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Reply on CC1

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Author comment on "Technical note: A view from space on global flux towers by MODIS and Landsat: the FluxnetEO data set" by Sophia Walther et al., Biogeosciences Discuss., https://doi.org/10.5194/bg-2021-314-AC1, 2021

Thanks a lot for your question which gives us the chance to clarify that indeed **FluxnetEO is meaningfully different from the services provided by the ORNL DAAC fixed site subsets tool in a number of aspects, the two most important being i) the provision of subsetting services versus preprocessed Earth Observation (EO) data, and ii) the selection of products and sites.**

Ad i): The ORNL DAAC fixed site subsets tool is a subsetting tool, providing cutouts of a range of Earth Observation data. The QC consists in removing invalid data points for which the retrieval was not successful only, retrieved values with low reliability are hence still included. So the user needs to invest work into the preprocessing in terms of quality control and estimating values in data gaps (if a certain application requires gap-free data), but at the same time the user has the full flexibility to choose how strict the quality control and how sophisticated a possible gap-filling method shall be depending on the requirements of the application. Conversely, the advantage of FluxnetEO is that it proposes an approach to do exactly this preprocessing, i.e. it provides methods and data that are quality controlled and gap-free, and therefore ready for analysis. It also provides the user with a certain degree of flexibility in choosing which data samples to trust through ancillary data layers with information on gap-filling procedures for example.

Ad ii): The selection of available sites/networks is much wider in the ORNL DAAC site subsetting tool than in FluxnetEO. But they can be considered complementary in terms of data sets as the only product that FluxnetEO has in common with the long list (much longer than FluxnetEO) of L3 and L4 products in the ORNL DAAC subsetting tool (https://modis.ornl.gov/documentation.html) is MODIS surface reflectance product MCD43A4. Specifically, the data sets that make FluxnetEO differ from the ORNL DAAC site subsetting tool are Landsat surface reflectance, daily and geometrically corrected land surface temperature (as opposed to 8-daily land surface temperature under variable viewing zenith angle only), and that MCD43A4 is consistently provided for all sites. The ORNL DAAC subsetting tool provides the MCD43A products only for a selection of sites (https://modis.ornl.gov/sites/?list=all&product=MCD43A), and testing for the three sites that were evaluated in detail in our manuscript (Las Majadas de Tietar, Gebesee and Zotino), showed that MCD43A4 is only available for Gebesee in the ORNL DAAC subsetting

tool. On top, FluxnetEO uses the ancillary quality information in MCD43A2 for the quality control of MCD43A4, while MCD43A2 is not in the product list of the ORNL DAAC subsetting tool, which limits the chances for user-defined quality control in MCD43A4.

The table below lists further differences. Users need to decide based on these different characteristics of ORNL DAAC subsetting tool and FluxnetEO which one matches the needs of their application and question best.

In the revised version of the manuscript we will clarify the differences.

	FluxnetEO	ORNL DAAC subsetting tool
Main service provided	Quality controlled and gap-filled EO data in subsets	Subsetting of EO data
sites	338 eddy-covariance sites (LaThuile, Fluxnet2015, ICOS Drought 2018)	more than 3000 field sites of any kind and network
Pre-processing	quality control and gap-filling	Quality control only removes unsuccessful retrievals, no gap-filling
cutout	4x4km , reprojected to regular grid	8x8km, native projection (for MODIS this is sinusoidal)
Site location	verified coordinates	to our understanding uses coordinates reported from the networks
Length of records	2000-2020 for MODIS	Provides data up to the very recent past (ab periods when a site is active (https://modis

	1987-2017 for Landsat regular (annual) updates planned	
File format	netcdf	