TELLUS DEEPER TOPSOILS GEOCHEMISTRY SURVEY

DATA RELEASE

SURVEY AREAS G7 and G9

February 2026

1. SURVEY AREAS

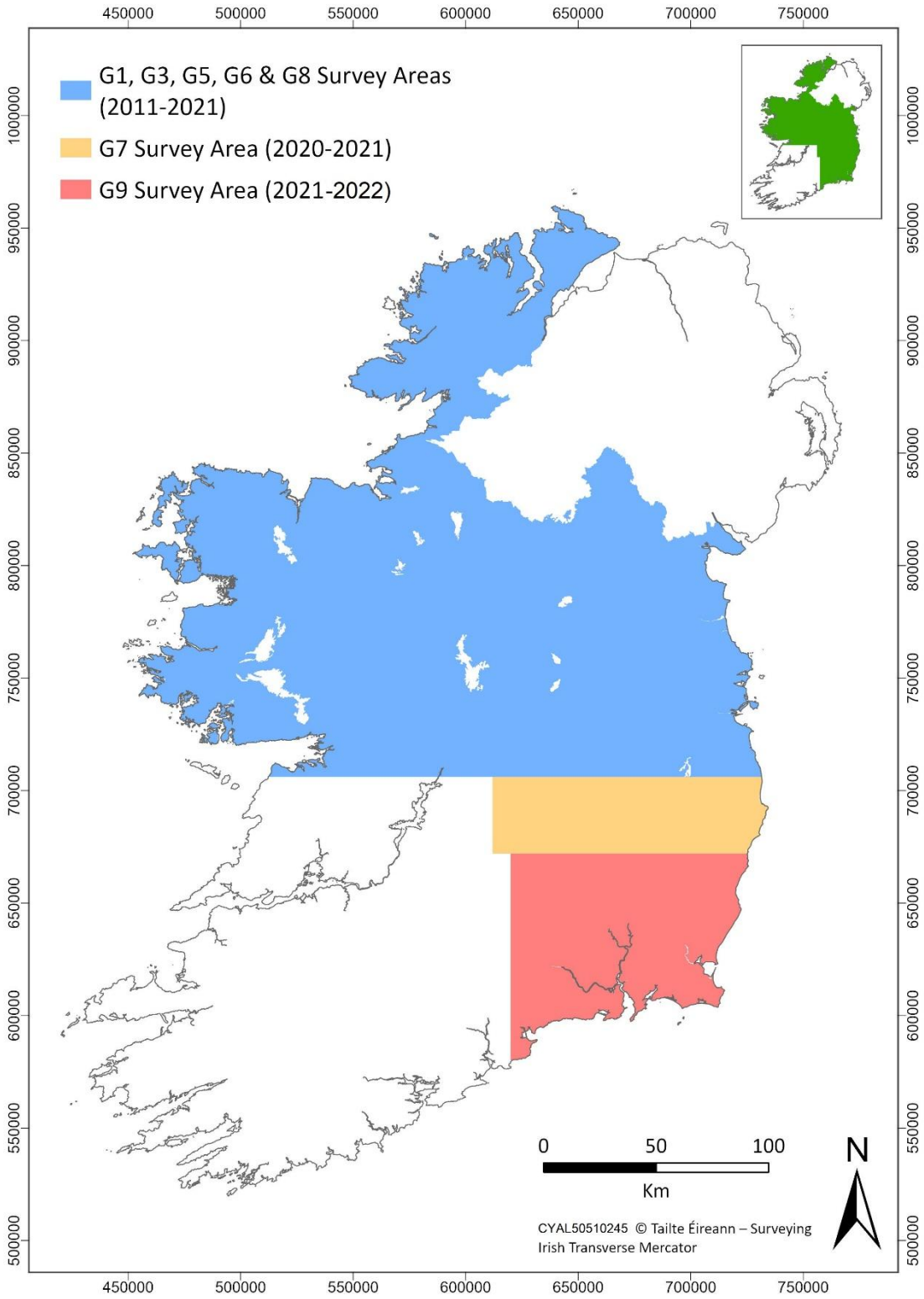
Geological Survey Ireland has embarked on a flagship project to sample and measure the geochemical characteristics of the shallow subsurface across Ireland. The Tellus geochemistry programme is underway since 2011. Its aim is to produce spatial data to determine a surficial geochemical baseline of shallow and deeper topsoil, stream sediment and stream water sample media across 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 area G7, which was undertaken from 2020-2021, and survey area G9, undertaken from 2021 to 2022. Survey areas G7 and G9 cover the southeast of Ireland and bring a total country coverage for deeper topsoil to approximately 68% (see Map 1 and Map 2 below).

