Amazon Basin Subset of the UNEP/GRID NOAA Global Vegetation Index (GVI)

Summary:

The National Oceanic and Atmospheric Administration / Global Vegetation Index (NOAA/GVI) archive held by UNEP/GRID is a series of weekly, monthly, seasonal and annual data files as produced by UNEP/GRID-Geneva from the original NOAA/GVI data set. The time period covered by these data as held by GRID is 12 April 1982 through 11 September 1994. This subset consists solely of the weekly variety of those data files for the geographic region of the northern half of South America.

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1. Data Set Overview

Data Set Identification:
Amazon Basin Subset of UNEP/GRID NOAA Global Vegetation Index (GVI)

Data Set Introduction:
The National Oceanic and Atmospheric Administration / Global Vegetation Index (NOAA/GVI) archive held by UNEP/GRID is a series of weekly, monthly, seasonal and annual data files as produced by UNEP/GRID-Geneva from the original NOAA/GVI data set. The time period covered by these data as held by GRID is 12 April 1982 through 11 September 1994.This subset consists solely of the weekly variety of those data files for the geographic region of the northern half of South America.

Objective/Purpose: Not Available

Summary of Parameters:

Global Vegetation Index:
The GVI is derived from NOAA/ Advanced Very High Resolution Radiometer (AVHRR) Global Area Coverage (GAC) data which are obtained on a daily basis. For any given week, the highest daily value of the so-called Normalized Difference Vegetation Index (NDVI) is sampled to produce a Weekly GVI data file. The NDVI is calculated from channels one (visible red light) and two (near- infrared light) values imaged by the AVHRR sensor, as follows: NDVI = (ch. 2 - ch. 1)/(ch. 2 + ch. 1). Discussion: Not Available
Related Data Sets: Not Available

2. Investigator(s)

Investigator(s) Name and Title:
Ronald G. Witt, Regional Coordinator; Peter Schlesinger, M.A., Daniel Nepstad, Ph.D., Paul Lefebvre, M.S.

Title of Investigation:
Source Data Title: NOAA/GVI Weekly Calibrated Vegetation Index
Data Preparation Title: Text
Contact Information:
1) Source Data Investigator:

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3. Theory of Measurements

Not Available

4. Equipment

Sensor/Instrument Description: Not Available
Collection Environment: Not Available
Source/Platform: Not Available
Source/Platform Mission Objectives: Not Available
Key Variables: Not Available
Principles of Operation: Not Available
Sensor/Instrument Measurement Geometry: Not Available
Manufacturer of Sensor/Instrument: Not Available
Calibration:
Specifications: Not Available
Tolerance: Not Available
Frequency of Calibration: Not Available
Other Calibration Information: Not Available

5. Data Acquisition Methods

Not Available

6. Observations

Data Notes: Not Available
Field Notes: Not Available

7. Data Description

Spatial Characteristics:
Spatial Coverage:

Location

Min X	-80.9272385
Max X	-34.4412079
Min Y	-20.0553093
Max Y	12.4446907

In decimal degrees of Longitude and Latitude
Spatial Coverage Map: Not Available
Spatial Resolution: The nominal spatial resolution is 16 km at the Equator
Projection: Plate Carree/Equirectangular
Grid Description:

Rows	226
Columns	323

Temporal Characteristics:
Temporal Coverage:
Because of different NOAA satellite and AVHRR sensor failures, UNEP/GRID-Geneva does not hold all weeks within the entire 1982-1994 period of time. For example, week 26 of 1993 (June 28 - July 4) is missing, and all related data files (July, summer, annual) for 1993 were calculated without taking this week in account. Also, data for year 1994 extend from week 1 to week 36 (January 1-September 11) only, and thus monthly vegetation index data files are available for January to August, and the Summer period was calculated using July, August and weeks 35 and 36 (beginning of September 1994).

