

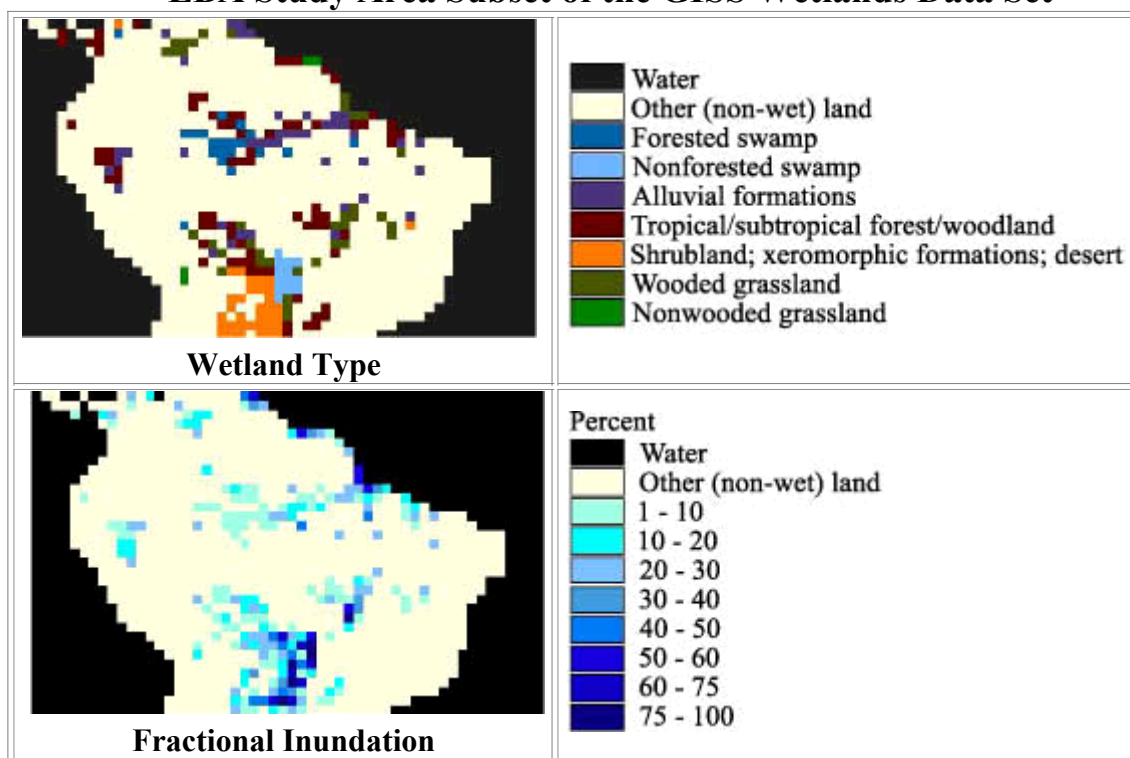
# LBA Regional Wetlands Data Set, 1-Degree (Matthews and Fung)

## Description:

This data base, compiled by Matthews and Fung (1987), provides information on the distribution and environmental characteristics of natural wetlands. The data base 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 1degree 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 data base is the result of the integration of three independent digital sources: (1) vegetation classified according to the United Nations Educational Scientific and Cultural Organization (UNESCO) system [Matthews, 1983], (2) soil properties from the Food and Agriculture Organization (FAO) soil maps [Zobler, 1986], and (3) fractional inundation in each 1 degree cell compiled from a global map survey of Operational Navigation Charts (ONC). With vegetation, soil and inundation characteristics of each wetland site identified, the data base has been used for a coherent and systematic estimate of methane emission from wetlands and for an analysis of the causes for uncertainties in the emission estimate.

## LBA Study Area Subset of the GISS Wetlands Data Set



This README file contains information regarding:

1. Data format
2. Procedure used to create the LBA study area subset
3. Legend and data source

---

## 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 35  
Columns 55  
UpLeftX -85  
UpLeftY 10  
LoRightX -30  
LoRightY -25  
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.

---

### PROCEDURE USED TO CREATE THE LBA STUDY AREA 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 -85 y_min -25 x_max -30 y_max 10
```

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 LBA study area subset are listed below. For the complete legend please see the original documentation.

- 1: Water
- 0: Other (non-wet) land
- 1: Tropical evergreen rainforest

- 2: Tropical evergreen rainforest: lowland
- 4: Tropical evergreen rainforest: montane
- 7: Tropical evergreen rainforest: cloud
- 8: Tropical evergreen rainforest: alluvial: frequently flooded
- 9: Tropical evergreen rainforest: alluvial: seasonally water-logged
- 10: Tropical evergreen rainforest: swamp
- 13: Tropical/subtropical evergreen seasonal forest
- 24: Mangrove forest
- 40: Tropical/subtropical drought-deciduous forest
- 41: Tropical/subtropical drought-deciduous forest: broadleaved lowland/submontane
- 77: Extremely xeromorphic woodland
- 79: Extremely xeromorphic thorn woodland
- 80: Extremely xeromorphic thorn woodland: mixed deciduous-evergreen
- 120: Tall grassland with 10-40% tree cover
- 124: Tall grassland with 10-40% tree cover: with deciduous broadleaved tree cover: seasonally flooded
- 125: Tall grassland with 10-40% tree cover: with deciduous broadleaved tree cover
- 126: Tall grassland with < 10% tree cover
- 129: Tall grassland with tuft plant cover (usually palms)
- 130: Tall grassland without woody cover
- 143: Medium grassland with open cover of tufts plants (usually palms)
- 144: Medium grassland with open cover of tufts plants (usually palms): subtropical, with open groves of palms
- 167: Short grassland without woody cover: bunch-grass communities (tussock)

\*\*\*\*\*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 LBA study area subset are listed below. For the complete legend please see the original documentation.

- 1: Water
- 0: Other (non-wet) land
- 3: Humic Acrisol
- 4: Orthic Acrisol
- 5: Plinthic Acrisol
- 7: Dystric Cambisol
- 23: Acric Ferralsol
- 25: Orthic Ferralsol
- 27: Rhodic Ferralsol
- 28: Xanthic Ferralsol
- 30: Dystric Gleysol
- 31: Eutric Gleysol
- 33: Mollic Gleysol
- 43: Eutric Fluvisol
- 45: Haplic Kastanozem
- 47: Luvic Kastanozem
- 50: Ferric Luvisol
- 54: Plinthic Luvisol
- 58: Dystric Nitosol

72: Ferralic Arenosol  
76: Eutric Regosol  
86: Chromic Vertisol  
87: Pellic Vertisol  
89: Eutric Planosol  
91: Mollic Planosol  
94: Haplic Yermosol  
103: Gleyic Solonchak