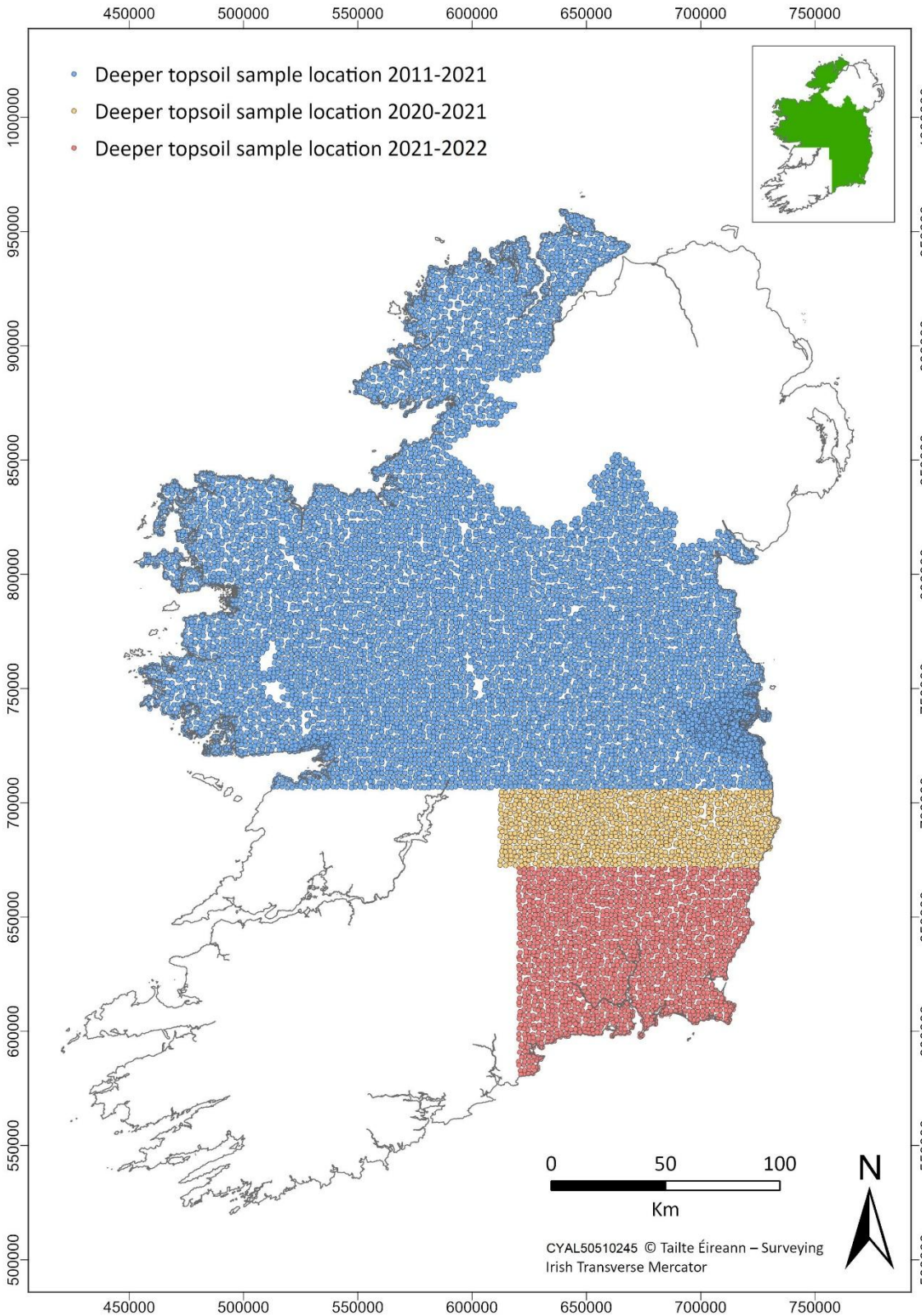
Within the data release for the G7 and G9 survey areas, there are a total of 2820 sample sites at a typical density of one sample per four square kilometres (4.0 km^2).

Deeper topsoil samples were routinely chemically analysed by several methods:

- Soil loss-on-ignition at 450°C.
- Soil pH by $CaCl_2$ slurry.
- Multi-element analyses for a range of major, minor and trace elements by aqua regia digestion with an ICP finish "ICP_{ar}".



Map 1. Locality of the Tellus survey areas G1, G3, G5, G6, G8 (blue); G7 (yellow) and G9 (red).



Map 2. Deeper topsoil sample locations in survey areas G1, G3, G5, G6, G8 (blue); G7 (yellow) and G9 (red).

2. URLs FOR DATA DOWNLOAD

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

Data package:
https://gsi.geodata.gov.ie/downloads/Geochemistry/Data/IE_GSI_Geochemistry_Deeper_Topsoil_S_G7_G9_South_East_ITM.zip

QC Data Reports:
https://gsi.geodata.gov.ie/downloads/Geochemistry/Reports/IE_GSI_Geochemistry_Deeper_Topsoil_S_G7_East_Central_ITM_Report.pdf

https://gsi.geodata.gov.ie/downloads/Geochemistry/Reports/IE_GSI_Geochemistry_Deeper_Topsoil_S_G9_South_East_ITM_Report.pdf

QC and EDA plot packages:
https://gsi.geodata.gov.ie/downloads/Geochemistry/Data/IE_GSI_Geochemistry_Deeper_Topsoil_S_G7_East_Central_QC_and_EDA_plots.zip

https://gsi.geodata.gov.ie/downloads/Geochemistry/Data/IE_GSI_Geochemistry_Deeper_Topsoil_S_G9_South_East_QC_and_EDA_plots.zip

For support and further information at GSI: Tellus, tellus@gsi.ie.

3. RELEASE INFORMATION FOR ANALYTICAL DATA

Geochemical data for analytes by pH (CaCl2), LOI (at 450°C) 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 co-ordinates data easting and northing are in Irish Transverse Mercator. 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 a very large proportion of observations fall below the accredited LLD, non-accredited, uncensored below-LLD data are also provided (B, Ta, Pd and Pt). Conditioned pH data are calculated using the linear regression relationship between the relevant block of data and the mean values for the pH SRMs for blocks up to G6 (G7S Intercept: 0.38; Slope: 0.954. G9S Intercept: 0.289; Slope: 1.01). Users are cautioned that no conditioning or correction factors have been applied to the data, other than for pH. Therefore, boundary affects for some elements may be apparent if mapping alongside other Tellus datasets.

- **IE_GSI_Geochemistry_Deeper_Topsoil_S_G7_G9_South_East_ITM_6175xxS-6307xxS_Download_v1.0:**
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