englisch<br>Tel: +43 (1) 878 38-1203<br>Fax: +43 (1) 878 38-1250<br>E-Mail: michael.englisch@bfw.gv.at |
| Substratkarte Tirol                          | Substratum Map Tyrol                                     | Provincial government Tyrol   | Provincial government Tyrol   | 2008-2017            | N/A  | Austria | Tyrol             | All                   | Polygon            | on forest roads in different distances; no grid                        | grain size composition, facies, average depth, carbon content, bulk density; substrate type   | mesorelief  | Free access                               | post@tirol.gv.at  |
| Waldtypisierung Tirol                        | Forest Stand Type Characterization Tyrol & Substrate Map | Provincial government Tyrol   | Provincial government Tyrol   | 2003-2017            | N/A  | Austria | Tyrol             | Forest                | Points and Polygon | 400 m <sup>2</sup> per mapping point; GIS polygons >3500m <sup>2</sup> | soil type, humus form, texture, horizon sequence, structure, coarse soil content, mottling/concretions, carbonates, rooting, compactness, pH value, substrate   | exposition, slope, altitude, extend of relief unit, hydrologic balance, historical land use, percentage rock and debris | Free access                               | post@tirol.gv.at  |
| Bodenfunktionsskarte Tirol                   | Soil function map Tyrol                                  | Provincial government Tyrol   | Provincial government Tyrol   | 2017                 | N/A  | Austria | Tyrol             | Agricultural land     | Polygon            | 1:2,000 - 1:5,000  | Habitat for soil organisms, habitat potential for plant communities, natural soil fertility, runoff regulation, filtering and buffering of pollutants   | N/A   | Free access                               | post@tirol.gv.at  |
| Bodenfunktionsskarte Oberösterreich          | Soil function map Upper Austria                          | Provincial government Upper Austria   | Provincial government Upper Austria   | 2013                 | N/A  | Austria | Upper Austria     | Agricultural land     | Polygon            | 1:25,000   | Habitat for soil organisms, habitat potential for plant communities, natural soil fertility, runoff regulation, filtering and buffering of pollutants   | N/A   | Free access                               | doris.geol.post@ooe.gv.at   |
| Bodenfunktionsskarte Salzburg                | Soil function map Salzburg                               | Provincial government Salzburg  | Provincial government Salzburg  | 2015                 | ns   | Austria | Salzburg          | Agricultural land     | Polygon            | 1:2,000 - 1:5,000  | Habitat for soil organisms, habitat potential for plant communities, natural soil fertility, runoff regulation, filtering and buffering of pollutants   | N/A   | Free access                               | sagis@salzburg.gv.at  |

| Title                                 | English title                        | Owner                               | Author                                       | Date created   | Date updated | Country | Covered region(s) | Covered land-use type | Data type | Mapping scale   | Included soil parameters  | Included site parameters   | Access conditions | Contact or weblink       |
|---------------------------------------|--------------------------------------|-------------------------------------|--|--|--------------|---------|-------------------|-----------------------|-----------|---|---|--|-------------------|--------------------------|
| Burgenländische Bodenzustandsinventur | Environmental Soil Survey Burgenland | Provincial government of Burgenland | Ministry and Research Centre for Agriculture | Period of initial survey: 1992-1993<br>Date of first Publication: 1996 | ns           | Austria | Burgenland        | Agricultural land     | Points    | Grid dimension: 4000x4000 m<br>Number of points: 174                | H+, K, N, P, CaCO <sub>3</sub> , humus %, pH-value, clay %, silt %, sand %, electric conductivity, Al, As, Ca, Cd, Co, Cr, Cu, Fe, Hg, Mg, Mn, Mo, Na, Ni, Pb, Se, Zn, horizon boundary, humus content in agricultural soils, skeleton content, soil colour wetted, soil colour, mottling, concretions, carbon content at the site, primary soil structure, clarity of aggregate formation 1, size of aggregates, porosity, root penetration intensity, bioturbation, texture at the site, humus type in agricultural soils   | exposition, slope class, macro relief (land form), micro relief, surface inflow and surface runoff, ground water and perched surface water, slope water, soil water conditions, parent material, carbonate content of parent material, grain size of parent material, soil type, carbonate in profile, root penetration depth, land use, current crop, fertiliser and other substances, pesticides, farm size, agricultural utilised area, main emitter, use of pesticides | Free access       | Boden@umweltbundesamt.at |
| Bodenzustandsinventur Kärnten 1999    | Environmental Soil Survey Carinthia  | Provincial government of Carinthia  | Provincial government of Carinthia           | Date of first Publication: 1999  | ns           | Austria | Carinthia         | Agricultural land     | Points    | Grid dimension: 2750x2750 m or 1380x1380 m<br>Number of points: 481 | B, F, H+, K, N, P, S, V, CaCO <sub>3</sub> , TC, pH-value, SO <sub>4</sub> , clay %, fine silt %, medium silt %, coarse silt %, fine sand %, medium sand %, coarse sand %, texture (lab), dry bulk density, electric conductivity, organic pollutants, Al, As, Ca, Cd, Cl, Co, Cr, Cu, Fe, Hg, Mn, Mg, Mo, Na, Ni, Pb, Se, Zn, horizon boundary, humus content in agricultural soils, skeleton content, soil colour wetted, mottling, carbon content at the site, primary soil structure, clarity of aggregate formation 1, size of aggregates, porosity, root penetration intensity, bioturbation, texture at the site | exposition, slope class, macro relief (land form), horizontal extension of land form, vertical extension of land form, micro relief, ground water and perched surface water, slope water, soil water conditions, parent material, soil type, carbonate in profile, root penetration depth, land use, soil type   | Free access       | Boden@umweltbundesamt.at |

| Title   | English title   | Owner                                  | Author                                 | Date created   | Date updated | Country | Covered region(s) | Covered land-use type | Data type | Mapping scale   | Included soil parameters  | Included site parameters   | Access conditions | Contact or weblink       |
|---|---|--|--|--|--------------|---------|-------------------|-----------------------|-----------|---|---|--|-------------------|--------------------------|
| Niederösterreichische Bodenzustandsinventur                     | Environmental Soil Survey Lower Austria                   | Provincial government of Lower Austria | Provincial government of Lower Austria | Date of first Publication: 1994  | ns           | Austria | Lower Austria     | Agricultural land     | Points    | Grid dimension: 2750x2750 m<br>Number of points: 1449 | H+, K, N, P, CaCO <sub>3</sub> , humus %, pH-value, clay %, silt %, sand %, fine sand %, medium sand %, coarse sand %, electric conductivity, total pores volume, coarse pores content, medium pores content, fine pores content, Al, As, Ca, Cd, Co, Cr, Cu, Fe, Hg, Mg, Mn, Mo, Na, Ni, Pb, Se, Zn, horizon boundary, humus content, skeleton content, soil colour wetted, soil colour, mottling, marbling, concretions, bands, coatings, carbon content at the site, primary soil structure, clarity of aggregate formation 1, size of aggregates, root penetration intensity, bioturbation, texture at the site, humus type | exposition, slope class, macro relief (land form), meso relief, micro relief, surface inflow and surface runoff, lowest depth to water table, highest depth to water table, ground water and perched surface water, slope water, soil water conditions, parent material, carbonate content of parent material, greater geological areas, soil type, carbonate in profile, root penetration depth, land use, agricultural producing areas, soil type  | Free access       | Boden@umweltbundesamt.at |
| Oberösterreichischer Bodenkataster - Bodenzustandsinventur 1993 | Soil Cadastre and Environmental Soil Survey Upper Austria | Provincial government of Upper Austria | Ministry for Agrobiologie              | Period of initial survey: 1990-1993<br>Date of first Publication: 1993 | ns           | Austria | Upper Austria     | Agricultural land     | Points    | Grid dimension: 2750x2750 m<br>Number of points: 880  | F, H+, K, N, P, V, CaCO <sub>3</sub> , humus %, pH-value, CEC, SO <sub>4</sub> , clay %, silt %, sand %, fine silt %, coarse silt %, texture (lab), dry bulk density, electric conductivity, organic pollutants, Al, As, Ca, Cd, Cl, Co, Cr, Cu, Fe, Hg, Mn, Mg, Mo, Na, Ni, Pb, Se, Tl, Zn, horizon boundary, humus content, skeleton content, soil colour wetted, mottling, concretions, carbon content at the site, primary soil structure, clarity of aggregate formation 1, size of aggregates, porosity, root penetration intensity, bioturbation, texture at the site, humus type  | exposition, slope class, macro relief (land form), surface inflow and surface runoff, ground water and perched surface water, slope water, soil water conditions, parent material, carbonate content of parent material, soil type, carbonate in profile, root penetration depth, land use, type of agriculture, fertiliser and other substances, pesticides, main emitter, direction emitter location, distance to main emitter, soil value according to the department of soil science, landslides risk, flooding risk, debris flow risk, landscape zone, erosion risk, mapping zone according to the department of soil science, lithology, primary texture | Free access       | Boden@umweltbundesamt.at |



| Title                               | English title                      | Owner                             | Author   | Date created  | Date updated | Country | Covered region(s) | Covered land-use type             | Data type | Mapping scale  | Included soil parameters  | Included site parameters  | Access conditions | Contact or weblink       |
|-------------------------------------|------------------------------------|-----------------------------------|--|---|--------------|---------|-------------------|-----------------------------------|-----------|--|---|---|-------------------|--------------------------|
| Salzburger Bodenzustandsinventur    | Environmental Soil Survey Salzburg | Provincial government of Salzburg | Provincial government of Salzburg  | Date of first Publication: 1993                                       | ns           | Austria | Salzburg          | Agricultural land, Forest         | Points    | Grid dimension: 2750x2750 m<br>Number of points: 462 | B, H+, K, N, P, S, V, CaCO <sub>3</sub> , TOC, pH-value, clay %, fine silt %, medium silt %, coarse silt %, fine sand %, medium sand %, coarse sand %, Al, As, Ca, Cd, Co, Cr, Cu, Fe, Hg, Mn, Mg, Mo, Na, Ni, Pb, Zn, horizon boundary, humus content in agricultural soils, skeleton content, soil colour wetted, mottling, concretions, carbon content at the site, primary soil structure, clarity of aggregate formation 1, size of aggregates, root penetration intensity, bioturbation, texture at the site, humus type in agricultural soils, original specification of horizon characteristics, porosity mapping | exposition, slope class, macro relief (land form), horizontal extension of land form, vertical extension of land form, micro relief, surface inflow and surface runoff, lowest depth to water table, highest depth to water table, ground water and perched surface water, slope water, soil water conditions, parent material, base-richness of parent material, carbonate content of parent material, upper layers, soil type, carbonate in profile, humus form, root penetration depth, land use, forest functions according to forest development plan, climatic altitudinal belts, weather prior period, soil vegetation forest, degree of green area, current crop, fertiliser and other substances, main emitter, distance to main emitter, further emitters | Free access       | Boden@umweltbundesamt.at |
| Steiermärkische Bodenschutzberichte | Soil protection reports of Styria  | Provincial government of Styria   | Provincial government of Styria, Landschaftlich-chemische Versuchs- und Untersuchungsanstalt (Hrsg.) | Period of initial survey: 1986-2007<br>Date of Publication: 1998-2016 | ns           | Austria | Styria            | Agricultural Land, Forest, Others | Points    | Number of points: 1000                               | B, F, K, P, CaCO <sub>3</sub> , humus %, pH-value, clay %, silt %, sand %, organic pollutants, As, Ca, Cd, Co, Cr, Cu, Fe, Hg, Mn, Mg, Mo, Na, Ni, Pb, Zn, date of sampling, original sample number, size and type of sampling area   | exposition, slope class, macro relief (land form), horizontal extension of land form, vertical extension of land form, micro relief, parent material, soil type, land use   | Free access       | Boden@umweltbundesamt.at |

