Readme\_Lake Taihu\_CH4 diffusion flux\_2011-2015.doc:

(update June 5, 2017)

0) Fair use policy: Kindly inform the appropriate Principal Investigators of how you are using site data and of any publication plans. If the Principal Investigators feel that they should be acknowledged or offered participation as authors, they will let you know and we assume that an agreement on such matters will be reached prior to publishing and/or use of the data for publication. If your work directly competes with the Principal Investigator's analysis they may ask that they have the opportunity to submit a manuscript before you submit the one that uses their data. In addition, when publishing, please acknowledge the agency that supported the research.

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2) Data from the Taihu Eddy Flux Network at Lake Taihu, East China. Details of the site, instrumentation, and measurement are given by Xiao et al. 2014,Lee et al. 2014, and Xiao et al. 2017, available at <http://yncenter.sites.yale.edu/publications>.

3) We collected water samples from the lake to determine the dissolved CH4 concentration. At MLW, sample collection occurred daily at midday since 2011. At the other remote lake sites (DPK, BFG, XLS, and PTS), sampling took place at every site visit at irregular intervals. A whole-lake survey was conducted once per season, in February, May, August and November, during which time one water sample was collected at each of the 29 spatial sampling locations distributed across the whole lake. Missing values and parameters not reported are denoted by -9999.

4) Relevant references:

[1] Lee X, S Liu, W Xiao, W Wang, Z Gao, C Cao, C Hu, Z Hu, S Shen, Y Wang, X Wen, Q Xiao, J Xu, J Yang, M Zhang (2014) The Taihu Eddy Flux Network: an observational program on energy, water, and greenhouse gas fluxes of a large freshwater lake. Bulletin of American Meteorological Society 95: 1583-1594.

[2] Xiao W, S Liu, H Li, Q Xiao, W Wang, Z Hu, C Hu, Y Gao, J Shen, X Zhao, M Zhang, X Lee (2014) A flux-gradient system for simultaneous measurement of the CH4, CO2 and H2O fluxes at a lake-air interface. Environmental Science and Technology 48: 14490−14498.

[3] Xiao Q, M Zhang, Z Hu, Y Gao, C Hu, C Liu, S Liu, Z Zhang, J Zhao, W Xiao, X Lee (2017) Spatial variations of methane emission in a large shallow eutrophic lake in subtropical climate. Journal of Geophysical Research.

6) Content and format of header records:

Sheet MLW

(:,1): Date, YYYY-MM-DD

(:,2): Time, Local time for sample collection

(:,3): Doy, Julian day of China Standard Time

(:,4): Tw: Water temperature at 20 cm depth

(:,5): WS: Wind speed at 3.5 m height

(:,6): CH4 concentration: Dissolved CH4 concentration at 20 cm depth

(:,7): CH4 flux: CH4 diffusion flux across lake-air interface

Sheet BFG

(:,1): Date, YYYY-MM-DD

(:,2): Time, Local time for sample collection

(:,3): Doy, Julian day of China Standard Time

(:,4): Tw: Water temperature at 20 cm depth

(:,5): WS: Wind speed at 8.5 m height

(:,6): CH4 concentration: Dissolved CH4 concentration at 20 cm depth

(:,7): CH4 flux: CH4 diffusion flux across lake-air interface

Sheet DPK

(:,1): Date, YYYY-MM-DD

(:,2): Time, Local time for sample collection

(:,3): Doy, Julian day of China Standard Time

(:,4): Tw: Water temperature at 20 cm depth

(:,5): WS: Wind speed at 8.5 m height

(:,6): CH4 concentration: Dissolved CH4 concentration at 20 cm depth

(:,7): CH4 flux: CH4 diffusion flux across lake-air interface

Sheet XLS

(:,1): Date, YYYY-MM-DD

(:,2): Time, Local time for sample collection

(:,3): Doy, Julian day of China Standard Time

(:,4): Tw: Water temperature at 20 cm depth

(:,5): WS: Wind speed at 9.4 m height

(:,6): CH4 concentration: Dissolved CH4 concentration at 20 cm depth

(:,7): CH4 flux: CH4 diffusion flux across lake-air interface

Sheet PTS

(:,1): Date, YYYY-MM-DD

(:,2): Time, Local time for sample collection

(:,3): Doy, Julian day of China Standard Time

(:,4): Tw: Water temperature at 20 cm depth

(:,5): WS: Wind speed at 8.5 m height

(:,6): CH4 concentration: Dissolved CH4 concentration at 20 cm depth

(:,7): CH4 flux: CH4 diffusion flux across lake-air interface

Sheet whole-lake survey

(:,1): Date, YYYY-MM-DD

(:,2): Time, Local time for sample collection

(:,3): Site, Spatial sampling site

(:,4): LONGITUDE: Longitude for spatial sampling site

(:,5): LATITUDE: Latitude for spatial sampling site

(:,6): Tw: Water temperature at 20 cm depth

(:,7): WS: Wind speed measured at PTS site

(:,8): CH4 concentration: Dissolved CH4 concentration at 20 cm depth

(:,9): CH4 flux: CH4 diffusion flux across lake-air interface