☺to Data provider ··············· To prevent incorrect usages of your data, fill the blanks closely.
Delete unnecessary column(s) and line(s).

1. About the data set

Site name (three letter code)	Fuji Hokuroku Flux Observation Site (FHK)
Period of registered data	From Jan. 1, 2006 to Dec. 31, 2012
This document file name	FxMt_FHK_2006-2012_30m_02-1.pdf
Corresponding data file name	FxMt_FHK_2006_30m_02-1.csv, FxMt_FHK_2007_30m_02-1.csv, FxMt_FHK_2008_30m_02-1.csv, FxMt_FHK_2009_30m_02-1.csv, FxMt_FHK_2010_30m_02-1.csv, FxMt_FHK_2011_30m_02-1.csv, FxMt_FHK_2012_30m_02-1.csv

Revision information

Date	Details of revision	Renewed file name
Sep. 27, 2013	First registration	SiIn_FHK_2006-09_01.pdf FxMt_FHK_2006-09_35m_01.pdf FxMt_FHK_2006_35m_01.csv FxMt_FHK_2007_35m_01.csv FxMt_FHK_2008_35m_01.csv FxMt_FHK_2009_35m_01.csv
Nov. 18, 2019	Data of None-gap-filled eddy covariance flux (Fc, H, and LE), Sc, NEE, Co, Rn, TPAR, RPAR, VPD, and G were registered. Data of year 2010, 2011, 2012 were added.	SiIn_FHK_2006-2012_02.pdf FxMt_FHK_2006-2012_30m_02.pdf FxMt_FHK_2006_30m_02.csv FxMt_FHK_2007_30m_02.csv FxMt_FHK_2008_30m_02.csv FxMt_FHK_2009_30m_02.csv FxMt_FHK_2010_30m_02.csv FxMt_FHK_2011_30m_02.csv FxMt_FHK_2012_30m_02.csv
July 30, 2021	Contact persons were updated. DOI (Digital Object Identifier) is assigned.	SiIn_FHK_2006-2012_02-1.pdf FxMt_FHK_2006-2012_30m_02-1.pdf FxMt_FHK_2006_30m_02-1.csv FxMt_FHK_2007_30m_02-1.csv FxMt_FHK_2008_30m_02-1.csv FxMt_FHK_2009_30m_02-1.csv FxMt_FHK_2010_30m_02-1.csv FxMt_FHK_2011_30m_02-1.csv FxMt_FHK_2012_30m_02-1.csv

Contact person#1	Yoshiyuki Takahashi (yoshiyu@nies.go.jp)
Contact person#2	Naishen Liang (liang@nies.go.jp)

Other information	When this data set is referred to in publications, it should be cited in the following format. Takahashi, Y. (2021), Micrometeorological CO_2 Flux Data at Fuji Hokuroku Flux Observation Site (FHK), Ver.x.x [*1], NIES, DOI:10.17595/20210730.001, (Reference date[*2]: YYYY/MM/DD) [*1] The version number is indicated in the name of each data file. [*2] As the reference date, please indicate the date you downloaded the files.

2. Site description

☺to Data provider ………Please explain the site condition during the period of this dataset.
☻to DB user ……………See also the general information file.

Hour line (Time difference from UTC)	9 hours ahead of UTC (Japan Standard Time (JST))
Vegetation Type	Deciduous needleleaf forest (Japanese larch afforestation)
Dominant Species (Overstory)	Japanese larch (*Larix kaempferi Sarg.*), evergreen needle-leafed species (*Pinus densiflora* and *Abies homolepis*), deciduous broad-leafed species (*Swida controversa, Quercus serrata, Quercus crispula, Betula platyphylla var. japonica, Prunus incisa,* etc.)
Dominant Species (Understory)	Ferns (*Dryopteris crassirhizoma*, *Dryopteris expansa*), bamboo grass (*Sasamorpha borealis*), and other herbs.
Canopy height	20-26 m
LAI	Larch: 2.8 m^2 m^{-2} estimated based on the leaf mass abundance (Okano & Arase 2007), and 2.4 m^2 m^{-2} estimated based on 3D portable laser scanner measurement (Maki et al., 2012), Understory: 3.0 m^2 m^{-2} (max)
Other information	

