Tall tower water vapor data

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August 19, 2016

Details regarding the measurement and calibration of the tall tower water vapor isotope data can be found here:

"Investigating the source, transport, and isotope composition of water vapor in the planetary boundary layer", T.J. Griffis, J.D. Wood, J.M. Baker, X. Lee, K. Xiao, Z. Chen, L.R. Welp, N. Schultz, G. Gorski, M. Chen, and J. Nieber ([Atmospheric Chemistry and Physics, 2016, 16, 5139-5157, doi:10.5194/acp-16-5139-2016](http://www.atmos-chem-phys.net/16/5139/2016/acp-16-5139-2016.html))

"Determining the oxygen isotope composition of evapotranspiration using eddy covariance", T.J. Griffis, S.D. Sargent, X. Lee, J.M. Baker, J. Greene, M. Erickson, X. Zhang, K. Billmark, N. Schultz, W. Xiao, and N. Hu ([Boundary-Layer Meteorology, 2010, doi: 10.1007/s10546-010-9529-5, 137(2), 307-326](http://www.biometeorology.umn.edu/sites/biometeorology.umn.edu/files/ec_tdl_watervapor.pdf))

The data archived at the website have been minimally processed, while the data presented in the ACP paper above applied a d-spike algorithm.

A basic low pass/high pass filter for water vapor mixing ratios and oxygen and hydrogen isotope ratios have been used to quality control these data. These thresholds could be tightened further, but provide a very good first level of filtering.

Water vapor mixing ratio outliers are defined as > 40 mmol/mol or < 0 mmol/mol

Oxygen isotope ratio outliers are defined as > -8 permil or < -70 permil

Deuterium isotope ratio outliers are defined as > -16 permil <-400 permil. Further, problems with TGA calibration, sample cell pressure, or condensation have been identified and removed.

The data represent hourly averages (LOCAL STANDARD TIME)

Column 1 = decimal day of year

Column 2 = water vapor mixing ratio at 3 m (hourly average, mmol/mol)

Column 3 = oxygen 18 isotope ratio of vapor at 3 m (hourly average, permil)

Column 4 = deuterium isotope ratio of vapor at 3 m (hourly average, permil)

Column 5 = water vapor mixing ratio at 185 m (hourly average, mmol/mol)

Column 6 = oxygen 18 isotope ratio of vapor at 185 m (hourly average, permil)

Column 7 = deuterium isotope ratio of vapor at 185 m (hourly average, permil)

Data are provided in asci format in files named “isotopevapor2010, isotopevapor2011, and isotopevapor2012”

Licor 7000 water vapor mixing ratios are also provided

These data files include”

Column 1 = decimal day of year

Column 2 = water vapor mixing ratio at 185 m (hourly average, mmol/mol)

These data have been minimally filtered using only a d-spike algorithm. No thresholding has been applied.

Data are provided in asci format in files named “licorvapor2010, licorvapor2011, and licorvapor2012”