Title	Soil organic carbon fractions over NSW
Alternative title(s)	SOC fractions over NSW
Abstract	The dataset contains digital soil maps of three principal soil organic carbon (SOC) fractions across NSW: particulate organic carbon (POC), humic organic carbon (HOC) and resistant organic carbon (ROC), which represent fractions of increasing bio-chemical stability. The 100 m resolution rasters cover depth intervals 0-10 cm, 10-30 cm and 0-30 cm. Maps for mean, lower 5% and upper 95% confidence intervals are provided. They were derived from random forest modelling of 427 profile points across NSW from 2008-09 with mid-infrared (MIR) derived carbon fractions and a set of 16 predictor variables. The products are important for modelling soil carbon dynamics for carbon accounting, and as a potential indicator of soil quality. The products are more fully described in: Gray JM, Karunaratne SB, Bishop TFA, Wilson BR, Veeragathipillai M 2019, Driving factors of soil organic carbon fractions over New South Wales, Australia. Geoderma 353, 213-226. https://doi.org/10.1016/j.geoderma.2019.06.032

Resource locator

Data Quality Statement	Name: Data Quality Statement Protocol: WWW:DOWNLOAD-1.0-http--download Description: Data quality statement for Soil organic carbon fractions over NSW Function: download
SOC fraction maps for NSW, 0-10 cm	Name: SOC fraction maps for NSW, 0-10 cm Protocol: WWW:DOWNLOAD-1.0-http--download Description: Digital soil maps at 100 m resolution over 0-10 cm depth of three principal soil organic carbon fractions across NSW: particulate organic carbon (POC), humic organic carbon (HOC) and resistant organic carbon (ROC) (units: t/ha) Function: download
SOC fraction maps for NSW, 10-30 cm	Name: SOC fraction maps for NSW, 10-30 cm Protocol: WWW:DOWNLOAD-1.0-http--download Description: Digital soil maps at 100 m resolution over 10-30 cm depth of three principal soil organic carbon fractions across NSW: particulate organic carbon (POC), humic organic carbon (HOC) and resistant organic carbon (ROC) (units: t/ha) Function: download
SOC fraction maps for NSW, 0-30 cm	Name: SOC fraction maps for NSW, 0-30 cm Protocol: WWW:DOWNLOAD-1.0-http--download Description: Digital soil maps at 100 m resolution over 0-30 cm depth of three principal soil organic carbon fractions across NSW: particulate organic carbon (POC), humic organic carbon (HOC) and resistant organic carbon (ROC) (units: t/ha) Function: download
SOC fraction proportions, 0-30 cm	Name: SOC fraction proportions, 0-30 cm Protocol: WWW:DOWNLOAD-1.0-http--download Description: Relative proportions of fractions, including SOC Vulnerability Index (POC/(HOC + ROC)*100)

	Function: download
Journal paper (pre-publication version)	Name: Journal paper (pre-publication version) Protocol: WWW:DOWNLOAD-1.0-http--download Description: Pre-publication version of: Gray et al. 2019, Driving factors of soil organic carbon fractions over New South Wales, Australia. Geoderma 353, 213-226. https://doi.org/10.1016/j.geoderma.2019.06.032 Function: download

Unique resource identifier

Code	b6e00802-1c02-44f5-83e1-2f0abe66a17a

Presentation form	Map digital
Edition	version 1
Dataset language	English

Metadata standard

Name	ISO 19115
Edition	2016

Dataset URI	https://datasets.seed.nsw.gov.au/dataset/b6e00802-1c02-44f5-83e1-2f0abe66a17a
Purpose	For modelling soil carbon dynamics for carbon accounting
Status	Completed
Spatial representation type	grid

Spatial reference system

Code identifying the spatial reference system	4283

Spatial resolution	100 m
Additional information source	Soil profiles collected and analysed during the 2008-09 NSW Monitoring Evaluation and Recording (MER) program

Topic category

Keyword set

keyword value	SOIL CLIMATE-AND-WEATHER-Climate-change
Originating controlled vocabulary	
Title	ANZLIC Search Words
Reference date	2008-05-16

Geographic location

West bounding longitude	141
East bounding longitude	154
North bounding latitude	-37.7
South bounding latitude	-28
NSW Place Name	all NSW

Vertical extent information

Minimum value	-100
Maximum value	2228
Coordinate reference system	
Authority code	urn:ogc:def:cs:EPSG::
Code identifying the coordinate reference system	5711

Temporal extent

Begin position	2008-03-31
End position	N/A

Dataset reference date

Resource maintenance

Maintenance and update frequency	Not planned
Contact info	
Contact position	Data Broker
Organisation name	NSW Department of Climate Change, Energy, the Environment and Water
Telephone number	131555
Email address	data.broker@environment.nsw.gov.au
Web address	https://www.nsw.gov.au/departments-and-agencies/dcceew
Responsible party role	pointOfContact

Lineage	The digital soil maps of the three fractions (POC, HOC and ROC) were prepared for the three depths (0-10, 10-30 and 0-30 cm). Source data was 427 profile points across NSW collected during the 2008-09 NSW MER program with mid-infrared (MIR) derived carbon fractions, bulk density values from each site, and a set of 16 environmental predictor variables. Random forest (RF) modelling was applied with 10 bootstrap iterations and stacking the resulting outputs (using customised code with randomForest package in R statistical software). A natural log transformation was applied to the SOC values to achieve normality. Initial models were prepared for SOC density (kg m-3), but the final maps are presented as SOC stocks (Mg ha-1). Upper 95% and lower 5% prediction interval maps were derived using results from the 10 RF iterations. Validation of the final digital soil maps was carried out using a randomly selected 20% of the initial dataset.

Limitations on public access

Scope	dataset

DQ Completeness Commission

Effective date	2019-03-30
Explanation	The maps cover all NSW and the ACT

DQ Completeness Omission

Effective date	2019-03-30
Explanation	The entire area of NSW and the ACT is covered, with only minor isolated gaps, which usually cover water bodies, salt pans or similar.

DQ Conceptual Consistency

Effective date	2019-03-30
Explanation	The maps are conceptually consistent

DQ Topological Consistency

Effective date	2019-03-30
Explanation	The maps are topologically consistent

DQ Absolute External Positional Accuracy

Effective date	2019-03-30
Explanation	Map validation over the 0-30 cm depth interval revealed Lin’s concordance values of between 0.60 to 0.74 and root mean square errors (RMSE) between 1.2 and 8.5 Mg ha-1. Other data on the reliability of the initial models and final maps for each depth are presented in the associated journal paper.

DQ Non Quantitative Attribute Correctness

Effective date	2019-03-30
Explanation	The maps are based on modelling with inherent limitations in the spatial patterns, as described in the associated journal paper (Gray et al. 2019)

Responsible party

Contact position	Data Broker
Organisation name	NSW Department of Climate Change, Energy, the Environment and Water
Telephone number	131555
Email address	data.broker@environment.nsw.gov.au
Web address	https://www.nsw.gov.au/departments-and-agencies/dcceew
Responsible party role	pointOfContact

Metadata point of contact

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Responsible party role	pointOfContact

Metadata date

2024-02-26T13:45:22.708513

Metadata language