

All of the data used in the Suski et al. 2018 paper “Agricultural harvesting emissions of ice nucleating particles” are provided as tab delimited text files. Please contact Kaitlyn Suski (ksuski2277@gmail.com) and Paul DeMott (Paul.Demott@colostate.edu) if you plan to use this data in any publication.

Data were collected in the following locations on the following dates:

Sample	Location	Latitude, Longitude	Elevation (m)	Sampling Date
Pre-Soybean Harvest	Colby, KS	39.394, -101.066	966	10/14/14
Soybean	Colby, KS	39.394, -101.066	966	10/14/14
Sorghum	Colby, KS	39.394, -101.066	966	10/15/14
Wheat 1	Colby, KS	39.394, -101.066	966	6/30/15
Wheat 2	Colby, KS	39.394, -101.066	966	7/1/15
Corn	Lingle, WY	42.126, -104.403	1309	11/9/15

WIBS Data: There are 55 files: 54 data files and 1 Read_Me file. Data files are .csv format.

The Wideband Integrated Bio Sampler (WIBS) data is given as raw data. Air during harvests was sampled with the WIBS. The WIBS Data Analysis Toolkit for Igor will be needed to view the data and can be obtained from Droplet Measurement Technologies (DMT) (<http://www.dropletmeasurement.com/products/ground-based/WIBS#Software>). No processing has been done to the data.

Variables: The following variable descriptions are taken directly from the WIBS-4A manual (<http://www.dropletmeasurement.com/sites/default/files/ManualsGuides/Hardware%20Manuals/WIBS.pdf>).

Time: Time in seconds since the start of the file.

FL2 SctInt: Scattered 635nm laser light detected on FL2 detector and measured by integration.

Scat_EL1: Scattered 635nm laser light detected on quadrant 1 of forward scatter detector.

Scat_EL2: Scattered 635nm laser light detected on quadrant 2 of forward scatter detector.

Scat_EL3: Scattered 635nm laser light detected on quadrant 3 of forward scatter detector.

Scat_EL4: Scattered 635nm laser light detected on quadrant 4 of forward scatter detector.

FL2 SctPk: Scattered 635nm laser light detected on FL2 detector and measured by peak detection. (Parameter used in determination of particle size).

FL1_280: 310-400nm fluorescence detected by FL1 detector with Xe1 280nm excitation

FL2_280: 420-650nm fluorescence detected by FL2 detector with Xe1 280nm excitation

Pwr_280: Magnitude of 280nm flash, a measure of xenon output stability

FL2_370: 420-650nm fluorescence detected by FL2 detector with Xe2 370nm excitation

Pwr_370: Magnitude of 370nm flash, a measure xenon output stability

TOF: Time-of-flight of particle through 635nm laser beam. There is a minimum allowable TOF, below which WIBS-4A electronics ignores signals assuming them to be due to noise. There is a maximum limit of TOF indicated by a yellow dotted line in the plot. This limit is the time in the measurement cycle at which the fluorescence measurement begins. Scattered 635nm light at this time will affect fluorescence measurements. Therefore measurements which carry the maximum TOF values should be treated with caution. Such measurements are tagged in the data output file. See element FT in section on data output file. TOF values longer than the maximum limit are recorded as the limit value.

TPCT2: The total number of particles producing a signal above Threshold 2 that may pass through the scattering volume each time the xenons are recharging (approx. 5ms in duration). The number includes the count of measured particles.

Size: Particle size in μm based on FL2 scattered light magnitude.

AF: Asymmetry Factor; a measure of particle asphericity based on the azimuthal intensity variation of scattered light intensity detected by the four elements of the Quadrant detector.

TotalT2: Rolling average frequency of TPCT2.

MeasT2: Rolling average frequency (averaged over the preceding ~5s) of the number of particles measured (i.e., full dataset of fluorescence, size, and asymmetry is acquired from particle).

FT: The time of the measurement: • Bit 0: Forced Trigger mode (1), Acquisition mode (0). • Bit 1: FL2 PMT HIGH-GAIN (1), LOW-GAIN (0); note low-gain is disabled on the DMT WIBS-4A. • Bit 2: FIFO full (1), not full (0). • Bit 3: TOF upper limit exceeded (1), not exceeded (0)

TPCT1: The total number of particles producing a signal above Threshold 1 that may pass through the scattering volume since the time of previous particle 'measurement'. This time includes the time the xenons are recharging (approx. 5ms in duration). The number includes the count of particles, measured or not, that produce a signal above Threshold 2 in this time.

TotalT1: Rolling average frequency of TPCT1.

Data Set last modified on 1/30/18.