Section S1: Detection limits and sampling times
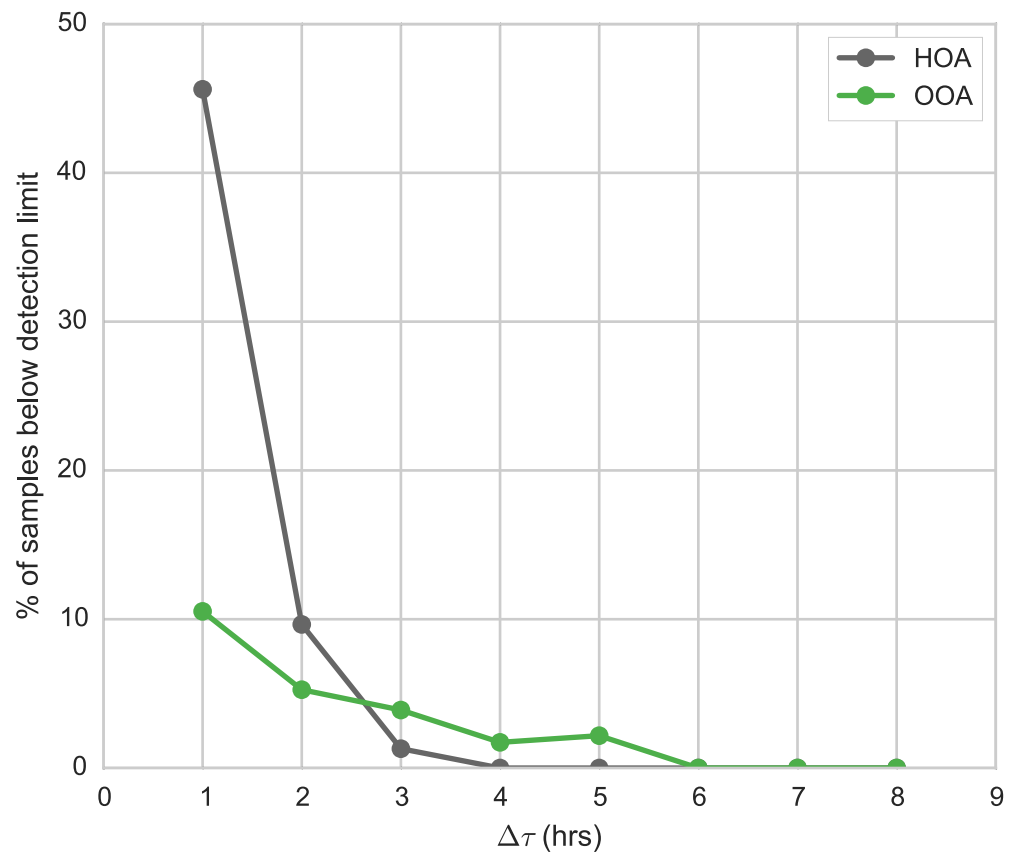
Figure S1. The percentage of HOA and OOA measurement samples below detection limit as a function of the sampling interval $\Delta\tau$. Detection limits are defined as 3 times the constant error term expressed as a concentration ($\sigma_{0,c}$).