| Title   | English title  | Owner                               | Author                      | Date created   | Date updated | Country | Covered region(s) | Covered land-use type     | Data type | Mapping scale  | Included soil parameters  | Included site parameters   | Access conditions | Contact or weblink       |
|---|--|-------------------------------------|-----------------------------|--|--------------|---------|-------------------|---------------------------|-----------|--|---|--|-------------------|--------------------------|
| Bericht über den Zustand der Tiroler Böden 1988, Bodenkataster                | Report to the status of Tyrolean soils 1988, soil cadastre                 | Provincial government Tyrol         | Provincial government Tyrol | Period of initial survey: 1987-1988<br>Date of Publication: 1989 | ns           | Austria | Tyrol             | Agricultural land, Forest | Points    | Number of points: 658  | K, N, P, CaCO <sub>3</sub> , TOC, pH-value, Al, Ca, Cd, Cs, Cu, Fe, Mg, Mn, Na, Pb, Zn, material of humus layer, storage type of humus layer, skeleton content, mottling, concretions, carbon content at the site, root penetration intensity, texture at the site, smeariness            | exposition, slope class, macro relief (land form), horizontal extension of land form, vertical extension of land form, micro relief, surface inflow and surface runoff, current depth to water table, lowest depth to water table, highest depth to water table, ground water and perched surface water, slope water, soil water conditions, parent material, base-richness of parent material, carbonate content of parent material, upper layers, greater geological areas, soil type, humus form, root penetration depth, land use, forest functions according to forest development plan, soil vegetation forest, degree of green area, landscape zone, litter use, wood pasture, current forest community, elevation difference to valley bottom, primary texture | Free access       | Boden@umweltbundesamt.at |
| Bericht über den Zustand der Tiroler Böden 1996, erste Wiederholungsbeprobung | Report to the status of Tyrolean soils, soil cadastre 1996; first revision | Provincial government Tyrol         | Provincial government Tyrol | Period of initial survey: 1993-1996<br>Date of Publication: 1996 | ns           | Austria | Tyrol             | Agricultural land, Forest | Points    | Number of points: 110  | H+, K, K40, N, P, U238, CaCO <sub>3</sub> , TOC, pH-value, clay %, silt %, sand %, electric conductivity, water content at analysis -dry matter, Al, As, Ca, Cd, Cr, Cs, Cu, Fe, Hg, Mg, Mn, Na, Ni, Pb, Th, Zn, date of sampling, original sample number, size and type of sampling area | land use   | Free access       | Boden@umweltbundesamt.at |
| Lebensraum Vorarlberg: Bodenzustandserhebung Vorarlberg 1986                  | Habitat Vorarlberg: Soil status survey Vorarlberg 1986                     | Provincial government of Vorarlberg | Husz, G.                    | Period of initial survey: 1986<br>Date of Publication: 1986      | ns           | Austria | Vorarlberg        | Agricultural land, Forest | Points    | Grid dimension forest: 4000x4000 m<br>Grid dimension agricultural land: 1000x1000<br>Number of points: 437 | B, K, N, P, V, CaCO <sub>3</sub> , TOC, pH-value, Al, As, Ca, Cd, Co, Cr, Cu, Fe, Hg, Mn, Mo, Na, Ni, Pb, Zn, primary soil structure, clarity of aggregate formation 1, texture at the site, humus type in agricultural soils, original specification of horizon characteristics          | exposition, slope class, macro relief (land form), micro relief, ground water and perched surface water, land use, main emitter, erosion   | Free access       | Boden@umweltbundesamt.at |

| Title   | English title                                  | Owner   | Author  | Date created                    | Date updated | Country | Covered region(s)   | Covered land-use type | Data type | Mapping scale  | Included soil parameters   | Included site parameters   | Access conditions | Contact or weblink       |
|---|--|---|---|---------------------------------|--------------|---------|---------------------|-----------------------|-----------|--|--|--|-------------------|--------------------------|
| Österreichische Waldboden-Zustandsinventur (WBZI)           | Forest Soil Monitoring System (FSMS)           | Austrian Research Centre for Forests (BFW)  | Austrian Research Centre for Forests (BFW)                                      | Date of first Publication: 1992 | Constantly   | Austria | Austria             | Forest                | Points    | Grid dimension: 8700 m x 8700 m<br>Number of points: 514 | H+, K, N, P, S, CaCO <sub>3</sub> , TOC, pH-value, clay %, silt %, sand %, fine silt %, medium silt %, coarse silt %, Al, Ca, Cd, Co, Cr, Cu, Fe, Mn, Mg, Ni, Pb, Zn, horizon boundary, material of humus layer, storage type of humus layer, skeleton content, soil colour wetted, mottling, concretions, primary soil structure, clarity of aggregate formation 1, porosity, root penetration intensity, texture at the site, smeariness | exposition, slope class, macro relief (land form), horizontal extension of land form, vertical extension of land form, micro relief, surface inflow and surface runoff, lowest depth to water table, highest depth to water table, ground water and perched surface water, slope water, soil water conditions, parent material, upper layers, soil type, carbonate in profile, humus form, root penetration depth, land use, climatic altitudinal belts, forest growing areas, soil vegetation forest, degree of green area, primary texture | Free access       | Boden@umweltbundesamt.at |
| Bericht über den Zustand des Waldbodens in Niederösterreich | Environmental Forest Soil Survey Lower Austria | Provincial government Lower Austria   | Provincial government Lower Austria, Austrian Research Centre for Forests (BFW) | 1991                            | ns           | Austria | Lower Austria       | Forest                | Points    | Number of points: 90                                     | H+, K, N, P, CaCO <sub>3</sub> , TOC, pH-value, clay %, sand %, fine silt %, medium silt %, coarse silt %, Al, Ca, Co, Cr, Cu, Fe, Mn, Mg, Ni, Pb, Zn, horizon boundary, material of humus layer, storage type of humus layer, skeleton content, soil colour wetted, mottling, concretions, root penetration intensity, smeariness   | exposition, slope class, macro relief (land form), horizontal extension of land form, vertical extension of land form, micro relief, surface inflow and surface runoff, lowest depth to water table, highest depth to water table, ground water and perched surface water, soil water conditions, parent material, soil type, carbonate in profile, humus form, root penetration depth, land use, climatic altitudinal belts, forest growing areas, soil vegetation forest, primary texture  | Free access       | Boden@umweltbundesamt.at |
| Bodenuntersuchungen in Linzer Ackerböden                    | Soil survey in the aerable soil in Linz        | Municipality administration of the regional capital Linz (Amt für Umweltschutz), Linz | Aichberger, K.  | 1989                            | ns           | Austria | Upper Austria, Linz | Agriculture           | Points    | Number of points: 35                                     | B, F, K, P, CaCO <sub>3</sub> , TOC, pH-value, SO <sub>4</sub> , clay %, electric conductivity, As, Cd, Cl, Cr, Cu, Fe, Hg, Mn, Mo, Ni, Pb, Tl, Zn, date of sampling, size and type of sampling area   | carbonate content of parent material, soil type, land use, main emitter, primary texture   | Free access       | Boden@umweltbundesamt.at |
| Boden- und Pflanzenuntersuchungen in Linzer Kleingärten     | Soil and plant survey in garden plots in Linz  | Municipality administration of the regional capital Linz (Amt für Umweltschutz), Linz | Hofer, G. & Aichberger, K.  | 1990                            | ns           | Austria | Upper Austria, Linz | Urban                 | Points    | Number of points: 24                                     | B, F, K, P, CaCO <sub>3</sub> , TOC, pH-value, SO <sub>4</sub> , clay %, electric conductivity, As, Cd, Cl, Cr, Cu, Hg, Mn, Ni, Pb, Tl, Zn, date of sampling, size and type of sampling area   | carbonate content of parent material, soil type, land use, main emitter, primary texture   | Free access       | Boden@umweltbundesamt.at |

| Title  | English title   | Owner  | Author   | Date created | Date updated | Country | Covered region(s)                    | Covered land-use type      | Data type | Mapping scale         | Included soil parameters  | Included site parameters  | Access conditions | Contact or weblink       |
|--|---|--|--|--------------|--------------|---------|--------------------------------------|----------------------------|-----------|-----------------------|---|---|-------------------|--------------------------|
| Bodenuntersuchungen im Umfeld der AMAG Ramshofen   | Soil survey in the surroundings of AMAG Ramshofen   | Provincial government Upper Austrian   | Aichberger, K. & J.-P. Sageder   | 1995         | ns           | Austria | Upper Austria, Rams-hofen            | Agriculture, Forest        | Points    | Number of points: 21  | F, humus %, pH-value, water content at sampling -dry matter, organic pollutants, As, Cd, Cu, Pb, horizon boundary, humus content in agricultural soils, skeleton content, soil colour wetted, mottling, concretions, carbon content at the site, primary soil structure, clarity of aggregate formation 1, size of aggregates, porosity, root penetration intensity, bioturbation, texture at the site  | exposition, slope class, macro relief (land form), micro relief, soil water conditions, parent material, soil type, carbonate in profile, humus form, root penetration depth, land use, main emitter, landscape zone, mapping zone according to the department of soil science, primary texture   | Free access       | Boden@umweltbundesamt.at |
| Bodenuntersuchung auf Kinderspielplätzen; Ermittlung der Schadstoffbelastung von Boden und Spielsand                           | Soil Survey on playgrounds; assessment of the pollutant load of soils and playground sand   | Provincial government Salzburg, Dept.4   | Juritsch, G.   | 1997         | ns           | Austria | Salzburg                             | Urban                      | Points    | Number of points: 113 | pH-value, organic pollutants, As, Cd, Cr, Hg, Ni, Pb, humus content in agricultural soils, skeleton content, mottling, carbon content at the site, clay content, humus content  | soil water conditions, parent material, carbonate content of parent material, soil type, carbonate in profile, root penetration depth, land use, main emitter, direction emitter location, primary texture  | Free access       | Boden@umweltbundesamt.at |
| Beschreibung des Bodenzustandes im Krappfeld hinsichtlich Problemelementbelastung  | Description of the soil status in Krappfeld regarding problematic element load  | Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMFLUW), Provincial government Carinthia | Pirkl, H. et al.   | 1993         | ns           | Austria | Carinthia, Krappfeld                 | Forest, Agriculture, Urban | Points    | Number of points: 331 | F, H+, K, N, P, S, U, V, W, CaCO <sub>3</sub> , TC, pH-value, Al, As, Ba, Ca, Cd, Cl, Co, Cr, Cu, Fe, Ga, Hg, Mn, Mg, Mo, Na, Nb, Ni, Pb, Rb, Si, Sr, Th, Ti, Yb, Zn, Zr, FAO - soil horizons   | parent material, soil type, land use, primary texture   | Free access       | Boden@umweltbundesamt.at |
| Forschungsprojekt Bodengeochemie zur Bodenzustandserhebung, Umweltbestandsaufnahme im Gebiet des Voitsberger-Köflacher Beckens | Research project soil geochemistry for soil status survey, environmental inventory in the area of the Voitsberger-Köflacher basin | Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMFLUW), Provincial government Styria    | Geo- und Umweltinformatik, Institut für Bodenforschung, Fa.Intercom, ARGE Geochemie & Fa. Wenzel-Pollak Alge | 1995         | ns           | Austria | Styria, Voitsberger-Köflacher Becken | Forest, Agriculture        | Points    | Number of points: 347 | B, F, K, N, P, S, V, Y, CaCO <sub>3</sub> , TC, pH-value, CEC, Al, As, Ba, Ca, Cd, Cl, Co, Cr, Cu, Fe, Ga, Hg, Mg, Mn, Mo, Na, Nb, Ni, Pb, Rb, Si, Sr, Ti, Zn, Zr, date of sampling, name of sampler, original sample number, size and type of sampling area, horizon boundary, material of humus layer, skeleton content, soil colour wetted, mottling, concretions, carbon content at the site, primary soil structure, clarity of aggregate formation 1, size of aggregates, porosity, root penetration intensity, bioturbation, texture at the site | exposition, slope class, macro relief (land form), micro relief, surface inflow, surface runoff, current depth to water table, ground water and perched surface water, slope water, soil water conditions, parent material, soil type, carbonate in profile, root penetration depth, land use, soil vegetation forest, degree of green area, tree species contents (spruce larch, white pine (Pinus sabiniana), beech, other hard leaf trees), age class, canopy degree, conformation of stand, care measurements, stand damage, current crop, main emitter, direction emitter location, distance to main emitter, erosion, drainage, disturbance of soil, bedrock, stoniness, permeability | Free access       | Boden@umweltbundesamt.at |

