

About Tellus

Tellus is a national programme to gather geochemical and geophysical data across the island of Ireland, examining the chemical and physical properties of our soils, rocks and waters. The data will help to inform the management of Ireland's environment and natural resources. Tellus is undertaken by Geological Survey Ireland and is funded by the Department of the Environment, Climate and Communications.

Loss-on-Ignition | LOI

Shallow topsoil samples were collected from the northern half of Ireland between 2004 and 2019, as part of the Tellus geochemical survey projects of Geological Survey Ireland and the Geological Survey of Northern Ireland. The map represents almost 17,000 sites covering an area of just over 50,000 km² and incorporates a wide variety of geological domains in Ireland. Samples were collected at a typical density of one sample per 4 km² in Ireland and one sample per 2 km² in Northern Ireland.

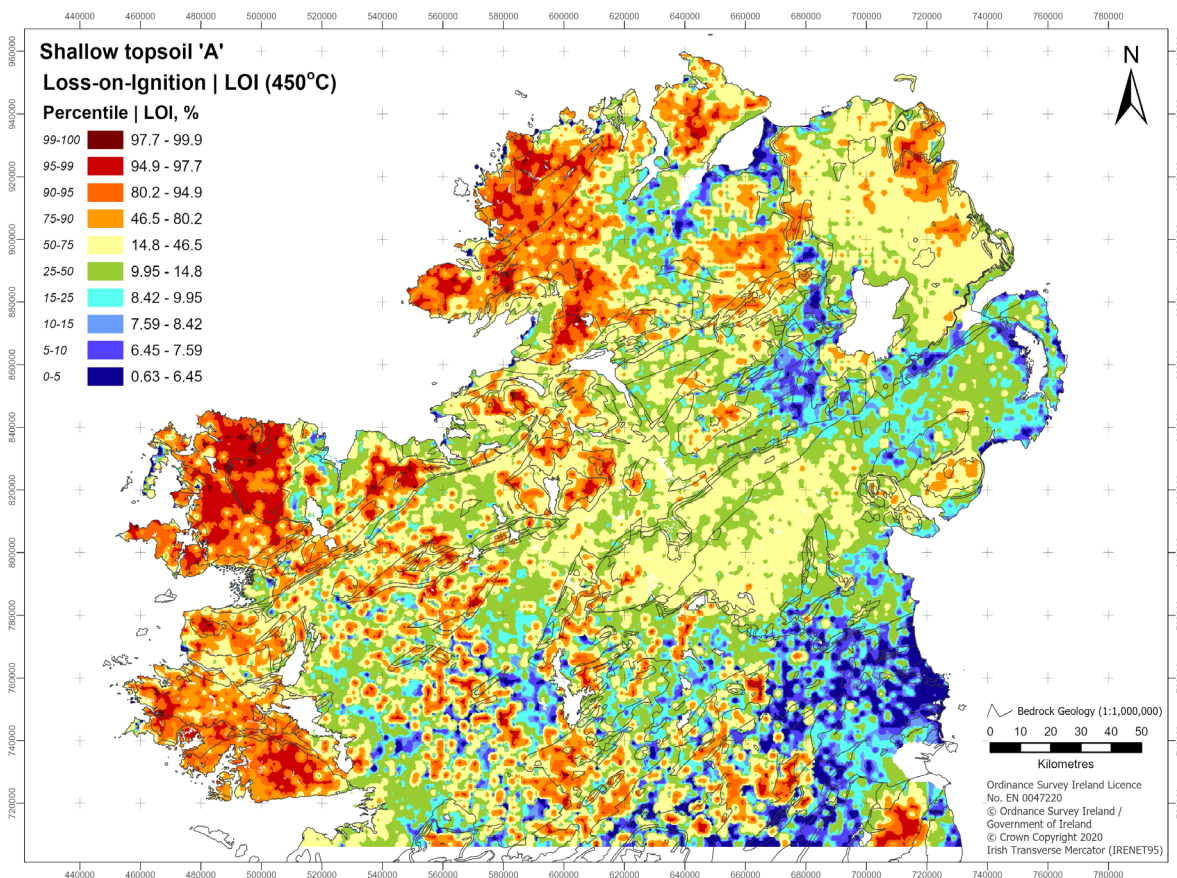
Laboratory analyses comprised soil pH (CaCl₂), loss-on-ignition at 450°C and multi-element partial-extract analyses of major, minor and trace elements by ICP following aqua regia digestion.

The map displays the range of measured loss-on-ignition (LOI) in shallow topsoil. Loss-on-ignition is determined by combusting pre-dried samples at 450°C for four hours and measuring the resultant weight loss, which is expressed as a percentage of the original sample weight. Combustion leads to loss of organic material and water in clay minerals from the soil, as well as decomposition of carbonate minerals. Most material lost is assumed to be organic matter and LOI can be used as a measure of the quantity of organic carbon present in the soil, of significance in climate change mitigation. Areas of high LOI on the map correspond very closely to areas of mapped peat and peaty soils, typically on high ground but also including the raised bogs of the midlands. Silicate-rich mineral soils overlying clastic rocks and soils overlying limestone and related bedrock typically have much lower measured LOI.

Free data & maps at www.gsi.ie/tellus

Geological Survey Ireland is a division of
the Department of the Environment, Climate and Communications

Geochemical Data in Shallow Topsoil Loss-on-Ignition | (LOI)



Rialtas na hÉireann
Government of Ireland