



FLUXNET Research Network Site Characteristics, Investigators, and Bibliography, 2016

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Documentation Revision Date: 2017-09-28

Data Set Version: 1

Summary

FLUXNET is a global network of micrometeorological tower sites that use eddy covariance methods to measure the exchanges of carbon dioxide, water vapor, and energy between terrestrial ecosystems and the atmosphere. This dataset provides information from the ORNL DAAC-hosted FLUXNET site database which was discontinued in 2016. The files provided contain a list of investigators associated with each tower site, site locations and environmental data, and a bibliography of papers that used FLUXNET data. For more up to date information on FLUXNET sites, see <http://fluxnet.fluxdata.org/>.

There are nine data files with this dataset. This includes one compressed shapefile (.zip) with the locations of the sites, one compressed directory (.tar.gz) containing site data sheets, and seven comma-separated files (.csv) which provide the site locations, FLUXNET identifiers, investigator information, and bibliography.

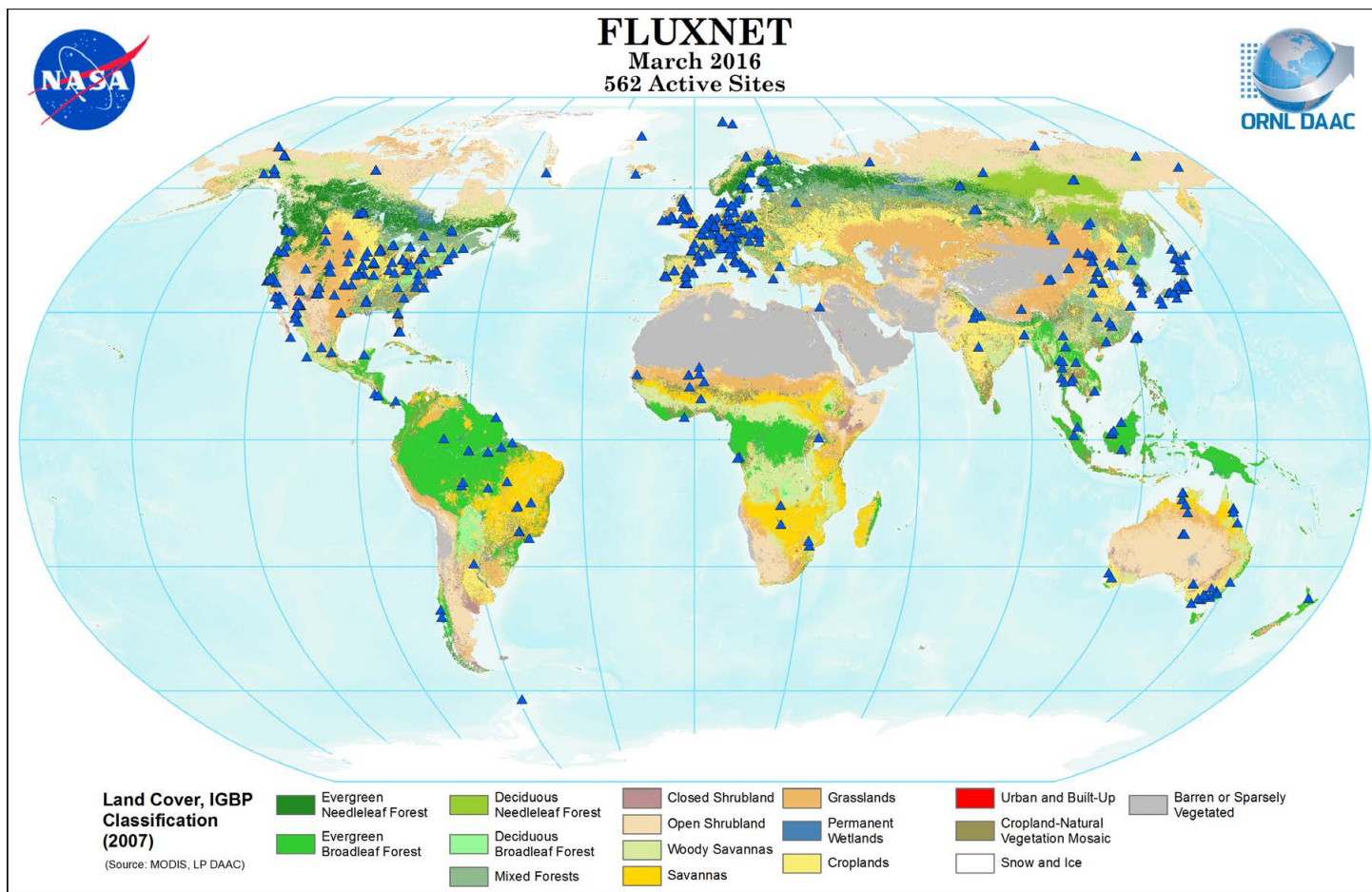


Figure 1. Active FLUXNET sites in March 2016 and land cover from MODIS IGBP classification. Site locations, land cover, and other environmental data is provided with this dataset. This image is included as a companion file: fluxnet_MODIS_IGBP_3-2016.png

Citation

Falge, E., M. Aubinet, P.S. Bakwin, D. Baldocchi, P. Berbigier, C. Bernhofer, T.A. Black, R. Ceulemans, K.J. Davis, A.J. Dolman, A. Goldstein, M.L. Goulden, A. Granier, D.Y. Hollinger, P.G. Jarvis, N. Jensen, K. Pilegaard, G. Katul, P. Kyaw Tha Paw, B.E. Law, A. Lindroth, D. Loustau, Y. Mahli, R. Monson, P. Moncrieff, E. Moors, J.W. Munger, T. Meyers, W. Oechel, E.-D. Schulze, H. Thorgeirsson, J. Tenhunen, R. Valentini, S.B. Verma, T. Vesala, and S.C. Wofsy. 2017. FLUXNET Research Network Site Characteristics, Investigators, and Bibliography, 2016. ORNL DAAC, Oak Ridge, Tennessee, USA. <https://doi.org/10.3334/ORNLDAAC/1530>

