King's College London Field Site – Metadata

Field Site Information

Name:	King's College London
src_id (Station ID number):	n/a
Geographic Area:	Greater London
Latitude (decimal °):	51.511
Longitude (decimal °):	-0.116
OS Grid Reference:	TQ 308 808
Postcode:	WC2R
Elevation:	30 m above surface level
Drainage System:	unknown
Hydrological area ID:	Unknown
Station start date:	20th February 2007 (DOY 51)
Station end date:	Current
METAR code:	n/a

Equipment

Name	Manual	Location	Deployment
Vaisala CL31 Ceilometer	PDF	Main roof	29/11/06 – Present
Vaisala Weather Transmitter WXT510	PDF	Tower	20/02/07 – Present
Kipp & Zonen CNR1 Net Radiometer	PDF	Tower	20/02/07 – Present
Skye Instruments UVA, UVB and Quantum Sensors	PDF	Field hut roof	June/07 - Present
Kipp & Zonen Large Aperture Scintillometer (LAS)	PDF	Transmitter: Waterloo Campus Receiver: Field hut roof	04/05/07 - Present
Campbell Scientific C-SAT3 Three Dimensional Sonic Anemometer	PDF	Tower	24/07/07 – 30/08/07
Campbell Scientific Krypton Hygrometer KH20	PDF	Tower	24/07/07 – 30/08/07

Data Storage

Type	Location	Start Date	File Name(s)
Radiation Data	LondonRawData W:\KCLroof*YYYY*\CR3000\Corrected\ & W:\KCLroof*YYYY*\CR3000\	20th Feb 2007 DOY 51	RF*YYDDD*.dat
Met Data	LondonRawData W:\KCLroof*YYYY*\WXT510*MM*\	20th Feb 2007 DOY 51	WXT*YYYYDDD*.txt WXT*YYYYDDD*_15.txt
Combined Data	LondonRawData W:\KCLroof*YYYY*\WXT510*MM*\	20th Feb 2007 DOY 51	LR*YYYYDDD*_15.txt
Ceilometer	LondonRawData W:\KCLroof*YYYY*\Ceilometer*MM*\	29th Nov 2006 DOY 330	*A YMMDDHH*.dat
LAS	LondonRawData W:\KCLroof*YYYY*\LAS\DAILY_OUTDATA*YYYY*\ S:\KCLroof\2007\LAS\HOURLY_OUTDATA\2007\	18th Jun 2007 DOY 169	las_fast_YYDDDHH.dat las_YYDDD.dat

Data Processing

Program	Description	Execution
CLgrabber.m	Grabs the ceilometer onto second computer for achieving and processing.	Daily
CeilPlot.m	Processes and plots ceilometer data	Daily
WXTgetfile.m	Grabs the WXT510 raw data from the Report Grabber to enable reading of the data	Hourly
WXTread.m	WXT510 data is extracted from the raw files into a Matlab compatible format.	Hourly
WXTmeanplot.m	15 minute means are calculated and daily plots are produced for WXT510, London Heathrow and radiation data.	Daily
Radiation processing	Radiation data is grabbed from the CR3000 and archieved.	Hourly
LAS_Sonic_KH20_4.CR3		

Programs listed here are executed in Matlab (Mathworks Inc.).

Data File Formats

For up to date and previous file formats visit the field site website at http://geography.kcl.ac.uk/micromet/index.htm .

Radiation Data

Format in use from DOY 206

Column	Variable	Units
1	Year	
2	Month	
3	Day	
4	Hour	
5	Minute	
6	Second	
7	Line Number	
8	$\bar{K}$ - Average	W m^{-2}
9	$\bar{K}$ -- Standard Deviation	W m^{-2}
10	K↑ - Average	W m^{-2}
11	K↑ - Standard Deviation	W m^{-2}
12	$\bar{L}$ - - Average	W m^{-2}
13	$\bar{L}$ -- Standard Deviation	W m^{-2}
14	L↑ - Average	W m^{-2}
15	L↑ - Standard Deviation	W m^{-2}
16	CNR1 Temperature - Average	°C
17	CNR1 Temperature - Standard Deviation	°C
18	CNR1 Temperature - Average	K
19	CNR1 Temperature - Standard Deviation	K
20	Net Radiation - Average	W m^{-2}
21	Net Radiation - Standard Deviation	W m^{-2}
22	UVA - Average	µmol m^{-2} s^{-1}
23	UVB - Average	µmol m^{-2} s^{-1}
24	Quantum (PAR) - Average	µmol m^{-2} s^{-1}
25	UVA - Average	W m^{-2}
26	UVB - Average	W m^{-2}
27	Quantum (PAR) - Average	W m^{-2}
28	UVA - Standard Deviation	µmol m^{-2} s^{-1}
29	UVB - Standard Deviation	µmol m^{-2} s^{-1}
30	Quantum (PAR) - Standard Deviation	µmol m^{-2} s^{-1}