3. Observation and calculation

☺to Data provider ……………A list of references is shown in the last page. **Please fill-in the blanks as much as possible, or select the suitable option. If you are not sure what to write, leave it as a blank.**

3-1. Flux observation system and data acquisition

Type of sonic anemometer	Three-dimensional sonic anemometer-thermometer, DA-600-3TV, Probe TR-61C, SONIC CORP. (Jan. 1, 2006 – May 9, 2011); DA-650, Probe TR-61C, SONIC CORP. (May 9, 2011 – Nov. 22, 2011); DA-600-3TV, Probe TR-61C, SONIC CORP. (Nov. 22, 2011 – Apr. 18, 2012); DA-700-3TV, Probe TR-61A, SONIC CORP., (Apr. 18, 2012 – Apr. 11, 2016);
Type of IRGA	Open-path CO_2/H_2O gas analyzer, LI-7500, LI-COR (LE) Closed-path CO_2/H_2O analyzers, LI-6262, LI-COR (Jan. 1, 2006 – Apr. 11, 2016) (Fc, H)
Sampling rate	10 Hz
Averaging time	30 min

Flux measurement height #1	35 m
Flux measurement height #2	
Flux measurement height #3	
Zero-plane displacement	
Roughness length	
Calibration information	The gain of CO_2 of the closed-path analyzer was checked once a day by flowing two standard CO_2 gases of 320 ppmv and 420 ppmv that were automatically controlled using a CR-23X, Campbell Scientific, USA (Jan. 2006 – April 2008) and CR-3000, Campbell Scientific, USA (May 2008-).
Other information	

3-2. Flux calculation

		Note/References
Flow attenuation *4-6	✓ Yes	Shimizu, T. et al., 1999. Boundary-Layer Meteorol., 64: 227–236.
Coordinate rotation *1-3	✓ Double (2D) rotation	
Lag removal *2, 7, 8	✓ Constant	Digital delay for LI7500 and 3-D sonic anemometer Time lag between *w*’ and *c*’ for closed-path system

3-3. Flux corrections

		Note/References
For sensible heat flux	✓ Cross wind correction *9, 10 ✓ Water vapor correction *11	
High frequency loss	• **[u*, H, LE]** ✓ Moor (1986) *15 (Correction for path length and sensor separation) • **[Fc]** ✓ Experimental approach *2	
Low frequency loss *16 (Detrending)	✓ Block average	
WPL Correction*17-21	✓ For latent heat (LE) flux ✓ For CO_2 flux	
Others *22-24	✓ Temperature dependency for latent heat: L ✓ Temperature dependency for air density ✓ Pressure dependency for air density	

3-4. Quality control *25-26

		Note/References

Raw data test	✓ Spike test [*27] ✓ Absolute limits	
Non steady state test	✓ YES	
Integral turbulence characteristics	✓ YES (Ust)	
Correlation coefficient	✓ Not applied	
Wind direction	✓ YES	Data with wind blowing from the tower were excluded to remove the tower's influence on measurements.
Footprint test [*28, 29]	✓ YES	
Absolute thresholds	✓ YES	
Others	✓	

3-5. Storage term

		Note/References
Storage term	• **[CO_2]**	From CO_2 profile data (35, 32, 27, 22, 16, 10, 4.5, 2, 1, 0.5 m) When CO_2 profile data were missing, CO_2 data at the flux measuring height (35 m) was used.

3-6. Other information

☺ to Data provider …………………… If your flux data were evaluated by gradient method, please explain the observation method here.

