

# Florida Coastal Everglades LTER Program Data Submission Information

February, 2017

## Introduction

As a member of a Long Term Ecological Research Network, all researchers participating in the Florida Coastal Everglades Long Term Ecological Research Program (FCE LTER) recognize their responsibility to contribute all NSF FCE LTER funded data to the FCE LTER database and to publish data in a timely manner. The FCE LTER Data Management team has established a set of protocols and services for data collection, quality assurance, organization, data archive, data access, and data distribution to facilitate our scientific work. This information can be found in the Florida Coastal Everglades LTER Program Data Management Policy document posted on our FCE LTER Website: under [Information Management Policies and Documents](#).

FCE LTER data are managed using both a hierarchical file directory system and relational database management system (RDBMS).

### ***Hierarchical File Directory System:***

The FCE LTER [core data](#) and metadata files from individual research studies are stored in a hierarchical flat file directory system. FCE project information and minimal research data metadata are stored in an Oracle 12c database that drives the FCE web site. This hybrid system (flat file and database) gives FCE researchers, network scientists and the general public an option to conduct comprehensive data discovery searches and download complete original data files. Core data are made available to the public within two years of data collection and are accessible on-line in accordance with the FCE [Data Management Policy](#).

FCE LTER data files and their accompanying metadata files will carry the same name with the exception of the word 'eml' added to the end of the metadata file. Data files will be named by using 1) the type of dataset, 2) researcher's major research theme acronym abbreviation (specific to dataset; with the exception of those data types that fall in the 'Physical Data' category), 3) researcher's last name, and 4) a dataset number (based on the number of datasets previously submitted by researcher to the Information Manager).

<b><i>Type of Dataset</i></b>	<b><i>Code</i></b>
<b>Short-Term*</b>	<b>ST</b>
<b>Long-Term**</b>	<b>LT</b>
<b>Physical Data***</b>	<b>PHY</b>
<b>Climate Data ****</b>	<b>Climate</b>
<b>GIS Data</b>	<b>GIS</b>

\*Data collected for a period <= to 3 years.

\*\*Data collected for a period > than 3 years.

\*\*\*Data collected in the abiotic environment that influences the growth and development of organisms of biological communities such as water levels, air temperatures, rainfall amounts, and evapotranspiration.

\*\*\*\* Data collected from NOAA weather stations.

\*\*\*\*\* Data generated in a geographic information system environment.

<b>FCE Research Phase</b>	<b>FCE Research Workgroup</b>	<b>Acronym</b>
I	Nutrients & DOM	ND
I, II, III	Primary Production	PP
I	Soils & Sediment	SS
I	Consumer Dynamics	CD
I, II, III	Trophic Dynamics & Community Structure	TDCS
I	Education & Outreach	EO
I	Ecological & Social Modeling	ES
II	Modeling & Synthesis	MS
II, III	Biogeochemical Cycling	BC
II, III	Organic Matter Dynamics	OMD
II	Climate & Disturbance	CDI
II	Hydrology	HY
II	Human Dimensions	HD
III	Hydrology & Water Policies	HYW
III	Carbon Dynamics	CCD
III	Modeling & Scenarios	MSN
III	Climate & Disturbance Legacies	L

For example, the first short- term experiment dataset and dataset metadata submitted by John Doe, a member of the Primary Production Workgroup, would be assigned a dataset name of ST\_PP\_Doe\_001 and ST\_PP\_Doe\_001\_ eml, respectively. The first long-term experiment dataset and dataset metadata submitted to the LTER Information Manager by John Doe2, also a member of the Primary Production Workgroup, would be assigned a dataset name of LT\_PP\_Doe2\_001 and LT\_PP\_Doe2\_001\_ eml, respectively.

For those researchers who will be updating data files already submitted to the Information Manager (e.g. monitoring data), the updated data file should retain the old data file name and contain both the previously submitted data plus the newly appended data. The dataset will retain the original file name. The accompanying metadata files will be updated to reflect the appended data and will retain its original file name.