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1. Data Set Overview

FLUXNET is a global network of micrometeorological tower sites that use eddy covariance methods to measure the exchanges of carbon dioxide, water vapor, and energy between terrestrial ecosystems and the atmosphere. This dataset provides information from the ORNL DAAC-hosted FLUXNET site database which was discontinued in 2016. The files provided contain a list of investigators associated with each tower site, site locations and environmental data, and a bibliography of papers that used FLUXNET data. For more up to date information on FLUXNET sites, see <http://fluxnet.fluxdata.org/>.

Project: FLUXNET

Related Dataset: The following dataset contains an archived copy of the ORNL DAAC's Fluxnet Website as of September 2017. It provides much of the

same information contained in this dataset.

ORNL DAAC. 2017. Fluxnet: Archived Website Including Site and Investigator Information. ORNL DAAC, Oak Ridge, Tennessee, USA.
<https://doi.org/10.3334/ORNLDAAC/1549>

2. Data Characteristics

Spatial Coverage: Fluxnet sites around the world

Spatial Resolution: Point locations

Temporal Coverage: Data covers 1991-01-01 to 2016-12-31

Temporal Resolution: Various

Study Area (All latitudes and longitudes are given in decimal degrees)

Site	Westernmost Longitude	Easternmost Longitude	Northernmost Latitude	Southernmost Latitude
FLUXNET sites	-157.409	175.553889	78.921631	-62.232115

Data file information

There are nine data files with this dataset. This includes one compressed shapefile (.zip) with the locations of the sites, one compressed directory (.tar.gz) containing site data sheets, and seven comma-separated files (.csv). Sixteen companion files, including the shapefile data in .kmz (Google Earth) format, are also provided.

Table 1. Data file names and descriptions.