		Note/References

4. Registered Data

Observation items	Symbol	Unit	Height(s) Depth(s)	Instruments	Level of data processing
Year	Year	#### (YYYY)	****	****	
Date	DOY	1～365(6)	****	****	
Time	TIME	#### (HHMM)	****	****	The END time of the averaging period
CO_2 flux	Fc	micoromol･ m^{-2}･s^{-1}	35 m	Three-dimensional sonic anemometer-thermometers (DA-600, Probe TR-61C (Jan. 1, 2006 – May 9, 2011); DA-650, Probe TR-61C (May 9, 2011 – Nov. 22, 2011); DA-600, Probe TR-61C (Nov. 22, 2011 – Apr. 18, 2012); DA-700, Probe TR-61A (Apr. 18, 2012 – Apr. 11, 2016), SONIC CORP.) and closed-path CO_2/H_2O analyzers (LI6262, LI-COR)	Quality-controlled
CO_2 storage in canopy air layer	Sc	micoromol･ m^{-2}･s^{-1}	Profile (35, 32, 27, 22, 16, 10, 4.5, 2, 1, 0.5 m)	Closed-path CO_2/H_2O analyzers (LI6262, LI-COR)	Quality-controlled
Net ecosystem carbon exchange	NEE	micoromol･ m^{-2}･s^{-1}	-	CO_2 flux + CO_2 storage in canopy air layer	Quality-controlled
CO_2 concentration	Co	ppm	35 m	Closed-path CO_2/H_2O analyzers (LI6262, LI-COR)	Quality-controlled
Sensible heat flux	H	W･m^{-2}	35 m	Three-dimensional sonic anemometer-thermometers (DA-600, Probe TR-61C (Jan. 1, 2006 – May 9, 2011); DA-650, Probe TR-61C (May 9, 2011 – Nov. 22, 2011); DA-600, Probe TR-61C (Nov. 22, 2011 – Apr. 18, 2012); DA-700, Probe TR-61A (Apr. 18, 2012 – Apr. 11, 2016), SONIC CORP.) and closed-path CO_2/H_2O analyzers (LI6262, LI-COR)	Quality-controlled
Latent heat flux	LE	W･m^{-2}	35 m	Three-dimensional sonic anemometer-thermometers (DA-600, Probe TR-61C (Jan. 1, 2006 – May 9, 2011); DA-650, Probe TR-61C (May 9, 2011 –	Quality-controlled

				Nov. 22, 2011); DA-600, Probe TR-61C (Nov. 22, 2011 – Apr. 18, 2012); DA-700, Probe TR-61A (Apr. 18, 2012 – Apr. 11, 2016), SONIC CORP.) and open-path CO_2/H_2O analyzers (LI7500, LI-COR)	
Friction velocity	USt	$\mathrm{m \cdot s^{-1}}$	35 m	Three-dimensional sonic anemometer-thermometers (DA-600, Probe TR-61C (Jan. 1, 2006 – May 9, 2011); DA-650, Probe TR-61C (May 9, 2011 – Nov. 22, 2011); DA-600, Probe TR-61C (Nov. 22, 2011 – Apr. 18, 2012); DA-700, Probe TR-61A (Apr. 18, 2012 – Apr. 11, 2016), SONIC CORP.)	Quality-controlled
Momentum flux	TAU	$\mathrm{m^{2} \cdot s^{-2}}$	35 m	Three-dimensional sonic anemometer-thermometers (DA-600, Probe TR-61C (Jan. 1, 2006 – May 9, 2011); DA-650, Probe TR-61C (May 9, 2011 – Nov. 22, 2011); DA-600, Probe TR-61C (Nov. 22, 2011 – Apr. 18, 2012); DA-700, Probe TR-61A (Apr. 18, 2012 – Apr. 11, 2016), SONIC CORP.)	Quality-controlled
Global solar radiation (incoming)	Rg_32	$\mathrm{W \cdot m^{-2}}$	32 m	Pyranometer (MS-402F, EKO)	
Global solar radiation (incoming)	Rg_30_Rn	$\mathrm{W \cdot m^{-2}}$	30 m	Radiometer (MR50, EKO)	
Global solar radiation (outgoing)	Rg_out_30	$\mathrm{W \cdot m^{-2}}$	30 m	Radiometer (MR50, EKO)	
Long-wave radiation (incoming)	Rgl_30	$\mathrm{W \cdot m^{-2}}$	30 m	Radiometer (MR50, EKO)	
Long-wave radiation (outgoing)	Rgl_out_30	$\mathrm{W \cdot m^{-2}}$	30 m	Radiometer (MR50, EKO)	
Net Radiation	Rn_30	$\mathrm{W \cdot m^{-2}}$	30 m	Rg_30_Rn – Rg_out_30 + Rgl_30 – Rgl_out_30	
Transmitted solar radiation (below canopy incoming)	TR_1_2	$\mathrm{W \cdot m^{-2}}$	2 m	Pyranometer (MS-601, EKO)	
Transmitted solar	TR_2_2	$\mathrm{W \cdot m^{-2}}$	2 m	Pyranometer (MS-601, EKO)	

