Title	Digital soil maps for key soil properties over New South Wales, version 2.0
Abstract	Digital soil maps (DSMs) are prepared through quantitative modelling techniques that are based on relationships between soil attributes and the environment. DSMs are presented over NSW for a range of key soil properties, including soil organic carbon (SOC), pH, cation exchange capacity, sum-of-bases, available phosphorous, bulk density, clay, silt and sand (total and fine). The maps are at 100 m spatial resolution and cover ten soil depth intervals down to 2 m, consistent with widely used Australian and international systems. Random Forest decision tree modelling techniques were applied. Validation results for the maps indicate generally moderate to high performance and effectiveness. Maps of mean plus upper 95% and lower 5% prediction limits are available. The maps provide at least a useful first approximation of these soil properties across the State. The products are described more fully in the technical report: Gray (2023), Digital soil mapping of key soil properties over NSW, version 2.0 (76p). The report and raster layers can be downloaded through the NSW environmental data portal SEED (https://www.seed.nsw.gov.au/) and are also viewable through the DPE soil and landscape spatial viewer eSPADE (http://espade.environment.nsw.gov.au). All maps, including prediction limits and intervals, are also available through the DPE data broker.

Resource locator

Data Quality Statement	Name: Data Quality Statement Protocol: WWW:DOWNLOAD-1.0-http--download Description: Data quality statement for Digital soil maps for key soil properties over New South Wales, version 2.0 Function: download
Technical report, April 2023	Name: Technical report, April 2023 Protocol: WWW:DOWNLOAD-1.0-http--download Description: Provides details on methodology, example maps with prediction intervals, validation results and discussion on the use of the products. Function: download
SOC NSW DSMs to 1m	Name: SOC NSW DSMs to 1m Protocol: WWW:DOWNLOAD-1.0-http--download Description: Digital maps of soil organic carbon to 1 m, as concentration (%), mass (kg/m3) and stocks (t/ha) Function: download
pH NSW DSMs to 2m	Name: pH NSW DSMs to 2m Protocol: WWW:DOWNLOAD-1.0-http--download Description: Digital soil maps of pH over NSW, multiple depths to 2 m Function: download
Basic cations & CEC NSW DSMs	Name: Basic cations & CEC NSW DSMs Protocol: WWW:DOWNLOAD-1.0-http--download Description: Digital soil maps for sum-of-bases and CEC over NSW, multiple depths to 2 m Function: download
P bray NSW DSMs to 2m	Name: P bray NSW DSMs to 2m

	Protocol: WWW:DOWNLOAD-1.0-http--download Description: Digital soil maps of available P (bray) over NSW, multiple depths to 2 m Function: download
Bulk density NSW DSMs to 30cm	Name: Bulk density NSW DSMs to 30cm Protocol: WWW:DOWNLOAD-1.0-http--download Description: Digital soil maps of bulk density (t/m3) over NSW, several depths to 30 cm Function: download
Particle sizes NSW DSMs to 2m	Name: Particle sizes NSW DSMs to 2m Protocol: WWW:DOWNLOAD-1.0-http--download Description: Digital soil maps for sand, silt and clay over NSW, multiple depths to 2 m Function: download
DSM prediction limits NSW all properties	Name: DSM prediction limits NSW all properties Protocol: WWW:DOWNLOAD-1.0-http--download Description: Digital soil maps of prediction limits (upper 95% and lower 5%) for all key soil properties over NSW, 0-30 cm depth Function: download

Unique resource identifier

Code	22f358d9-e59f-4b00-8089-99aaa8d0f7d0

Presentation form	Model digital
Edition	version 2.0
Dataset language	English

Metadata standard

Name	ISO 19115
Edition	2016

Dataset URI	https://datasets.seed.nsw.gov.au/dataset/22f358d9-e59f-4b00-8089-99aaa8d0f7d0
Purpose	For better understanding and management of NSW soils and broader environmental protection
Status	Completed
Spatial representation type	grid

Spatial reference system

Code identifying

the spatial reference system	4283
Spatial resolution	100 m
Topic category	

Keyword set

keyword value	SOIL SOIL-Chemistry SOIL-Physics
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	1985-01-01
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
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Responsible party role	pointOfContact

Lineage

The digital soil maps of the ten soil properties were prepared at multiple depth intervals down to 2 m. They were based on soil survey and laboratory data available over NSW. These data were randomly divided into training and validation subsets, at an approximate 80-20% ratio. Environmental covariate data representing the main soil forming factors (climate, geology, topography, land use/cover and age) were applied in the initial training models and final maps production. These were derived from environmental data grids covering the entire State with some site specific field survey data. The modelling and digital mapping applied Random Forest decision tree techniques, with 200 trees in each of 10 bootstrap runs. Upper 95% and lower 5% prediction limits of each map were also derived. Validation of the final digital soil maps was carried out using the independent validation data, with Lin's concordance correlation coefficient, RMSE, mean error and other standard statistical metrics.

Limitations on public access

Responsible party

Contact position	Data Broker
Organisation name	NSW Department of Climate Change, Energy, the Environment and Water
Telephone number	131555
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Metadata date

2024-09-16T23:27:50.345807

Metadata language