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U.S. DEPARTMENT OF
ENERGY

The FLUXNET2015 Dataset in Numbers

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Deb Agarwal, Eleonora Canfora, Dennis Baldocchi, Margaret Torn, and
the FLUXNET, AMP, and EUDB data teams

FLUXNET Workshop 2017

June 7-9, Berkeley, CA

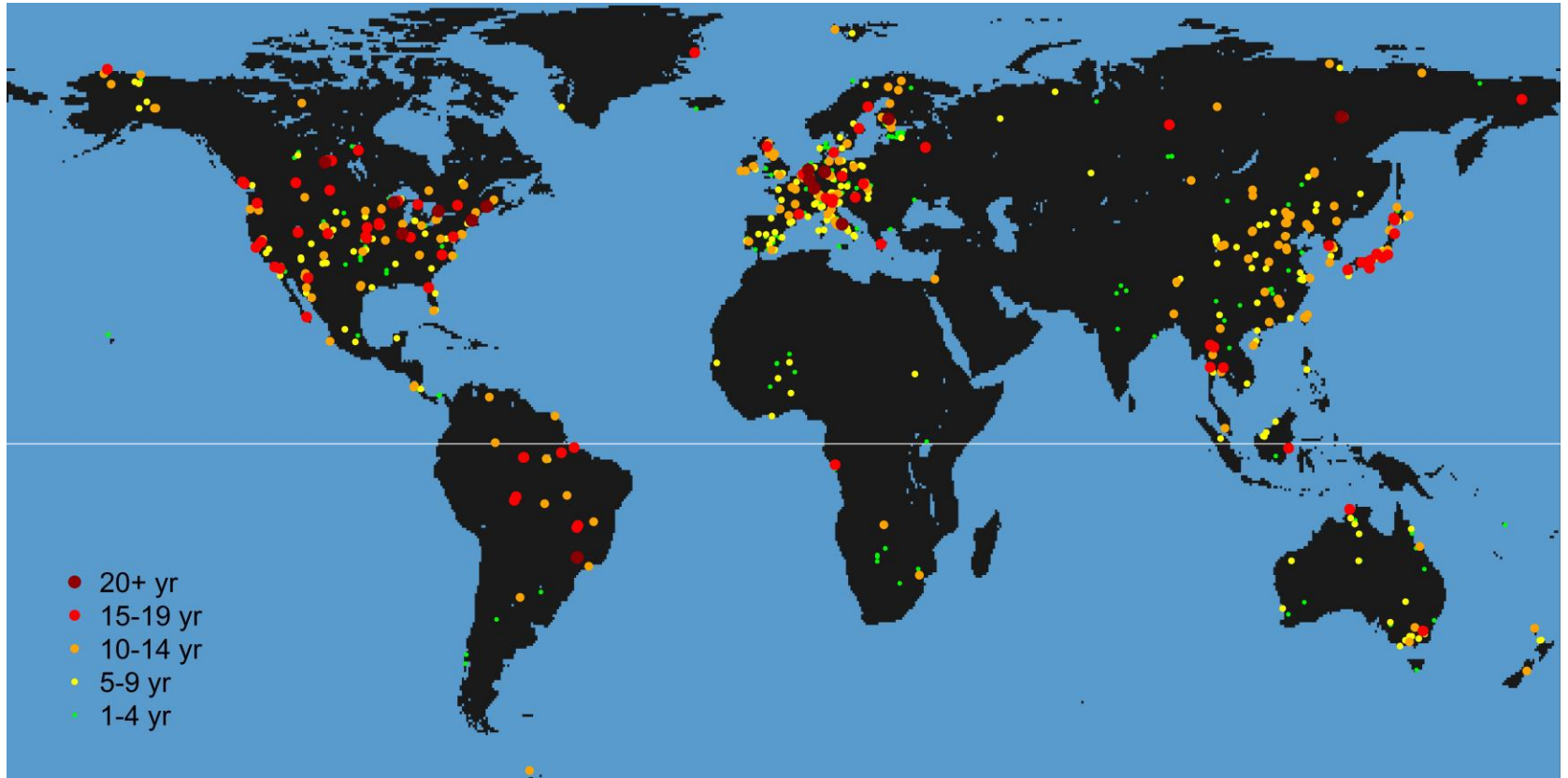


AMERIFLUX
MANAGEMENT PROJECT

ICOS

● ● ●
INTEGRATED
CARBON
OBSERVATION
SYSTEM

FLUXNET Sites Around the World

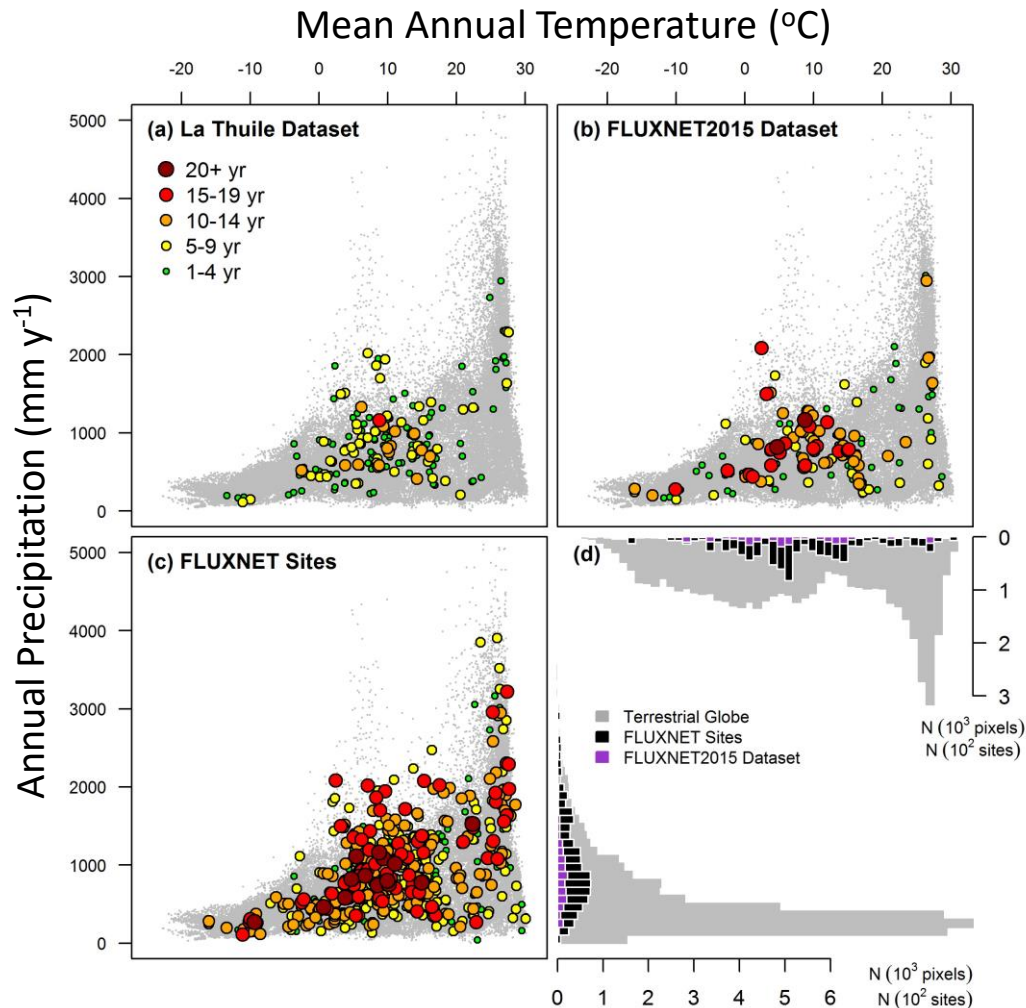


source: FLUXNET-Fluxdata Web site and H. Chu

FLUXNET Datasets

Site Distribution

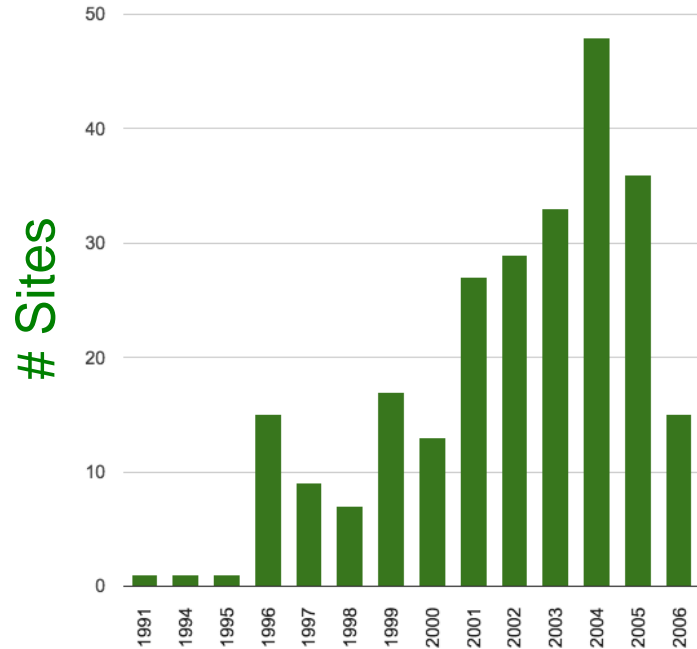
- Across temperature-precipitation dimensions
- Datasets improving coverage of the land surface in these dimensions
