**BIOMXL/BIOCLASS**

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The FORTRAN code calculates the diurnal variability of the stable isotopologues $^{12}CO_2$, $^{13}CO_2$, $C^{18}OO$, $H_2{}^{16}O$, $H_2{}^{18}O$ coupled to the relevant meteorological variables (wind, potential temperature and specific humidity) and surface conditions (soil moisture and temperature). The codes reproduces the diurnal variability of a convective boundary layer using the mixed-layer theory assumptions. The code has been validated against meteorological and stable isotopologues observations collected at the Harvard Forest. The complete information can be found at *Sub-diurnal variability of the carbon dioxide and water vapor isotopologues at the field observational scale* (Vilà-Guerau de Arellano et al., 2019, Agricultural and Forest Meteorology 275, 114-135).

The folders at **github** contain:

- CODE: complete code FORTRAN with the makefile compilation file and the numerical settings used in the paper at NAMEOPTIONS
- DATAHAR: observations of the Harvard Forest used to validate the code and reproduce the article's figures
- NUM-EXPERIMENTS: final output numerical experiments. The control case is AFM19-PAPER. The other directory correspond to data used in Figure 11.
- PLOT: python scripts to reproduce the figures of the paper

In case of any bug or potentail improvement, please contact jordi.vila@wur.nl.