| Title   | English title  | Owner   | Author                            | Date created | Date updated | Country | Covered region(s)          | Covered land-use type | Data type | Mapping scale         | Included soil parameters   | Included site parameters   | Access conditions | Contact or weblink       |
|---|--|---|-----------------------------------|--------------|--------------|---------|----------------------------|-----------------------|-----------|-----------------------|--|--|-------------------|--------------------------|
| Transitstudie - Schadstoffbelastung landwirtschaftlich genutzter Böden; Schwermetalle - Polyzyklische Aromatische Kohlenwasserstoffe                                  | Transit study - pollutant load of agricultural soils; Heavy metals - polycyclic aromatic hydrocarbons  | Provincial government Tyrol - Forest Service                  | Leitner, A.; Seif, P. & Stöhr, D. | 1991         | ns           | Austria | Tyrol                      | Agriculture           | Points    | Number of points: 21  | K, N, P, CaCO <sub>3</sub> , TOC, pH-value, clay %, silt %, sand %, water content at analysis -dry matter, Ca, Cd, Cu, Hg, Mn, Pb, Zn  | land use, main emitter, distance to main emitter   | Free access       | Boden@umweltbundesamt.at |
| Untersuchungen zur Schadstoffbelastung von Boden und Staubbiederschlag im Marchfeld und die Eignungsbeurteilung von Donauwasser für Beregnungszwecke in dieser Region | Surveys to the pollutant load of soils and dust deposit in the Marchfeld and the evaluation of suitability of Danube water for irrigation purposes in the region | Errichtungsgesellschaft Marchfeldkanal, BFL (ehem.LW-chem.BA) | Köchli, A.                        | 1988         | ns           | Austria | Lower Austria, Marchfeld   | Agriculture           | Points    | Number of points: 333 | B, K, P, CaCO <sub>3</sub> , TOC, pH-value, clay %, silt %, sand %, organic pollutants, As, Ca, Cd, Co, Cr, Cu, Hg, Mg, Mn, Na, Ni, Pb, Se, Zn   | land use, soil value according to the department of soil science, mapping zone according to the department of soil science, soil form according to department for soil science | Free access       | Boden@umweltbundesamt.at |
| Pestizidrückstände in Boden- und Grundwasserproben des Bezirkes Gänserndorf   | Pesticide residues in soil samples and ground water samples in the district Gänserndorf  | Environmental Agency Austria                                  | Seltenhammer-Malina, B. et al.    | 1989         | ns           | Austria | Lower Austria, Gänserndorf | Agriculture           | Points    | Number of points: 26  | propiconazole, diclobutrazole, triadimefon, 2,4-D, dichlorprop, mecoprop, MCPA   | land use, current crop, pesticides   | Free access       | Boden@umweltbundesamt.at |
| Boden- und Vegetationsuntersuchungen im Bereich der Scheitelstrecke der Tauernautobahn  | Soil survey and vegetation survey in the area of the mountain route of the Tauern highway  | Environmental Agency Austria                                  | Kasperowski, E. & Frank, E.       | 1989         | ns           | Austria | Salzburg, Carinthia        | Agriculture           | Points    | Number of points: 21  | N, CaCO <sub>3</sub> , TC, pH-value, organic pollutants, Br, Cd, Cl, Pb, Zn, date of sampling, name of sampler, size and type of sampling area   | land use, main emitter, distance to main emitter   | Free access       | Boden@umweltbundesamt.at |
| Untersuchungen an Pflanzen und Böden in der Umgebung eines Holzimprägnierungsbetriebes in Schrauding (Stmk)   | Survey on plants and soils in the surrounding of a wood impregnation company in Schrauding   | Environmental Agency Austria                                  | Riss, A.                          | 1989         | ns           | Austria | Styria, Schrauding         | Agriculture, Urban    | Points    | Number of points: 8   | benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-c,d)pyrene, phenanthrene, antanthrene, coronene | land use, main emitter, direction emitter location, distance to main emitter   | Free access       | Boden@umweltbundesamt.at |

## Available soil information in the Alps

| Title   | English title  | Owner                        | Author   | Date created | Date updated | Country | Covered region(s)        | Covered land-use type      | Data type | Mapping scale         | Included soil parameters   | Included site parameters   | Access conditions | Contact or weblink       |
|---|--|------------------------------|--|--------------|--------------|---------|--------------------------|----------------------------|-----------|-----------------------|--|--|-------------------|--------------------------|
| Montanwerke Brixlegg - Wirkungen auf die Umwelt   | Montanwerke Brixlegg - Impact on the environment   | Environmental Agency Austria | Spindelbalker, C.; Riss, A.; Hackl, J.; Hojesky, H.; Müllebnner, M; Nowak, H. & Peschek, R | 1990         | ns           | Austria | Tyrol, Brixlegg          | Forest, Agriculture        | Points    | Number of points: 11  | K, V, organic pollutants, As, Ca, Cd, Co, Cr, Cu, Fe, Hg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Te, Tl, Zn   | land use, main emitter, direction emitter location, distance to main emitter, further emitters | Free access       | Boden@umweltbundesamt.at |
| Wirkungen von Dioxinimmissionen auf Boden, Grünslandaufwuchs und Kuhmilch - Fallstudie anhand einer Metallrückgewinnungsanlage in Österreich                                      | Impact of dioxin immissions on soil, grassland aufwuchs and cow's milk - case study by means of a metal recovery plant in Austria  | Environmental Agency Austria | Riss, A.; Hagenmayer, H. & Rotard, W.  | 1990         | ns           | Austria | Austria                  | Agriculture                | Points    | Number of points: 11  | K, organic pollutants, As, Ca, Cd, Cu, Fe, Hg, Mn, Ni, Pb, Sb, Sn, Zn, date of sampling, name of sampler, size and type of sampling area | land use, main emitter, direction emitter location, distance to main emitter, further emitters | Free access       | Boden@umweltbundesamt.at |
| Die Treibacher Chemischen Werke - Wirkungen auf die Umwelt  | The Treibacher Industrie AG - Impacts on the environment   | Environmental Agency Austria | Vogel, W. R.; Kienzl, K. & Riss, A.  | 1991         | ns           | Austria | Carinthia, Althofen      | Forest, Agriculture, Urban | Points    | Number of points: 42  | B, K, V, W, organic pollutants, Ca, Cd, Co, Cr, Cu, Fe, Mn, Mo, Ni, Pb, Zn   | N/A  | Free access       | Boden@umweltbundesamt.at |
| Schadstoffe im Raum Linz Teil B: Bodenuntersuchungen von Grünland- und Waldböden im Raum Linz auf Schwermetalle, poly zyklische aromatische Kohlenwasserstoffe und chlorierte KWS | Pollutants in the region of Linz part B: Soil survey of grassland soils and forest soils in the region of Linz with the focus on heavy metals, polycyclic aromatic hydrocarbons and chlorinated hydrocarbons | Environmental Agency Austria | Weiss, P. & Riss, A.   | 1992         | ns           | Austria | Upper Austria, Linz      | Forest, Agriculture, Urban | Points    | Number of points: 28  | K, CaCO <sub>3</sub> , TOC, pH-value, organic pollutants, As, Ca, Cd, Cr, Cu, Fe, Hg, Mg, Mn, Ni, Pb, Zn                                 | carbonate content of parent material, soil type, land use, main emitter, primary texture       | Free access       | Boden@umweltbundesamt.at |
| Schwermetalle in Böden im Raum Arnoldstein  | Heavy metals in soils in the area of Arnoldstein   | Environmental Agency Austria | Kasperowski, E.; Riss, A. & Dvorak, A.   | 1993         | ns           | Austria | Carinthia, Arnoldstein   | Urban, Other               | Points    | Number of points: 109 | TC, pH-value, organic pollutants, As, Cd, Cu, Pb, Zn, date of sampling, size and type of sampling area                                   | land use, main emitter, distance to main emitter   | Free access       | Boden@umweltbundesamt.at |
| Untersuchungen im Raum Amstetten - Dioxine und Schwermetalle in Böden, Dioxine in Fichtennadeln   | Survey in the area of Amstetten - dioxins and heavy metals in soils, dioxins in spruce needles   | Environmental Agency Austria | Riss, A.; Schwarz, S. & Dvorak, A.   | 1993         | ns           | Austria | Lower Austria, Amstetten | Agriculture                | Points    | Number of points: 12  | V, organic pollutants, Cd, Co, Cr, Cu, Hg, Mo, Ni, Pb, Zn  | land use, main emitter, direction emitter location, distance to main emitter                   | Free access       | Boden@umweltbundesamt.at |

| Title  | English title  | Owner   | Author   | Date created | Date updated | Country | Covered region(s)         | Covered land-use type | Data type | Mapping scale        | Included soil parameters  | Included site parameters   | Access conditions | Contact or weblink       |
|--|--|---|--|--------------|--------------|---------|---------------------------|-----------------------|-----------|----------------------|---|--|-------------------|--------------------------|
| Amstetten: Cadmium in Ackerflächen um Schrott Müller-Guttenbrunn   | Amstetten: Cadmium in arable land around Schrott Müller-Guttenbrunn  | Lower Austrian Environmental Protection Institution (NUA) | Riss, A.; Schwarz, S. & Dvorak, A.   | 1994         | ns           | Austria | Lower Austria, Amstetten, | Agriculture           | Points    | Number of points: 12 | Cd  | land use, main emitter, direction emitter location, distance to main emitter   | Free access       | Boden@umweltbundesamt.at |
| Bodenbiologische, -chemische und -physikalische Erhebungen im Raum Brixlegg: Grundlagen, Bodenphysik, Bodenchemie und Vegetation | Soil-biological, soil-chemical and soil-physical survey in the area of Brixlegg: basics, soil physics, soil chemistry and vegetation | Environmental Agency Austria                              | Pohla, H.; Kasperowski, E.; Schwarz, S.; Rampazzo, N.; Mirtl, M.; Palzenberger, M. & Haslett, J. | 1994         | ns           | Austria | Tyrol, Brixlegg           | Agriculture           | Points    | Number of points: 4  | fluorides, K, N, P, S, V, TOC, TIC, pH-value, CEC, SO4, DOC, clay %, silt %, sand %, dry bulk density, sediment density or true density, water stability of aggregates -dry matter, water content at sampling -dry matter, water content at sampling -volume, total pores volume, coarse pores content, medium pores content, fine pores content, water content at different pressures, organic pollutants, Al, As, Ca, Cd, Cl, Co, Cr, Cu, Fe, Hg, Mg, Mn, Na, Ni, Pb, Sb, Sn, Ti, Zn, horizon boundary, humus content, skeleton content, soil colour wetted, mottling, concretions, carbon content, primary soil structure, size of aggregates, porosity, root penetration intensity, bioturbation, texture, humus type | macro relief (land form), soil water conditions, parent material, carbonate content of parent material, soil type, carbonate in profile, land use, distance to main emitter, primary texture | Free access       | Boden@umweltbundesamt.at |
| Bodenbiologische, -chemische und -physikalische Erhebungen im Raum Brixlegg: Mikrobiologie und Mikrofauna                        | Soil-biological, soil-chemical and soil-physical survey in the area of Brixlegg: microbiology and mikrofauna                         | Environmental Agency Austria                              | Pohla, H.; Kasperowski, E.; Kandeler, E.; Berthold, A. & Löftenegger, G.                         | 1994         | ns           | Austria | Tyrol, Brixlegg           | Agriculture           | Points    | Number of points: 4  | microbiell biomass, nitrogen mineralization, microbiell respiration, potential nitrification, activity of: xylanase cellulase, beta-glucosidase, urease, protease, alkaline phosphomonoesterase, arylsulfatase, dehydrogenase, biomass testaceen - dry matter, total number of species testaceen (animated and inanimated), biomass active ciliates - dry matter, number of individuals (nematodes, rotifers, testaceen (animated /inanimated), active ciliates), number of species testaceen (animated/inanimated)   | land use   | Free access       | Boden@umweltbundesamt.at |