File name	Description
fluxnet_sites.zip	Compressed shapefile (.shp) that provides site locations and environmental data
fluxnet_site_investigators.csv	Provides site IDs and ID numbers of the investigators for each site
fluxnet_site_info_all.csv	Provides location information
fluxnet_site_info.csv	Provides names, location, and site descriptions
fluxnet_site_data.csv	Provides site environmental data
fluxnet_mapbooks.tar.gz	Compressed directory containing 1,407 site data sheets in .png format. The data sheets provide location maps and overview of environmental conditions at each fluxnet site.
fluxnet_investigators.csv	Provides a list of investigators, by investigator ID, with contact information
fluxnet_calculated_data.csv	Provides a list of data variables for each site
fluxnet_bibliography_20160729.csv	Provides a bibliography of publications that used Fluxnet data from each site

Shapefile

The shapefile (.shp) is provided in **fluxnet_sites.zip**. The following information is provided in the file.

siteid	Internal database identifier for each site
fluxnetid	Site ID within the Fluxnet network
keyid	Unknown definition
sitename	Human readable site name
country	Country location of site
land_unit	Region location of site
status	Active/inactive status of site as of 2016-03-01
latitude	Latitude coordinate

longitude	Longitude coordinate
year_began	Year the site started collecting data within the FLUXNET framework
network1	Current site network
network2	Previous site network
network3	Other previous site network
koepfen_cl	Koppen-Geiger climate classification
igbp_land_	Site land cover (MODIS IGBP classification)
umd_land_c	Site land cover (MODIS UMD classification)
lai_fpar	Site land cover (MODIS LAI/fpar classification)
npp_land_c	Site land cover (MODIS NPP classification)
plant_func	Unknown definition

Comma-separated files (.csv)

There are seven comma-separated files (.csv) included in this dataset. Each file and its contents are listed below.

Table 2. Contents of the file **fluxnet_site_data.csv**

Column name	Units/format	Description
siteid		FLUXNET site ID
data_type_id		
record_date	yyyy-mm-dd	
value		Landcover type-grassland, cropland, etc
source		Source of data
display		TRUE or FALSE
start_date	yyyy-mm-dd	Date site became active
end_date	yyyy-mm-dd	Date site became inactive

Table 3. Contents of the file **fluxnet_site_info_all.csv**

Column name	Units/format	Description
siteid		FLUXNET numeric site ID
fluxnetid		FLUXNET site ID
keyid		Combination of site ID and country location
sitename		FLUXNET site name
countryid		Country where FLUXNET site is located
land_unit		Region-location of FLUXNET site-North America, South America, Europe, Asia, Australia, Africa
staus		Staus of site=Acitve or Inactive
latitude	Decimal degrees	Latitude of site
longitude	Decimal degrees	Longitude of site
year_began	yyyy	Year site became active
network1		Current FLUXNET network affiliation or null

network2		Previous FLUXNET network affiliation
network3		Other prior FLUXNET network affiliation
koeppen_climate		Koppen-Geiger climate classification
igbp_land_use		Site land cover (MODIS IGBP classification)
umd_land_cover		Site land cover (MODIS UMD classification)
lai_fpar		Site land cover (MODIS LAI/fPAR classification)
npp_land_cover		Site land cover (MODIS NPP classification)
plant_functional_type		Plant functional type surrounding site
network1_id		Current FLUXNET network ID
year_began		Year the site started collecting data within the FLUXNET framework

Table 4. Contents of the file **fluxnet_site_info.csv**

Column name	Description
siteid	FLUXNET numeric site ID
sitename	FLUXNET site name
stateid	State where site is located or (null)
countryid	Country where FLUXNET site is located
keyid	Combination of site ID and country location
description	Description of the FLUXNET site location

Table 5. Contents of the file **fluxnet_investigators.csv**

This file provides contact information pertaining to the FLUXNET investigators and their affiliated FLUXNET site IDs.

