Title of the dataset:

Meteorological data, cropland station, Brody (PL-Brd), 2011-2013, 30 min

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Site ID	**PL-Brd**
Site name	**Brody**
Ecosystem type	cropland
Country/Region	**Poland/Wielkopolska**
Location	Village: Brody; fields of Research and Education Center Gorzyń, Poznan University of Life Sciences
Coordinates	52°26'03.1"N 16°17'57.7"E 52.434191, 16.299359
Principal Investigator	**Prof. Dr hab. Radoslaw Juszczak**
Contact person	**Radosław Juszczak** Laboratory of Bioclimatology Department of Ecology and Environmental Protection Faculty of Environmental Engineering and Mechanical Engineering Poznan University of Life Sciences radoslaw.juszczak@up.poznan.pl
Period of data collection	25.03.2011 – 31.12.2013
Keywords	Meteorological data, weather data, cropland
Funding sources	1) FP7-GHG Europe No. 244122"*Greenhouse gas management in European land use systems*"; 2010-2013; 2) "*Assessment of the temporal and spatial variation of the biophysical and spectral indices in reference to net exchange of CO_2, CH_4, H_2O between different ecosystems (peatland, forest and arable) and the atmosphere*" No. 752/1/N-COST-2 010-0, funded by Polish Ministry of Science and Higher Education; 2010-2013;

Brody meteorological station
(fot. R.Juszczak)
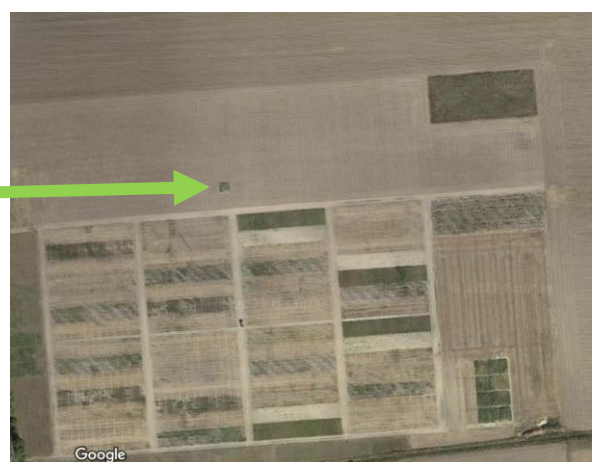
Location of the Brody meteorological station
(Source: Google)

Data and file overview

The dataset consists of three files containing data from 2011, 2012 and 2013 years:

1) PL_Brody METEO_2011_R.Juszczak_UPP
2) PL_Brody METEO_2012_R.Juszczak_UPP
3) PL_Brody METEO_2013_R.Juszczak_UPP

Each file is available in three different formats: .xls; .csv, .ods

Files were created in 2013 and updated in February 2022 by R. Juszczak

Sharing and access information

All these data are available on license CC0 - Creative Commons Zero 1.0

Methodological information

The Brody cropland meteorological station was created in March 2011 and is operated till now. This dataset contains only data from 2011-2013.

These are not raw data. Basic processing has been done to remove e.g. replicated lines; indicate missing data; calculate soil water content, albedo, long wave radiation, net radiation, NDVI and PRI.

All the data are available with 30 minutes timesteps.

The dataset contains: air temperatures (Ta)/relative humidity (RH) at 0.3m and 2.0m; soil temperatures (Ts) in 3 profiles at 2cm, 5cm, 10cm and 20cm, soil water content (SWC) at 10 cm, soil heat fluxes (G) from 3 plates, water table depth (WTD) from 3 piezometers, radiation: shortwave (SW) incoming and reflected, longwave (LW) incoming and outgoing, net radiation (NetRad); Photosynthetic photon flux density (PPFD; global, diffused, reflected); wind speed (WS) wind direction (WD), spectral vegetation indices – NDVI and PRI.

Detail characteristics of variables/sensors and installation:

Type of instrument	Name of the instrument/producer	Variables	Height/depth of installation above/below ground (m)
Thermohigrometer	HMP45AC Campbell Sci.	Ta, RH	0.3 2.0
Thermometer	T107 Campbell Sci.	Ts	0.02 0.05 0.10 0.20
Pyranometer	CNR4 Kipp&Zonnen	SWin, SWout, LWin, LWout, NetRad, Alb	3.5
Pyranometer	BF3H; BF5H, DELTA-T	PPFD, PPDd	4.0
Pyranometer	SKP215 Skye Instruments Ltd.	PPFD, PPFDr	3.5
Pyranometer	SKR1850 Skye Instruments Ltd.	NDVI, PRI	3.5
Reflectometer	CS616 Campbell Sci.	SWC	-0.1
Heat flux plate	HFP01-10 Hukseflux	G	-0.02
Water Table Sensor	STK633 NEGELAP	WTD	
Sonic anemometer	Windmaster Gill	WS, WD	4.7
Generic Tipping Bucket Rain_Gauge heated	TPG-034-H230 ASTER S.c.	P	1.0

All the sensors were connected to CR3000 datalogger of Campbell Sci.

Data-specific information

Variables codes, names and units are provided in the below table.

In case of replicates or different parameters measured/calculated based on the same sensors the number is added to the variable code to indicate number of replicate/sensor; e.g.:

Ts_1_2cm => soil temperature_profile 1_2 cm depth

LWin_1 and LWout_1 => long wave radiation incoming and outgoing_sensor 1

VARIABLE code	Name of the variable	Unit
Alb	Albedo	adimensional
G	Soil heat flux	W m-2
LWin	Incoming long-wave radiation	W m-2
LWout	Outgoing long-wave radiation	W m-2
SWin	Incoming shortwave radiation	W m-2
SWout	Outgoing shortwave radiation	W m-2
NetRad	Net radiation	W m-2
P	Precipitation	mm
Pa	Atmospheric pressure	Kpa
PPFD	Photosynthetic photon flux density	umol m-2 s-1
PPFDd	Diffuse photosynthetic photon flux density	umol m-2 s-1
PPFDr	Reflected photosynthetic photon flux density	umol m-2 s-1
RH	Relative humidity	%
SWC	Soil water content	%
Ta	Air temperature	°C
Ts	Soil temperature	°C
WD	Wind direction	Decimal degree
WS	Wind speed	m s-1
WTD	Water table depth	m
NDVI	Normalized Difference Vegetation Index	adimensional
PRI	Photochemical Reflectance Index	adimensional

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