Year	Week
1982	(Beginning of First Generation product 12 April, week 15)
1983	Week 26 (27 June - 3 July)
	Week 31 (1-7 August)
	Week 42 (17-23 October)
1984	Week 7 (13-19 February)
	Week 8 (20-26 February)
	Week 13 (26 March - 1 April)
	Week 14 (2-8 April)
	Week 49 (3-9 December)
	Week 51 (17-23 December)
1985	Week 3 (14-20 January)
	Week 5 (28 January - 3 February)
	(End of First Generation product 7 April 1985. Beginning of Second Generation Weekly Composite 9 April 1985.)
1992	Week 11 (9-15 March)
1993	Week 26 (28 June - 4 July)
1994	From 12 September on, weeks > 31 are not available

Temporal Coverage Map: Not Available
Temporal Resolution: Weekly
Data Characteristics:
Parameter/Variable: Global Vegetation Index

Variable Description/Definition:
The NDVI is calculated from channels one (visible red light) and two (near- infrared light) values imaged by the AVHRR sensor, as follows: NDVI = (ch. 2 - ch. 1)/(ch. 2 + ch. 1)
Unit of Measurement: Unitless
Data Source:
Originating Center: UNEP/DEIA/GRID - Geneva
Entry_ID:GNVd0028/104
Data Center: UNEP/DEIA/GRID-GENEVA
UNEP - Division of Environmental Information and Assessment - Global Resource Information Database - Geneva Data Center
URL:http://www.unep.ch
The NOAA/GVI data files held by UNEP/GRID-Geneva cover both the so-called First Generation and Second Generation NOAA products. The original source of these data was: U.S. National Oceanic and Atmospheric Administration / National Environmental Satellite Data and Information Service / National Climate Data Center / Satellite Data Services Division
Data Range: 0-255
Sample Data Record: Not Applicable

8. Data Organization

Data Granularity:
A general description of data granularity as it applies to the IMS appears in the EOSDIS Glossary. Each of the 635 granules in this dataset consists of a tarred and GNU-gzipped file (.taz), containing a single flat binary raster image file and an associated ASCII text file (.doc) both sharing a common filename.
Data Format:

Each of the flat binary raster image data files in this subset consists of 323 columns and 226 rows, comprising 72,998 8-bit bytes. There are no headers, trailers, or delimiters.

The structure of the ASCII documentation files is as follows (portions have been copied directly from the IDRISI for Windows v. 2.0 Help System, with the permission of the IDRISI Project, Clark University, Worcester, MA):

ITEM	DESCRIPTION
title	A descriptive name of the file.
data type	The type of numbers stored in the file. Allowable entries are byte, integer and real.
file type	The format in which the Image file is stored.
columns	The number of columns in the image.
rows	The number of rows in the image.
ref. system	The name of the geographic referencing system used with the file.
ref. units	The unit of measure used in the specified reference system. Allowable entries are m, ft, mi, km, deg and radians.
unit dist	The scaling factor between the given coordinates and actual measurements on the ground.
min X	The minimum X coordinate (left edge) of the image.

max X	The maximum X coordinate (right edge) of the image.
min Y	The minimum Y coordinate (bottom edge) of the image.
max Y	The maximum Y coordinate (top edge) of the image.
pos'n error	A measure of the accuracy of the positions in the image.
resolution	The inherent resolution of the image. In most cases, this should correspond to the result of dividing the range of reference coordinates in X by the number of columns in the image.
min value	The minimum value in the image.
max value	The maximum value in the image.
value units	The unit of measure of the values in the image. The term classes is used for all qualitative data sets, and that whenever standard linear units are appropriate, that the same abbreviations that are used for reference units should also be used (m, ft, mi, km, deg, rad).
value error	This field records the error in the data values that appear in image cells. For qualitative data, this should be recorded as a proportional error. For quantitative data, the value here should be an RMS error figure.
flag value	Any value in the image that is not a data value, but rather has a special meaning. If there is no flag value, this entry should remain blank.
flag def'n	Definition of the above flag value. The most common data flags are those used to indicate background cells and missing data cells.
legend cats	The number of legend categories present.
lineage	Description of the history by which the values were recorded/derived.
completeness	The degree to which the values describe the subject matter indicated.
consistency	The logical consistency of the file.

