



Carbon budgets of thirteen years at the FLUXNET cropland site Oensingen, Switzerland

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The FLUXNET cropland site at Oensingen, Switzerland (CH-Oe2) is located on the Swiss Plateau, which is representative for the average domain of agricultural crop production in Switzerland. The site is managed under the low pesticide integrated production (IP) farming protocol and features a crop rotation focusing on winter wheat, but also includes winter barley, rapeseed, peas and potatoes as well as intermediate cover crops. Thirteen years of eddy covariance and meteorological measurements are available for the site. The carbon imports through manure applications and sowing, along with the exports through harvests, were quantified. In this study, we analyze the carbon budgets of all crop types and measurement years. These results will be compared to changes in soil carbon content. We will answer the questions:

- (1) Has the crop rotation and field management resulted in a net carbon source or sink?
- (2) To what extent are the different crop types linked to net carbon exchanges?
- (3) What are the climatic potential drivers for the interannual cropland carbon budget?
- (4) Is the carbon budget reflected in the changes in soil carbon content?