- Still far from the potential coverage, if considering all currently collected data – especially under-represented regions like the Arctic and Tropics



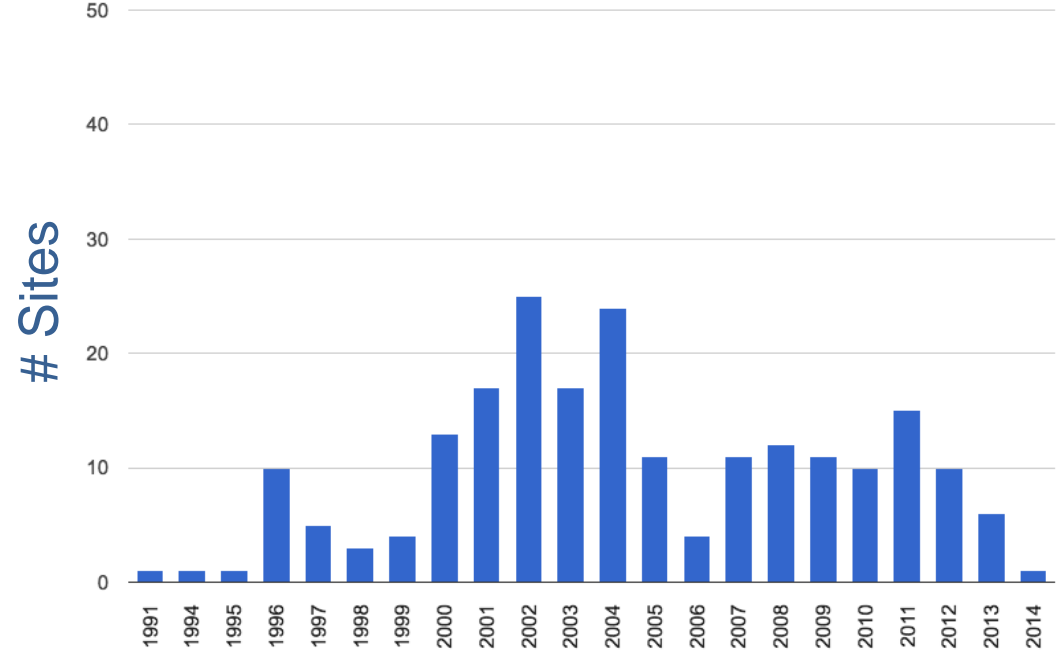
LaThuile2007 and FLUXNET2015 In Numbers

First year of data

LaThuile2007



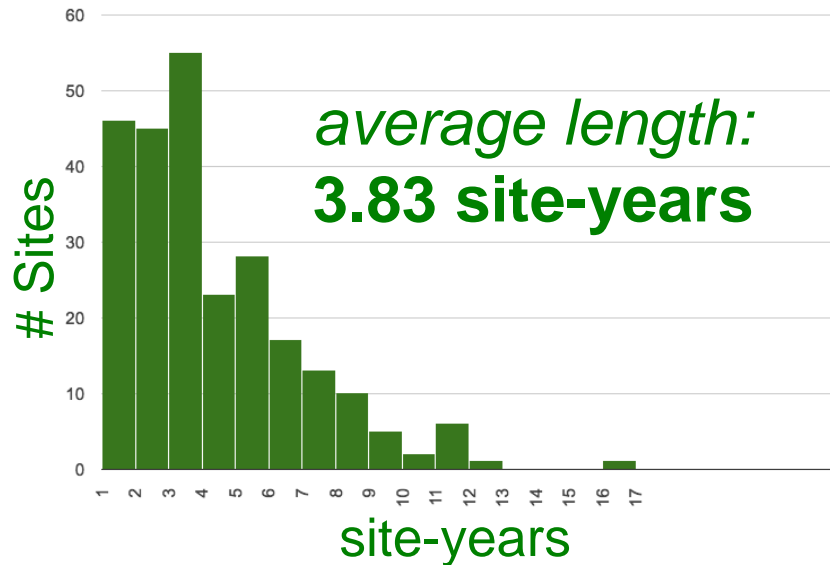
FLUXNET2015



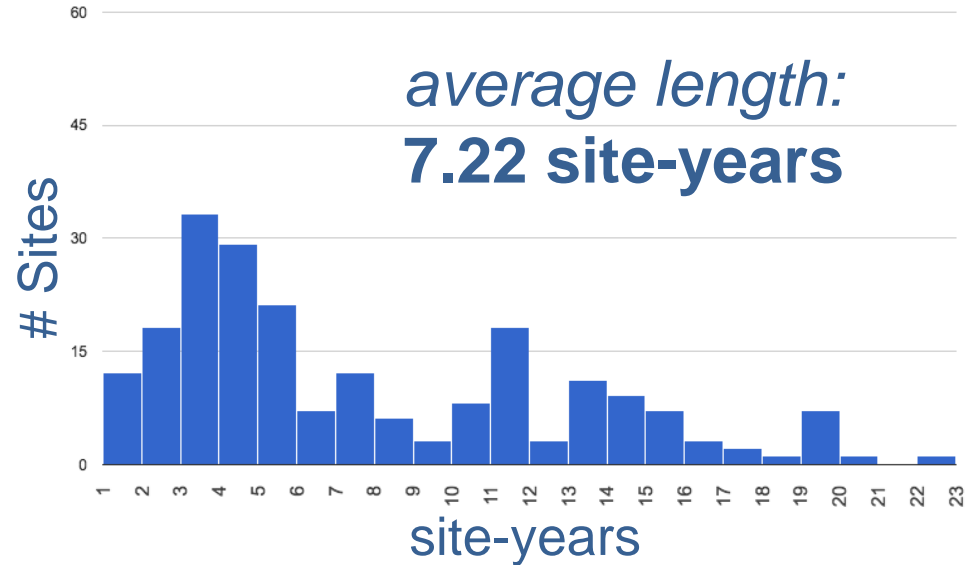
LaThuile2007 and FLUXNET2015 In Numbers

Record length (site-years)

LaThuile2007



FLUXNET2015



FLUXNET2015

Continent Distribution

FLUXNET2015:	212 sites		1532 site-years	
North America:	84 sites (40%)		604 site-years (40%)	
Europe:	71 sites (33%)		633 site-years (41%)	
Oceania:	23 sites (11%)		113 site-years (7%)	
Asia:	21 sites (10%)		102 site-years (7%)	
C&S America:	7 sites (3%)		39 site-years (3%)	
Africa:	6 sites (3%)		41 site-years (3%)	

