



Tellus Ground Survey 2021 - Frequently Asked Questions:

What is the ground survey?

The Tellus ground survey is part of a national programme to gather geochemical and geophysical data across the island of Ireland to examine the chemical and physical properties of our soils, rocks and water. As part of this, the Tellus geochemical team carries out a ground survey to collect soil and stream samples to map trace elements in the soil and streams of Ireland. Using modern scientific methods, we are able to create a regional scale map of the geochemical make up of Ireland's near surface, in other words, Ireland's underlying rock chemistry.

Tellus Geochemical Survey 2021 | G9 Block (South East Ireland)



Why do we need to do this survey?

The survey will give a comprehensive picture of the environment in the region today. This will help us sustainably manage the environment, natural resources and protect public health in the future. Previous Tellus surveys have:

- Improved our understanding of how trace elements (the presence of minerals and/or chemicals in the earth) which are essential for animal or crop health, are distributed in the environment.
- Provided improved data for the Geological Survey Ireland (GSI) to update geological maps for planning and research purposes.



- Provided new data to improve radon risk mapping.
- Assisted mineral exploration companies to invest locally.
- Facilitated new third-level research on environmental pollution, agricultural productivity, peat and wetlands.

Where does the name "Tellus" come from?

In Roman mythology, Tellus was the goddess of the Earth.

Is Tellus anything to do with...

1. Mineral exploration?

Tellus is not engaged in commercial mineral exploration. The data collected will be impartial and freely available to all, including mineral exploration companies who may use the data to assist their exploration programmes and regulators responsible for permitting such activities. The data are likely to highlight areas which would be of interest to mineral exploration companies for further investigation, but the data alone cannot indicate where economic mineral deposits are present. Previous Tellus surveys have stimulated considerable investment into local economies from mineral exploration companies who use the data as part of their exploration programmes.

2. Fracking?

Data collected as part of the Tellus Survey does not assist in fracking. Whatever data is collected as part of the Tellus ground survey will be impartial and freely available to all, including petroleum and mineral companies who may use the data to better understand the geology and assist their exploration programmes, researchers studying the possible effects of shale gas extraction on the environment, environmental groups, and regulators responsible for permitting.

Furthermore, all shale gas or unconventional hydrocarbons hydraulic fracturing (or 'fracking') licensing or exploration in Ireland is now suspended by a Government moratorium. A bill has also recently passed which bans onshore fracking in Ireland.

3. Radon gas?

The rocks and soils across Ireland naturally contain minerals that are radioactive and are a source of radon gas. The Tellus airborne and ground surveys together measure and map a range of radiogenic elements at a high resolution, and the data used to map areas of potential radon gas risk. Research into this is being carried out in conjunction with the Office of Radiological Protection, part of the Environmental Protection Agency.

4. Bog conservation/turf cutting?

Tellus collects data on the land and surface environment including areas covered by peat; however, the project is not involved with the selection of bogs for conservation or the cessation of turf cutting.



Previously, research has been carried out using Tellus data in the border region on peat bogs to assess how much carbon is stored in peat and variation in peat deposit thickness.

5. Wind turbines?

The Tellus survey is not involved in any way with wind turbines.

6. Pylons?

The Tellus survey is not involved in any way with electricity pylons.

7. Septic tank inspection

The Tellus survey does not inspect septic tanks as part of its data collection activities.

8. Water meters?

The Tellus survey is not involved with installing or inspecting water meters or pipes.

What are soil samples and how are they collected?

Soil samples will be taken by teams of trained samplers, normally working in teams of two. Samples are collected using a hand tool only called an auger. They will collect two samples, one at 20 cm deep and one at 50 cm deep, with approximately 1 kg of soil collected from each depth — a similar weight and volume to that of a bag of sugar.

One soil site will typically be sampled every 4 km², which is about 1 sample per 400 hectares or approximately 1,000 acres. Across Ireland, there will eventually be over 25,000 soil sample sites visited. The soil samples are taken from land that best represents each 4 km² area, and in rural areas this tends to be farmland, open areas and woodlands. The locations are quite randomly distributed to ensure we collect a representative sample of the general area, so no individual landowners are targeted.

The samples will be analysed to find the concentrations of a range of chemical elements, please also refer to our technical specifications [page](#). The results will be useful for assessing the health of the environment, agricultural nutrients and trace elements, and signatures of the underlying rock chemistry. The results are not intended to provide information on individual landholdings; however, the results are published on the tellus.ie website, once they've been processed. The samples specific to your land can be identified via a unique ID number, which will be provided to you on the day of sampling, if desired.