Section S2: Additional sequential sampling results
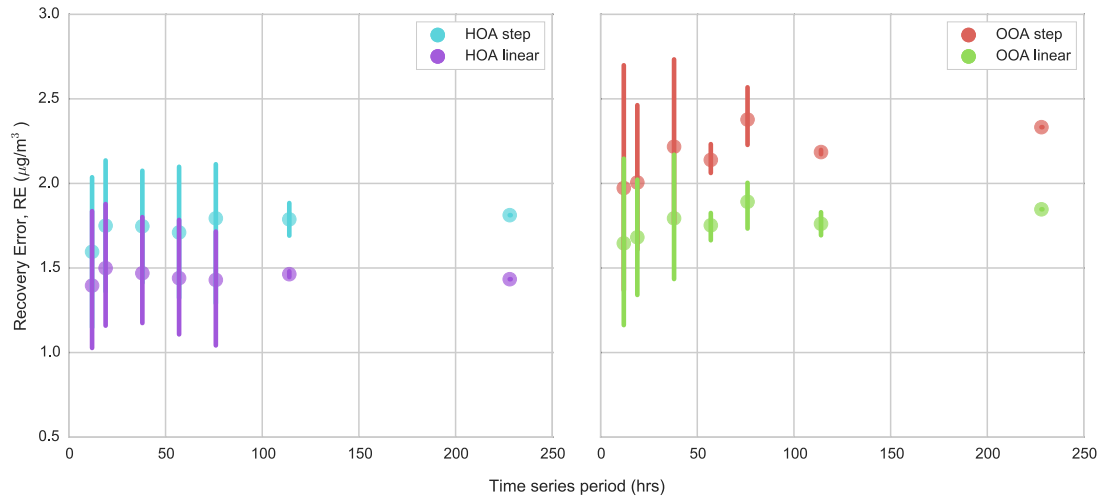
Figure S2. Mean Recovery error (*RE*) as a function of the time series period *T* for HOA and OOA time series constructed by step and linear interpolation between sequential measurements of length (*Δτ*) 4 hours. κ_m = 20%. The vertical bars represent 95% confidence intervals determined by bootstrapping the mean estimates.
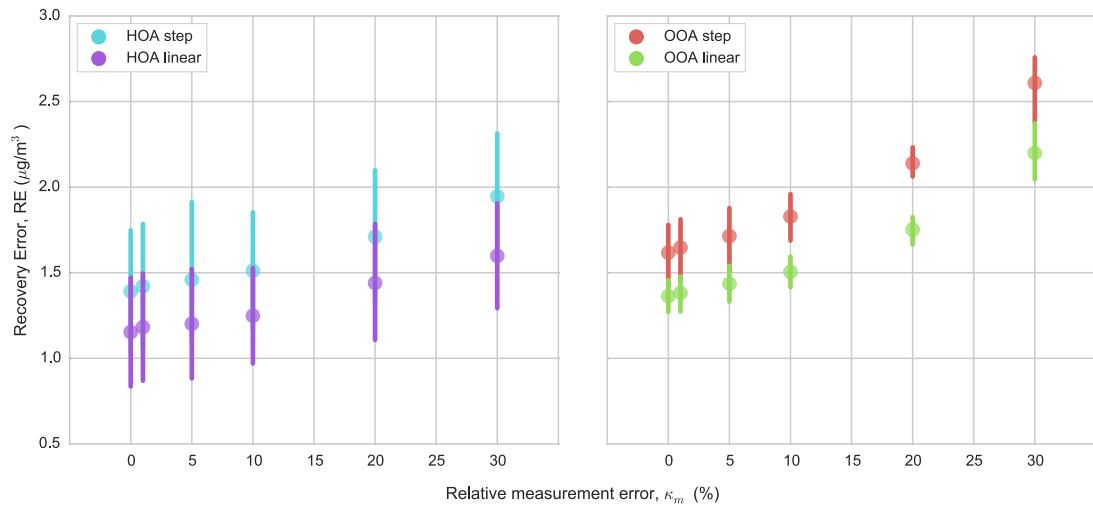
Figure S3. Mean Recovery error (*RE*) as a function of the relative measurement error κ_m for HOA and OOA time series constructed by step and linear interpolation between sequential measurements of length (*Δτ*) 4 hours. *T* = 57 hours, meaning each data point is an average over 4 (=228/57) time series segments. The vertical bars represent 95% confidence intervals determined by bootstrapping the mean estimates.