| Title   | English title   | Owner                        | Author  | Date created | Date updated | Country | Covered region(s)   | Covered land-use type | Data type | Mapping scale          | Included soil parameters   | Included site parameters  | Access conditions | Contact or weblink       |
|---|---|------------------------------|---|--------------|--------------|---------|---|-----------------------|-----------|------------------------|--|---|-------------------|--------------------------|
| Bodenbiologische, -chemische und -physikalische Erhebungen im Raum Brixlegg: Mesofauna und Makrofauna | Soil-biological, soil-chemical and soil-physical survey in the area of Brixlegg: mesofauna and macrofauna | Environmental Agency Austria | Schatz, H.; Wright, J.; Schatz, I.; Zulka, K.-P.; Lüftenegger, G. & Seewald, F.                                       | 1994         | ns           | Austria | Tyrol, Brixlegg   | Agriculture           | Points    | Number of points: 4    | number of individuals (mites (Acari), springtails (Collembola), earth worms (Lumbricidae)), biomass earth worms (Lumbricidae), number of species spring tails (Collembolen)  | land use  | Free access       | Boden@umweltbundesamt.at |
| Umweltrelevante Auswirkungen des Flughafens Wien-Schwechat  | Environmentally relevant impacts of the airport Wien-Schwechat  | Environmental Agency Austria | Dieberger, A.; Egger, M.; Janak, G.; Kanonier, J.; Kromp-Zimmel, B.; ROTTER, M.; Unger, G.; Weiss, P. & Wieninger, H. | 1994         | ns           | Austria | Lower Austria, Wien-Schwechat   | Agriculture, Urban    | Points    | Number of points: 12   | N, V, CaCO <sub>3</sub> , TOC, pH-value, organic pollutants, Cd, Cu, Fe, Mn, Ni, Pb, Zn  | land use, main emitter  | Free access       | Boden@umweltbundesamt.at |
| Cäsiumbelastung der Böden Österreichs, zweite erweiterte Auflage                                      | Cesium load of the soils of Austria, 2nd extended edition   | Environmental Agency Austria | Bossew, P.; Ditto, M.; Falkner, TH.; Henrich, E.; Kienzl, K. & Rappelsberger, U.                                      | 1996         | ns           | Austria | Austria and border regions of Germany, Switzerland, Italy, Slovenia, Hungary and Czech Republic | All                   | Points    | Number of points: 2113 | Cs   | land us   | Free access       | Boden@umweltbundesamt.at |
| Untersuchungen von Boden und Nadeln, Zuwachs und Kronenzustand auf vier Waldstandorten in Vorarlberg  | Survey of soil and needles, growth and crown condition at four forest locations in Vorarlberg             | Environmental Agency Austria | Echmüllner, O.; Gärtner, A.; Hackl, J.; Schwarzl, B.; Sterba, H.  | 1996         | ns           | Austria | Vorarlberg  | Forest                | Points    | Number of points: 4    | K, N, P, CaCO <sub>3</sub> , TOC, TC, pH-value, Al, Ca, Cd, Cu, Fe, Mn, Mg, Na, Pb, Zn   | exposition, slope class, macro relief (land form), annual precipitation, parent material, greater geological areas, soil type, humus form, root penetration depth, land use, climatic altitudinal belts, forest growing areas, tree species content spruce, tree species content fir, age class, parent material according to literature, primary texture | Free access       | Boden@umweltbundesamt.at |
| Bodenerhebung am Zöbelboden   | Soil survey at the Zöbelboden   | Environmental Agency Austria | Gratzer, G.   | 1997         | ns           | Austria | Upper Austria, Zöbelboden,  | Forest                | Points    | Number of points: 96   | horizon boundary, material of humus layer, storage type of humus layer, skeleton content, soil colour wetted, mottling, concretions, primary soil structure, root penetration intensity, texture at the site, smeariness | exposition, slope class, macro relief (land form), meso relief translocation, meso relief exposition, micro relief, ground water and perched surface water, slope water, soil water conditions, parent material, soil type, humus form, FAO - soil units, root penetration depth, land use, climatic altitudinal belts, primary texture                   | Free access       | Boden@umweltbundesamt.at |



| Title   | English title   | Owner  | Author   | Date created | Date updated | Country | Covered region(s)  | Covered land-use type | Data type | Mapping scale        | Included soil parameters   | Included site parameters   | Access conditions | Contact or weblink   |
|---|---|--|--|--------------|--------------|---------|--|-----------------------|-----------|----------------------|--|--|-------------------|--|
| Arsen in Böden Österreichs, Endbericht                                    | Arsen in the soils of Austria   | Provincial governments of Carinthia, Tyrol, Salzburg, Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMFLUW), Ministry for Transport, Innovation and Technology (BMVIT) | Arbeitsgruppe Umweltgeochemie des Instituts für Bodenforschung       | 1998         | ns           | Austria | Tyrol, Salzburg, Carinthia, Styria                               | Forest, Agriculture   | Points    | Number of points: 39 | K, N, CaCO <sub>3</sub> , TOC, pH-value, CEC, clay %, silt %, sand %, Al, As, Ca, Fe, Mg, Mn, Na, Si, horizon boundary, material of humus layer, skeleton content, mottling, concretions, primary soil structure, size of aggregates, root penetration intensity | exposition, macro relief (land form), soil type, FAO - soil units, land use, primary texture | Free access       | Boden@umweltbundesamt.at   |
| Persistente organische Schadstoffe in Hintergrundwaldgebieten Österreichs | Persistent organic pollutants in background forest areas of Austria   | Environmental Agency Austria   | Weiss, P.  | 1998         | ns           | Austria | Tyrol, Salzburg, Carinthia, Styria, Upper Austria, Lower Austria | Forest                | Points    | Number of points: 25 | Numerous persistent organic pollutants   | land use   | Free access       | Boden@umweltbundesamt.at   |
| Wechselwirkung zwischen Radiocäsium - Bodenkontamination und Hydrosphäre  | Correlations between Radiocesium - soil contamination and hydrosphere | Environmental Agency Austria   | Kienzl, K.; Gerzabek, M.H. & Strebl, F. et al.                       | 1998         | ns           | Austria | Salzburg, Upper Austria, Lower Austria                           | Forest, Agriculture   | Points    | Numer of points: 260 | K40, U238, Cs, Th  | land use   | Free access       | Boden@umweltbundesamt.at   |
| Bodenkarte (BK200)  | General Soil Map (Germany)  | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU)   | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | 2000         | not planned  | Germany | Parts of Bavaria   | all                   | Polygon   | 1:200000             | soil type  | none   | free              | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datdatenbe/index.htm">https://www.lfu.bayern.de/umweltdaten/datdatenbe/index.htm</a><br>email: datenstelle@lfu.bayern.de |

| Title  | English title   | Owner   | Author  | Date created           | Date updated                        | Country | Covered region(s)             | Covered land-use type | Data type       | Mapping scale                   | Included soil parameters   | Included site parameters                      | Access conditions            | Contact or weblink  |
|--|---|---|---|------------------------|-------------------------------------|---------|-------------------------------|-----------------------|-----------------|---------------------------------|--|---|------------------------------|---|
| Bodenschätzung   | Soil taxation survey (Germany)  | Bavarian State Office for Fincance - Bayerisches Landesamt für Finanzen (LfF); Bavarian Agency for Digitisation, High-Speed Internet and Surveying - Landesamt für Digitalisierung, Breitband und Vermessung (LDBV) | Bavarian State Office for Fincance - Bayerisches Landesamt für Finanzen (LfF) | 1934-1958              | none                                | Germany | Bavaria                       | Agriculture           | Polygon, Raster | 1:5000; parcel-specific         | texture, soil type group, soil development level, soil moisture, geological origin of substrate, yield index | land use (arable land vs. grassland), climate | Fee to pay                   | Phone: +49 89 2129-1111<br>email: service@geodaten.bayern.de  |
| Übersichtsbodenkarte von Bayern (ÜBK25)                  | Outline soil map of Bavaria   | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU)  | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU)          | Early 1990s until 2015 | last update: 2018; update on demand | Germany | Bavaria                       | all                   | Polygon         | 1:25000                         | soil type, soil texture, parent material   | none  | free                         | contact from: <a href="https://www.lfu.bayern.de/umweltdaten/datdatdate/index.htm">https://www.lfu.bayern.de/umweltdaten/datdatdate/index.htm</a><br>email: datenstelle@lfu.bayern.de |
| Bodenkarten 1:25000                                      | Soil map of Bavaria 1:25000   | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU)  | former Bavarian Geological Agency - ehem. Bayerisches Geologisches Landesamt  | 1957-1978              | none                                | Germany | Parts of Bavaria (test areas) | Agriculture, Forest   | Raster          | 1:25000                         | soil type, texture, stone content of topsoil, soil erosion potential   | substrate                                     | free                         | <a href="https://www.lfu.bayern.de/boden/karten_daten/historische_karten/bk25/index.htm">https://www.lfu.bayern.de/boden/karten_daten/historische_karten/bk25/index.htm</a>           |
| Bodenschätzungskarten (BSK25)                            | Soil taxation map (Germany)   | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU)  | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU)          | 2016                   | none                                | Germany | Bavaria                       | Agriculture           | Raster          | 1:25000                         | texture, soil type group, soil development level, soil moisture, geological origin of substrate, yield index | land use (arable land vs. grassland), climate | free                         | contact from: <a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br>email: datenstelle@lfu.bayern.de |
| Les inventaires "Référentiel Régional Pédologique" (RRP) | IGCS program "Inventory, Management and Soil Conservation " Regional Pedological Repository | multi-owners  | GIS Sol, INRA   | Since 1990             | N/A                                 | France  | N/A                           | N/A                   | Polygon         | Reference Sectors RRP 1:250,000 | soil characterization: morphological, physico-chemical, hydrodynamic; land use                               | N/A   | Licence with regional owners | <a href="http://acklins.orleans.inra.fr/programme/igcs/rrp.php">http://acklins.orleans.inra.fr/programme/igcs/rrp.php</a>   |