radiation (below canopy incoming)					
Transmitted solar radiation (below canopy incoming)	TR_3_2	W·m^{-2}	2 m	Pyranometer (MS-601, EKO)	
Transmitted solar radiation (below canopy incoming)	TR_4_2	W·m^{-2}	2 m	Pyranometer (MS-601, EKO)	
Transmitted solar radiation (below canopy incoming)	TR_5_2	W·m^{-2}	2 m	Pyranometer (MS-601, EKO)	
Transmitted solar radiation (below canopy incoming)	TR_1_2_Rn	W·m^{-2}	2 m	Radiometer (MR50, EKO)	
Transmitted solar radiation (below canopy outgoing)	TR_out_1_2	W·m^{-2}	2 m	Radiometer (MR50, EKO)	
Transmitted long-wave radiation (below canopy incoming)	TRl_1_2	W·m^{-2}	2 m	Radiometer (MR50, EKO)	
Transmitted long-wave radiation (below canopy outgoing)	TRl_out_1_2	W·m^{-2}	2 m	Radiometer (MR50, EKO)	
Transmitted Net Radiation (below canopy)	TRn_1_2	W·m^{-2}	2 m	TR_1_2_Rn – TR_out_1_2 + TRl_1_2 – TRl_out_1_2	
Transmitted solar radiation (below canopy incoming)	TR_2_2_Rn	W·m^{-2}	2 m	Radiometer (MR50, EKO)	
Transmitted solar radiation (below canopy outgoing)	TR_out_2_2	W·m^{-2}	2 m	Radiometer (MR50, EKO)	
Transmitted long-wave radiation (below canopy incoming)	TRl_2_2	W·m^{-2}	2 m	Radiometer (MR50, EKO)	
Transmitted long-wave radiation (below canopy outgoing)	TRl_out_2_2	W·m^{-2}	2 m	Radiometer (MR50, EKO)	
Transmitted Net Radiation (below canopy)	TRn_2_2	W·m^{-2}	2 m	TR_2_2_Rn – TR_out_2_2 + TRl_2_2 – TRl_out_2_2	
Photosynthetic active photon flux density	PPFD_32	micoromol·m^{-2}·s^{-1}	32 m	Quantum sensor (ML-020P; EKO)	
Photosynthetic active photon flux density	PPFD_32_gf	micoromol·m^{-2}·s^{-1}	32 m	Quantum sensor (ML-020P; EKO)	Gap filled
Transmitted PAR	TPAR_1_2	micoromol·m^{-2}·s^{-1}	2 m	Quantum sensor (LI-190S, LI-COR (Jan.2006-Mar.2007), ML-020P; EKO (Mar.2007-))	