## **What to Submit to the FCE LTER Information Manager**

### **Project Information**

The FCE information Management System (IMS) is committed to collection and organization of FCE LTER project information and has developed a web- based interactive mapping application called the 'FCE LTER Interactive Everglades Map' to their website at [http://fcelter.fiu.edu/data/GIS/interactive\\_map/](http://fcelter.fiu.edu/data/GIS/interactive_map/) to facilitate information and project management. There are three criteria that are used to define a FCE LTER Project: 1) The funded grant included a FCE letter of support at the time of proposal submission 2) The work supported by funded grant occurs at a FCE LTER site and this research site was explicitly described in the proposal and 3) The funded grant cited the FCE LTER program in the proposal. Researchers are strongly encouraged to submit FCE LTER project information, via a project information form ([http://fcelter.fiu.edu/research/information\\_management/documents/](http://fcelter.fiu.edu/research/information_management/documents/)), to the site's Information Manager within 6 months of the project commencement. Additionally, because there are numerous ongoing freshwater, estuarine, and marine FCE research projects, researchers will be also be encouraged to update their project information annually.

The FCE information Management System (IMS) is also committed to collection and organization of FCE LTER 'related' project information and any submission would be greatly appreciated. Those researchers wishing to submit 'related' project information will use the same project information form easily downloaded from the FCE web site at [http://fcelter.fiu.edu/research/information\\_management/documents/](http://fcelter.fiu.edu/research/information_management/documents/).

**There are three (3) criteria used to define a Related FCE LTER Project:**

- 1) *Projects not included in the FCE LTER proposal.*  
AND
- 2) a) *Projects that help address one or several FCE LTER question(s).*  
OR  
b) *Projects with sites located near FCE LTER sites.*
- 3) *FCE graduate student projects*

This spatial extent of the mapping project will initially include Everglades National Park and the C-111 Basin, but we can add areas to the east and north as needed.

**Project Data**

Our FCE LTER relational database and data archive will provide a long-term record of ecological observations. **FCE LTER data files and their accompanying metadata files will carry the same name with the exception of the word 'eml' added to the metadata file and will be named by using criteria outlined under the before mentioned 'Hierarchical File Directory System' heading. All data sets submitted to the FCE Information Manager MUST be accompanied by their appropriate metadata files or they will NOT be accepted.**

Data sets should primarily contain raw data from direct measurements or counts. Derived and calculated parameters should only be included when they are critical to the interpretation of the data, such as when the parameter of interest can only be measured indirectly. If derived or calculated parameters are included in data sets, it is essential that all information relevant to their calculation be included in the data documentation (metadata). It is strongly recommended that the initial measurements used in the calculations also be included in the dataset in order to allow other parties to reevaluate the data using different criteria or possibly derive secondary information from these numbers. Any FCE LTER researcher who submits data to the FCE LTER database will be responsible for the quality assurance of that data, including the metadata content. Once those data have been submitted to the FCE Information Manager, the LTER program and Information Manager will be responsible for supervision and stewardship of datasets.

The FCE LTER Information Manager will also archive any hardcopy data related to the project, such as field notebooks and data sheets, in a lockable, fireproof storage cabinet.

***FCE LTER Program Recommended Dataset Variable Names***

FCE LTER Investigators are encouraged to use the variable name and unit recommendations listed in the table below whenever possible so as to increase the consistency and readability of all data sets. When the desired naming variable is not listed below, choose descriptive names and capitalize the first letter of each word. Avoid using generic names, such as 'Mass' or 'Length' without including the name of the property measured as well such as 'Leaf Length'.