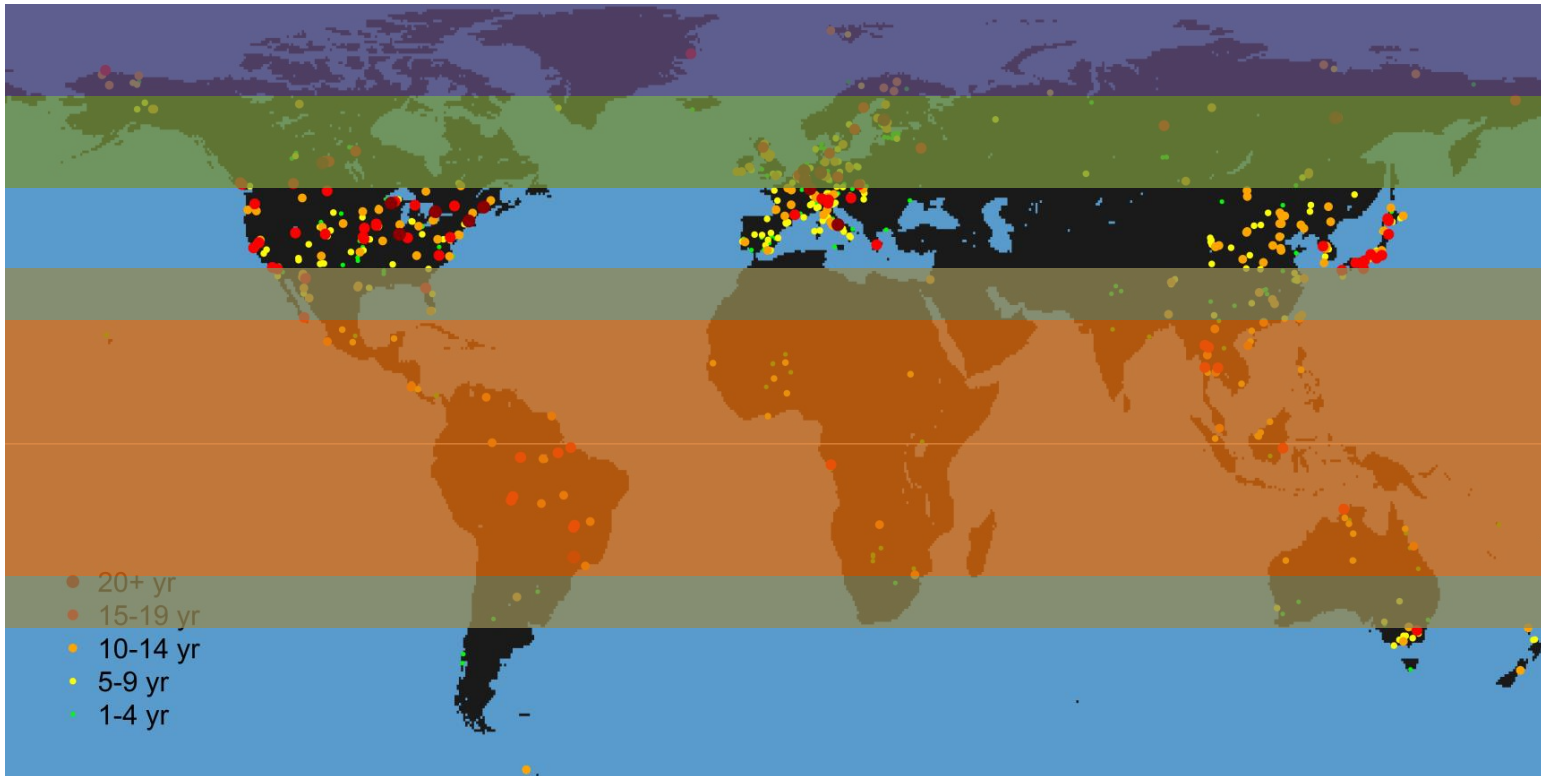
* Asia includes all 6 Russian sites .

FLUXNET2015

Sites in the Arctic and Tropics

In
FLUXNET2015

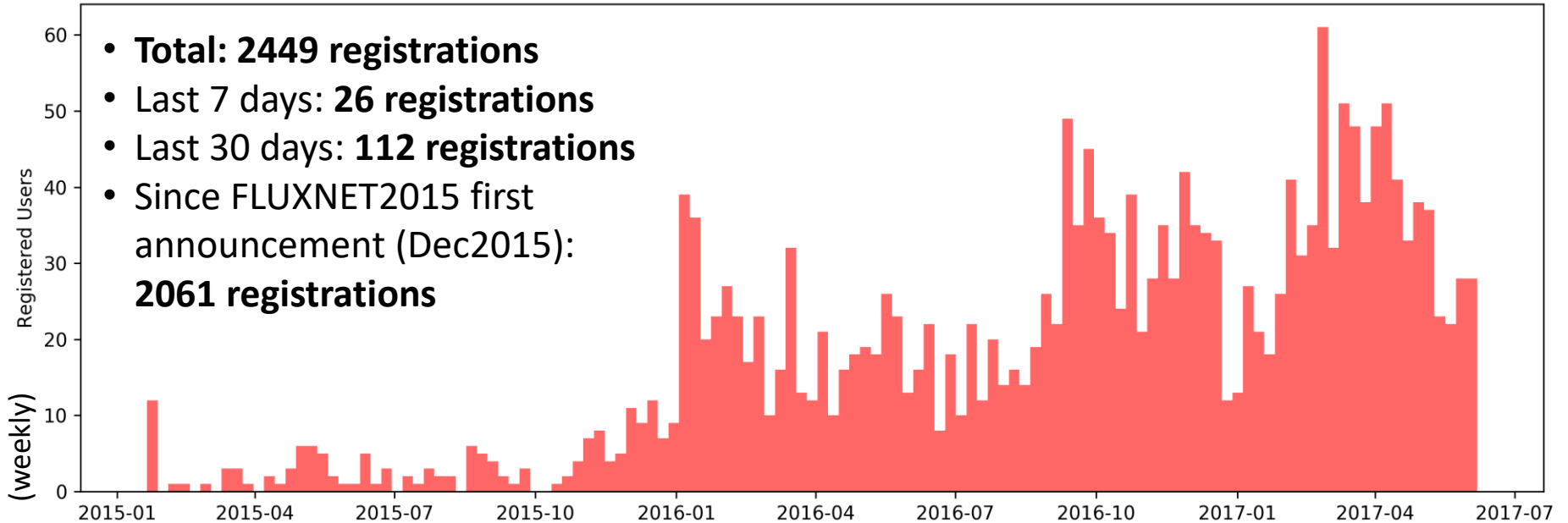
- Arctic:
8 sites
- +Sub-Arctic:
~55 sites
- Tropics:
23 sites
- + Sub-Tropics:
~45 sites
- Temperate:
~110 sites