| Title   | English title   | Owner  | Author   | Date created  | Date updated | Country | Covered region(s)               | Covered land-use type | Data type          | Mapping scale  | Included soil parameters  | Included site parameters                     | Access conditions | Contact or weblink   |
|---|---|--|--|---------------|--------------|---------|---------------------------------|-----------------------|--------------------|--|---|--|-------------------|--|
| Les inventaires "Connaissance Pédologique de la France" (CPF)   | IGCS Program "Inventory, Management and Soil Conservation " Pedagogical knowledge of France | multi-owners   | GIS Sol, INRA  | Since 1968    | N/A          | France  | 24 % of the country area (2014) | N/A                   | Points and Polygon | Pedological knowledge CPF 1:50,000 1:100,000   | soil characterization: morphological, physico-chemical, hydrodynamic; | N/A  | Case-by-case      | <a href="https://www.gissol.fr/Publications/fiche-connaissance-pedologique-de-la-france-cpf-2190">https://www.gissol.fr/Publications/fiche-connaissance-pedologique-de-la-france-cpf-2190</a>  |
| les inventaires "Secteurs de Référence" (SR)  | IGCS Program "Inventory, Management and Soil Conservation " Reference Sectors               | multi-owners   | GIS Sol, INRA  | Since 1989    | N/A          | France  | N/A                             | N/A                   | Points             | Reference Area/ SR 1:5,000 to 1:10,000   | soil characterization: morphological, physico-chemical, hydrodynamic; | N/A  | Case-by-case      | <a href="https://www.gissol.fr/Publications/fiche-secteurs-de-reference-2188">https://www.gissol.fr/Publications/fiche-secteurs-de-reference-2188</a>  |
| Données du RMQS (Réseau de Mesures de la Qualité des Sols): stocks de carbone par région et par occupation du sol | RMQS - systematic soil quality monitoring network   | multi-owners   | Scientific interest group (Ministeries of agriculture and environment, Ademe, Ifen, Inra)) | 2000          | N/A          | France  | N/A                             | N/A                   | Points             | systematic grid covering the whole territory by more than 2000 sites: Grid of 16x16 km | physico-chemical characteristics;                                     | N/A  | Free access       | <a href="http://www.gissol.fr/donnees/tableaux-donnees/stock-de-carbone-par-region-et-par-occupation-du-sol-3045">http://www.gissol.fr/donnees/tableaux-donnees/stock-de-carbone-par-region-et-par-occupation-du-sol-3045</a>        |
| Base de Données Elements Traces Métalliques   | BDETM - database of trace metals levels   | ADEME, INRA  | GIS Sol, INRA  | 1998 and 2009 | N/A          | France  | france                          | N/A                   | Points             | N/A  | trace metals levels : Cd, Cr, Cu, Hg, Ni, Pb, Zn;                     | N/A  | Free access       | <a href="http://www.gissol.fr/donnees/donnees-de-la-bdetm-2873">http://www.gissol.fr/donnees/donnees-de-la-bdetm-2873</a>  |
| Base de Donnée d'Analyses de terre  | BDAT - French Soil-testing database   | multi-owners   | GIS Sol, INRA  | Since 1990    | N/A          | France  | France                          | N/A                   | Polygon            | 22,830,147 soil-tests spread over the French territory                                 | physico-chemical characteristics;                                     | ns   | Free access       | <a href="http://estrada.oreans.inra.fr/geosol/">http://estrada.oreans.inra.fr/geosol/</a>  |
| Inventaire Forestier  | Forest Inventory (France)   | IGN  | IFN  | 2012          | 2016         | France  | France                          | N/A                   | Points             | Grid of 1x1 km   | Soil characterization: morphological                                  | Soil cover types, slope, climatic conditions | Free access       | <a href="https://inventaire-forestier.ign.fr/spip.php?article532">https://inventaire-forestier.ign.fr/spip.php?article532</a>  |
| Standortkundliche Bodenkarte Hallertau (SBK25)  | Site-specific soil map Hallertau (SBK25)  | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | former Bavarian Geological Agency - ehem. Bayerisches Geologisches Landesamt               | 1980          | none         | Germany | Parts of Bavaria (Hallertau)    | Agriculture, Forest   | Raster             | 1:25000  | soil type, texture, stratification of texture                         | substrate                                    | free              | contact from: <a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br>email: <a href="mailto:datenstelle@lfu.bayern.de">datenstelle@lfu.bayern.de</a> |

| Title   | English title  | Owner   | Author  | Date created    | Date updated     | Country | Covered region(s)                   | Covered land-use type | Data type | Mapping scale         | Included soil parameters   | Included site parameters  | Access conditions | Contact or weblink   |
|---|--|---|---|-----------------|------------------|---------|-------------------------------------|-----------------------|-----------|-----------------------|--|---|-------------------|--|
| Standortkundliche Bodenkarte Augsburg-München (SBK50)         | Site-specific soil map Augsburg-Munich (SBK50)                 | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU)  | former Bavarian Geological Agency - ehem. Bayerisches Geologisches Landesamt  | 1986            | none             | Germany | Parts of Bavaria (Augsburg, Munich) | Agriculture, Forest   | Raster    | 1:50000               | soil type, texture, stratification of texture  | substrate   | free              | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |
| Moorbodenkarte (MBK25)  | Peatland map (Bavaria)   | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU)  | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU)  | 2016            | update on demand | Germany | Bavaria                             | all                   | Polygon   | 1:25000               | peat land class (Anmoor, Niedermoor, Hoch-/Übergangsmoor)  | none  | free              | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |
| Bodenschätzungs-Übersichtskarte (BSK100)                      | Outline soil taxation map (Bavaria)                            | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU)  | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU)  | 2016            | update on demand | Germany | Bavaria                             | Agriculture           | Raster    | 1:100000              | texture, soil type group, soil development level, soil moisture, geological origin of substrate, yield index   | land use (arable land vs. grassland), climate   | free              | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |
| Bodendauerbeobachtung   | Permanent soil observation (Bavaria)                           | Bavarian State Research Center for Agriculture - Landesanstalt für Landwirtschaft (LfL); Bavarian State Institute of Forestry - Landesanstalt für Wald und Forstwirtschaft (LWF); Bavarian Environment Agency - Bayerischen Landesamts für Umwelt (LfU) | Bavarian State Research Center for Agriculture - Landesanstalt für Landwirtschaft (LfL); Bavarian State Institute of Forestry - Landesanstalt für Wald und Forstwirtschaft (LWF); Bavarian Environment Agency - Bayerischen Landesamts für Umwelt (LfU) | since mid-1980s | permanently      | Germany | Bavaria                             | all                   | Point     | Number of points: 289 | Physical parameters (texture, bulk density, pF-value (plant available water), kf-value (water conductivity), water content, penetration resistance, aggregate stability, temperature, total pore volume); anorganic chemical parameters (pH, organic carbon content, total organic content (TOC), total nitrogen content, carbonate content, CEC (potential and effective), element contents, and others | atmospheric deposition, ground water level, vegetation, plant contents, climatic parameters | free              | Phone: +49 89 2129-1111<br>email: service@geodaten.bayern.de   |
| Kumulierte nutzbare Feldkapazität der Forstflächen von Bayern | Cummulated available field capacity of forest areas in Bavaria | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU)  | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU)  | 2015            | not planned      | Germany | Bavaria                             | forest                | Polygon   | 1:500000              | cummulated available field capacity  | land use  | free              | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |

| Title   | English title   | Owner  | Author   | Date created | Date updated     | Country | Covered region(s)                  | Covered land-use type | Data type | Mapping scale | Included soil parameters                      | Included site parameters | Access conditions | Contact or weblink   |
|---|---|--|--|--------------|------------------|---------|------------------------------------|-----------------------|-----------|---------------|---|--------------------------|-------------------|--|
| Kumulierte nutzbare Feldkapazität der Landwirtschaftsflächen von Bayern | Commulated available field capacity of agricultural areas in Bavaria  | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | 2015         | not planned      | Germany | Bavaria                            | Agricultural land     | Polygon   | 1:500000      | cummulated available field capacity           | land use                 | free              | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |
| Bodenfunktion - Standortpotential für natürliche Vegetation             | Soil function - potential as habitat for natural vegetation (Bavaria) | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | 2002-2010    | update on demand | Germany | Parts of Bavaria (north of Munich) | all                   | Polygon   | 1:25000       | potential as a habitat for natural vegetation | none                     | free              | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |
| Bodenfunktion - Wasserretentionsvermögen                                | Soil function - water retention capacity (Bavaria)                    | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | 2002-2010    | update on demand | Germany | Parts of Bavaria (north of Munich) | all                   | Polygon   | 1:25000       | water retention capacity                      | none                     | free              | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |
| Bodenfunktion - Nitratrückhaltevermögen                                 | Soil function - nitrate retention capacity (Bavaria)                  | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | 2002-2010    | update on demand | Germany | Parts of Bavaria (north of Munich) | all                   | Polygon   | 1:25000       | nitrate retention capacity                    | none                     | free              | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |
| Bodenfunktion - Schwermetallrückhalt                                    | Soil function - retention of heavy metals (Bavaria)                   | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | 2002-2010    | update on demand | Germany | Parts of Bavaria (north of Munich) | all                   | Polygon   | 1:25000       | retention of heavy metals capacity            | none                     | free              | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |
| Bodenfunktion - Säurepuffervermögen                                     | Soil function - buffer capacity for acidic substances (Bavaria)       | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | 2002-2010    | update on demand | Germany | Parts of Bavaria (north of Munich) | Forest                | Polygon   | 1:25000       | buffer capacity for acidic substances         | none                     | free              | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |

| Title  | English title   | Owner  | Author   | Date created | Date updated     | Country | Covered region(s)                  | Covered land-use type | Data type | Mapping scale | Included soil parameters   | Included site parameters | Access conditions | Contact or weblink   |
|--|---|--|--|--------------|------------------|---------|------------------------------------|-----------------------|-----------|---------------|--|--------------------------|-------------------|--|
| Bodenfunktion - Natürliche Ertragsfähigkeit                                    | Soil function - natural soil fertility (Bavaria)                                | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | 2002-2010    | update on demand | Germany | Parts of Bavaria (north of Munich) | all                   | Polygon   | 1:25000       | natural soil fertility   | none                     | free              | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |
| Hintergrundwertekarte anorganischer Stoffe in Oberböden Bayerns                | Background level map of anorganic substances in topsoils in Bavaria             | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | 2000-2007    | not planned      | Germany | Bavaria                            | all                   | Polygon   | 1:500000      | As, Cd, Co, Cr, Cu, Hg, Mo, Ni, Pb, Sb, Se, Sn, Tl, V and Zn level | none                     | free              | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |
| Hintergrundwertekarte anorganischer Stoffe in Unterböden Bayerns               | Background level map of anorganic substances in subsoils in Bavaria             | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | 2000-2007    | not planned      | Germany | Bavaria                            | all                   | Polygon   | 1:500000      | As, Cd, Co, Cr, Cu, Hg, Mo, Ni, Pb, Sb, Se, Sn, Tl, V and Zn level | none                     | free              | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |
| Hintergrundwertekarte anorganischer Stoffe oberflächennahen Untergrund Bayerns | Background level map of anorganic substances in near-surface bedrock in Bavaria | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | 2000-2007    | not planned      | Germany | Bavaria                            | all                   | Polygon   | 1:500000      | As, Cd, Co, Cr, Cu, Hg, Mo, Ni, Pb, Sb, Se, Sn, Tl, V and Zn level | none                     | free              | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |
| Hintergrundwertekarte BAP in Auflagen unter Forst                              | Background level map BAP in organic layers below forest (Bavaria)               | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | 2000-2007    | not planned      | Germany | Bavaria                            | all                   | Polygon   | 1:500000      | benzopyrene (BAP) level  | none                     | free              | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |
| Hintergrundwertekarte BAP in Oberböden unter Forst                             | Background level map BAP in topsoils below forest (Bavaria)                     | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | 2000-2007    | not planned      | Germany | Bavaria                            | all                   | Polygon   | 1:500000      | benzopyrene (BAP) level  | none                     | free              | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |

| Title   | English title  | Owner  | Author   | Date created | Date updated | Country | Covered region(s) | Covered land-use type | Data type | Mapping scale | Included soil parameters | Included site parameters | Access conditions | Contact or weblink   |
|---|--|--|--|--------------|--------------|---------|-------------------|-----------------------|-----------|---------------|--------------------------|--------------------------|-------------------|--|
| Hintergrundwertekarte BAP in Unterböden unter Forst                       | Background level map BAP in subsoils below forest (Bavaria)                              | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | 2000-2007    | not planned  | Germany | Bavaria           | all                   | Polygon   | 1:500000      | benzopyrene (BAP) level  | none                     | free              | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |
| Hintergrundwertekarte dIPCB TEQ-WHO in Oberböden unter Forst              | Background level map dIPCB TEQ-WHO in topsoils below forest (Bavaria)                    | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | 2000-2007    | not planned  | Germany | Bavaria           | all                   | Polygon   | 1:500000      | dIPCB TEQ-WHO level      | none                     | free              | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |
| Hintergrundwertekarte dIPCB TEQ-WHO in Oberböden unter Acker und Grünland | Background level map dIPCB TEQ-WHO in topsoils below arable land and grassland (Bavaria) | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | 2000-2007    | not planned  | Germany | Bavaria           | all                   | Polygon   | 1:500000      | dIPCB TEQ-WHO level      | none                     | free              | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |
| Hintergrundwertekarte EPA-PAH in Auflagen unter Forst                     | Background level map EPA-PAH in organic layers below forest (Bavaria)                    | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | 2000-2007    | not planned  | Germany | Bavaria           | all                   | Polygon   | 1:500000      | EPA-PAH level            | none                     | free              | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |
| Hintergrundwertekarte EPA-PAH in Oberböden unter Forst                    | Background level map EPA-PAH in topsoils below forest (Bavaria)                          | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | 2000-2007    | not planned  | Germany | Bavaria           | all                   | Polygon   | 1:500000      | EPA-PAH level            | none                     | free              | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |
| Hintergrundwertekarte EPA-PAH in Unterböden unter Forst                   | Background level map EPA-PAH in subsoils below forest (Bavaria)                          | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | 2000-2007    | not planned  | Germany | Bavaria           | all                   | Polygon   | 1:500000      | EPA-PAH level            | none                     | free              | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |

## Available soil information in the Alps

| Title  | English title   | Owner  | Author   | Date created | Date updated | Country | Covered region(s) | Covered land-use type | Data type | Mapping scale | Included soil parameters | Included site parameters | Access conditions | Contact or weblink   |
|--|---|--|--|--------------|--------------|---------|-------------------|-----------------------|-----------|---------------|--------------------------|--------------------------|-------------------|--|
| Hintergrundwertekarte EPA-PAH im oberflächennahen Untergrund unter Forst | Background level map EPA-PAH in near-surface bedrock below forest (Bavaria) | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | 2000-2007    | not planned  | Germany | Bavaria           | all                   | Polygon   | 1:500000      | EPA-PAH level            | none                     | free              | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |
| Hintergrundwertekarte HCB in Auflagen unter Forst                        | Background level map HCB in organic layers below forest (Bavaria)           | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | 2000-2007    | not planned  | Germany | Bavaria           | all                   | Polygon   | 1:500000      | HCB level                | none                     | free              | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |
| Hintergrundwertekarte HCB in Oberböden unter Forst                       | Background level map HCB in topsoils below forest (Bavaria)                 | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | 2000-2007    | not planned  | Germany | Bavaria           | all                   | Polygon   | 1:500000      | HCB level                | none                     | free              | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |
| Hintergrundwertekarte PCB6 in Auflagen unter Forst                       | Background level map PCB6 in organic layers below forest (Bavaria)          | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | 2000-2007    | not planned  | Germany | Bavaria           | all                   | Polygon   | 1:500000      | PCB6 level               | none                     | free              | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |
| Hintergrundwertekarte PCB6 in Oberböden unter Forst                      | Background level map PCB6 in topsoils below forest (Bavaria)                | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | 2000-2007    | not planned  | Germany | Bavaria           | all                   | Polygon   | 1:500000      | PCB6 level               | none                     | free              | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |
| Hintergrundwertekarte PCB6 in Unterböden unter Forst                     | Background level map PCB6 in subsoils below forest (Bavaria)                | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU) | 2000-2007    | not planned  | Germany | Bavaria           | all                   | Polygon   | 1:500000      | PCB6 level               | none                     | free              | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |



| Title   | English title   | Owner  | Author   | Date created | Date updated | Country | Covered region(s) | Covered land-use type | Data type | Mapping scale   | Included soil parameters   | Included site parameters    | Access conditions                         | Contact or weblink   |
|---|---|--|--|--------------|--------------|---------|-------------------|-----------------------|-----------|---|--|-----------------------------|---|--|
| Hintergrundwertekarte PCDD/F TEQ-WHO in Auflagen unter Forst            | Background level map PCDD/F TEQ-WHO in organic layers below forest (Bavaria)              | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU)               | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU)               | 2000-2007    | not planned  | Germany | Bavaria           | all                   | Polygon   | 1:500000  | PCDD/F TEQ-WHO level   | none                        | free                                      | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |
| Hintergrundwertekarte PCDD/F TEQ-WHO in Oberböden unter Forst           | Background level map PCDD/F TEQ-WHO in topsoils below forest (Bavaria)                    | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU)               | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU)               | 2000-2007    | not planned  | Germany | Bavaria           | all                   | Polygon   | 1:500000  | PCDD/F TEQ-WHO level   | none                        | free                                      | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |
| Hintergrundwertekarte PCDD/F TEQ-WHO in Oberböden unter Acker, Grünland | Background level map PCDD/F TEQ-WHO in topsoils below arable land and grassland (Bavaria) | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU)               | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU)               | 2000-2007    | not planned  | Germany | Bavaria           | all                   | Polygon   | 1:500000  | PCDD/F TEQ-WHO level   | none                        | free                                      | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |
| Hintergrundwertekarte Summen-DDT in Auflagen unter Forst                | Background level map cumulative DDT in organic layers below forest (Bavaria)              | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU)               | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU)               | 2000-2007    | not planned  | Germany | Bavaria           | all                   | Polygon   | 1:500000  | ∑DDT   | none                        | free                                      | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |
| Hintergrundwertekarte Summen-DDT in Oberböden unter Forst               | Background level map cumulative DDT in topsoils below forest (Bavaria)                    | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU)               | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU)               | 2000-2007    | not planned  | Germany | Bavaria           | all                   | Polygon   | 1:500000  | ∑DDT   | none                        | free                                      | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de |
| Bodenzustandserhebung (BZE LW)  | Agricultural soil inventory (BZE LW) (Bavaria)  | Johann Heinrich von Thünen Institute (vTI); Institute of Climate-Smart Agriculture | Johann Heinrich von Thünen Institute (vTI); Institute of Climate-Smart Agriculture | 2010-2013    | not planned  | Germany | Bavaria           | Agriculture           | Points    | Grid dimension 8x8 km<br>Number of points: Bavaria: 559<br>Baden-Württemberg: 268 | total organic carbon, total inorganic carbon, root mass, total nitrogen, bulk density, texture, stone content, pH, electric conductivity | soil management information | only accessible under specific conditions | Thünen Institute, Climate-Smart Agriculture, PD Dr. Axel Don<br>E-Mail: axel.don@thuenen.de<br>Tel.: +49 (531) 596 2641  |

| Title   | English title  | Owner   | Author   | Date created | Date updated     | Country | Covered region(s) | Covered land-use type | Data type          | Mapping scale  | Included soil parameters   | Included site parameters   | Access conditions                         | Contact or weblink  |
|---|--|---|--|--------------|------------------|---------|-------------------|-----------------------|--------------------|--|--|--|---|---|
| Bodenzustandserhebung im Wald (BZE Wald I)      | Environmental soil survey in forests (BZE Wald I) (Bavaria)  | Bavarian State Institute of Forestry - Landesanstalt für Wald und Forstwirtschaft (LWF) | Johann Heinrich von Thünen Institute (VTI); Institute of Forest Ecosystems | 1987         | not planned      | Germany | Bavaria           | Forest                | Points             | Grid dimension: 4x4 km<br>Number of points (in Bavaria): 424 | soil type; per horizon: pH, exchange capacity (share of H, Al, Mn, Fe), C/N ratio, C/P ratio, humus form, amount of humus; in humus: organic C, N, K, Ca, Mg, Mn, Fe, Al, Pb, Cu, Zn, Cd, C/N ratio, C/P ratio, pH; in mineral soil: Ka, P, Ca, Mg, Mn, Fe, Al, H  | chemical analysis of leaves/needles, analyses of tree species and respective damage and discolouration, and mean age | only accessible under specific conditions | Thünen Institute, Forest Ecosystems, Dr. Nicole Wellbrock<br>E-Mail: nicole.wellbrock@thuenen.de<br>Tel.: +49 3334 3820 304   |
| Bodenzustandserhebung im Wald (BZE Wald II)     | Environmental soil survey in forests (BZE Wald II) (Bavaria) | Bavarian State Institute of Forestry - Landesanstalt für Wald und Forstwirtschaft (LWF) | Johann Heinrich von Thünen Institute (VTI); Institute of Forest Ecosystems | 2013         | not planned      | Germany | Bavaria           | Forest                | Points             | Grid dimension: 8x8 km<br>Number of points (in Bavaria): 386 | pH, CEC, organic C, carbonate content, bulk density, amount of fine earth, texture; contents soluble in aqua regia: Ca, K, Mg, Mn, P, Cd, Cu, Pb, Zn, Al, Fe, Na, S, Cr, Hg, Ni, As, organic pollutants (PAK16, PCB6, $\alpha$ -, $\beta$ -, $\gamma$ -HCH, Aldrin, Dieldrin, 2,4'-DDD/DDE/DDT); total contents: Al, Ca, Fe, Mg, Mn, Na, P, S, K, As, Cd, Cu, Cr, Ni, Pb, Hg, Si; mobile contents: N-NO <sub>3</sub> , Ca, K, Mg, Na, pH, Al, Mn, Fe, Cl, S-SO <sub>4</sub> , DOC, Nges, N-NH <sub>4</sub> ) | analyses of tree species and density, soil vegetation systems, tree crowns and nutritional situation.                | only accessible under specific conditions | Thünen Institute, Forest Ecosystems, Dr. Nicole Wellbrock<br>E-Mail: nicole.wellbrock@thuenen.de<br>Tel.: +49 3334 3820 304   |
| Wärmeleitfähigkeit Boden                        | Thermal conductivity of soil (Bavaria)                       | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU)                    | Bavarian Environment Agency - Bayerisches Landesamt für Umwelt (LfU)       | 2016         | update on demand | Germany | Bavaria           | all                   | Polygon            | 1:200000   | Thermal conductivity   | none   | free                                      | contact from:<br><a href="https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm">https://www.lfu.bayern.de/umweltdaten/datenbezug/index.htm</a><br><br>email: datenstelle@lfu.bayern.de        |
| Regioni Pedologiche                             | Soil Regions Of Italy  | Italian National Centre for Soil Mapping (CNCSP, CRA-ABP, Florence)                     | Italian National Centre for Soil Mapping (CNCSP, CRA-ABP, Florence)        | N/A          | N/A              | Italy   | all               | N/A                   | Polygon            | 1:5,000,000  | Soil classification (WRB); Land capability classes, soil degradation processes   | Site description: surface, climate, geology and morphology   | Free access                               | <a href="http://www.soilmaps.it/download/csi-BrochureSR_a4.pdf">http://www.soilmaps.it/download/csi-BrochureSR_a4.pdf</a>   |
| Carta dei Suoli d'Italia                        | Soil map of Italy  | Italian National Centre for Soil Mapping (CNCSP, CRA-ABP, Florence)                     | Italian National Centre for Soil Mapping (CNCSP, CRA-ABP, Florence)        | N/A          | 2012             | Italy   | all               | N/A                   | Polygon            | 1:1,000,000  | Soil classification (WRB);   | N/A  | Free access                               | <a href="http://esdac.jrc.ec.europa.eu/images/Eudasm/IT/PDF/2012Carta_Suoli_Italia.pdf">http://esdac.jrc.ec.europa.eu/images/Eudasm/IT/PDF/2012Carta_Suoli_Italia.pdf</a>                           |
| Carta pedoclimatica d'Italia                    | Soil Climate Elaboration (Pedclim)                           | Italian National Centre for Soil Mapping (CNCSP, CRA-ABP, Florence)                     | Italian National Centre for Soil Mapping (CNCSP, CRA-ABP, Florence)        | N/A          | 2010             | Italy   | all               | N/A                   | Points and Polygon | N/A  | Soil moisture and temperature regimes, aridity index, mean annual soil temperature   | Annual rainfall, mean annual air temperature, , rainfall intensity, summer-winter air temperature                    | Free access                               | <a href="http://soilmaps.entecra.it/webgis/pedclim/map.html">http://soilmaps.entecra.it/webgis/pedclim/map.html</a>   |
| Carta delle unità suolo-paesaggio della Liguria | Liguria region: Map of soil-landscape unit                   | Liguria Region  | Laboratorio Regionale di Sarzana   | N/A          | N/A              | Italy   | Liguria           | N/A                   | Points             | 1:25,000   | Classification (USDA Soil Taxonomy); Thickness and water permeability coefficients   | Coordinates  | Free access                               | <a href="http://geoportale.regione.liguria.it/geoviewer/pages/apps/repertorio/repertorio.html?id=39">http://geoportale.regione.liguria.it/geoviewer/pages/apps/repertorio/repertorio.html?id=39</a> |