Transmitted PAR	TPAR_2_2	micoromol・m^{-2}・s^{-1}	2 m	Quantum sensor (LI-190S, LI-COR (Jan.2006-Mar.2007), ML-020P; EKO (Mar.2007-))	
Transmitted PAR	TPAR_3_2	micoromol・m^{-2}・s^{-1}	2 m	Quantum sensor (LI-190S, LI-COR (Jan.2006-Mar.2007), ML-020P; EKO (Mar.2007-))	
Transmitted PAR	TPAR_4_2	micoromol・m^{-2}・s^{-1}	2 m	Quantum sensor (LI-190S, LI-COR (Jan.2006-Mar.2007), ML-020P; EKO (Mar.2007-))	
Transmitted PAR	TPAR_5_2	micoromol・m^{-2}・s^{-1}	2 m	Quantum sensor (LI-190S, LI-COR (Jan.2006-Mar.2007), ML-020P; EKO (Mar.2007-))	
Reflected PAR	RPAR_30	micoromol・m^{-2}・s^{-1}	30 m	Quantum sensor (LI-190S, LI-COR (Jan.2006-Mar.2007), ML-020P; EKO (Mar.2007-))	
Reflected PAR (below canopy outgoing)	RPAR_1_2	micoromol・m^{-2}・s^{-1}	2 m	Quantum sensor (LI-190S, LI-COR (Jan.2006-Mar.2007), ML-020P; EKO (Mar.2007-))	
Reflected PAR (below canopy outgoing)	RPAR_2_2	micoromol・m^{-2}・s^{-1}	2 m	Quantum sensor (LI-190S, LI-COR (Jan.2006-Mar.2007), ML-020P; EKO (Mar.2007-))	
Reflected PAR (below canopy outgoing)	RPAR_3_2	micoromol・m^{-2}・s^{-1}	2 m	Quantum sensor (LI-190S, LI-COR (Jan.2006-Mar.2007), ML-020P; EKO (Mar.2007-))	
Wind direction	WD_35	degrees	35 m	Three-dimensional sonic anemometer-thermometers (DA-600, Probe TR-61C (Jan. 1, 2006 – May 9, 2011); DA-650, Probe TR-61C (May 9, 2011 – Nov. 22, 2011); DA-600, Probe TR-61C (Nov. 22, 2011 – Apr. 18, 2012); DA-700, Probe TR-61A (Apr. 18, 2012 – Apr. 11, 2016), SONIC CORP.)	Vector average
Wind direction	WD_32	16 direction	32 m	Sonic anemometer (MA-130A, EKO (Jan.2006-Mar.2007), PGWS-100-3, GILL (Apr.2007-))	Most frequent direction
Wind direction	WD_27	16 direction	27 m	Sonic anemometer (PGWS-100-3, GILL)	Most frequent direction
Wind direction	WD_22	16 direction	22 m	Sonic anemometer (PGWS-100-3, GILL)	Most frequent direction
Wind direction	WD_16	16 direction	16 m	Sonic anemometer (PGWS-100-3, GILL)	Most frequent direction
Wind direction	WD_10	16 direction	10 m	Sonic anemometer (PGWS-100-3, GILL)	Most frequent direction
Wind direction	WD_045	16 direction	4.5 m	Sonic anemometer (PGWS-100-3, GILL)	Most frequent direction

Wind direction	WD_02	16 direction	2 m	Sonic anemometer (PGWS-100-3, GILL)	Most frequent direction
Wind speed	WS_35	m・s^{-1}	35 m	Three-dimensional sonic anemometer-thermometers (DA-600, Probe TR-61C (Jan. 1, 2006 – May 9, 2011); DA-650, Probe TR-61C (May 9, 2011 – Nov. 22, 2011); DA-600, Probe TR-61C (Nov. 22, 2011 – Apr. 18, 2012); DA-700, Probe TR-61A (Apr. 18, 2012 – Apr. 11, 2016), SONIC CORP.)	
Wind speed	WS_32	m・s^{-1}	32 m	Sonic anemometer (MA-130A, EKO (Jan.2006-Mar.2007), PGWS-100-3, GILL (Apr.2007-))	
Wind speed	WS_27	m・s^{-1}	27 m	Sonic anemometer (PGWS-100-3, GILL)	
Wind speed	WS_22	m・s^{-1}	22 m	Sonic anemometer (PGWS-100-3, GILL)	
Wind speed	WS_16	m・s^{-1}	16 m	Sonic anemometer (PGWS-100-3, GILL)	
Wind speed	WS_10	m・s^{-1}	10 m	Sonic anemometer (PGWS-100-3, GILL)	
Wind speed	WS_045	m・s^{-1}	4.5 m	Sonic anemometer (PGWS-100-3, GILL)	
Wind speed	WS_02	m・s^{-1}	2 m	Sonic anemometer (PGWS-100-3, GILL)	
Air temperature	Ta_32	degrees C	32 m	Platinum resistance thermometers (HMP45D, Vaisala)	
Air temperature	Ta_27	degrees C	27 m	Platinum resistance thermometers (HMP45D, Vaisala)	
Air temperature	Ta_22	degrees C	22 m	Platinum resistance thermometers (HMP45D, Vaisala)	
Air temperature	Ta_16	degrees C	16 m	Platinum resistance thermometers (HMP45D, Vaisala)	
Air temperature	Ta_10	degrees C	10 m	Platinum resistance thermometers (HMP45D, Vaisala)	
Air temperature	Ta_045	degrees C	4.5 m	Platinum resistance thermometers (HMP45D, Vaisala)	
Air temperature	Ta_02	degrees C	2 m	Platinum resistance thermometers (HMP45D, Vaisala)	
Air temperature	Ta_01	degrees C	1 m	Platinum resistance thermometers (HMP45D, Vaisala)	
Air temperature	Ta_005	degrees C	0.5 m	Platinum resistance thermometers (HMP45D, Vaisala)	
Air temperature	Ta_22_gf	degrees C	22 m	Platinum resistance thermometers (HMP45D, Vaisala)	Gap filled

