

표준화된 KoFlux 에디 공분산 자료 처리 방법의 변화와 개선

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Changes and Improvements of Standardized KoFlux Eddy Covariance Data Processing

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The mass and energy flux data from eddy covariance tower is world-widely used to validate results from models and remote sensing algorithms through the databases of the regional/global flux networks. One of the main concerns in flux data measured by eddy covariance is that it is not straightforward to draw a standardized method which can produce appropriate results for all sites. In this presentation, we documented the changes and improvements of the standardized KoFlux data processing protocol which was used for establishing the newly updated database and quantified the improvement effects. The following corrections and tests were newly or re- included in the protocol: (1) Frequency response correction (due to sensor separation, tube attenuation), (2) Steady state/developed turbulent condition test, (3) Random sampling error estimation, (4) Modified moving point test, and (5) Gap-filling of methane flux. We reconfirmed that it is hard to select the optimal correction and partitioning methods for CO₂ flux which can be equally applied to the sites where the basic assumptions of eddy covariance measurement and data processing are not satisfied in different ways. Instead of providing a dataset processed by one specific method, we choose to provide various datasets from various methods which data users can make an assessment of uncertainty generated from data processing. This study reminds that there will be always a room for further improvement in the present datasets. Therefore, caution must be exercised for the data users in order to properly use the updated version of datasets through transparent, open, and participatory communication with data producers.

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