| Title  | English title   | Owner                                     | Author  | Date created | Date updated                              | Country | Covered region(s) | Covered land-use type | Data type | Mapping scale           | Included soil parameters  | Included site parameters  | Access conditions                         | Contact or weblink  |
|--|---|---|---|--------------|---|---------|-------------------|-----------------------|-----------|-------------------------|---|---|---|---|
| Carta uso del Suolo della Liguria  | Liguria region: Map of land-use (geoportale Liguria)  | Liguria Region                            | Regional soil survey teams                                    | N/A          | N/A                                       | Italy   | Liguria           | N/A                   | Polygon   | 1:25,000                | Land use description  | N/A   | Free access                               | N/A   |
| Dati pedologici delle Alpi Liguri e Marittime  | Liguria region: Pedological data of Alpi Liguri e Marittime   | Rellini Ivano (Università di Genova)      | Rellini Ivano (Università di Genova)                          | N/A          | N/A                                       | Italy   | Liguria           | N/A                   | N/A       | N/A                     | Classification, chemical and physical properties;   | N/A   | Only accessible under specific conditions | <a href="http://www.regione.piemonte.it/agri/suoli_terreni/suoli1_50/carta_suoli/geodeone.do">http://www.regione.piemonte.it/agri/suoli_terreni/suoli1_50/carta_suoli/geodeone.do</a> |
| Carta dei Suoli del Piemonte   | Piedmont Region: Soil Map   | Piedmont Region                           | IPLA (Istituto per le piante da legno e l'ambiente)           | N/A          | 01/07/2016 (50000)<br>15/09/2010 (250000) | Italy   | Piemonte          | N/A                   | Polygon   | 1:50,000 ;<br>1:250,000 | Soil profile description and classification (USDA Soil Taxonomy), chemical and physical properties (pH, texture, carbonates content, organic carbon and nitrogen content, cation exchange capacity and exchangeable cations, total and available phosphorus, base saturation); Soil protective capacities, land use, land capability, surface stone content, water permeability | Geographical distribution, pedoenvironment and pedoclimate (moisture and temperature regimes), lithology, land use, exposure, slope | Free access                               | <a href="http://geoportale.piemonte.it/cartografia/info_geoScientifiche_i.aspx">http://geoportale.piemonte.it/cartografia/info_geoScientifiche_i.aspx</a>                             |
| GeoPortale Valle D'Aosta   | Valle D'Aosta GeoPortale  | Regione Autonoma Valle d'Aosta            | Regional team, ARPA   | N/A          | N/A                                       | Italy   | Valle d'Aosta     | N/A                   | N/A       | N/A                     | Geology, groundwaters, land use, soil protection  | N/A   | Free access                               | N/A   |
| Dati analitici suoli agrari  | Valle d'Aosta : Analytical data of agricultural soils   | Regione Autonoma Valle d'Aosta            | DISAFA (UNITO)  | 2002         | N/A                                       | Italy   | Valle d'Aosta     | N/A                   | N/A       | N/A                     | Soil chemical and physical characteristics;   | N/A   | Only accessible under specific conditions | <a href="mailto:c.adamo@regione.vda.it">c.adamo@regione.vda.it</a> / <a href="mailto:e.navillod@regione.vda.it">e.navillod@regione.vda.it</a>   |
| Studi sull'attitudine dei suoli alla coltivazione del melo   | Valle d'Aosta : land suitability for apple tree cultivation   | Regione Autonoma Valle d'Aosta and DISAFA | DISAFA (UNITO)  | 2000         | N/A                                       | Italy   | Valle d'Aosta     | N/A                   | N/A       | N/A                     | Soil chemical and physical characteristics, soil description and classification (WRB and USDA Soil Taxonomy); Suitability for apple tree cultivation  | Lithology and environmental description of the site   | Free access                               | <a href="mailto:c.bredy@regione.vda.it">c.bredy@regione.vda.it</a> / <a href="mailto:o.noussan@regione.vda.it">o.noussan@regione.vda.it</a>   |
| Documenti vari: uso del suolo, carte dei piani regolatori, relazione generale PTP, lavori di supporto al Piano Parco Grand Paradiso e Mont Avic, documenti ZPS, Carta della Natura | Valle d'Aosta : collection of documents : land use, maps for spatial planning, works for National Park of Gran Paradiso and Natural Park of Mont Avic, ZPS documents, map of Nature | Regione Autonoma Valle d'Aosta            | Regional team, IPLA, Free access-lance professional, ARPA VDA | N/A          | N/A                                       | Italy   | Valle d'Aosta     | N/A                   | N/A       | N/A                     | N/A   | N/A   | Only accessible under specific conditions | <a href="mailto:c.treves@regione.vda.it">c.treves@regione.vda.it</a> /  |

| Title  | English title   | Owner   | Author  | Date created | Date updated | Country | Covered region(s)                                     | Covered land-use type | Data type          | Mapping scale       | Included soil parameters  | Included site parameters                      | Access conditions                         | Contact or weblink  |
|--|---|---|---|--------------|--------------|---------|---|-----------------------|--------------------|---------------------|---|---|---|---|
| Caratteristiche tecniche impianti da sci e di risalita | Valle d'Aosta: ski runs and ski lift technical characteristics                      | Regione Autonoma Valle d'Aosta  | Regional team   | N/A          | 2015-2016    | Italy   | Valle d'Aosta   | N/A                   | N/A                | N/A                 | N/A   | N/A   | Only accessible under specific conditions | g.zoppo@regione.vda.it / j.vuillermin@regione.vda.it  |
| Carta dei suoli della Lombardia                        | Lombardia region: Soil map  | Regione Lombardia   | Regional team   | 2008         | 2013         | Italy   | Lombardia   | N/A                   | Polygon            | 1:50,000; 1:250,000 | 1:50000: soil classification (USDA); 1:250000: soil classification (WRB group level) depth, organic carbon content, pH, texture.; 1:50000: waste and sewage sludge spreading attitude, soil protective capacities, environmental value.   | Landscape description                         | Free access                               | <a href="http://soilmaps.entecra.it/download/maps/Trentino2009.jpg">http://soilmaps.entecra.it/download/maps/Trentino2009.jpg</a>   |
| Carta dei Suoli del Trentino                           | Trentino region: Provincia Autonoma di Trento: Soil Map                             | CRA (Centro di Ricerca per l'Agrobiologia e la Pedologia - Firenze)             | CRA (Centro di Ricerca per l'Agrobiologia e la Pedologia - Firenze)             | 2009         | N/A          | Italy   | Trentino (Provincia Autonoma di Trento)               | N/A                   | Polygon            | 1:250,000           | Soils description and classification (WRB);   | Site description                              | Free access                               | <a href="http://gis2.provincz.bz.it/geobrowser/?project=geobrows-er_pro&amp;view=geobrows-er_pro_atlas-b&amp;locale=it">http://gis2.provincz.bz.it/geobrowser/?project=geobrows-er_pro&amp;view=geobrows-er_pro_atlas-b&amp;locale=it</a>                                       |
| Geobrowser Provincia Autonoma di Bolzano               | Trentino region (Alto Adige): Provincia Autonoma di Bolzano: Geobrowser             | Provincia Autonoma di Bolzano   | Regional Team   | N/A          | N/A          | Italy   | Trentino (Provincia Autonoma di Bolzano)              | N/A                   | Points and Polygon | N/A                 | Hydrology, land use, geology etc..  | N/A   | Free access                               | <a href="http://www.laimburg.it/download/bodenkarte/bodenkarte_ita.pdf">http://www.laimburg.it/download/bodenkarte/bodenkarte_ita.pdf</a>   |
| Carta dei suoli dell'Oltreadige                        | Trentino region (Alto Adige): Provincia Autonoma di Bolzano: Soil Map of Oltreadige | Provincia Autonoma di Bolzano / Centro di sperimentazione Laimburg              | Centro di sperimentazione Laimburg  | 2006         | N/A          | Italy   | Trentino (Provincia Autonoma di Bolzano - Oltreadige) | N/A                   | Points and Polygon | not specified       | Soil profile description and classification (USDA Soil Taxonomy), chemical and physical properties (pH, texture, carbon and organic matter content, total nitrogen content, cation exchange capacity and exchangeable cations, base saturation); water capacity                                   | Site description (elevation, slope, exposure) | Free access                               | <a href="http://www.arpa.veneto.it/suolo/htm/carte_w eb.asp">http://www.arpa.veneto.it/suolo/htm/carte_w eb.asp</a>   |
| Carta dei suoli del Veneto                             | Veneto region: Soil map   | ARPAV (Agenzia Regionale per la Prevenzione e Protezione Ambientale del Veneto) | ARPAV (Agenzia Regionale per la Prevenzione e Protezione Ambientale del Veneto) | N/A          | N/A          | Italy   | Veneto  | N/A                   | Points and Polygon | 1:50,000; 1:250,000 | Soil profile description and classification (WRB and USDA Soil Taxonomy), chemical and physical properties (soil depth, organic matter content, texture, stone content, soil reaction, base saturation, total carbonates content, electrical conductivity); water permeability, groundwater depth | Site description at different scale           | Free access                               | <a href="http://www.arpa.veneto.it/temi-ambientali/suolo/conoscenza-dei-suoli/carte-1-25.000">http://www.arpa.veneto.it/temi-ambientali/suolo/conoscenza-dei-suoli/carte-1-25.000</a>   |
| Carta dei suoli delle zone vitinicole DOC              | Veneto: vineyards zones   | ARPAV (Agenzia Regionale per la Prevenzione e Protezione Ambientale del Veneto) | ARPAV (Agenzia Regionale per la Prevenzione e Protezione Ambientale del Veneto) | N/A          | N/A          | Italy   | Veneto  | N/A                   | Polygon            | 1:25,000            | Based on the soil Map of Veneto Region ; Based on the soil Map of Veneto Region   | Based on the soil Map of Veneto Region        | Free access                               | <a href="http://www.ersa.fvg.it/tematiche/suoli-e-carte-derivate/i-suoli-della-friuli-venezia-giulia/livello-di-riconoscimento-1-500.000/">http://www.ersa.fvg.it/tematiche/suoli-e-carte-derivate/i-suoli-della-friuli-venezia-giulia/livello-di-riconoscimento-1-500.000/</a> |

