

Geochemical Data | Gadolinium (Gd) in stream water

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 the Geological Survey Ireland and is funded by the Department of Communications, Climate Action and Environment.

Gadolinium (Gd)

Stream water samples were collected at 6,836 sites in the north and west of Ireland, at a typical sampling density greater than one site per 4 km². The sampled area exceeds 24,000 km² (35% of the country) and includes a variety of geological domains in Ireland.

Multi-element analyses of 57 elements in stream waters were carried out by ICP-MS. Major anions were analysed by ion chromatography. Non-purgeable organic carbon was analysed by TIC/TOC analyser.

Broad areas of relatively high gadolinium (Gd) concentrations characterize stream waters over the Dalradian succession in Donegal and Mayo and the Namurian shales around Lough Allen. Lower Gd concentrations characterize areas of limestone bedrock and the geological boundary between limestone and greywackes in County Monaghan is well displayed on the map. More restricted high-Gd zones can be observed over the Galway and Newry granites and in areas of known mineralization such as Charlestown in County Mayo and Clontibret in County Monaghan. A strong positive Gd anomaly observed near Virginia in County Cavan has no obvious source, although other rare earth elements and chromium are also present in anomalously high concentrations here.

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