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# CARBON SINKS ATLAS FOR SOUTH AFRICA

## Total Ecosystem Organic Carbon (gC/m<sup>2</sup>)

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**Metadata Date Stamp:**  
*25 October 2015*

### DATASET DESCRIPTION

**File Names:**

**Data:**  
*TotalEcosystemOrganicCarbon\_gC\_sq.m\_DEA\_CSIR\_1.1.9-2015-10-06*  
**Metadata:**  
*TEOC\_gC\_per\_sq.m\_OR\_2015\_Q4*

**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:**

*TEOC, Total Ecosystem Organic Carbon, Ecosystem Carbon, Organic Carbon*

**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	TEOC_gC_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\\_carbon\\_sinksassessment\\_sect1.pdf](https://www.environment.gov.za/sites/default/files/docs/nationalterrestrial_carbon_sinksassessment_sect1.pdf).*

**Abstract:**

*Total Ecosystem Organic Carbon (TEOC) is the total sum of Soil Organic Carbon (SOC) and Total Biomass Organic Carbon (of natural and transformed areas – crops and plantations) which includes Above Ground Woody Biomass ( $AGB_{woody}$ ), Below Ground Woody Biomass ( $BGB_{woody}$ ), Above Ground Herbaceous Biomass ( $AGB_{herb}$ ), Below Ground Herbaceous Biomass ( $BGB_{herb}$ ), and Aboveground litter (AGL). Carbon stocks were calculated to represent the long-term mean conditions.*

*Units: average  $gC/m^2$  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\\_carbonsinksassessment\\_sect1.pdf](https://www.environment.gov.za/sites/default/files/docs/nationalterrestrial_carbonsinksassessment_sect1.pdf).*

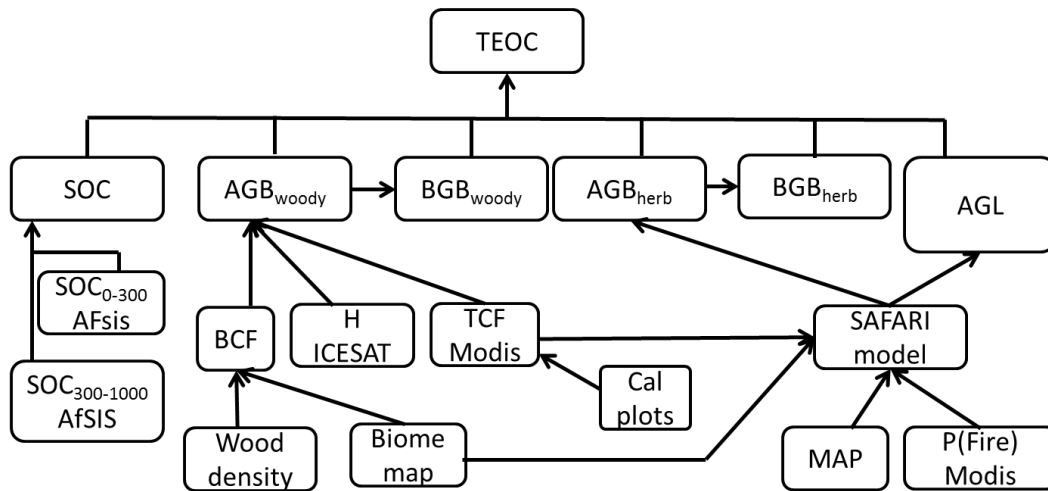
*Link to synopsis report:*

*[https://www.environment.gov.za/sites/default/files/reports/nationalterrestrial\\_carbonsinks\\_synopsisreport.pdf](https://www.environment.gov.za/sites/default/files/reports/nationalterrestrial_carbonsinks_synopsisreport.pdf)*

**Supplemental Information:**

*The main determinants of terrestrial carbon stocks are plant-available moisture, temperature, soil conditions and vegetation cover. Soil, woody-plant and herbaceous biomass carbon stocks increase from the arid areas in the western part of the country, to the moister eastern seaboard of South Africa. Carbon stocks in the Karoo and desert biomes are very low, while the highest carbon stocks per hectare are found in the coastal and montane forests. The spatial extent of these forests (and plantation forests) is small compared to the extensive grassland and savanna biomes, which have intermediate per-hectare carbon stocks, and thus dominate the national*

stock accounts (Tables 1 and 2). Carbon stocks in the fynbos are quite low, due to frequent fires. Stocks in intact thickets are quite high given the dry environments in which they occur in the southern and eastern Cape, but their spatial extent is small.



- AGBherb**      *AGBherb=Mean Annual Maximum Aboveground Biomass of Herbaceous Plants (Predominantly grasses, but also forbs, restios, sedges, etc.)*
- AGBwoody**      *AGBwoody=Aboveground Biomass in Woody Plants (Leaf + stem biomass of perennial, lignified plants, regardless of height - trees, bushes and shrubs.)*
- AGL**      *Aboveground Litter*
- BCF**      *Biome Calibration Factor*
- BGBherb**      *BGBherb=Mean Annual Maximum Belowground Biomass of Herbaceous Plants*
- BGBwoody**      *BGBwoody=Belowground Biomass of Woody Plants (Fine + coarse roots of perennial, lignified plants.)*
- Cal Plots**      *Calibration Plots*
- Hveg**      *Tree Height*
- MAP**      *Mean Annual Precipitation*
- P(Fire)**      *Annual Probability of a Given Point Burning During a Year*
- SOC**      *Soil Organic Carbon*
- SOC0-300**      *Soil Organic Carbon in the Top 300mm - Also referred to as Topsoil*
- SOC300-1000**      *Soil Organic Carbon Between Depth of 300mm to 1m*
- TEOC**      *Total Ecosystem Organic Carbon*

**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 Total Ecosystem Organic Carbon as measured in gC/m <sup>2</sup>	20.94

## 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](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*

## METADATA INFORMATION

### Metadata Contacts:

*Barney Kgope  
Department of Environmental Affairs  
[Bkgope@environment.gov.za](mailto:Bkgope@environment.gov.za)  
+27123999165*

*Itchell Guiney  
Department of Environmental Affairs  
[iguiney@environment.gov.za](mailto:iguiney@environment.gov.za)  
+27123999166*

*Director: Enterprise Geospatial Information Management  
[DEADATA@environment.gov.za](mailto:DEADATA@environment.gov.za)  
+27 12 399 8916*

### Postal Address:

*Department of Environmental Affairs  
Directorate: Enterprise Geospatial Information  
Management Private Bag X447  
Pretoria  
Gauteng  
South Africa  
0001*

### Physical Address:

*Environmental House  
473 Steve Biko, Arcadia  
Pretoria  
0083*

### Producers of Data:

**Point of Contact:**  
*Dr Graham Von Maltitz  
CSIR Natural Resources and Environment  
(NRE)  
[gvmalt@csir.co.za](mailto:gvmalt@csir.co.za)*

*Dr. Konrad Wessels  
CSIR Meraka Institute  
[kwessels@csir.co.za](mailto:kwessels@csir.co.za)*

**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],
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**Metadata File Identifier:**

*TEOC\_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*