Cumulative sums are affected by missing data. There were two instances in which we had missing data from a block (P block 4 on September 6 2013, and PF block 4 on August 1 2013). In these instances, we took the mean fluxes of the other 3 blocks and used these values as surrogates for the missing data. The total root-derived CO\textsubscript{2} and soil organic matter (SOM)-derived as a percentage of each season’s cumulative soil CO\textsubscript{2} emissions was calculated using

\textbf{Eqn. SF3.1}.

\textbf{Eqn. SF3.1} Calculating percentage of total soil CO\textsubscript{2} emissions derived from roots

\[
(\%_{\text{root-derived}})_{y,c,b} = \frac{\sum_{t=1}^{N} (flux_{\text{root-derived}})_{y,c,b,t}}{\sum_{t=1}^{N} (flux_{\text{Total}})_{y,c,b,t}} \times 100
\]

\textit{where}

\((\%_{\text{root-derived}})_{y,c,b} = \text{Percentage of the cumulative total CO}_2 \text{ flux that is root-derived in year } y \text{ from crop } c \text{ in block } b \text{ from sampling period } t=1 \text{ through } t=N, \text{ where } N \text{ is the total number of sampling periods in year } y\)

\((flux_{\text{root-derived}})_{y,c,b,t} = \text{Root-derived CO}_2 \text{ flux in year } y \text{ from crop } c \text{ in block } b \text{ at sampling period } t\)

\((flux_{\text{Total}})_{y,c,b,t} = \text{Total CO}_2 \text{ flux in year } y \text{ from crop } c \text{ in block } b \text{ at sampling period } t\)

The total SOM-derived CO\textsubscript{2} proportion was calculated in a like manner.