Column name
siteid
firstname
middlename
lastname
title
position
description
Phone
Fax
Email
institution
Address1
Address2
Address3
investigator_url

comments

Table 6. Contents of the file `fluxnet_site_investigators.csv`

Column name	Units/format	Description
siteid	FLUXNET numeric site ID	FLUXNET numeric site ID
investigatorid		Investigator ID number
start_date	yyyy-mm-dd	start of time associated with this site
pi		Principal Investigator=yes or no
end_date	yyyy-mm-dd	
comments		
display_order	Numeric	

Table 7. Contents of the file `fluxnet_calculated_data.csv`. Climate and other ancillary data for each site was gathered from various sources and used to create Figure 2 and several other plots included as companion files.

Column name	Description
myid2	Investigator ID
lastname	Last name of investigator
firstname	First name of investigator
modis_file	Modis file
ceip_code	Combined FLUXNET site ID code with network
pnet	Network
siteid	FLUXNET site ID
keyid	
network	FLUXNET network
site_type	
status	Active or inactive
year_began	Year site became active
sitename	FLUXNET site name
country	Country where FLUXNET site is located
state	State where FLUXNET site is located
land_unit	Region location of FLUXNET site
latitude	Latitude of FLUXNET site
longitude	Longitude of FLUXNET site
cluster	
evapck	Evaporation
evap	Evaporation
precck	Precipitation
prec	Precipitation

tprec	Precipitation
sunck	
usn	
maxtck	Maximum temperature
maxt	Maximum temperature
mintck	Minimum temperature
mint	Minimum temperature
mmt	
vp	Vapor
ws	
igbp	Site land cover (MODIS IGBP classification)
umd	Site land cover (MODIS UMD classification)
lai_fpar	Site land cover (MODIS LAI/fPAR classification)
npp	Site land cover (MODIS NPP classification) code
ppt	Site land cover code
elev	Elevation
koepfen	Koppen-Geiger climate classification code
myid	
igbp_def	Site land cover code (MODIS IGBP classification) and definition
umd_def	Site land cover code (MODIS UMD classification) and definition
laif_def	Site land cover (MODIS LAI/fPAR classification) and definition
npp_def	Site land cover (MODIS NPP classification) code and definition
ppt_def	Site land cover code and definition
kop_def	Koppen-Geiger climate classification code definition

