



The propagation of observational uncertainty in cumulative net CO₂ flux estimates.

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Summing half hourly eddy covariance measurements of net CO₂ exchange has provided an indispensable method of estimating the net carbon exchange of terrestrial ecosystems. These estimates are proving valuable in compiling regional carbon inventories. However, in summing these time series data, one inevitably sums the observational uncertainty associated with these data and, therefore, in order to be able to draw inference from net carbon exchange estimates it is important to evaluate the propagation of this observational uncertainty. Here we apply a novel three dimensional semi-parametric estimator to partition signal and noise in various EC CO₂ flux observation data sets. We then characterise this noise and simulate its ensemble properties across a year in order to infer the cumulative uncertainty of annual net carbon exchange estimates.