

Supplementary Materials

The Fallow Period Plays an Important Role in Annual CH₄ Emission in a Rice Paddy in Southern Brazil

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Technical problems measuring CH₄ fluxes using EC

We started the measurements with the gas analyzer in the flux tower in the rice paddy in 2014. At that time, the data collected by the sonic anemometer was being stored in the CR1000 datalogger and the CH₄ concentration data in the LI-7500 interface that generated a time synchronization problem, making it impossible to estimate the CH₄ fluxes. Numerous unsuccessful attempts were made to solve the time desynchronization. The data were also sent to the technical team of the sensor company, but the diagnosis was that the flux calculation would not be possible due to this desynchronization (Liang Xu, 2016, personal communication). Another problem was the signal from gas analyzer LI-7700, as its lens got dirty over time. The sensor lens was cleaned according to the manufacturer's recommendation; however, this procedure was not enough to increase the signal above 10%. The dirt embedded in the lens must have been due to the aircraft pesticide spraying. The solution was to clean with creamy soap, popularly sold in Brazil for domestic cleaning. Thus, the sensor signal returned to values of around 90%. Therefore, we were only able to obtain quality data to estimate the CH₄ flux by EC in December 2015. Unfortunately, the sonic anemometer sensor presented a technical problem at the end of August 2016 and no CH₄ fluxes could be obtained. In November 2016, our financial project to measure surface fluxes with eddy covariance in rice paddy finished.