
CARBON SINKS ATLAS FOR SOUTH AFRICA

Soil Organic Carbon – Reduced by Land Use (gC/m²)

Metadata Date Stamp:

25 October 2015

DATASET DESCRIPTION

File Names:

Data:

SoilOrganicCarbon_ReducedLandUse_gC_sq.m_DEA_CSIR_1.1.9-2015-10-06

Metadata:

SOC_ReducedLandUse_gC_per_sq.m_OR_2015_Q4

Dataset Reference Date:

2015/09/23

Data quality:

Very Good – Soils Organic Carbon is calculated from organic soil and bulk density data in the Africa Soil Profiles Database, version 1.2, which was released in 2014 (<http://www.isric.org/data/africa-soil-profiles-database-version-01-2>). The data is made available by the World Soil Information Centre (ISRIC) through the Africa Soil Information Service (AfSIS) (<http://africasoils.net/>).

Dataset Responsible Party:

Department of Environmental Affairs / Director Enterprise Geospatial Information Management

Geographic Location of the Dataset: RSA

West 15.637661

East 33.655553

North -21.918463

South -35.027407

Keywords:

SOC, soil organic carbon, soil carbon reduced by land use, soil carbon land use

Dataset Language:

English (SOUTH AFRICA)

Dataset Character Set:

utf8 - 8 bit UCS Transfer Format

Dataset Topic Category:

007 = Environment (ISO 19115 Topic category)

Dimensions:

X: 1406 Y:1207 Bands: 1

Spatial Resolution of the Dataset:

1189.318433 Meter

No Data Value:

-1

Data Type:

Float32 – Thirty two bit floating point

Raster Format:

GeoTiff

Data Release classification:

Release classification	Description	Time frame	Example
OR	Official release	Quarter 4 30 November 2015	SOC_ReducedLandUse_g C_per_sq.m_OR_2015_Q4

Citation:

Citation Information:

Originator: *Department of Environmental Affairs*

Publication Date: *May 2015*

Title: *National Terrestrial Carbon Sink Assessment*

Location: *Pretoria, South Africa*

Geospatial Data Presentation Form: *Raster digital data*

Other Citation Details: *Data of the South African National Terrestrial Carbon Sink Assessment is published on the SAEON shared platform. Link to detailed report:*

https://www.environment.gov.za/sites/default/files/docs/nationalterrestrial_carbonsinksassessment_sect1.pdf

In acknowledgement of the World Soil Information Centre (ISRIC), a citation to all materials supplied through ISRIC/WDC-Soils in output products and publications is requested

Citation for Africa Soil Profiles Database, version 1.2 (2014): Leenaars J.G.B., A.J.M. van Oostrum and M. Ruiperez Gonzalez, 2014. Africa Soil Profiles Database, version 1.2. A compilation of geo-referenced and standardised legacy soil profile data for Sub-Saharan Africa (with dataset). ISRIC report 2014/01. Africa Soil Information Service (AfSIS) project. ISRIC – World Soil Information, Wageningen, the Netherlands.

For more information visit: <http://www.isric.org/data/africa-soil-profiles-database-version-01-2>

Abstract:

Soil Organic Carbon (SOC) represents all the organic carbon in the soil to a depth of 1m. SOC is derived from the data provided by the Africa Soil Information System (AfSIS). The organic carbon of soil is reduced by various land uses and agricultural practices and to account for this, the carbon in the top 300mm of the natural soil (SOC₀₋₃₀₀) derived from AfSIS was reduced by a factor of 0.2 – 0.5 using the fractional land cover data per 1 X 1 km pixel.

Units: average gC/m² within 1km x 1km pixel

Purpose:

This data set is part of a series of output data layers generated by CSIR for DEA as part of the South African National Terrestrial Carbon Sink Assessment. Link to detailed report:

https://www.environment.gov.za/sites/default/files/docs/nationalterrestrial_carbonsinksass

[essment_sect1.pdf](#).

