**Readme file for the LUCAS 2015 Spectral data**

(04/11/2020)

This package contains the spectral data of the LUCAS 2015 Soil survey (file *LUCAS2015\_Soil\_Spectra\_EU28*). Diffuse reflectance spectra were collected for **21782 samples** in the visible (400 to 780 nm) and the near infrared (780 to 2500 nm) regions with 0.5 nm spectral resolution. Measurements were carried out following the protocol of the Soil Spectroscopy Group ([[1]](#footnote-1)) with a FOSS Rapid Content Analyzer ([[2]](#footnote-2)). Two spectra were collected per sample, rotating the sample container each time so that each measurement spots a different area of the soil sample. The values in the file are Absorbance.

The package contains one CSV file for each member state. Altogether, there are 28 CSV files, including UK. In the files, each sample is identified by its Point ID and Soil ID. Each row contains a spectrum. The data are absorbance in the vis-NIR regions.

Description of the fields in the 28 CSV files:

|  |  |  |
| --- | --- | --- |
| **Field** | **Description** | **Units/**  **Values** |
| **Source** | Unique identifier of the sample in the laboratory (for ESDAC internal purposes only | LU\_$$\_$$.txt |
| **SampleID (2)** | Unique identifier of the two spectra collected per sample | Soil ID\_1  Soil ID\_2 |
| **PointID (1)** | Unique identifier of the LUCAS survey point. | 8 digits number |
| **NUTS\_0** | ISO country code for each member state | 2 letters |
| **SampleN** | Unique identifier of the soil sample | 5 digits number |
| **Spectrum between 400 – 2500 nm** | Absorbance data in the vis-NIR regions (400 to 2500 nm) with 0.5 nm resolution | Absorbance |

1. In order to find the correspondence between the LUCAS 2015 spectral data and general LUCAS 2015 campaign data or LUCAS 2015 Topsoil data, you need to use the PointID values.
2. For some samples there is only one spectrum.

**Number of samples for which spectra exist:**

|  |  |
| --- | --- |
| **NUTS\_0** | **n** |
| AT | 531 |
| BE | 145 |
| BG | 525 |
| CY | 76 |
| CZ | 439 |
| DE | 1686 |
| DK | 222 |
| EE | 194 |
| EL | 641 |
| ES | 4026 |
| FI | 1148 |
| FR | 3028 |
| HR | 114 |
| HU | 412 |
| IE | 196 |
| IT | 1641 |
| LT | 352 |
| LU | 13 |
| LV | 307 |
| MT | 3 |
| NL | 171 |
| PL | 1375 |
| PT | 447 |
| RO | 1083 |
| SE | 1890 |
| SI | 147 |
| SK | 228 |
| UK | 742 |
| Total | 21782 |

1. http://groups.google.com/group/soil-spectroscopy [↑](#footnote-ref-1)
2. XDSTM Rapid Content Analyzer User Manual, FOSS 2010 [↑](#footnote-ref-2)