Read me file for dataset at https://bolin.su.se/data/stordalen-lakes-ch4-ebul-4
Content: CH$_4$ bubble fluxes and CH$_4$ isotopes from three subarctic lakes on the Stordalen Mire, northern Sweden

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1) It would be polite and the principal investigators Joachim Jansen, Martin Wik and/or Patrick Crill ask to be notified when the dataset is used in any publication or derivative work.
2) The appropriate publications of Jansen, Wik, Thornton and/or Crill should be cited when using the dataset. See references at https://bolin.su.se/data/stordalen-lakes-ch4-ebul-4.

Information
The data are derived multiyear measurements of methane (CH$_4$) bubble fluxes from 2009-2017 (n = 14676) and a subset of those gas collections taken between 2009-2011 that were analysed for δ^{13}C-CH$_4$ (n=182) and δ^2H-CH$_4$ (n=254) from three small subarctic lakes in the Stordalen Mire complex. The Mire is located ca. 10 km east of Abisko, in northern Sweden (68°21′N, 19°02′E). Bubble traps were continuously deployed from June to September during the ice-free seasons across depth zones of the lakes and sampled (gas volume measured and gas removed from the traps) every 1-3 days of 2009 to 2017. Paired surface sediment temperatures were computed from HOBO Water Temp Pro V2 temperature loggers (Onset Computer) deployed at different depths at the deepest point in each of the lakes. The water column temperature data are available at https://bolin.su.se/data/stordalen-lake-temperature-4. For details about the sampling procedure and locations, please refer to the Stordalen lake flux publications of Wik, Thornton and Jansen.

The data package consists of this ReadMe file, two image files (stordalen-lakes-ch4-ebul-4-sampling-locations.png and stordalen-lakes-ch4-ebul-4-bubble-trap.png) and one data file (stordalen-lakes-ch4-ebul-4.csv):

Headers for **stordalen-lakes-ch4-ebul-4.csv**
The file has one header row then 14676 rows of data. There are eleven (11) data columns. "NaN" denotes data missing for any reason.:
- Lake:
  - IH: Inre Harrsjön
  - MH: Mellersta Harrsjön
  - VS: Villasjön
- Trap ID
  - Bubble trap identification number (1-40)
- Depth (m)
  - Approximate water depth at the location of the bubble trap

- DOY
  - Day of year of each measurement
- Sampling Date
  - YYYY-MM-DD
- Sampling time (HH:MM, UTC+2)
  - The time the bubble trap was sampled
- Deployment period (days)
  - The number of days the bubble trap was deployed between sampling. In most cases this is the time since the last sampling, but times can diverge slightly when a trap has been taken out for maintenance.
- Flux (mg CH4/m2/day)
  - Emission rate, computed from the measured CH4 concentration, sample volume and bubble trap deployment period
- Surface Sediment Temperature (°C)
  - The surface sediment temperature associated with each flux
- del13C-CH4 (‰)
  - $\delta_{13}C$-CH_4 in parts per mil relative to Pee Dee Belemnite (VPD)
- delD-CH4 (‰)
  - $\delta_2 H$-CH_4 in parts per mil relative to Standard Mean Ocean Water (SMOW)