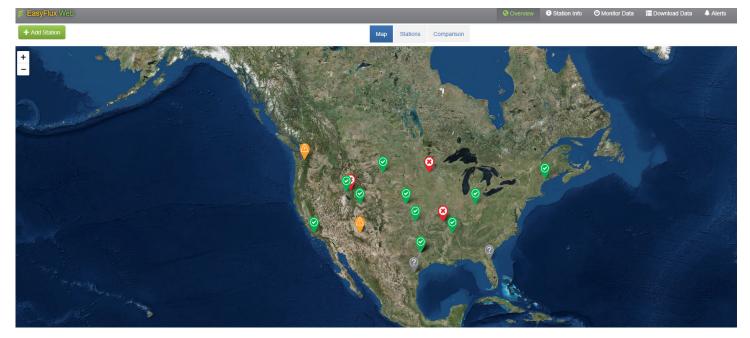




Eddy-Covariance Browser-Based Software





#### Overview

EasyFlux<sup>™</sup> Web is a web-based multi-user software system used for monitoring Internet-connected Campbell Scientific eddy-covariance stations. EasyFlux Web builds on our EasyFlux<sup>™</sup> DL series for the IRGASON or EC150/CSAT3A and CPEC200/CPEC300 series to provide real-time display of fully corrected 30-minute fluxes, energy-balance sensors, and overall health of the network. EasyFlux Web gives you the ability to track your eddy-covariance systems in one easy-to-use interface.

EasyFlux Web functions with the EasyFlux DL program running on a Campbell Scientific CR6 or CR3000 datalogger. When a station is added, EasyFlux Web automatically pulls station information available from the program running in the datalogger (ecosystem, latitude, and longitude). After adding your stations, you can graphically monitor data including QA/QC values, download data, compare data between stations, and set up alerts to notify you by email of data values outside of user-entered thresholds.

An administrator can set up user accounts and control the rights of each user. The following installation options are offered for EasyFlux Web.

- 1. EasyFlux<sup>™</sup> Web Self-Hosted: You install the software directly on your server, which also installs SQL Server Express. EasyFlux Web is then accessed by typing the IP address of the server into a web browser.
- 2. EasyFlux<sup>™</sup> Web CSI-Hosted: Campbell Scientific installs the software and automatically updates the software for you in a Microsoft Azure-based environment and provides a link to access the software.

#### **Benefits and Features**

- > Custom alerts with email notification
- > Monitor flux instruments and energy balance sensors, letting you plan site visits more effectively
- > Quickly reference metadata for each station
- > Remotely download data

- > Map view of all stations in network with quick view of critical data and alerts available on a computer, tablet, or smartphone device
- > Flexible product offering with ability to purchase a local copy or a subscription to a cloud-based plan
- Administrator choices on read/write abilities of users
- Fully compatible with EasyFlux DL series for CR6 dataloggers



### **Station Setup**

EasyFlux Web allows for users to add all of their stations within a network that has remote communication access. Adding your station's IP address to the program immediately adds your station to

New Station*				
	LoggerNet Datalogger	Select a datalogger	•	
The second secon	Name			
Load Image	Abbreviation	optional		
	Institution	optional		
	Туре	EasyFlux DL CR6	•	
	Ecosystem		•	
	Location	optional	*	
	Latitude	0		
	Longitude	0		
	Elevation	0		
		*Adding statio	n 5 of 5 available station	licenses.
Manage LoggerNet Dataloggers			Cancel	Save

Adding a station is quick and easy. Just select *Manage LoggerNet Dataloggers*, fill in your datalogger's information, and then customize your station using the *New Station* interface. Once you hit save, you're all done! the interface. You can uniquely modify each station with site images, ecosystem type, and location information. Once added, your site will display on the interactive map, making your data one click away.

Riesel Farm - Na	tive Prairie	×	
FC	1.65678	The second	
LE	18.98967	and the	
н	-6.538776	22A	
CO <sub>2</sub> Mix Ratio	408.8326	and the second	123.
H₂O Mix Ratio	15.28202		
Sonic Temperature	27.51167	10-1 - 1 - 1	
	•	1	
	J.Y		

Once your site has been added, it will appear on the interactive **Over**view Map where you can see snapshots of data at your site for easy monitoring. For example, Texas Water Observatory at Riesel Farm – Native Prairie Site: <u>http://two.tamu.edu/sites/primary/rfpr.aspx</u>

#### **Station Info**

The *Station Info* section is a great tool for checking the status of important station data variables, metadata, and datalogger information.