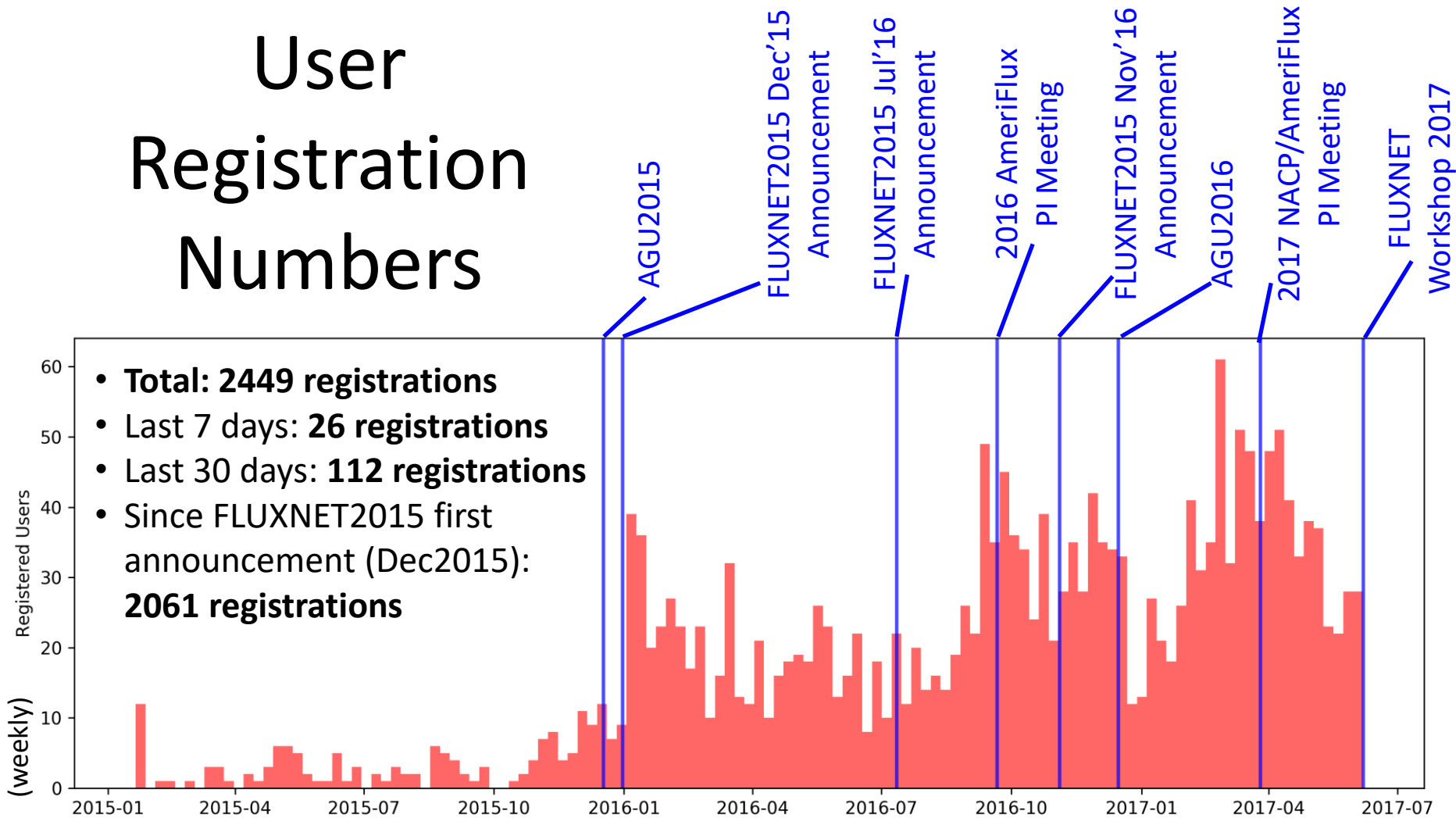
- 20+ yr
- 15-19 yr
- 10-14 yr
- 5-9 yr
- 1-4 yr

User Registration Numbers

*includes user registrations for
multiple Web sites:
*FLUXNET-Fluxdata, AmeriFlux,
International Soil Carbon Network*



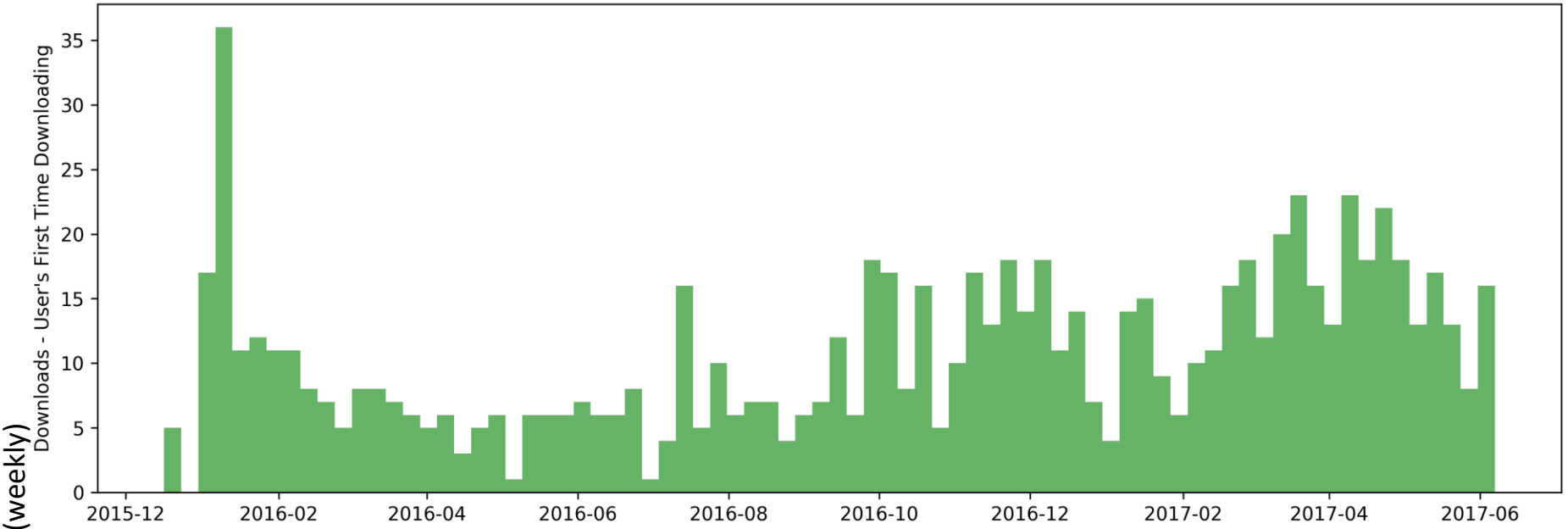
User Registration Numbers



FLUXNET2015

Downloads – User's **First Time** Downloading

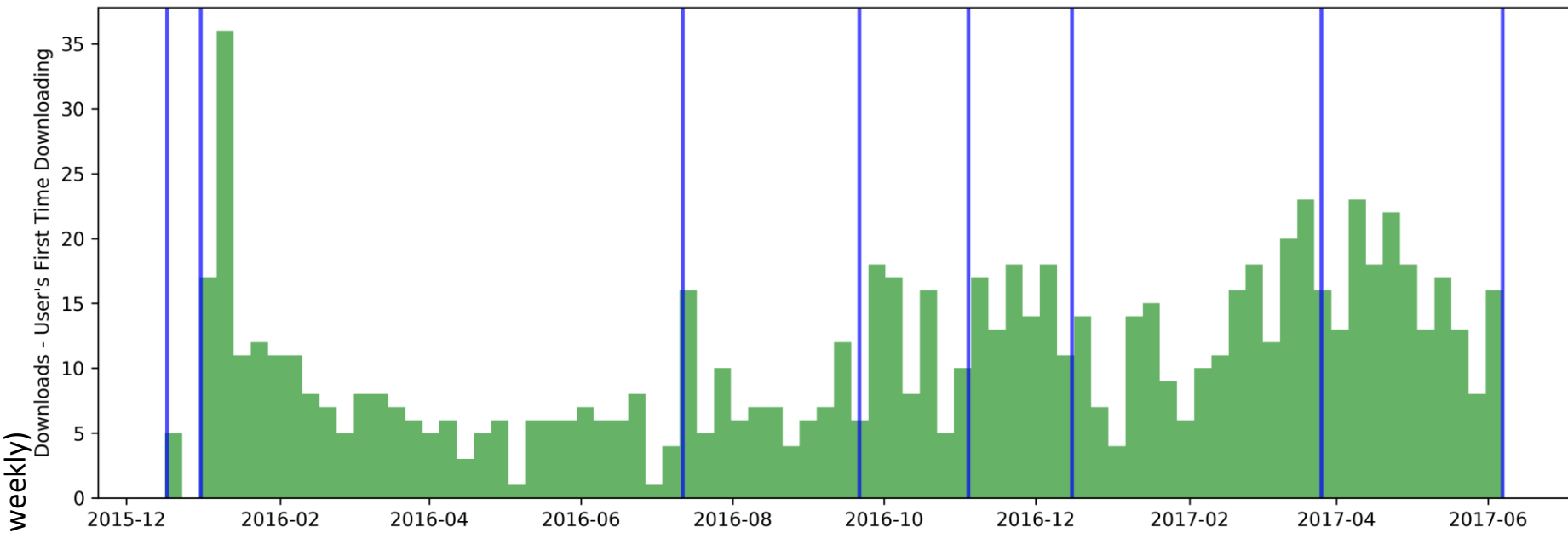
- **Total: 835 users** downloaded data at least once
- Last 7 days: **16 users**
- Last 30 days: **56 users**



