

TELLUS DEEPER TOPSOILS GEOCHEMISTRY

SURVEY

DATA RELEASE

SURVEY AREA G1, G3 and G6 Dublin Galway periurban

JUNE 2022

1. SURVEY AREAS

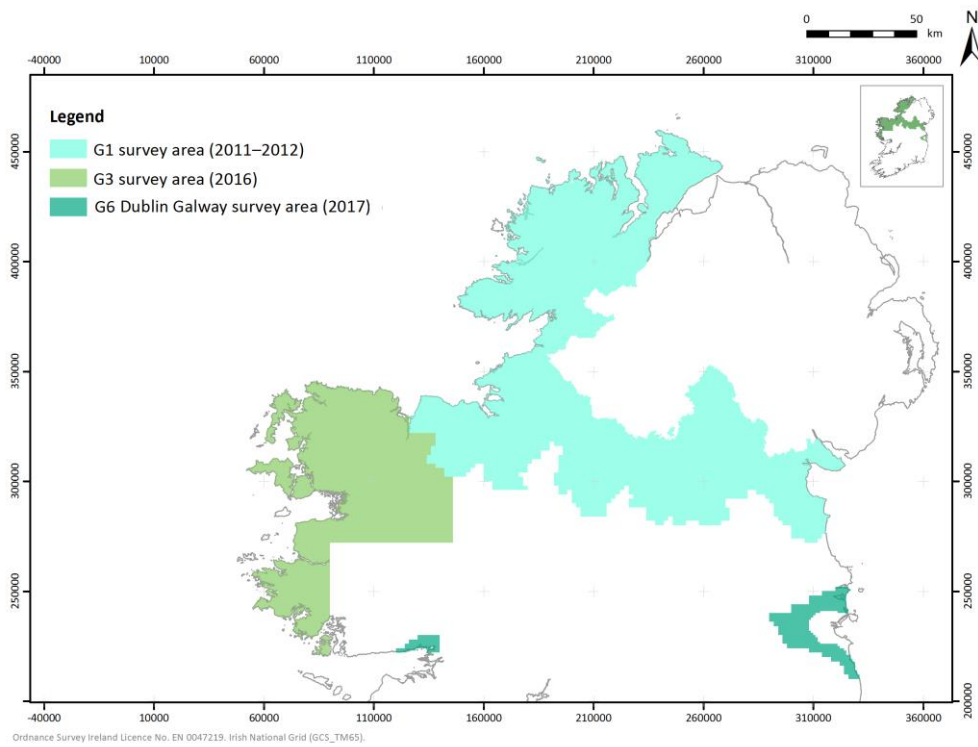
The Tellus geochemistry programmes, part of Geological Survey Ireland's flagship project to sample and measure the geochemical characteristics of the shallow subsurface across Ireland, has been underway since 2011. Its aim is to produce spatial data to determine a surficial geochemical baseline of shallow and deeper topsoil, stream sediment and stream water sample media in predominantly rural Ireland. Work began in the border region to complement the Tellus project of Northern Ireland, completed in 2008, and surveying has systematically extended in a southerly direction since.

This data release relates to geochemical sampling survey areas G1 and G3, which were undertaken in 2011-2012 and 2016 respectively, and the G6 area. Survey area G1 covers the border counties sampled during Tellus Border campaign. Survey area G3 covers majority of county Mayo while survey area G6, Dublin Galway periurban, targeted the metropolitan area of both cities and was carried out in 2017 (see Map 1 and Map 2 below).

