Project	Physical and geochemical properties of Scottish saltmarsh soils.
Funding	USA/015/20
Staff Responsible	William Austin
Research Team	1. Lucy C. Miller *(University of St Andrews)* 2. Craig Smeaton *(University of St Andrews)* 3. Angus Garbutt (*UK Centre of Ecology and Hydrology*) 4. William E.N. Austin *(University of St Andrews/Scottish Association of Marine Science)*

Metadata Type	**Details**
Data Resource ID	Physical and geochemical properties of surficial (top 10cm) soils from Scottish saltmarshes.
Description of dataset	Wet and Dry bulk density organic carbon content and national vegetation classification (NVC) of 79 surficial soil (top 10cm) samples obtained from five Scottish saltmarshes.
Locations of the observations	Scotland Geographic Extent: 54.251069, -6.262840 54.564402, 0.464285 58.742170, -0.204728 58.994955, -7.092833 Site locations presented as decimal longitude and latitude (WGS84), and as X easting and Y northing in the data resource.
Location Descriptions	All sites are located in similar environmental regions of Scotland to allow for comparable data. Furthermore, the sites were chosen from around Scotland's coastline to provide an accurate representation of saltmarshes, sediment types, and organic carbon content within Scotland.
Names of the variables or parameters observed or simulated	National Vegetation Classification (NVC) Wet bulk density (g cm^{-3}) Dry bulk density (g m^{-3}) Organic carbon content (%) Soil Texture

All procedures used to make observations or simulations (field/lab where applicable)	**Sediment sampling:** 79 surface sediment cores were collected from five Scottish saltmarshes. Samples were collected using a modified syringe sampler (60ml). Core descriptions were taken during sample collection following the Troels-Smith classification scheme. DGPS was used to record the location of the sample sites. **Soil Texture:** The soil was classified into three types (organic, sandy or not sandy) following the methodology of Ford et al., (2019). **Sediment sample preparation:** The sediment samples were weighed prior and post drying at 60^{o}C for 72 hours to allow for bulk density (g cm^{-3}) to be calculated (Dadey *et al.,* 1992). **Carbon quantification:** The samples were milled into a fine powder. 50mg of the sample were added to a crucible. The samples were analysed using a Elementar Soli TOC using the temperature gradient method (DIN 19539; Natali et al., 2020; Smeaton et al., 2021) of elemental analysis to quantify OC. **Vegetation surveying:** Sample sites were mapped out along a transect extending from the mudflat at the front of the marsh inland. At each sample site, individual flora species were accounted for using a percentage scale and converted to NVC classes following the standard methodology (Rodwell, 2000).
Calibration procedures, where applicable	The Soli TOC was calibrated using Calcium Carbonate ($CaCO_3$) and Silty soil TOC/ROC/TIC standards (B2290).
Statistical treatment of the observations or simulations	NA
Data checking procedures (quality control)	All laboratory equipment were calibrated in accordance with the laboratory practises at the University of St Andrews. Soil texture was determined through applying the classification method of Ford et al., (2019) and expert judgement. To assure the quality of these assessments four team members undertook the classification independently of one another with the combined result being reported.
File formats used	.csv
Other information	NA indicates no data in cells.

References	Dadey, K.A., Janecek, T. and Klaus, A., 1992. Dry-bulk density: its use and determination. In Proceedings of the Ocean Drilling Program, Scientific Results (Vol. 126, pp. 551-554). College Station, TX, USA: National Science Foundation, & Joint Oceanographic Institutions Incorporated. DIN 19539: 2015-08, Investigation of solids Temperature dependent differentiation of Total Carbon (TOC400, ROC, TIC900). Ford, H., Garbutt, A., Duggan-Edwards, M., Harvey, R., Ladd, C. and Skov, M.W., 2019. Large-scale predictions of salt-marsh carbon stock based on simple observations of plant community and soil type. Biogeosciences, 16(2), pp.425-436. Natali, C., Bianchini, G., & Carlino, P. (2020). Thermal stability of soil carbon pools: Inferences on soil nature and evolution. Thermochimica Acta, 683, 178478. Rodwell, J.S., 2000. vol. 5: Maritime communities and vegetation of open habitats. Smeaton, C., Hunt, C.A., Turrell, W.R. and Austin, W.E., 2021a. Marine Sedimentary Carbon Stocks of the United Kingdom's Exclusive Economic Zone. Frontiers in Earth Science, 9, p.50. Troels-Smith, J., 1955. Characterization of unconsolidated sediments. Reitzels Forlag.

Data resource description for Physical_geochemical_properties_surface_samples.csv		
Header	**Description**	**Cell Format**
Core_ID	Core identification	Text
Marsh_ID	Saltmarsh name	Text
Sampling_year	Year of sample collection	Number
Local_authority	Local authority responsible for the saltmarsh	Text
Marsh_type	Back-barrier	Text
	Fringing	
	Estuarine	
	Embayment	
Marsh_zone	Low-Mid	Text
	High	
Sampling_depth_cm	Depth of soil sample (cm)	Number
Lat_dec_deg	Latitude reported in decimal degrees using the WGS84 projection	Number
Long_dec_deg	Longitude reported in decimal degrees using the WGS84 projection	Number
X_easting	Location reported as X (Easting)	Number
Y_northing	Location reported as Y (Northing)	Number
NVC	National Vegetation Class	Text
Wet_bulk_density_g_cm_3	Wet bulk density (g cm^{-3})	Number
Dry_bulk_density_g_cm_3	Dry bulk density (g cm^{-3})	Number
OC_%	Organic carbon content (% wt.)	Number
Soil_texture	Sandy	Text
	Not-Sandy	
	Organic (>40% LOI)	