

Title	Soil organic carbon fractions over NSW
Alternative title(s)	SOC fractions over NSW
Abstract	<p>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 biochemical 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.  <a href="https://doi.org/10.1016/j.geoderma.2019.06.032">https://doi.org/10.1016/j.geoderma.2019.06.032</a></p>
Resource locator	<div> <div> <a href="#">Data Quality Statement</a> </div> <div> <p>Name: Data Quality Statement</p> <p>Protocol: WWW:DOWNLOAD-1.0-http--download</p> <p>Description:</p> <p>Data quality statement for Soil organic carbon fractions over NSW</p> <p>Function: download</p> </div> </div> <div> <div> <a href="#">SOC fraction maps for NSW, 0-10 cm</a> </div> <div> <p>Name: SOC fraction maps for NSW, 0-10 cm</p> <p>Protocol: WWW:DOWNLOAD-1.0-http--download</p> <p>Description:</p> <p>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)</p> <p>Function: download</p> </div> </div> <div> <div> <a href="#">SOC fraction maps for NSW, 10-30 cm</a> </div> <div> <p>Name: SOC fraction maps for NSW, 10-30 cm</p> <p>Protocol: WWW:DOWNLOAD-1.0-http--download</p> <p>Description:</p> <p>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)</p> <p>Function: download</p> </div> </div> <div> <div> <a href="#">SOC fraction maps for NSW, 0-30 cm</a> </div> <div> <p>Name: SOC fraction maps for NSW, 0-30 cm</p> <p>Protocol: WWW:DOWNLOAD-1.0-http--download</p> <p>Description:</p> <p>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)</p> <p>Function: download</p> </div> </div> <div> <div> <a href="#">SOC fraction proportions, 0-30 cm</a> </div> <div> <p>Name: SOC fraction proportions, 0-30 cm</p> <p>Protocol: WWW:DOWNLOAD-1.0-http--download</p> <p>Description:</p> <p>Relative proportions of fractions, including SOC Vulnerability Index (POC/(HOC + ROC)*100)</p> </div> </div>

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

<b>Keyword set</b>	
keyword value	SOIL CLIMATE-AND-WEATHER-Climate-change
<b>Originating controlled vocabulary</b>	
Title	ANZLIC Search Words
Reference date	2008-05-16
<b>Geographic location</b>	
West bounding longitude	141
East bounding longitude	154
North bounding latitude	-37.7
South bounding latitude	-28
NSW Place Name	all NSW
<b>Vertical extent information</b>	
Minimum value	-100
Maximum value	2228
<b>Coordinate reference system</b>	
Authority code	urn:ogc:def:cs:EPSG::
Code identifying the coordinate reference system	5711
<b>Temporal extent</b>	
Begin position	2008-03-31
End position	N/A
<b>Dataset reference date</b>	
<b>Resource maintenance</b>	
Maintenance and update frequency	Not planned
<b>Contact info</b>	
Contact position	Data Broker
Organisation name	NSW Department of Climate Change, Energy, the Environment and Water
Telephone number	131555
Email address	<a href="mailto:data.broker@environment.nsw.gov.au">data.broker@environment.nsw.gov.au</a>
Web address	<a href="https://www.nsw.gov.au/departments-and-agencies/dcceew">https://www.nsw.gov.au/departments-and-agencies/dcceew</a>
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	<a href="mailto:data.broker@environment.nsw.gov.au">data.broker@environment.nsw.gov.au</a>
Web address	<a href="https://www.nsw.gov.au/departments-and-agencies/dcceew">https://www.nsw.gov.au/departments-and-agencies/dcceew</a>
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