CARBON SINKS ATLAS FOR SOUTH AFRICA
Total Biomass Organic Carbon of Transformed areas (gC/m^2)

Metadata Date Stamp:

25 October 2015

DATASET DESCRIPTION

File Names:

Data:

TotalBiomassOrganicCarbon_Transformed_Areas_g_C_sq.m_DEA_CSIR_1.1.11-2015-11-11

Metadata:

TBOC_Transformed_gC_per_sq.m_OR_2015_Q4_METADATA

Dataset Reference Date:

2015/09/23

Data quality:

Good – data modelled in Carbon Stocks Model and accuracies of this layer is dependent on the accuracies of various base layers used in modelling

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:

TBOC, total biomass organic carbon, biomass organic carbon cultivation, biomass organic carbon plantations

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*	*TBOC_Transformed_gC_per_sq.m_OR_2015_Q4*

Citation:

Citation Information:

Originator: ***Department of Environmental Affairs***

Publication Date: ***May 2015***

Title: ***South African 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.***

Abstract:

In areas which have been transformed to cultivation or forestry plantations municipal level agricultural senses data were used to assign the biomass values to areas covered by the specific fractional land cover or crop type.

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_carbonsinksassessment_sect1.pdf.
Link to synopsis report:
https://www.environment.gov.za/sites/default/files/reports/nationalterrestrial_carbonsinks_synopsisreport.pdf

Supplemental Information:

Cropped areas
Above Ground Crop Biomass (AGB_{crop}) was computed as a function of the at-harvest aboveground biomass ($AGB_{harvest}$) and the year-round residue mass left in stalks ($AGB_{residue}$). Crop duration is the average period between planting and harvest for that crop, in days.
$AGB_{crop} = AGB_{harvest}$*0.5* crop duration/365+ $AGB_{residue}$

The Harvest index (HI) was used to determine $AGB_{harvest}$ per hectare
$AGB_{harvest} = Y$ (t/ha) / HI

Where:
Y = yield * (1 – fraction moisture)

Yield (in gC/m^2) was quantified at municipal level for each crop group and used the 2002 agricultural senses data to determine the proportional distribution of crop types and local yields. The carbon fraction was assumed to be 0.47 for all agricultural vegetation. Fraction moisture was estimated for each crop type from the literature.

$AGB_{residual} = (AGB_{harvest} - Y) * R_{AGB}$

Where R_{AGB} is the residual aboveground biomass expressed as a proportion of the non-yield biomass

$BGB_{crop} = 0.2\ AGB_{crop}$

except for root crops, where BGB_{crop} is the root DM yield.

Urban areas
$AGB_{urban} = FAPAR_{annual}$ ***mean * 5000*** $[gC/m^2]$ ***(Based on an IPCC 2006 value for closed urban forests. The multiplier can be adjusted to match estimates for the urban areas which have been surveyed, eg Johannesburg and eThikweni.)***

$BGB_{urban} = 0.5\ AGB_{urban}$ ***(assumes a mix of trees and herbaceous)***
$SOC_{urban} = 0.8\ SOC_{0\text{-}1000}$ ***(from AFSIS)***
AGL_{urban} ***= 0. This could be used to reflect an estimate of carbon as timber in buildings and their furniture, plus the carbon in landfills from the National Communication.***

Plantation forests and tree crops
Estimates are provided per plantation type, based on biomass measures from the forestry industry (http://www.forestry.co.za/statistical-data). SOC is derived unchanged `from the AFSIS product.

Lineage Statement:

The first version of the data 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 TotalBiomassCarbon _Transformed_areas as measured in gC/m^2*	*4502.78*

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

Copyright:

Terms of use:

The data can be used and copied for non-commercial purposes. The user shall not sell or license the spatial data or digital maps. The Department of Environmental Affairs cannot give any warranty on the accuracy of the map. The Department of Environmental Affairs shall in no way be liable for results related to the use of these maps. Users of these digital maps must acknowledge the copyright for the digital map. Source: Department of Environmental Affairs.

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/department-for-international-development for more information on DfID

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:

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PROJCS["Albers_Equal_Area_Conic_South_Africa",
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      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],
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Metadata File Identifier:

TBOC_Transformed_gC_per_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