**Compilation of mean monthly water table depth data (2015-2023) and linkages to further published sources of water table data, from European peatlands**

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**Accompanying information and important disclaimers**

**Version 2 (September 2024)**

This dataset is deposited to meet the requirements of the grant agreement for one of two contributing sources of funding for this work (see Funding contributions). These data products were produced to meet Deliverable 1.4 of the WetHorizons project (Task 1.3), for the sole purpose of facilitating the development and testing of a space-time model of water table depth dynamics and condition in peatlands and other wetlands in a number of European catchments. We located a total of 376 datasets that contained at least daily observations of water level between January 2015 and September 2023, using a combined search of published literature and data deposits.

This dataset (WH\_D1\_4\_meanmonthly\_v2.csv) contains mean monthly water table depth data for 211 of the 376 point locations, for which the data were originally captured at a higher temporal resolution and were additionally clipped to the temporal window (2015 onwards) of the available Earth Observations in the Sentinel-1 and Sentinel-2 archive. Links to higher resolution/longer time series of these source data, where these are already in the public domain, have been identified in the data submission in case future data users require more detailed water table datasets.

The associated metadata file (WH\_D1\_4\_metadata\_v2.csv) contains, in order of the first line of the csv attribute fields: the site ID codes, site co-ordinates (Lat/Long), information about the available data period (see below), water table monitoring instruments used (where available), a condition classifier at each point observation that refers to the 10 m resolution, the main wetland type, and links to parent data. This final attribute also contains links to the 165 further, already publicly available, datasets with water table time series observations from peatlands as identified through web and literature searches by the contributing authors, where these links were live at the time of the submission of this deliverable. The authors of the present data submission are not responsible for maintaining these datasets or the maintenance of the weblinks to the data via their respective data portals. Mean monthly values for these 165 datasets were computed for the purpose of the deliverable, but not uploaded here in case any of the public parent data change in future.

Data that were made available to the project or downloaded via public repositories were further processed and harmonized as follows. For internal consistency, all site co-ordinates were converted to Lat Long decimals. All water table data were converted to common units (metres) and checked that observations below ground level were expressed as negative values, and values above ground water level (inundation) as positive values. In order to minimise unnecessary data compilation for the model development, we excluded data prior to 2015, due to this being the earliest year for which Sentinel-2 and 1 data archives are available. Additionally, we checked the data quality for each of the water table time series visually to identify any implausible values, steps, or gaps in the data. All data were aligned to account for temporal gaps in observations in the parent data. Mean monthly values were subsequently computed. The final step in the data preparation was to exclude any monthly periods with completely missing data, months with fewer than 27 daily contributing observations and/or where there were clearly visible data gaps in periods of high temporal variability, and/or where there were implausible values or major step changes in the parent values. These QC checks resulted in -9999 values in this dataset. Where N/A is in the metadata, information for this field could not be obtained during the timeframe and with the resources available to compile this dataset.

**Author contributions:**

RA was responsible for the co-ordination across the contributing authors and performed literature and web searches for data. RA, GDS and CS contributed roughly equally to the data production for the Scottish datasets, RA performed the compilation, processing and harmonisation and data QC. AL, CN, MG, TH, CF, DW and AK contributed data and feedback on draft compiled datasets, as well as identifying further data sources external to the project team. RA prepared this data submission documentation. SW is the overall project co-ordinator for the WetHorizons project.

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Data from UK sites UK-BAL, CrossLochs, Lonielist, Raphan and Talaheel were obtained and processed to daily resolution under a separately funded project. These source data were gathered via funding from NatureScot Peatland ACTION for the equipment, and for the staff time and computing and data storage requirements via funding from Scottish Government RESAS Strategic Research Programmes 2016-2021 and the KJHI-D3-2 project (CentrePeat, 2022-2027).

Data from UK site Balmoral where ID codes include ‘GDS’ were obtained and processed to daily resolution, and, along with all other data processing of the datasets to the mean monthly resolution in this submission, was funded via the main contributing funded project, the HORIZON Research and Innovation Actions project Wet Horizons (September 2022- August 2026, Project 101056848), for which the UK partner contribution is funded via the UK Government Horizon Europe Guarantee.