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Interactive comment on "Effect of sporadic destratification, seasonal overturn and artificial mixing on CH_4 emissions at the surface of a subtropical hydroelectric reservoir (Nam Theun 2 Reservoir, Lao PDR)" *by* F. Guérin et al.

Anonymous Referee #2

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The manuscript brings novel information regarding CH4 dynamics in hydroelectric reservoirs, in particular in south Asia. The text is well written (only minor edition is required) and the presented data seems very reliable. The authors made some calculations to derive variables as stratification index, CH4 storage and CH4 emissions. In general, the results are well discussed evidencing some seasonality in the emission processes and that there is great spatial heterogeneity concerning CH4 fluxes due to spatially localized hydrodynamics. Due to the great variability in time, the authors remark in the conclusion that temporal sampling might be at least monthly. This re-

viewer, however, recommend to the authors to avoid taking data only under the light of nonparametric analysis due to non-normal distribution. Instead, authors should better explore the intrinsic nonlinearities in the underlying CH4 dynamics in hydroelectric reservoirs. Are these distributions power laws, Pareto, log-normal? If so, what kind of process would lead this sort of distribution outcomes in space and time? Are there literature considering these other kinds of distributions? I do not presume that only intensifying the sampling monitoring would bring novel information, as the distributions maybe the same, nonGaussians. I recommend to the authors to go further on dynamical analysis (complexity) in order to find differential equations or statistical models that come out with those distributions, and might be applicable to any water body. That would be a great advance in CH4 studies and application to hydroelectric reservoirs.

Interactive comment on Biogeosciences Discuss., 12, 11349, 2015.

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Interactive Discussion

Discussion Paper