| Title  | English title  | Owner  | Author  | Date created       | Date updated | Country  | Covered region(s)     | Covered land-use type | Data type          | Mapping scale                       | Included soil parameters   | Included site parameters   | Access conditions                         | Contact or weblink  |
|--|--|--|---|--------------------|--------------|----------|-----------------------|-----------------------|--------------------|-------------------------------------|--|--|---|---|
| Carta dei suoli delle province Gorizia Pordenone Udine e Trieste | Friuli Venezia-Giulia region: soil map of Gorizia Pordenone Udine e Trieste provinces 1:500,000            | ERSA (Agenzia regionale per lo sviluppo rurale)      | ERSA (Agenzia regionale per lo sviluppo rurale)   | N/A                | N/A          | Italy    | Friuli Venezia-Giulia | N/A                   | Polygon            | 1:500,000                           | Soil classification (WRB); Land-use  | Site description (geomorphology, climate, vegetation characteristics)                    | Free access                               | <a href="http://www.ersa.fvg.it/tematiche/suoli-e-carterivate/i-suoli-del-friuli-venezia-giulia/livello-di-dettaglio-1-50-000-1-100.000/">http://www.ersa.fvg.it/tematiche/suoli-e-carterivate/i-suoli-del-friuli-venezia-giulia/livello-di-dettaglio-1-50-000-1-100.000/</a> |
| Carta dei suoli delle province Gorizia Pordenone Udine e Trieste | Friuli Venezia-Giulia region: soil map of Gorizia Pordenone Udine e Trieste provinces 1:50,000 - 1:100,000 | ERSA (Agenzia regionale per lo sviluppo rurale)      | ERSA (Agenzia regionale per lo sviluppo rurale)   | N/A                | N/A          | Italy    | Friuli Venezia-Giulia | N/A                   | Points and Polygon | 1:50,000; 1:100,000                 | Soil classification (WRB) and profile description, chemical and physical properties (pH, stone content, texture, total and active carbonates content, organic carbon content, cation exchange capacity, exchangeable and available phosphorous); Water availability and permeability, soil quality, land-use and land capability | Site description (geomorphology, climate, vegetation characteristics)                    | Free access                               | <a href="http://esdac.jrc.ec.europa.eu/images/Eudasm/IT/PDF/italia_x22.pdf">http://esdac.jrc.ec.europa.eu/images/Eudasm/IT/PDF/italia_x22.pdf</a>   |
| Carta dei suoli del settore occidentale delle Prealpi Giulie     | Soil maps of the Western sector of Giulie Prealps  | CNR (Centro Nazionale Ricerche)                      | Ugo Wolf / CNR  | N/A                | 1972         | Italy    | Friuli Venezia-Giulia | N/A                   | Polygon            | 1:25,000                            | Soil description   |  | Free access                               | <a href="http://soilmaps.entecra.it/download/maps/Trentino2009.jpg">http://soilmaps.entecra.it/download/maps/Trentino2009.jpg</a>   |
| Pedosekvence Slovenije   | Pedosequences of Slovenia  | Ministry of Agriculture, Forestry and Food, Slovenia | University of Ljubljana, Biotechnical faculty, Centre for Soil and Environmental Science / Agricultural institute of Slovenia | 1999               | 2007, 2015   | Slovenia | N/A                   | N/A                   | Polygon            | 1:25,000                            | Soil type  | As Overlay   | Only accessible under specific conditions | <a href="https://etla.kis.si/KIS-WebGIS/#config=eTLA_JAVNI.xml">https://etla.kis.si/KIS-WebGIS/#config=eTLA_JAVNI.xml</a>   |
| RAZISKAVE ONESNAŽENOSTI TAL SLOVENIJE                            | Soil Pollution Monitoring (SPM) in Slovenia  | Ministry of Agriculture, Forestry and Food, Slovenia | University of Ljubljana, Biotechnical faculty, Centre for Soil and Environmental Science                                      | Started 1989, 1999 | 2001         | Slovenia | N/A                   | N/A                   | Points             | 212 locations                       | soil type, humus form, texture, horizon sequence, structure, coarse soil content, mottling/concretions, carbonates, rooting, soil nutrients, pH, organic matter, CEC, heavy metals, organic pollutants   | Soil relief, slope, land use, vegetation, parent material, potential source of pollution | Free access                               | <a href="http://soil.bf.uni-lj.si/rots/index.php?page=gis/slo">http://soil.bf.uni-lj.si/rots/index.php?page=gis/slo</a>   |
| Pedološka karta slovenije 1:25,000                               | Soil Map of Slovenia 1:25,000  | Ministry of Agriculture, Forestry and Food, Slovenia | University of Ljubljana, Biotechnical faculty   | 1999               | 2007         | Slovenia | N/A                   | N/A                   | Polygon            | 1:25,000                            | Soil type  | N/A  | Free access                               | <a href="http://rkg.gov.si/GERK/WebView-er/#map_x=461984&amp;map_y=200000&amp;map_sc=914285">http://rkg.gov.si/GERK/WebView-er/#map_x=461984&amp;map_y=200000&amp;map_sc=914285</a>   |
| Pedološki profili Slovenije                                      | Soil profiles of Slovenia  | Ministry of Agriculture, Forestry and Food, Slovenia | University of Ljubljana, Biotechnical faculty, Centre for Soil and Environmental Science                                      | 1999               | 2007         | Slovenia | N/A                   | N/A                   | Points             | 1644 points (Pedologic map 1:25000) | Soil layers, pH, Soil texture, soil nutrients, Organic matter, Soil structure, soil colour, roots; bedrock   | Soil relief, slope, land use, vegetation   | Free access                               | <a href="http://rkg.gov.si/GERK/WebView-er/#map_x=461984&amp;map_y=200000&amp;map_sc=914285">http://rkg.gov.si/GERK/WebView-er/#map_x=461984&amp;map_y=200000&amp;map_sc=914285</a>   |

| Title                                  | English title                     | Owner  | Author   | Date created | Date updated | Country  | Covered region(s) | Covered land-use type | Data type | Mapping scale | Included soil parameters      | Included site parameters | Access conditions                         | Contact or weblink  |
|--|-----------------------------------|--|--|--------------|--------------|----------|-------------------|-----------------------|-----------|---------------|-------------------------------|--------------------------|---|---|
| Karta talnega števila                  | Soil quality index for Slovenia   | Ministry of Agriculture, Forestry and Food, Slovenia | University of Ljubljana, Biotechnical faculty, Centre for Soil and Environmental Science | 2006         | N/A          | Slovenia | N/A               | N/A                   | Polygon   | 1:25,000      | Soil type; Soil quality index | N/A                      | Free access                               | <a href="http://rkg.gov.si/GERK/WebView-er/#map_x=461984&amp;map_y=200000&amp;map_sc=914285">http://rkg.gov.si/GERK/WebView-er/#map_x=461984&amp;map_y=200000&amp;map_sc=914285</a> |
| Organska snov v TKE do 30 cm           | Soil organic matter in Slovenia   | Agricultural institute of Slovenia                   | Agricultural institute of Slovenia   | 1999         | 2014         | Slovenia | N/A               | N/A                   | Polygon   | 1:25,000      | Soil organic matter           | N/A                      | Only accessible under specific conditions | <a href="https://etla.kis.si/KIS-WebGIS/#config=eTLA_JAVNI.xml">https://etla.kis.si/KIS-WebGIS/#config=eTLA_JAVNI.xml</a>   |
| Teksturni razredi v TKE do 30 cm       | Soil texture classes of Slovenia  | Agricultural institute of Slovenia                   | Agricultural institute of Slovenia   | 1999         | 2014         | Slovenia | N/A               | N/A                   | Polygon   | 1:25,000      | Soil texture                  | N/A                      | Only accessible under specific conditions | <a href="https://etla.kis.si/KIS-WebGIS/#config=eTLA_JAVNI.xml">https://etla.kis.si/KIS-WebGIS/#config=eTLA_JAVNI.xml</a>   |
| pH tal v TKE do 30 cm                  | Soil pH for Slovenia              | Agricultural institute of Slovenia                   | Agricultural institute of Slovenia   | 1999         | 2014         | Slovenia | N/A               | N/A                   | Polygon   | 1:25,000      | Soil pH                       | N/A                      | Only accessible under specific conditions | <a href="https://etla.kis.si/KIS-WebGIS/#config=eTLA_JAVNI.xml">https://etla.kis.si/KIS-WebGIS/#config=eTLA_JAVNI.xml</a>   |
| Povprečna globina tal                  | Soil depth for Slovenia           | Agricultural institute of Slovenia                   | Agricultural institute of Slovenia   | 1999         | 2014         | Slovenia | N/A               | N/A                   | Polygon   | 1:25,000      | Soil depth                    | N/A                      | Only accessible under specific conditions | <a href="https://etla.kis.si/KIS-WebGIS/#config=eTLA_JAVNI.xml">https://etla.kis.si/KIS-WebGIS/#config=eTLA_JAVNI.xml</a>   |
| Rastlinam dostopna voda v TKE do 30 cm | Plant available water in Slovenia | Agricultural institute of Slovenia                   | Agricultural institute of Slovenia   | 1999         | 2014         | Slovenia | N/A               | N/A                   | Polygon   | 1:25,000      | Plant available water         | N/A                      | Only accessible under specific conditions | <a href="https://etla.kis.si/KIS-WebGIS/#config=eTLA_JAVNI.xml">https://etla.kis.si/KIS-WebGIS/#config=eTLA_JAVNI.xml</a>   |

## About the Links4Soils project



### Web links

Links4Soils results web page: Alpine Soil Platform – [www.alpinesoils.eu](http://www.alpinesoils.eu)

Links4Soils Interreg Alpine Space project web page: [www.alpine-space.eu/projects/links4soils](http://www.alpine-space.eu/projects/links4soils)

### Links4Soils project partners



Agricultural Institute of Slovenia, SI (project leader)  
*Kmetijski inštitut Slovenije*



Slovenian Forest Service, SI  
*Zavod za gozdove Slovenije*



Office of the Tyrolean Government, AT  
*Amt der Tiroler Landesregierung*



Climate Alliance Tirol, AT  
*Klimabündnis Tirol*



Institute of Geography, University of Innsbruck, AT  
*Institut für Geographie, Universität Innsbruck*



University of Turin, Department of Agricultural, Forest and Food Sciences, IT  
*Università degli Studi di Torino, Dipartimento di Scienze Agrarie, Forestali e Alimentari*



Autonomous Region of Aosta Valley, IT  
*Regione autonoma Valle d'Aosta*



National Research Institute of Science and Technology for the Environment and Agriculture, Grenoble Regional Centre, FR  
*Institut national de recherche en sciences et technologies pour l'environnement et l'agriculture, Grenoble*



Municipality of Kaufering, DE  
*Markt Kaufering*