9. Data Manipulations

Formulae:
Derivation Techniques and Algorithms: Not Available
Data Processing Sequence:
Processing Steps:
Each of the original data files held by UNEP/GRID-Geneva have the dimensions of 2500 columns by 904 rows. Each of the weekly datafiles in this dataset were subset from the source data using the IDRISI for Windows geographic analysis system (Eastman, 1997) to include only the columns 687-1009 and rows 660-687 [where the column/row coordinate of the upper left is (0,0)].
Processing Changes: Not Applicable
Calculations:
Special Corrections/Adjustments: Not Available
Calculated Variables: Not Available
Graphs and Plots: Not Available

10. Errors

Sources of Error: Not Available
Quality Assessment:
Data Validation by Source: Not Available
Confidence Level/Accuracy Judgment: Not Available
Measurement Error for Parameters: Not Available
Additional Quality Assessments: Not Available
Data Verification by Data Center: Not Available

11. Notes

Limitations of the Data: Not Available
Known Problems with the Data: Not Available
Usage Guidance:
It should be noted that the minimum and maximum values information reported in each image's associated documentation files is incorrect. The documentation files in this dataset note values of 0-255, while the actual range of minima and maxima for these data varies from 0-200.
Any Other Relevant Information about the Study: Not Available

12. Application of the Data Set

The NDVI has been correlated with such physical measurements as total standing biomass, green leaf-area index (LAI) and per cent vegetation cover, but is probably best described as a relative measure of vegetation vigor and photosynthetic activity. It is most often used among other applications as a tool for monitoring temporal changes in vegetation.

13. Future Modifications and Plans

Not Available

14. Software

Software Description: Two softwares are required to read the files in this dataset:
the shareware tar program tar.exe
the GNU compression utility gzip.exe
Software Access:
The GNU-gzip program (gzip.exe) and shareware tar program (tar.exe) are available via Anonymous FTP from the following site: wuarchive.wustl.edu, in the directory, /systems/msdos/gnuish, files: gzip124x.zip and gnutar.zip

15. Data Access

Contact Information:
1) Source Data Contact:
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2) Data Preparation Contact:
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Data Center Identification: Not Applicable
Procedures for Obtaining Data: Not Applicable
Data Center Status/Plans: Not Applicable

16. Output Products and Availability

Not Applicable

17. References

Almost all of the information in this metadata was taken directly from the UNEP/GRID-Geneva summary document for the original data set, see the World Wide Web addresses:
http://www.grid.unep.ch/noaagnv28.htm
or
http://www.grid.unep.no/gnvd0028.htm

Other References Used in this Metadata:

Eastman, J.R., 1997. IDRISI for Windows Version 2.0. Clark Labs for Cartographic Technology and Geographic Analysis, Clark University, Worcester, MA
The best reference for the data from which this subset is derived is the NOAA "Global Vegetation Index Users' Guide (rev. Dec. 1994)", compiled and edited by Katherine B. Kidwell and available from the U.S. Department of Commerce, NOAA/ NESDIS/NCDC/Satellite Data Services Division, Princeton Executive Square, Wash. D.C. 20233 USA

18. Glossary of Terms

Not Available

19. List of Acronyms

Acronym	Definition
ASCII	American Standard Code for Information Interchange

AVHRR	Advanced Very High Resolution Radiometer
DEIA	Division of Environmental Information and Assessment
GAC	Global Area Coverage
GNU	GNU's not UNIX
GRID	Global Resources Information Database
GVI	Global Vegetation Index
NCDC	National Climatic Data Center
NDVI	Normalized Difference Vegetation Index
NESDIS	National Environmental Satellite Data and Information Service
NOAA	National Oceanic and Atmospheric Administration
SDSD	Satellite Data Services Division
UNEP	United Nations Environment Program

20. Document Information

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