

SAFARI 2000 Wetlands Data Set, 1-Deg (Matthews and Fung)

Summary:

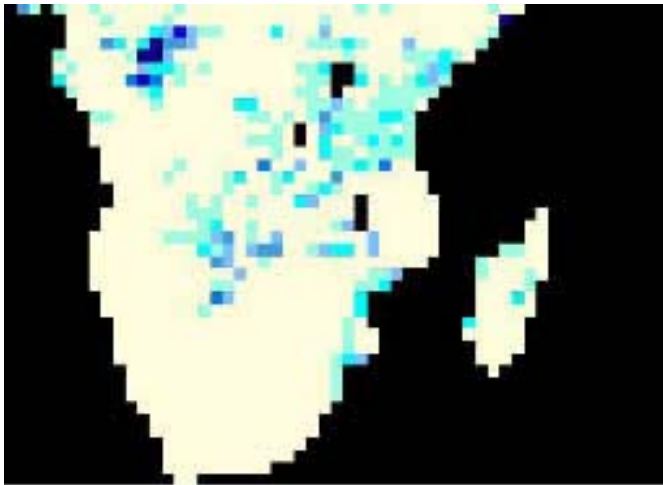
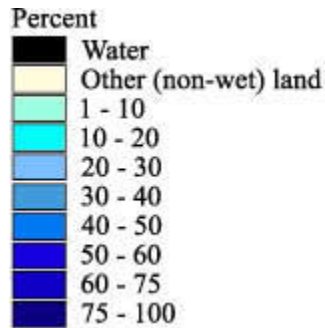
This database, compiled by Matthews and Fung (1987), provides information on the distribution and environmental characteristics of natural wetlands. The database was developed to evaluate the role of wetlands in the annual emission of methane from terrestrial sources. The original data consists of five global 1 degree latitude by 1 degree longitude arrays. The subset retains all five arrays at the 1 degree resolution but only for the area of interest. The arrays are: (1) wetland data source, (2) wetland type, (3) fractional inundation, (4) vegetation type, and (5) soil type. The giss_wetlands.tar.gz file contains a subset of the Global Data Bases on Distribution, Characteristics and Methane Emissions of Natural Wetlands compiled by Elaine Matthews. The subset is for southern Africa.

Images of two of the data types:

Wetland Type



Fractional Inundation



Data Set Information:

This README file contains information regarding:

1. Data format
2. Procedure used to create the southern Africa subset
3. Legend and data source information

DATA FORMAT

The downloadable file, `giss_wetlands.tar.gz`, is a UNIX compressed tar file. Once the file is untarred there are 5 separate files:

1. `gisswet_file1.dat` --> data sources
2. `gisswet_file2.dat` --> wetland type
3. `gisswet_file3.dat` --> fractional inundation
4. `gisswet_file4.dat` --> vegetation type
5. `gisswet_file5.dat` --> soil type

It is highly recommended that you review the original documentation for this data set for more specifics. The original documentation is:

Matthews, E. 1989: Global Data Bases on Distribution, Characteristics and Methane Emission of Natural Wetlands: Documentation of Archived Data Tape. NASA Technical Memorandum 4153, November 1989.

And can be found in pdf format at the following URL:

<ftp://ncardata.ucar.edu/datasets/ds765.5/docs/tn4153img.pdf>

The data files are in ASCII Grid format for ArcInfo. Each file contains a single ASCII array with integer values, except gisswet_file3.dat which contains floating point values. Coordinates listed below are in decimal degrees.

Rows 40

Columns 55

UpLeftX 5

UpLeftY 5

LoRightX 60

LoRightY -35

cellsize 1

Projection geographic

The ASCII file consists of header information containing a set of keywords, followed by cell values in row-major order. The file format is

```
<NCOLS xxx>
<NROWS xxx>
<XLLCORNER xxx>
<YLLCORNER xxx>
<CELLSIZE xxx>
{NODATA_VALUE xxx}
row 1
row 2
.
.
.
row n
```

where xxx is a number, and the keyword NODATA_VALUE is optional and defaults to -9999. Row 1 of the data is at the top of the grid, row 2 is just under row 1 and so on. The end of each row of data from the grid is terminated with a carriage return in the file.

To import this file into ArcInfo use the following command at an ARC prompt:

```
ASCIIGRID <in_ascii_file> <out_grid> {INT | FLOAT}
```

Arguments

<in_ascii_file> - the ASCII file to be converted.

<out_grid> - the name of the grid to be created.

{INT | FLOAT} - the data type of the output grid.

INT - an integer grid will be created.

FLOAT - a floating-point grid will be created.

Binary File Information

Each ASCII data file has also been converted into a binary image file that can be viewed in any standard image viewing package. The files are single-byte images, no header, 55 columns by 40 rows. Missing data (ASCII -9999) and -1's have been converted to the maximum value of 255. For more information on viewing raw binary images, see the Image Viewing Tutorial.

PROCEDURE USED TO CREATE THE SOUTHERN AFRICA SUBSET

The original data were downloaded from NCAR (<ftp://ncardata.ucar.edu/datasets/ds765.5/>) and imported into ArcInfo using the ASCIIGRID command.