FLUXNET2015

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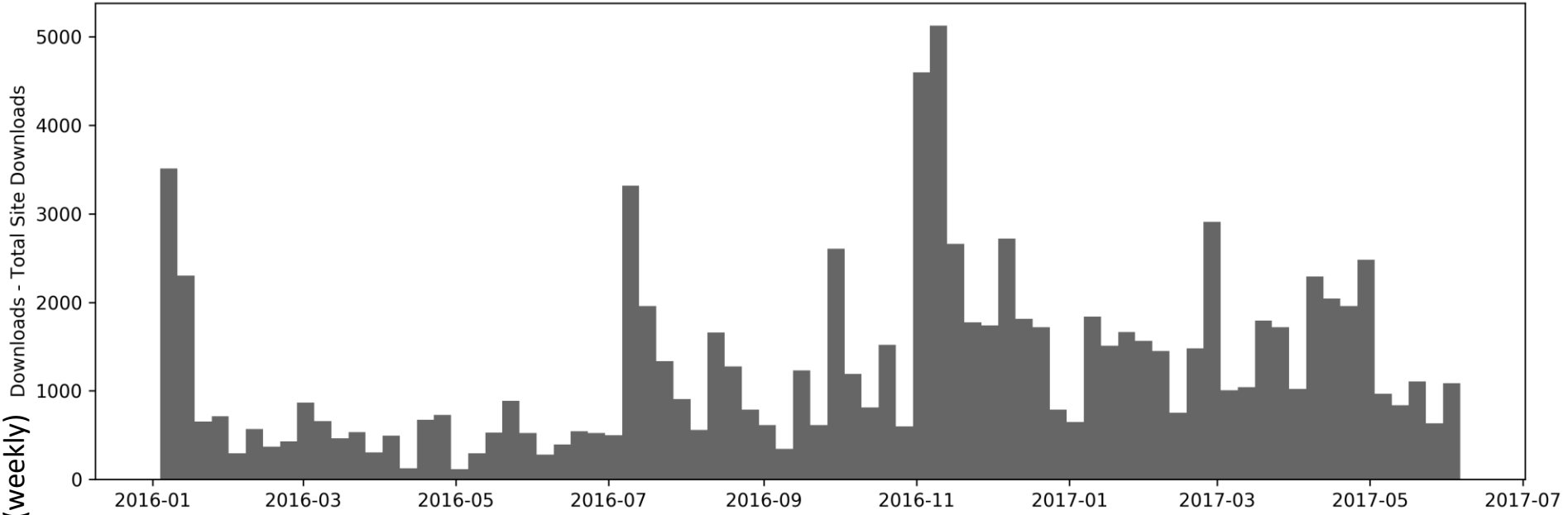
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FLUXNET2015

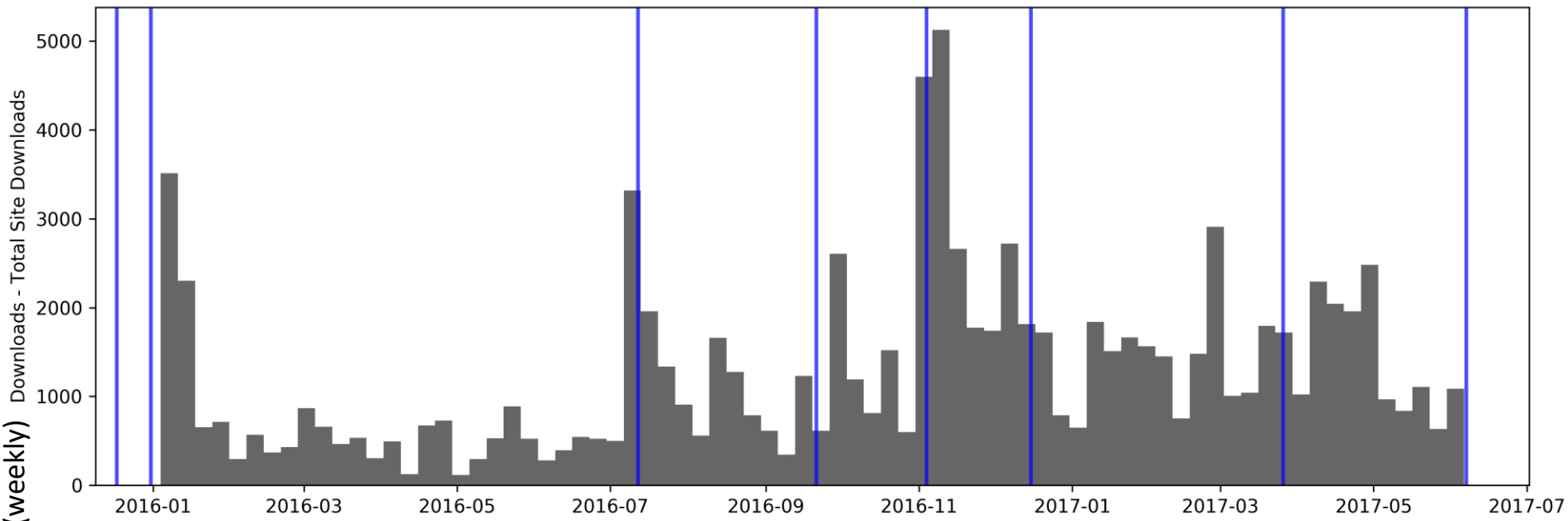
Downloads – Total Site Downloads

- **Total: 96,309 site downloads**
- Last 7 days: 912 site downloads
- Last 30 days: 3,830 site downloads