Section S3: Additional deconvolution results
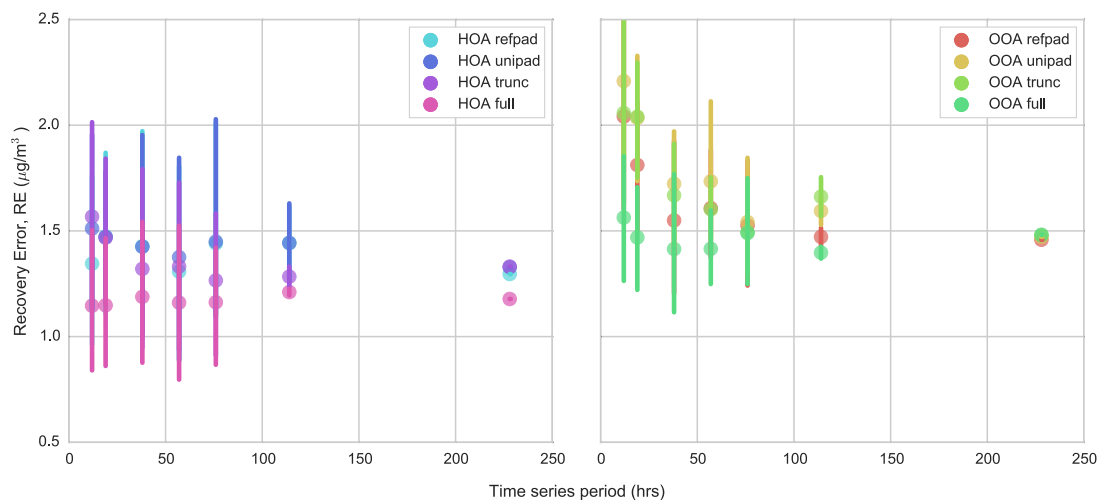
Figure S4. Mean Recovery error (RE) as a function of the time series period T for HOA and OOA time series constructed by deconvolution with TSVD regularization of staggered measurements of length ($\Delta\tau$) 4 hours. κ_m = 20%. The boundary value methods are full; trunc, truncated; unipad, uniformly padded; and refpad, reflectively padded. The vertical bars represent 95% confidence intervals determined by bootstrapping the mean estimates.
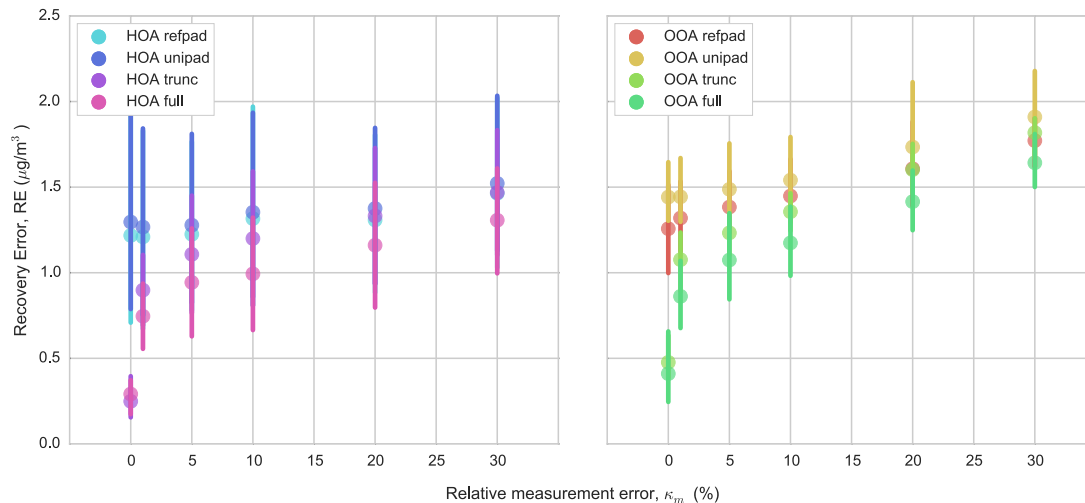
Figure S5. Mean Recovery error (RE) as a function of the relative measurement error κ_m for HOA and OOA time series constructed by deconvolution with TSVD regularization of staggered measurements of length ($\Delta\tau$) 4 hours. T = 57 hours, meaning each data point is an average over 4 (=228/57) time series segments. The boundary value methods are full; trunc, truncated; unipad, uniformly padded; and refpad, reflectively padded. The vertical bars represent 95% confidence intervals determined by bootstrapping the mean estimates.