Station notes can be logged here after site visits to provide important information that you may need to be aware of for future reference.

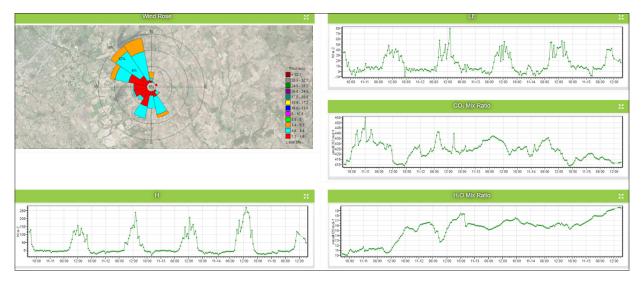
p Lasyriax web		<b>O</b> O T C T C T		
Manage Station -		Station: north40 -		
and the second	TYPE EasyFlux DL CR6	TYPE EasyFlux DL CR6		
	ECOSYSTEM Grass		11/9/2017 *	
	LOCATION Logan, Utah, USA		I have checked this site and everything looks great!	
	LATITUDE 41.7678428622986	LATITUDE 41.7678428622986		
	LONGITUDE -111.855888962746		28/11/2017 ×	
	ELEVATION 1362.9	ELEVATION 1362.9		
NAME north40			data. Jon Trauntvein	
ABBREVIATION			Jon Haunvein	
INSTITUTION Campbell Scientific, Inc.			▶7/19/2017 ¥	
			The program was changed to closed path a couple of weeks ago and, since then, $\hfill \ensuremath{\scriptstyle \mathbf{v}}$	
Gas analyzer and sonic anemometer				
IRGASON-Ux	IRGASON-Uy	IRGASON-Uz	IRGASON-Fc	
0.9718083	-0.2148452	-0.1263143	-0.1788742	
IRGASON-H	IRGASON-LE	CO2_sig_strgth	H2O_sig_strgth	
12.80256	10.89791	1.012135	0.9876933	
Biometeorology and energy balance sensors				
Temperature Probe	Relativity Humidity	Rn	G_surface	
9.350586	41.33606	-14.04747	70.69939	

The Station Info tab for your sites

#### **Monitor Data**

EasyFlux Web gives you the capability to monitor your fully corrected fluxes and other sensor data. The *Monitor Data* section allows you to add and customize which station variables are visible to you. This

tool helps track your data over time to give you a better understanding of the important environmental processes that occur at your site.



Monitor Data section can be easily customized for your application.

### **Download Data**

You can instantly download data in EasyFlux Web. Just specify what data tables to collect, what data format you would prefer, and how much data you need.

## Alerts

EasyFlux Web helps notify you of potential problems with your eddycovariance station. Customizable alerts help to inform you when system conditions have triggered a data flag. You can set thresholds to your station variables that will alert you when your data has fallen within these values. You can subscribe to those alerts for which you want to be notified by email.

Download Data	
Select the Table to Collect	
Flux_AmeriFluxFormat	-
Data File Format	
Comma Separated with Header (TOA5)	٣
Collection Mode	
All Data	Ŧ
L Down	nload Now

Title	Status	Value	Threshold	Message	Subscribed	Actions
No Data	۲			No data received for over one hour	C	٥
Skipped Scans	$\bigcirc$	0	value > 0		0	٥
Watchdog Errors	$\bigcirc$	0	value > 0		0	٥
Card Storage Running Low	۲	0.8756945	value < 7	There are less than seven days of card storage on the datalogger.	C	٥
FC OK		NAN	value = NAN	Invalid value for FC	O	٥
LE OK		NAN	value = NAN	Invalid value for LE	O	٥
нок		NAN	value = NAN	Invalid value for H	O	٠
TAU OK		NAN	value = NAN	Invalid value for TAU	C	٥
USTAR OK	$\bigcirc$	0.2280097	value = NAN		0	٥

Alerts send you messages when your data has been flagged.

# Compatibility

#### Required Campbell Systems

- Campbell Scientific CR6 datalogger running either the EasyFlux-CR6OP or EasyFlux-CR6CP program for closed-path eddy-covariance systems.
- Campbell Scientific CR3000 datalogger running the EasyFlux DL program for open-path, eddy-covariance systems.

#### Required Computer Software

- Windows 8.1 or newer and Windows Server 2012 R2 or newer 64-bit only.
- > 10 GB of hard-disk space
- 4 GB RAM
- > 2.0 GHz or faster processor
- > x64 processors only