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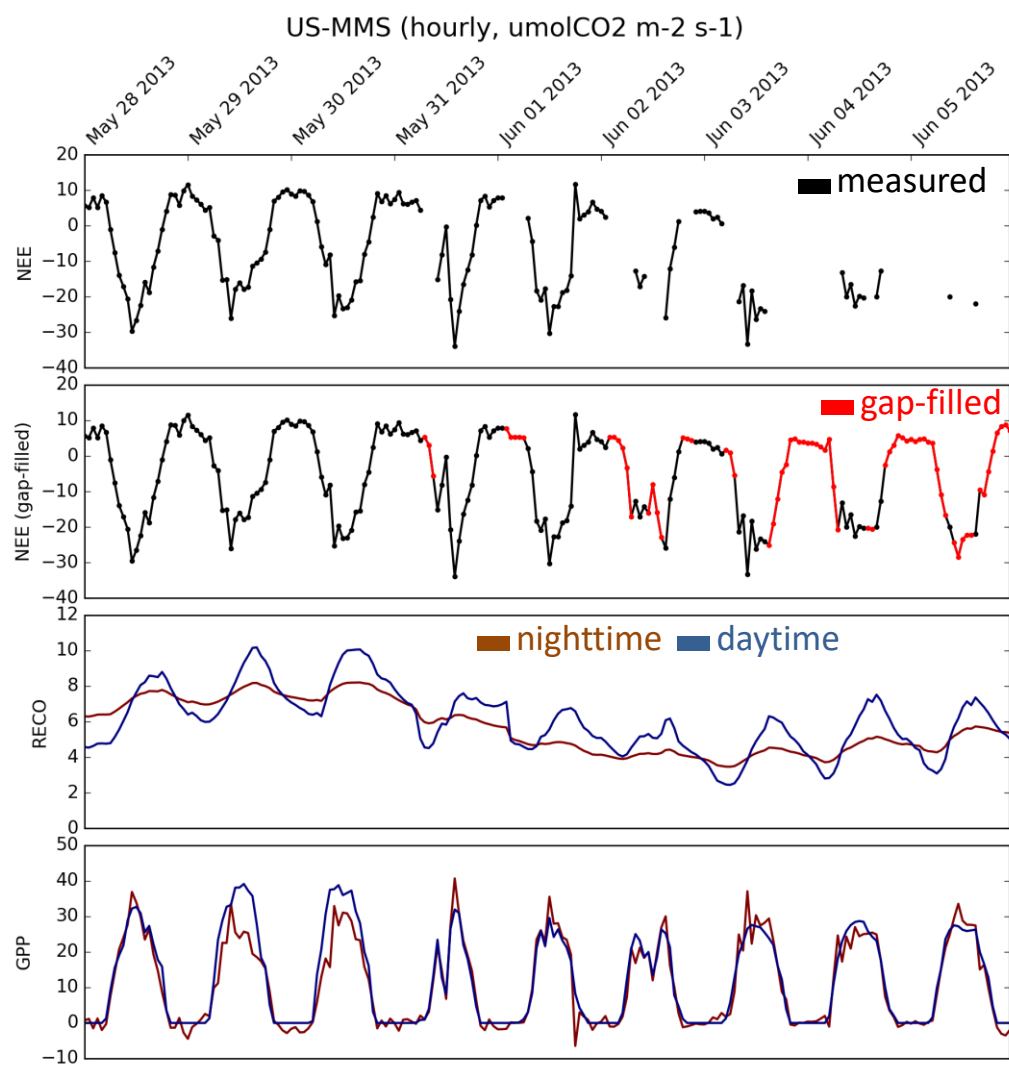


Why use the FLUXNET2015 Dataset?

- What's included
- Tips on using the data

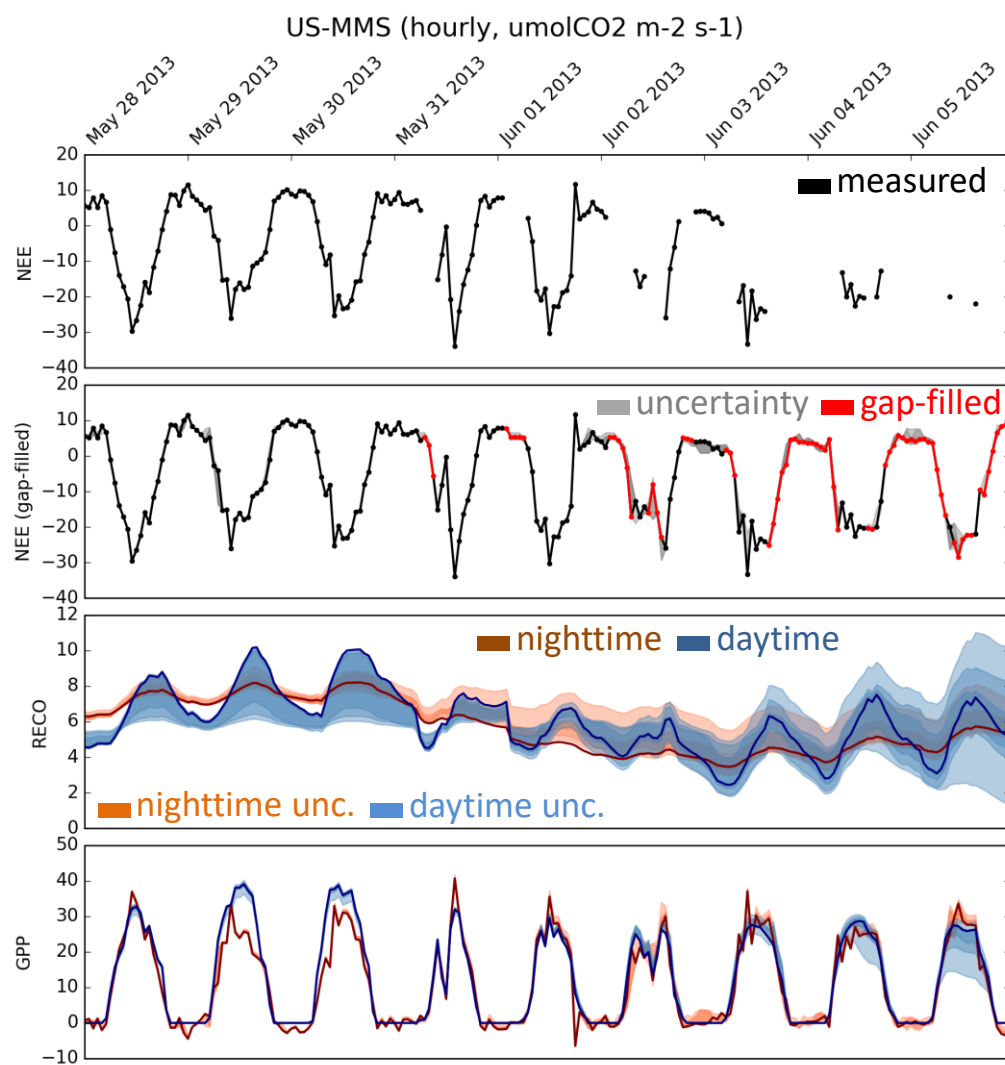
FLUXNET2015 Dataset Data Products

- gap-filling
- CO₂ flux partitioning



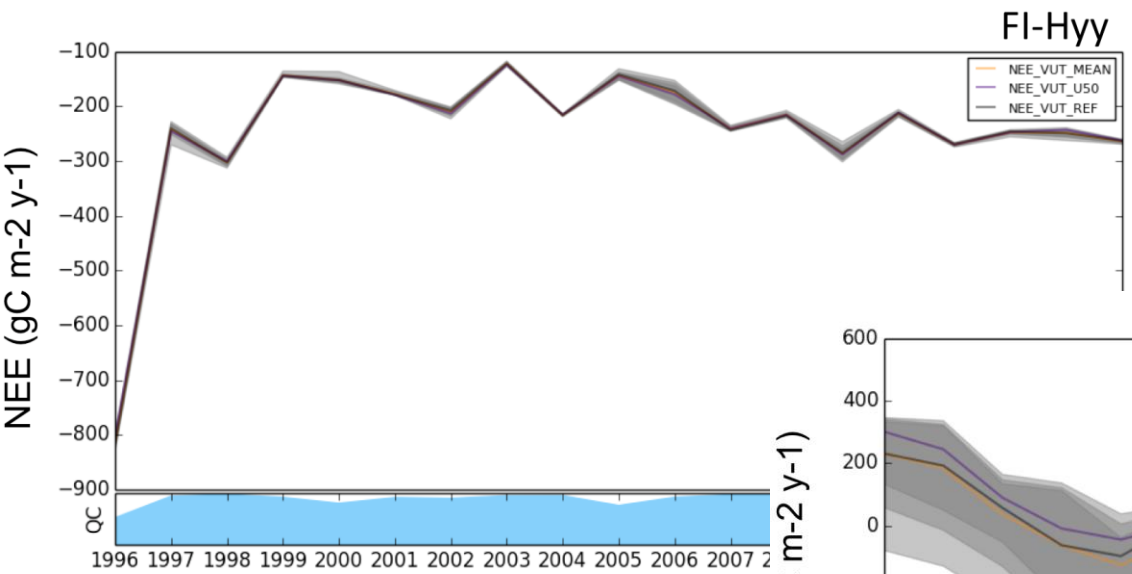
FLUXNET2015 Dataset Data Products

- gap-filling
- CO₂ flux partitioning
- uncertainty
 - USTAR
 - “Model”

