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METADATA STATISTICS OF THE NEW GLOBAL TERRESTRIAL NETWORK FOR PERMAFROST DATABASE

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The Page21 EU projects data management group (work package 8) operates towards providing a web-based resource for the Global Terrestrial Network for Permafrost (GTN-P), aiming to enable the assessment of the relation between ground temperature, gas fluxes and the Earth's climate system. The dynamic and comprehensive GTN-P database contains time series for borehole temperatures and grids of active layer thickness (TSP, CALM) as well as air and surface temperature and moisture (DUE Permafrost, MODIS) from terrestrial Panarctic, Antarctic and Mountainous realms. The permafrost monitoring parameters are accompanied by detailed metadata following international standards for geospatial metadata ISO 19115/2 and TC/221. As an open-source spatio-temporal database it is implemented with PostGIS, the spatial version of PostgreSQL, following the object-oriented logic. Carefully designed user interfaces, tutorials, templates, and the nomination of National Correspondents (NCs) provide the tools to facilitate the smooth input and extraction of data. The output is provided in popular formats including csv, xml, NetCDF, kml, and shapefiles for GIS.

We assessed the quality of the database content and performed statistics on the GTN-P metadata set to detect inhomogenous sample distribution in the Panarctic realm using a Voronoi Tessellation Analysis. To identify main geographical gaps we compared the results with relevant environmental parameters, such as the spatial distribution of organic carbon contents and the expected temperature differences at the end of the 21st century according to climate models.