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# **CARBON SINKS ATLAS FOR SOUTH AFRICA**

## **Above Ground Woody Biomass (tDM/ha)**

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

### **DATASET DESCRIPTION**

**Dataset Title:**  
**Data:**  
*AboveGroundBiomassWoody\_tDM\_ha\_DEA\_CSIR\_1.1.9-2015-10-06*  
**Metadata:**  
*AGBwoody\_tonne\_DryMatter\_per\_ha\_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:**  
*Above ground woody biomass, woody tree cover*

**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	AGBwoody_tonne_DryMatter_per_ha_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:**

*AGB<sub>woody</sub> is estimated using the product of Tree Cover Fraction (TCF) and height ( $H_{veg}$ ), which were both estimated with coarse resolution satellite data, as a proxy for the volume woody vegetation. This volume is converted to aboveground biomass using constant, biome-specific Biomass Calibration Factor ( $BCF_{biome}$ ).*

$$AGB_{woody} = (H_{veg} * TCF) * BCF_{biome}$$

*Units: (Two AGB<sub>woody</sub> outputs are provided in two units)*

*1. average gC/m<sup>2</sup> within 1km x 1km pixel*

*2. average tonne DryMatter/hectare (tDM/ha) 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:*

*[report:https://www.environment.gov.za/sites/default/files/reports/nationalterrestrial\\_carbon\\_sinks\\_synopsisreport.pdf](https://www.environment.gov.za/sites/default/files/reports/nationalterrestrial_carbon_sinks_synopsisreport.pdf)*

**Supplemental Information:**

$$AGB_{woody} = (H_{veg} * TCF) * BCF_{biome}$$

*Tree Height ( $H_{veg}$ ) is the mean maximum height of the vegetation at a location (m) interpolated from ICESAT-GLAS LiDAR point records using MODIS satellite data. The ICESAT-GLAS data (2005), which represents a laser 'spot' about 80 m in diameter, is unlikely to be reliable for small vegetation patches, or in steep topography. It may also be unreliable for closed canopy. Tree Cover Fraction (TCF) is the derived using MODIS satellite data and regression tree models trained with higher resolution satellite data. The average annual MODIS tree fractional over was calculated for the period 2000-2010.*

*BCF is the Biomass Calibration Factor, which in principle varies by vegetation type, mainly as a result of different wood density and form factors. The BCF values were estimated for each biome by consulting relevant publications.*

*Note: The 1km x1km pixels values in represents the average amount of carbon (gC/m<sup>2</sup> or tC/ha) in the pixel and not the total amount of carbon in the pixel. In order to calculate the total amount of carbon in an area, the pixel values need to be multiplied by each pixel's area.*

**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 Above Ground Woody Biomass tonne Dry Matter as measured in tDM/ha	12.84

**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/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:**

*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:**

*AGBwoody\_tonne\_DryMatter\_per\_ha\_OR\_2015\_Q4\_METADATA*

**Metadata Standard Name:**

*SANS 1878*

**Metadata Standard Version:**

*SANS 1878/1:2005*

**Metadata Language:**

*English*

**Metadata Character Set:**

*US/Ascii*