Relative humidity	Rh_32	%	32 m	Capacitive hygrometers (HMP45D, Vaisala)	
Relative humidity	Rh_27	%	27 m	Capacitive hygrometers (HMP45D, Vaisala)	
Relative humidity	Rh_22	%	22 m	Capacitive hygrometers (HMP45D, Vaisala)	
Relative humidity	Rh_16	%	16 m	Capacitive hygrometers (HMP45D, Vaisala)	
Relative humidity	Rh_10	%	10 m	Capacitive hygrometers (HMP45D, Vaisala)	
Relative humidity	Rh_4.5	%	4.5 m	Capacitive hygrometers (HMP45D, Vaisala)	
Relative humidity	Rh_2	%	2 m	Capacitive hygrometers (HMP45D, Vaisala)	
Relative humidity	Rh_1	%	1 m	Capacitive hygrometers (HMP45D, Vaisala)	
Relative humidity	Rh_005	%	0.5 m	Capacitive hygrometers (HMP45D, Vaisala)	
Vapor pressure deficit	VPD_22	kPa	22 m	Platinum resistance thermometers and capacitive hygrometers (HMP45D, Vaisala)	Calculated from Ta_22 and Rh_22
Vapor pressure deficit	VPD_22_gf	kPa	22 m	Platinum resistance thermometers and capacitive hygrometers (HMP45D, Vaisala)	Gap filled
Soil temperature	Ts_1_0	degrees C	0 cm	Platinum resistance thermometer (C-PTWP; Climatec)	
Soil temperature	Ts_1_2	degrees C	-2 cm	Platinum resistance thermometer (C-PTWP; Climatec)	
Soil temperature	Ts_1_5	degrees C	-5 cm	Platinum resistance thermometer (C-PTWP; Climatec)	
Soil temperature	Ts_1_15	degrees C	-15 cm	Platinum resistance thermometer (C-PTWP; Climatec)	
Soil temperature	Ts_1_30	degrees C	-30 cm	Platinum resistance thermometer (C-PTWP; Climatec)	
Soil temperature	Ts_1_60	degrees C	-60 cm	Platinum resistance thermometer (C-PTWP; Climatec)	
Soil temperature	Ts_2_0	degrees C	0 cm	Platinum resistance thermometer (C-PTWP; Climatec)	
Soil temperature	Ts_2_2	degrees C	-2 cm	Platinum resistance thermometer (C-PTWP; Climatec)	
Soil temperature	Ts_2_5	degrees C	-5 cm	Platinum resistance thermometer (C-PTWP; Climatec)	
Soil temperature	Ts_3_0	degrees C	0 cm	Platinum resistance thermometer (C-PTWP; Climatec)	
Soil temperature	Ts_3_2	degrees C	-2 cm	Platinum resistance thermometer (C-PTWP; Climatec)	
Soil temperature	Ts_3_5	degrees C	-5 cm	Platinum resistance thermometer	