Using GRID (a raster- or cell-based geoprocessing toolbox that is integrated with ArcInfo) the SETWINDOW command was used to define the subarea of interest. This subarea was defined by identifying the bounding coordinates as follows:

```
x_min 5   y_min -35   x_max 60   y_max 5
```

The "snap_grid" option of the SETWINDOW command was used. This snaps the lower-left corner of the specified window to the lower-left corner of the nearest cell in the snap_grid and snaps the upper-right corner of the specified window to the upper-right corner of the nearest cell in the snap_grid. In this case the snap_grid is an original data grid. The purpose of this is to ensure the proper registration of the newly set analysis window. The command format used is as follows:

```
SETWINDOW x_min y_min x_max y_max original_grid
```

Once the window was set, creating the new grid was simply a matter of setting the new subset grid equal to the original grid.

```
subset_grid = original_grid
```

An ASCII array was created from the new subset grid using the GRID command GRIDASCII.

file.dat = GRIDASCII(subset_grid)

LEGEND & ADDITIONAL SOURCES OF INFORMATION

The following legends are used in the original data:

*****gisswet_file1.dat*****

Data Sources for Wetland Locations

- 1: UNESCO + FAO + ONC(Operation Navigation Charts)
- 2: UNESCO + ONC
- 3: UNESCO + FAO
- 4: UNESCO
- 5: ONC + FAO
- 6: ONC
- 7: FAO
- 0: Other (non-wet) land
- 1: Water

*****gisswet_file2.dat*****

Wetland Types

- 1: Forested bog
- 2: Nonforested bog
- 3: Forested swamp
- 4: Nonforested swamp
- 5: Alluvial formations
- 6: Tropical/subtropical forest/woodland
- 7: Temperate forest/woodland
- 8: High-latitude temperate/boreal forest/woodland/shrub
- 9: Shrubland; xeromorphic formations; desert
- 10: Wooded grassland
- 11: Nonwooded grassland
- 12: Tundra
- 0: Other (non-wet) land
- 1: Water

*****gisswet_file3.dat*****

Fractional inundation (percent)

- 1-100: wetland
- 0: Other (non-wet) land
- 1: Water

*****gisswet_file4.dat*****

Vegetation type - Due to the number of items in the legend for the global data set, only those represented in the southern Africa subset are listed below. For the complete legend please see the original documentation.

- 1: Water
- 0: Other (non-wet) land
- 1: Tropical evergreen rainforest
- 3: Tropical evergreen rainforest: submontane
- 8: Tropical evergreen rainforest: alluvial: frequently flooded
- 13: Tropical/subtropical evergreen seasonal forest
- 18: Tropical/subtropical semi-deciduous forest
- 24: Mangrove forest
- 40: Tropical/subtropical drought-deciduous forest
- 61: Extremely xeromorphic thorn forest: deciduous
- 63: Evergreen broadleaved woodland
- 70: Tropical/subtropical drought-deciduous woodland
- 71: Tropical/subtropical drought-deciduous woodland: lowland/submontane, broadleaved
- 90: Drought-deciduous shrubland without evergreens
- 96: Extremely xeromorphic subdesert shrubland
- 102: Extremely xeromorphic evergreen subdesert shrubland: semi-deciduous
- 131: Tall grassland without woody cover: tropical grassland
- 133: Tall grassland without woody cover: tropical wetland: wet or flooded most of the year
- 134: Medium grassland with 10-40% tree cover
- 139: Medium grassland with <10% tree cover
- 140: Medium grassland with shrub cover
- 145: Medium grassland without woody cover: mainly sod grasses
- 157: Short grassland with shrub cover
- 160: Short grassland with shrub cover: with deciduous thorny shrub cover
- 165: Short grassland without woody cover
- 175: Low forb communities (<1m)

*****gisswet_file5.dat*****

FAO Soil Types of Wetland Locations - Due to the number of items in the legend for the global data set, only those represented in the southern Africa subset are listed below. For the complete legend please see the original documentation.

- 1: Water

- 0: Other (non-wet) land
- 1: Ferric Acrisol
- 6: Chromic Cambisol
- 9: Ferralic Cambisol
- 25: Orthic Ferralsol
- 26: Plinthic Ferralsol
- 27: Rhodic Ferralsol
- 28: Xanthic Ferralsol
- 30: Dystric Gleysol
- 31: Eutric Gleysol
- 32: Humic Gleysol
- 40: Lithosol
- 41: Calcaric Fluvisol
- 42: Dystric Fluvisol
- 43: Eutric Fluvisol
- 44: Thionic Fluvisol
- 49: Chromic Luvisol
- 50: Ferric Luvisol
- 58: Dystric Nitosol
- 59: Eutric Nitosol
- 60: Humic Nitosol
- 62: Eutric Histosol
- 66: Humic Podzol
- 70: Albic Arenosol
- 71: Cambic Arenosol
- 72: Ferralic Arenosol
- 73: Luvic Arenosol
- 74: Calcaric Regosol
- 82: Mollic Andosol
- 86: Chromic Vertisol
- 87: Pellic Vertisol
- 89: Eutric Planosol
- 94: Haplic Yermosol
- 98: Haplic Yermosol
- 105: Orthic Solonchak

The original documentation is:

Matthews, E. 1989: Global Data Bases on Distribution, Characteristics and Methane Emission of Natural Wetlands: Documentation of Archived Data Tape. NASA Technical Memorandum 4153, November 1989.

And can be found in pdf format at the following URL:

<ftp://ncardata.ucar.edu/datasets/ds765.5/docs/tn4153img.pdf>

ORIGINAL DATA SET CITATION

Matthews, E. 1989. Global Data Bases on Distribution, Characteristics and Methane Emission of Natural Wetlands: Documentation of Archived Data Tape. NASA TM-4153. National Aeronautics and Space Administration. Washington, D.C.. Data available on-line at: <ftp://ncardata.ucar.edu/datasets/ds765.5/>