### FCE LTER Recommended Dataset Variable Names

Category	Parameter	Recommended Name	Recommended Units
Location	geographic coordinates	UTM_Zone	number
		UTM_Easting	m
		UTM_Northing	m
		Latitude	decimal degrees (-90 to 90)
		Longitude	decimal degrees (-180 to 180)
	permanent plot	Plot	number
	FCE site*	Site	TS/Ph# or SRS#
Date/Time	date	Date	yyyy-mm-dd (e.g. 2001-02-01)
	time of day	Time	hhmm (e.g. 2330) hhmmss (e.g. 223030)
	year	Year	yyyy (e.g. 2001)
	month	Month	mm (e.g. 02)
	day	Day	dd (e.g. 05)
	Year date**	YearDate	day
	Julian day***	JulianDay	day day_01-Jan-0000
	elapsed time	Hours	h (e.g. 0.55)
General	length	[Property]_Length (e.g. Stem_Length)	m
	height	[Property]_Height (e.g. Shoot_Height)	m
	distance	Distance	m
	mass	[Property]_Mass (e.g. Soil_Mass)	g
	percentage	[Property]_Percent (e.g. Organic_Percent)	%
Hydrography	temperature	Temperature	C°
	salinity	Salinity	PSU
	depth	Depth	m

\*FCE LTER Site names should be written as TS/Ph or SRS plus the site number with NO hyphen. For example, TS/Ph1 or SRS1.

\*\* Year date, or Julian Date, is the number of days elapsed since January 1 of the same year.

\*\*\* Julian day or Julian day number is the number of days elapsed since a starting reference date, such as January 1, 0000 or January 1, 1900. When Julian days are used, be sure to include the starting year as part of your variable definition in the data documentation.

## **FCE LTER Program Metadata Content Standards**

The FCE LTER Program adheres to the LTER network- wide Ecological Metadata Language (EML 2.1.0) standard developed at the National Center for Ecological Analysis and Synthesis (NCEAS). This new standard includes distribution of both geospatial and non-geospatial metadata in parsable XML formats based on EML. EML exists as a set of XML Schema documents that allow for the structural expression of metadata necessary to document a typical data set in the ecological sciences. A full description of EML 2.1.0 can be found at the following URL: <http://knb.ecoinformatics.org/software/eml/>.

Currently, the FCE LTER Information Management Group uses a Metadata template that follows the EML content standard and is based on the LTER EML Best Practices Version 2 (August, 2011). A downloadable version of the FCE Metadata template, available in Microsoft Excel (.xls), can be found under the Information Management Policies and Documents section on the FCE public website ([http://fcelter.fiu.edu/research/information\\_management/documents/](http://fcelter.fiu.edu/research/information_management/documents/)).

## **When to Submit to the FCE LTER Information Manager**

To ensure that FCE LTER data are properly archived and protected, researchers are strongly encouraged to routinely submit data from ongoing research to the FCE LTER Information Manager. To this end, FCE researchers must submit all data (digital format) collected during a calendar year to the FCE LTER Information Manager by no later than June 1 of the following year. The Information Manager will schedule quarterly data collection dates (Jan 1, April 1, July 1, & October 1) throughout the year whereby electronic collection reminders, with the appropriate data submittal information, will be sent out to all participating researchers. The purpose of these reminders is to encourage researchers to continually submit their data for archiving and protection, rather than waiting until June 1 of each year to submit the previous year's data. All data must be submitted with a standard FCE LTER digital metadata form describing the format and content of the data together with a list of persons that have permission to make data available to others during its protected period (see Data Distribution Section of the FCE LTER Program Data Management Policy dated April, 2013 posted at <http://fcelter.fiu.edu/data/DataMgmt.pdf>).

Those researchers with long -term monitoring data are asked to submit those data as soon as it is obtained and processed (if necessary), certainly within one year of collection. Time frames for data release (see Data Distribution section) will be honored regardless of when the data are actually submitted.

## **How to Submit to the FCE LTER Information Manager**

Data files and their associated documentation can be sent to the FCE LTER Information Manager by email:

Email - [krvander@fiu.edu](mailto:krvander@fiu.edu)