				(C-PTWP; Climatec)	
Ground heat flux	G_1_1	$W \cdot m^{-2}$	-2 cm	Heat flux plate (PHF-01, REBS)	
Ground heat flux	G_1_2	$W \cdot m^{-2}$	-2 cm	Heat flux plate (PHF-01, REBS)	
Ground heat flux	G_2_1	$W \cdot m^{-2}$	-2 cm	Heat flux plate (PHF-01, REBS)	
Ground heat flux	G_2_2	$W \cdot m^{-2}$	-2 cm	Heat flux plate (PHF-01, REBS)	
Ground heat flux	G_3_1	$W \cdot m^{-2}$	-2 cm	Heat flux plate (PHF-01, REBS)	
Ground heat flux	G_3_2	$W \cdot m^{-2}$	-2 cm	Heat flux plate (PHF-01, REBS)	
Soil water content	SWC_1_0	$m^3 m^{-3}$	0 cm	TDR sensor (CS616, Campbell)	
Soil water content	SWC_1_10	$m^3 m^{-3}$	-10 cm	TDR sensor (CS616, Campbell)	
Soil water content	SWC_1_20	$m^3 m^{-3}$	-20 cm	TDR sensor (CS616, Campbell)	
Soil water content	SWC_2_0	$m^3 m^{-3}$	0 cm	TDR sensor (CS616, Campbell)	
Soil water content	SWC_2_10	$m^3 m^{-3}$	-10 cm	TDR sensor (CS616, Campbell)	
Soil water content	SWC_2_20	$m^3 m^{-3}$	-20 cm	TDR sensor (CS616, Campbell)	
Soil water content	SWC_3_0	$m^3 m^{-3}$	0 cm	TDR sensor (CS616, Campbell)	
Barometric pressure	Pa	kPa	1.5 m	Barometer (PTB100, Vaisala)	
Precipitation	PPT	mm	32 m	Tipping-bucket rain-gauge with heater (CYG-52202, R. M. Young)	
Snow depth	SNOWD	cm	2 m	Sonic ranging sensor (SR-50; Campbell)	

5. Note for data users

☺to Data provider ……………… If you use some tags (flags/identifiers) to identify the levels of data processing, please explain the meanings of the tags.

The figure of “-9999” denote missing or rejected data.

6. Important events

☺to Data provider……………… Please list noteworthy events during the observation period. For example, relocation of the instruments, reasons for missing observation, dates of sowing and harvesting at agricultural site should be listed in the table by date.

Date	Events

References

Flux calculation

*1 McMillen, R.T., 1988. Boundary-Layer Meteorology, 43: 231-245.

*2 Aubinet M. et al.,2000. Advances in Ecological Research, 30: 113-175.

*3 Wilczak. J.M., Oncley, S.P. and Stage, S.A., 2001. Boundary-Layer Meteorology, 99: 127-150.

*4 Wyngaard, J. C. and Zhang, S. F., 1985. J. Atmos. Oceanic Tech., 2: 548-558.

*5 Kaimal, J.C. et al., 1990. Boundary-Layer Meteorol., 53: 103-115.

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*8 Information from Li-Cor

Flux correction

*9 Schotanus, P. et al., 1983. Boundary-Layer Meteorology, 26: 81-93.

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*11 Kaimal J.C. and Gaynor, J.E., 1991. Boundary-Layer Meteorology, 56: 401-410.

*12 Watanabe et al., 2000. Boundary-Layer meteorol. 96, 743-491.

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*16 Moncrieff, J. et al., 2004. Averaging, detrending and filtering of eddy covariance time series. In: X. Lee (Editor), Handbook of Micrometeorology: A guide for surface Flux Measurements. Kluwer, Dirdrecht, pp. 7-31.

*17 Webb, E. K., Pearman, G.I. and Leuning, R., 1980. Quarterly Journal of the Royal Meteorological Society, 106: 85-100.

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