Link to synopsis report:

https://www.environment.gov.za/sites/default/files/reports/nationalterrestrial_carbonsinks_synopsisreport.pdf

Supplemental Information:

AfSIS uses a Bayesian prediction model, based on 12000 African soil profiles (pedons) (about 3600 of which are from South Africa) driven by many covariates (among others, climate, soil texture, and topographic position) to estimate the SOC to any given depth (0-0.3 m is the standard for 'topsoil', while 0.3-0.7 m is used for subsoil) at a given location. ([link to http://www.africasoils.net/data/digital-soil-mapping](http://www.africasoils.net/data/digital-soil-mapping))

For calculating soil organic carbon in croplands a simplified version of the EU recommended methodology is used. A value is assigned per crop type, regardless of where it occurs in the country, consisting of

$$SOC_{cultivated} = F_{lu} * SOC_{0-30} + SOC_{30-100}$$

Where F_{lu} is a Land use factor reflecting the proportion of soil carbon retained in a given land use.

$F_{lu} = 0.5$ for dryland crops

$F_{lu} = 0.8$ for irrigated crops

$F_{lu} = 0.8$ for Horticulture tree crops

$F_{lu} = 0.6$ for sugar cane

$F_{lu} = 0.5$ for dryland crops

Lineage Statement:

The first version of the Soil Organic Carbon data layer was generated in 2013, but not released.

The data were released on-line for the first time in Nov 2015

ATTRIBUTE INFORMATION

Attribute Description:

Field name	Alias Name	Data Type	Description	Example
Cell value	Cell value	32-bit Floating point	This field contains Soil Organic Carbon reduced by Land Use as measured in gC/m ²	6310

SUPPLEMENTARY INFORMATION

None

DATA MAINTENANCE

Dataset last updated:

2015/10/06

Time Period of Content:

Carbon stocks were calculated to represent the long-term mean conditions 2000-2010

Maintenance and update frequency:

No updates

DISTRIBUTION AND CONSTRAINTS**On/line Resource:**

The Environment GIS (EGIS) Website

<http://egis.environment.gov.za/>

The Department of Environmental Affairs (DEA) must be acknowledged in the use of the data as per citation information.

The South African Environmental Observation Network (SAEON)

<http://www.saeon.ac.za/>

Distribution Format:

GeoTIFF

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Acknowledgments:

The development of the online Carbon Sinks Atlas and website was funded by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). Visit <https://www.giz.de> for more information on GIZ.

The models for the National Terrestrial Carbon Sinks Assessment for South Africa and the online Carbon Sinks Atlas were developed by CSIR for the South African Department of Environmental Affairs (DEA).

The National Terrestrial Carbon Sink Assessment (2015) was conducted for and published by Department of Environmental Affairs, Pretoria, South Africa. Link to report: https://www.environment.gov.za/sites/default/files/docs/nationalterrestrial_carbonsinksassessment_sect1.pdf.

The National Terrestrial Carbon Sink Assessment for South Africa was funded by UK Department for International Development (DfID). Visit <https://www.gov.uk/government/organisations/departement-for-international-development> for more information on DfID

A range of soil-geographic and attribute data, scanned maps and publications were made available by ISRIC – world Soil Information Centre, through the World Data Centre for Soils (WDC-Soils). Data is hosted on the Africa Soil Information Service (AfSIS) website (<http://www.isric.org/data/africa-soil-profiles-database-version-01-2>).

METADATA INFORMATION

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Additional Extent information for the Dataset (Vertical & Temporal):

N/A

Spatial Representation Type:

Raster – Area

Spatial Reference:

*Coordinate Reference: GCS_WGS_1984
Projection - Albers_Conic_Equal_Area*

Projection:

*PROJCS["Albers_Equal_Area_Conic_South_Africa",
GEOGCS["GCS_WGS_1984",
DATUM["D_WGS_1984",
SPHEROID["WGS_1984",6378137,298.257223563]],
PRIMEM["Greenwich",0],
UNIT["Degree",0.0174532925199433]],
PROJECTION["Albers"],
PARAMETER["False_Easting",0],
PARAMETER["False_Northing",0],
PARAMETER["central_meridian",25],
PARAMETER["Standard_Parallel_1",-12],
PARAMETER["Standard_Parallel_2",-31],
PARAMETER["latitude_of_origin",0],*

Metadata File Identifier:

SOC_ReducedLandUse_gC_sq.m_OR_2015_Q4_METADATA

Metadata Standard Name:

SANS 1878

Metadata Standard Version:

SANS 1878/1:2005

Metadata Language:

English

Metadata Character Set:

US/Ascii