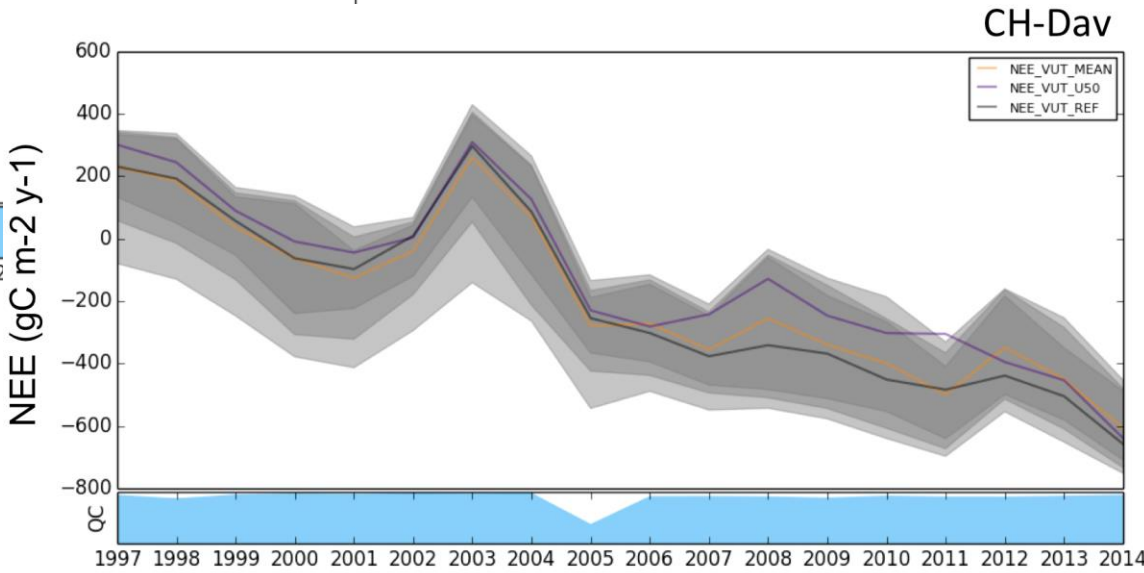


FLUXNET2015 Dataset Data Products

Uncertainty from USTAR filtering

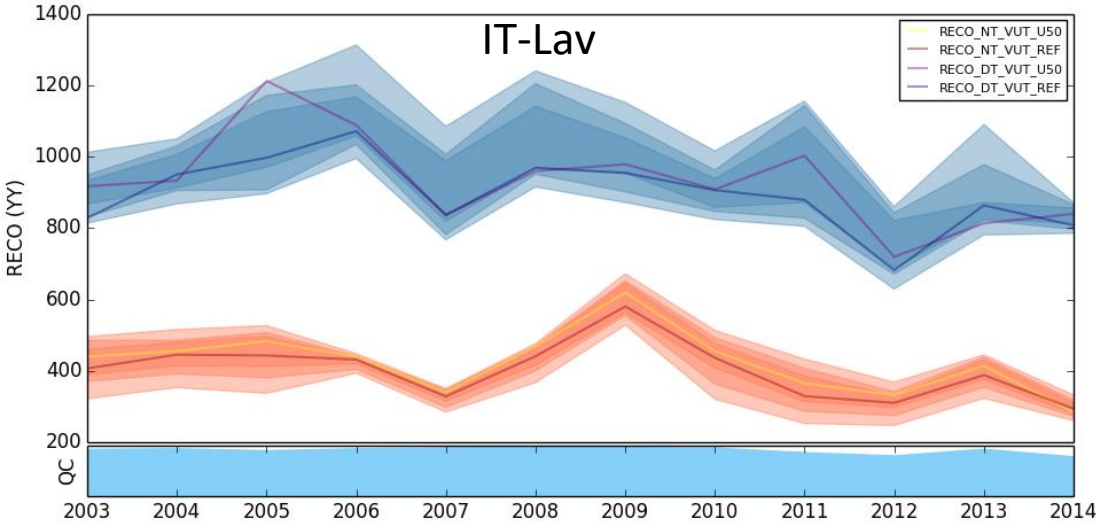
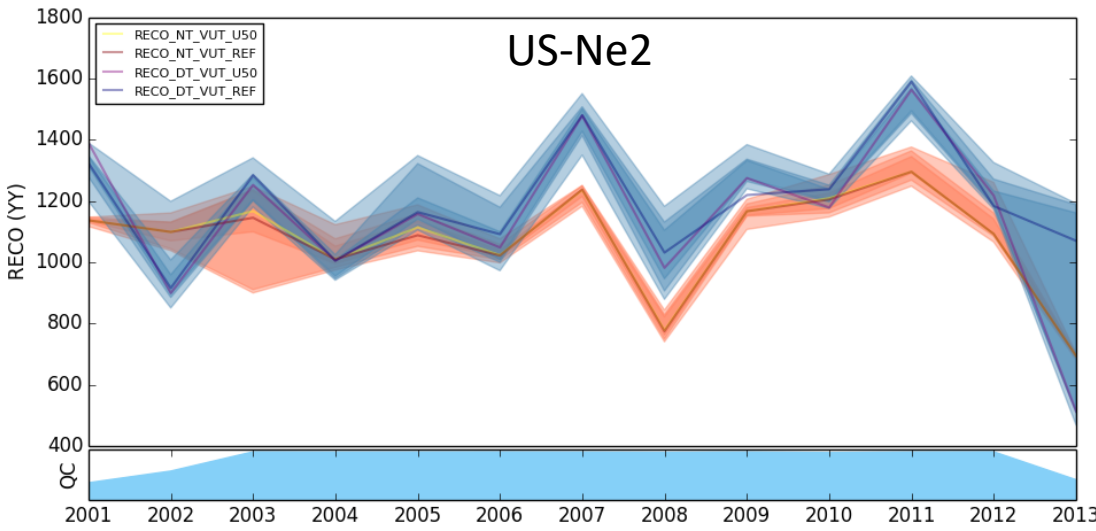


NEE



FLUXNET2015 Dataset Data Products

RECO



**Uncertainty from
partitioning
methods helps to
evaluate site
consistency**

FLUXNET2015 Dataset PATCH1 Release (May 2017)

- Added missing gap information in quality control flags for Sensible and Latent Heat variables (H/LE) – very limited impact
- Small updates and clarifications added to documentation and variable descriptions
- Details and files can be found at:

<http://fluxnet.fluxdata.org/data/fluxnet2015-dataset/known-issues/>

FLUXNET2015 Dataset

How to access the data

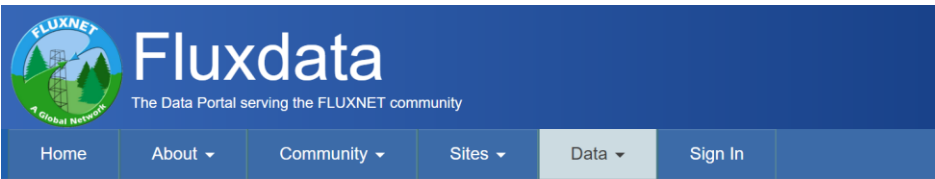
Data are available for EVERYBODY via the fluxdata.org website. It is also where documentation is available: <http://fluxnet.fluxdata.org/>

Data Use Policy

Two different policies (site-year dependent)

- **TIER1**: no direct action are requested by the user, PIs are informed about use and publication.
- **TIER2**: the user must invite the PI to contribute with substantial additional intellectual input that would lead to co-authorship

In both cases acknowledgment, list of sites used and citation of DOI or papers describing the site are requested



[Home](#) / [About Data](#) / [FLUXNET2015 Dataset](#)

FLUXNET2015 Dataset

The FLUXNET2015 Dataset includes data collected at sites from multiple [regional flux networks](#). The preparation of this new FLUXNET Dataset has been possible only thanks to the efforts of many scientists and technicians around the world and the coordination among teams from regional networks. The previous versions of FLUXNET Dataset releases are the [FLUXNET Marconi Dataset \(2000\)](#) and the [FLUXNET LaThuile Dataset \(2007\)](#). The FLUXNET2015 Dataset includes several improvements to the data quality control protocols and the data processing pipeline. Examples include close interaction with tower teams to improve data quality, new methods for uncertainty quantification, use of reanalysis data to fill long gaps of micrometeorological variable records, among others (see the [data processing pipeline page](#) for details). Refer to the [Data Policy](#) page for data usage and acknowledgement requirements.