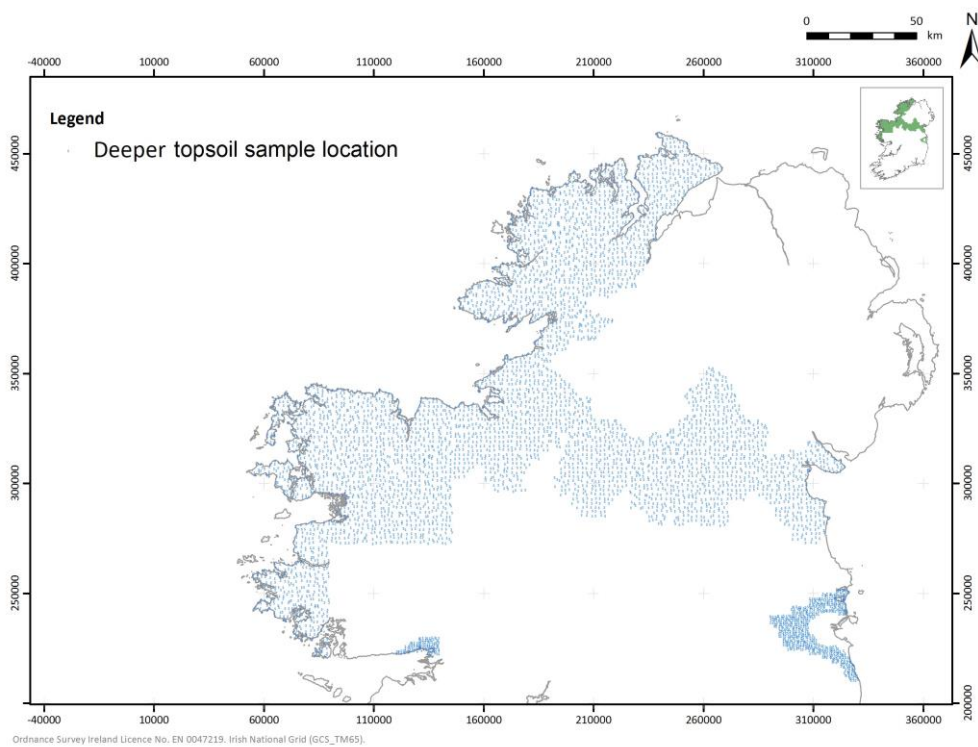
Within the data release for G1, G3 and G6 Dublin Galway periurban there are a total of 5643 sample sites at a typical density of one sample per four square kilometres (4 km²).

Deeper topsoil samples were routinely analysed by several methods:

- Soil loss-on-ignition at 450°C.
- Soil pH by CaCl₂ slurry.
- Multi-element total analyses of major, minor and trace elements by X-ray fluorescence spectrometry (XRFs) on pressed powder pellets.
- Multi-element analyses for a range of major, minor and trace elements by ICP following aqua regia digestion ("ICP_{ar}").



Map 1. Locality of the Tellus survey areas G1, G3 and G6.



Map 2. Deeper topsoil sample locations in survey areas G1, G3, and G6.

2. URLS FOR DATA DOWNLOAD

Data and supporting documentation may be downloaded from the GSI website at the following URLs:

Data package:

[GSI_Tellus_Geochemistry_G1_G3_G6_S_Data_Files.zip]

https://gsi.geodata.gov.ie/downloads/Geochemistry/Data/GSI_Tellus_Geochemistry_G1_G3_G6_S_Data_Files.zip

QC Data Report:

[GSI_Tellus_Geochemistry_G1_G3_G6_S_QC_Report.pdf]

https://gsi.geodata.gov.ie/downloads/Geochemistry/Reports/GSI_Tellus_Geochemistry_G1_G3_G6_S_QC_Report.pdf

QC and EDA plot package:

[GSI_Tellus_Geochemistry_G1_G3_G6_S_QC_and_EDA_plots]

https://gsi.geodata.gov.ie/downloads/Geochemistry/Data/GSI_Tellus_Geochemistry_G1_G3_G6_S_QC_and_EDA_plots.zip

For support and further information at GSI: Tellus, tellus@gsi.ie, +353 (0)1 6782742.

3. RELEASE INFORMATION FOR ANALYTICAL DATA

Geochemical data for pH (CaCl₂), LOI (at 450°C), XRFs and ICP_{ar} analyses on <2 mm fraction deeper topsoil (0.35 to 0.50 m depth). Unique sample ID is a combination of site number and sample media code. Location easting and northing co-ordinates are in Irish National Grid. In case of non-detects, i.e. data reported by the laboratory as "< LLD", data are censored to half the method LLD. For elements where significant proportion of observations fall below the accredited LLD, non-accredited, uncensored below-LLD data are also provided (B, Ta, Pd, Pt and Re).

- **58xxxxS-60xxxxS_Deepier_Topsoil_Download_v2_2:**
[58xxxxS-60xxxxS_Deepier_Topsoil_Download_v2_2.xlsx]

Data and documents in this release supersede materials marked as version 2.0 published in June 2021, and v2.1. QC report and QC plot package was updated to include additional reference materials. For detailed list of changes to the data set please consult the "read me" file included in the data package.

Supporting information:

- **Knights, K.V. Tellus geochemical survey: deeper topsoil data from outer Dublin, the border, north, and west of Ireland. Geological Survey Ireland, 2022.**
[GSI_Tellus_Geochemistry_G1_G3_G6_S_QC_Report.pdf]