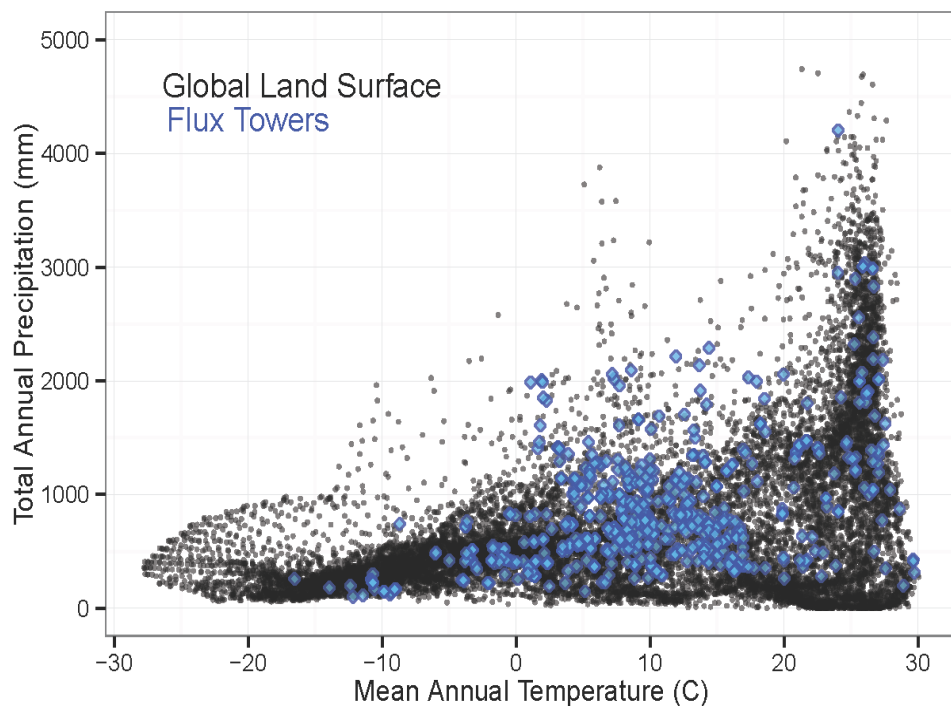


Figure 2: Calculated mean annual temperature and total annual precipitation for all active Fluxnet sites (blue diamonds; as of March 2016) as compared to the climatic regimes of one-degree grid cells for the Earth's land surface area. This image is included as a companion file: **fluxnet_Climate.png**.

Table 8. The file **fluxnet_bibliography_20160729.csv** contains a list of publications that used FLUXNET program data. Each paper is associated with one or more sites.

Column name
site
authors
title
year
journal
issue
pages
DOI

Site data sheets (mapbooks)

fluxnet_mapbooks.tar.gz	When uncompressed, this file contains 1,407 site data sheets in .png format showing a variety of environmental conditions at each fluxnet site. The individual files are named by the fluxnet site ID. See Fig 3 for an example.
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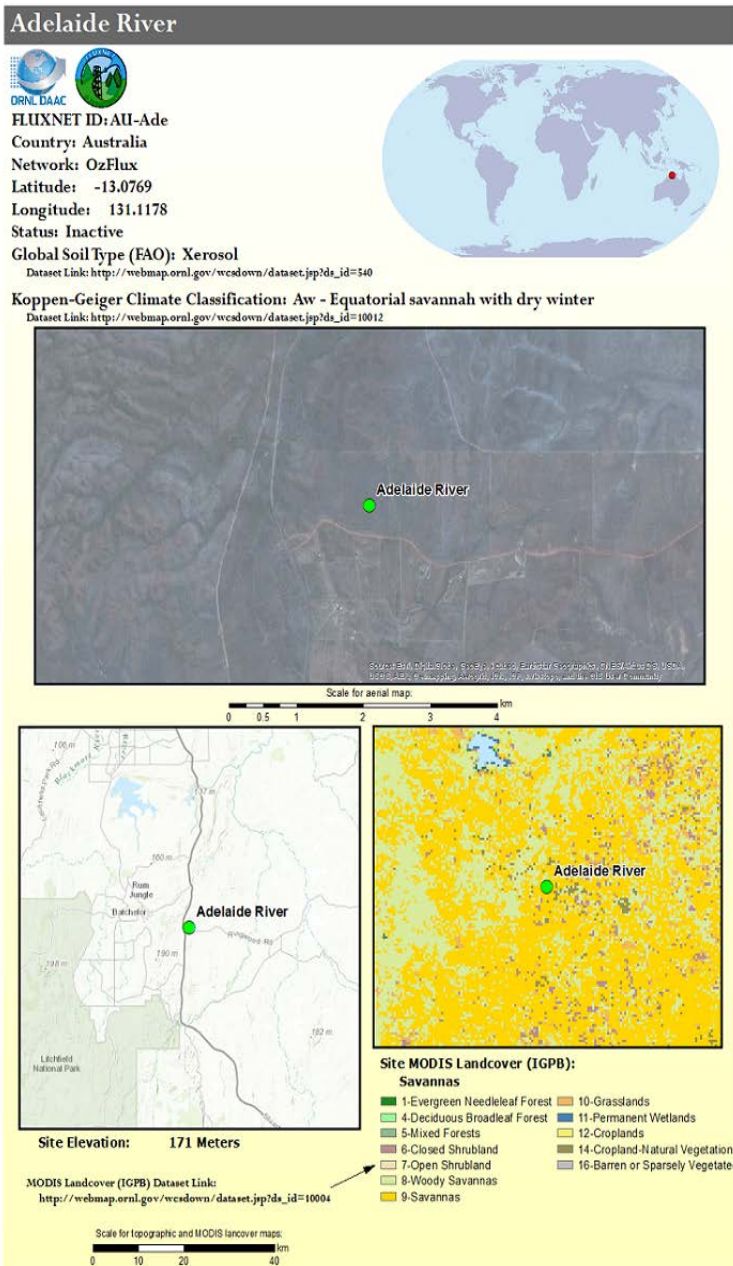


Figure 3: An example of the site data sheets, or mapbooks, provided for each site. This data sheet shows climate, land cover, and topography for the Adelaide River site (ID 2856) in Australia.