What are stream samples and how are they collected?

Stream samples are collected by a pair of samplers wearing high visibility vests. They carry sampling equipment on their backs, which consists of two circular sieves that slot together on a back pack and a shovel. Stream samples are mainly collected from low order streams, the purpose of this is to give an indication of what trace elements are present in the stream catchment area. Stream sample sites are chosen depending on a variety of factors such as density of streams, geology of the local area and relief of terrain (topological factors of the earth's surface).

A typical stream sample consists of the following four components:

- Stream sediment sample
- Pan sample
- Water samples
- Vegetation sample

1. Stream sediment sample

The stream sediment sample is collected by sieving sediment from the active channel of the stream bed through two sieves. The sediment is dug up using a small shovel. The top sieve uses a >2mm sieve mesh and the bottom sieve is a 150 micron sieve mesh. Sediment material is left for at least 20 minutes in the cream coloured carbon fibre collection dish underneath, this time allows the fine fraction of sediment to sink to the bottom, leaving the stream water to settle out on top. Once separated, the stream water is decanted and the sediment is bagged. The paper sample bag is approximately the size of an iPhone. The majority of the material we sieve goes back into the stream and very little is removed.

2. The pan sample

The stream sediment that passes through the <2mm sieve and is too big to pass through the 150 micron sieve is used to collect the pan sample. The aim of panning is to collect heavy minerals present in the sediment. The water from the stream is used to swirl the sediment around the pan in a special technique called 'panning,' whereby the moving water separates and removes light material, allowing us to collect only heavy minerals. As the name 'heavy minerals' suggests, we are able to separate them out because their weight makes them sink to the bottom. The pan sample collected is very small and is about the same volume as a teaspoon.

3. Water samples

Stream water samples are split into three separate parts: filtered waters, alkalinity, and PH. The water is collected in order to measure things like the acidity and the metals that have dissolved in the stream water. For more information about water analysis, look at the geochemistry technical specifications page.

- Filtered waters are filtered through a 45 micron filter and are analysed in a laboratory.



- Total alkalinity: A sample bottle is filled with stream water and is measured for total alkalinity back in the field base.
- pH: A small sample bottle is collected to measure the stream pH and is measured back in the field base.

4. Vegetation sample

A vegetation sample is collected at stream sites where live wooded vegetation is present. Secateurs are used to trim approximately 10 pencil thick branches to fill a small sample collection bag.

5. Analysis of samples

The samples will be analysed to find the concentrations of a range of chemical elements, please also refer to our technical specifications page. The results will be useful for assessing the health of the environment, agricultural nutrients and trace elements, and signatures of the underlying rock chemistry. The results aren't intended to provide information on individual landholdings. An ID is given to every sample, if desired, during sample collection you will be provided with the ID for the samples from your land. Once the samples have been analysed you can access the results of the samples from your land using the ID.

Will my land be visited during the survey?

Your land may be visited if you are situated in our survey area, which is currently planned for parts of Carlow, Laois, Kilkenny, Tipperary, Waterford, Wexford and Wicklow from late summer 2021 until winter 2021/2022. Sample sites are chosen depending on a variety of factors, such as density of streams, geology of the local area and relief of terrain (topological factors of the earth's surface). Therefore, no specific property or farm is being targeted for the purposes of the Tellus ground survey. Sampling teams always endeavour to seek permission from the landowner to access private land and will be easily recognisable as they wear high visibility clothing, drive branded vehicles, and carry Department of Environment, Climate and Communications ID cards. If you are still concerned about the identity of the teams, you can call the free information line on 1800 45 55 65 for verification.

Is COVID-19 affecting the Tellus ground survey?

The Tellus ground survey began soil sampling later in 2021 than originally planned and has paused at certain times according to Government and HSE guidelines in relation to COVID-19. The Tellus survey continues to adhere to Government and HSE guidelines and further protocols have been implemented to protect the health of staff, landowners and local residents and the population as a whole.



Rialtas na hÉireann
Government of Ireland



Geological Survey
Suirbhéireacht Gheolaíochta
Ireland | Éireann

Where can I get more information?

The project is funded by the Department of Environment, Climate and Communications (DECC). The project is being managed by the Geological Survey Ireland which is the state geological agency. The survey work will be undertaken by qualified, highly specialised and experienced contractors on behalf of the Geological Survey Ireland.

You can contact us by email, phone or through our website to get more information on the Tellus Survey programme and ground survey.

Freephone: 1800 45 55 65

Email: tellus@gsi.ie

Twitter: [@TellusGSI](https://twitter.com/TellusGSI)

Website: www.tellus.ie