[Download FLUXNET2015 Dataset](#)

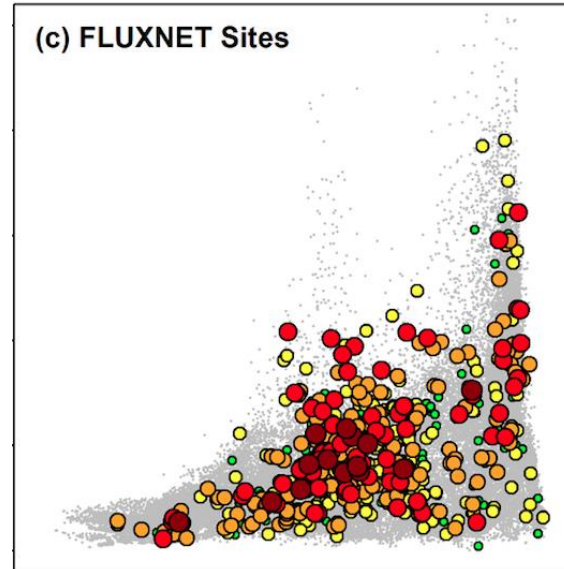
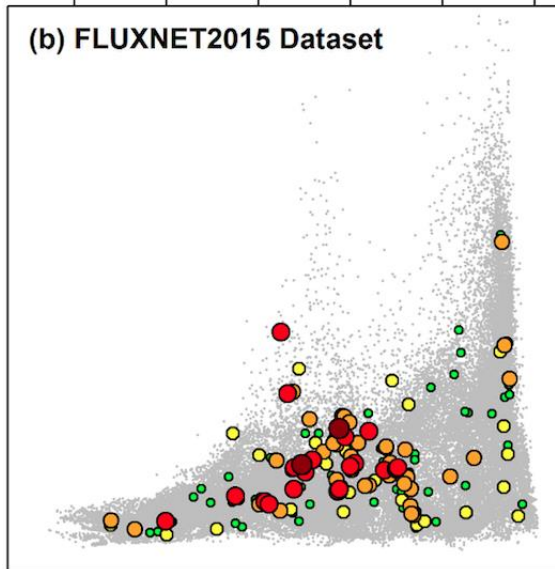
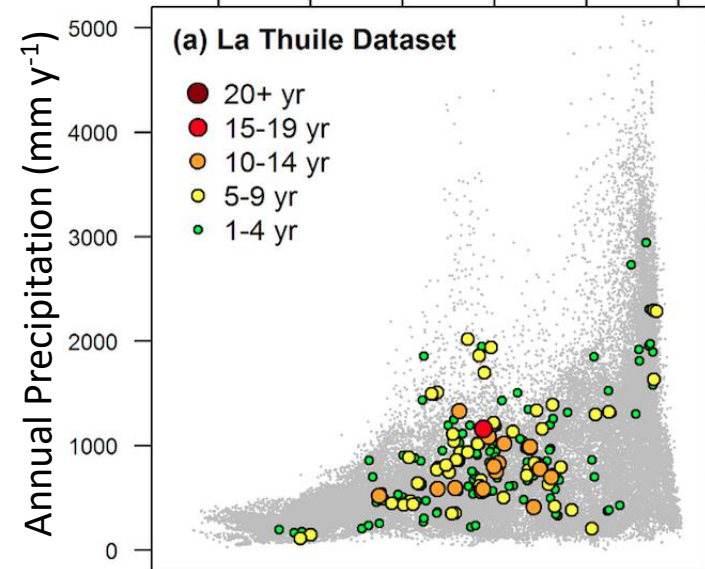
FLUXNET Synthesis Datasets

Where to next?

Mean Annual Temperature ($^{\circ}\text{C}$)

-20 -10 0 10 20 30

-20 -10 0 10 20 30



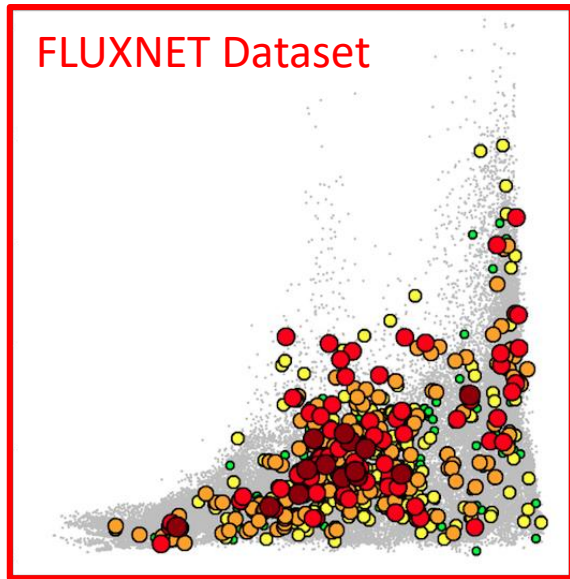
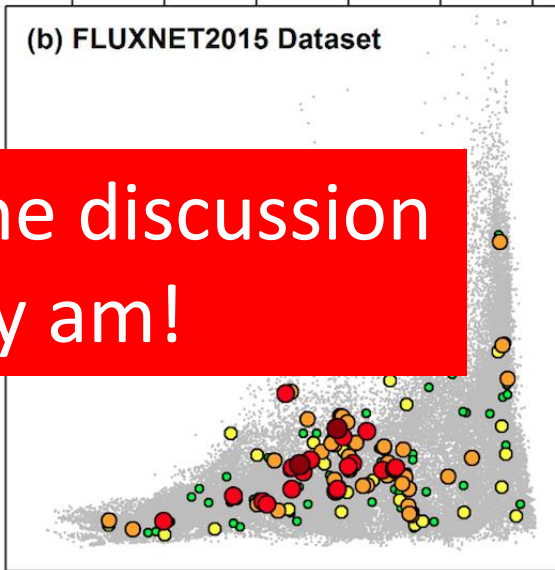
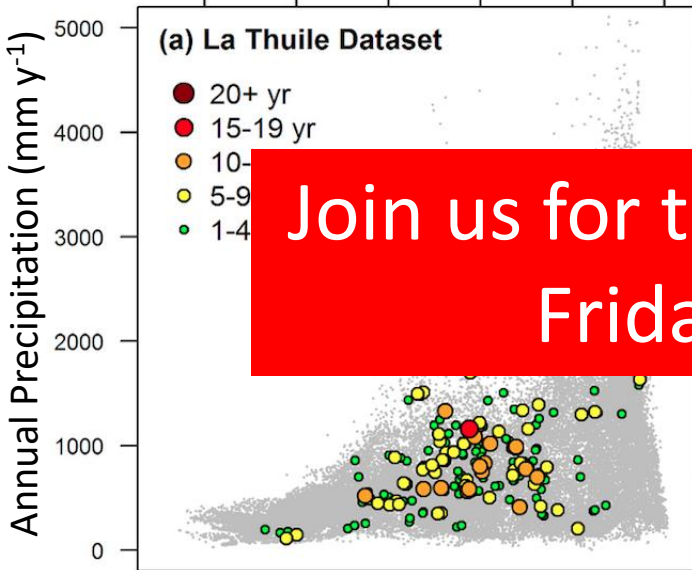
FLUXNET Synthesis Datasets

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Thank you!

AmeriFlux Management Project and European Fluxes Database Cluster Teams for all the work

CDIAC, ICOS Ecosystem Thematic Centre, OzFlux, ChinaFlux, and AsiaFlux for the support in data preparation

All the site teams who shared their invaluable data!

contact: fluxdata-support@fluxdata.org



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