Companion files

Table 9. There are 16 companion files provided and each is described below.

Companion file name	Description
fluxnet_UMDLandcover_3-2016_ShadedPoints.png	Global map of FLUXNET sites with locations shaded per UMD landcover classification
fluxnet_UMDLandcover_3-2016.png	Global map of FLUXNET sites overlaid on the UMD landcover classification
fluxnet_Topo_3-2016.png	Global map of FLUXNET sites overlaid on elevation
fluxnet_Temp_Precip_Lat.png	Distribution charts of temperature, precipitation, and latitude of Fluxnet sites compared to the global land surface
fluxnet_sites.kmz	The shapefile data described above provided in .kmz format for viewing in Google Earth
fluxnet_MODIS_IGBP_3-	Global map of FLUXNET sites with locations shaded per IGBP landcover classification

2016_ShadedPoints.png	
fluxnet_MODIS_IGBP_3-2016.png	Global map of FLUXNET sites overlaid on the IGBP landcover classification
fluxnet_landcover_proportions.png	A bar graph illustrating the landcover types represented by all FLUXNET sites
fluxnet_LAI_3-2016_ShadedPoints.png	Global map of FLUXNET sites with locations shaded per LAI/fPAR landcover classification
fluxnet_LAI_3-2016.png	Global map of FLUXNET sites overlaid on LAI/fPAR landcover classification
fluxnet_Koppen_3-2016.png	Global map of FLUXNET sites overlaid on Koppen-Geiger Climate Classification
fluxnet_Climate.png	Calculated mean annual temperature and total annual precipitation for all active Fluxnet sites (blue diamonds; as of March 2016) as compared to the climatic regimes of one-degree grid cells for the Earth's land surface area. Figure 2 above.
fluxnet_tower_sites_201404.jpg	Chart of the growth of the number of FLUXNET towers from 1991 to 2014
fluxnet_Networks_3-2016.png	Global map of FLUXNET sites with locations shaded by the regional network affiliation
Fluxnet_site_DB_Fig1.png	Figure 1 from above
Fluxnet_site_DB.pdf	A pdf copy of this guide document

3. Application and Derivation

The FLUXNET site database is useful for understanding the historical coverage of flux towers globally and as a resource for related publications.

4. Quality Assessment

These data are provided with no guarantee of accuracy. Data in **fluxnet_calculated_data.csv** are especially subject to error. This data has not been maintained or updated since March 2016. For the most up to date information, see the Fluxnet project database at <http://fluxnet.fluxdata.org/>.

5. Data Acquisition, Materials, and Methods

These data were gathered from the FLUXNET site data base hosted at the ORNL DAAC. Site, bibliography, and investigator information were updated on a rolling basis during the project, but support was discontinued in 2016. The accompanying website is also archived at ORNL DAAC in the following dataset:

ORNL DAAC. 2017. Fluxnet: Archived Website Including Site and Investigator Information. ORNL DAAC, Oak Ridge, Tennessee, USA. <https://doi.org/10.3334/ORNLDAAC/1549>

6. Data Access

These data are available through the Oak Ridge National Laboratory (ORNL) Distributed Active Archive Center (DAAC).

[FLUXNET Research Network Site Characteristics, Investigators, and Bibliography, 2016](#)

Contact for Data Center Access Information:

- E-mail: uso@daac.ornl.gov
- Telephone: +1 (865) 241-3952

7. References



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