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Peat soil organic matter composition depth profiles – is the diplotelmic model real?

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Measures of bulk density and organic matter composition provide important insights into peat formation, degradation and hydrology as well as carbon and nutrient cycles, and indeed underpin the diplotelmic model of peat formation. This study presents soil core data from 23 upland and lowland peat sites across the United Kingdom. A series of soil cores up to ∼3m depth were analysed for bulk density, gross heat value (energy content) and carbon, hydrogen, nitrogen and oxygen composition. Atomic ratios of C/N, H/C and O/C were used as indicators of the origin and quality of soil organic matter. Results show no consistent soil depth profiles evident across multiple sites, this challenges whether historical interpretations of peat soil formation and structure are appropriate.