Met Data (both WXT510 raw and 15 min average data)

Format in use from DOY 197

Column	Variable	Units
1	Day of Year (DOY)	
2	Decimal Time	
3	Hour	
4	Minute	
5	Number of Samples	
6	Wind Speed Minimum	m s^{-1}
7	Wind Speed Mean	m s^{-1}
8	Wind Speed Maximum	m s^{-1}
9	Air Temperature	°C
10	Relative Humidity	%
11	Air Pressure	hPa
12	**U** (Wind Component)	m s^{-1}
13	**V** (Wind Component)	m s^{-1}
14	Wind Direction	°
15	Total Rain Accumulation	mm
16	Total Rain Duration	s
17	Total Hail Accumulation	hits cm^{-2}
18	Total Hail Duration	s
19	Standard Deviation – Wind Speed Minimum	m s^{-1}
20	Standard Deviation – Wind Speed Mean	m s^{-1}
21	Standard Deviation – Wind Speed Maximum	m s^{-1}
22	Standard Deviation – Air Temperature	°C
23	Standard Deviation – Relative Humidity	%
24	Standard Deviation – Air Pressure	hPa
25	Standard Deviation – **U**	m s^{-1}
26	Standard Deviation – **V**	m s^{-1}
27	Flag	

Flags

1	Data fine
5	Less than 90 data lines in 15 minute averaging period
6	No data present during 15 minute averaging period

Combined Data (Combined radiation and WXT510 data)

All files have been converted to this format

Column	Variable	Units
1	Day of Year (DOY)	
2	Decimal Time	
3	Hour	
4	Minute	
5	Number of Samples	
6	Wind Speed Minimum	m s^{-1}
7	Wind Speed Mean	m s^{-1}
8	Wind Speed Maximum	m s^{-1}
9	Air Temperature	°C
10	Relative Humidity	%
11	Air Pressure	hPa
12	**U** (Wind Component)	m s^{-1}
13	**V** (Wind Component)	m s^{-1}
14	Wind Direction	°
15	Total Rain Accumulation	mm
16	Total Rain Duration	s
17	Total Hail Accumulation	hits cm^{-2}
18	Total Hail Duration	s
19	Standard Deviation – Wind Speed Minimum	m s^{-1}
20	Standard Deviation – Wind Speed Mean	m s^{-1}
21	Standard Deviation – Wind Speed Maximum	m s^{-1}
22	Standard Deviation – Air Temperature	°C
23	Standard Deviation – Relative Humidity	%
24	Standard Deviation – Air Pressure	hPa
25	Standard Deviation – **U**	m s^{-1}
26	Standard Deviation – **V**	m s^{-1}
27	Flag	
28	$\overline{K}$ - Average	W m^{-2}
29	$\overline{K}$ - Standard Deviation	W m^{-2}
30	K↑ - Average	W m^{-2}
31	K↑- Standard Deviation	W m^{-2}
32	$\overline{L}$ - Average	W m^{-2}
33	$\overline{L}$ - Standard Deviation	W m^{-2}
34	L↑ - Average	W m^{-2}
35	L↑ - Standard Deviation	W m^{-2}
36	CNR1 Temperature - Average	°C
37	CNR1 Temperature - Standard Deviation	°C
38	CNR1 Temperature - Average	K
39	CNR1 Temperature - Standard Deviation	K
40	Net Radiation - Average	W m^{-2}
41	Net Radiation - Standard Deviation	W m^{-2}

42	UVA - Average	µmol m^{-2} s^{-1}
43	UVB - Average	µmol m^{-2} s^{-1}
44	Quantum (PAR) - Average	µmol m^{-2} s^{-1}
45	UVA - Average	W m^{-2}
46	UVB - Average	W m^{-2}
47	Quantum (PAR) - Average	W m^{-2}
48	UVA - Standard Deviation	µmol m^{-2} s^{-1}
49	UVB - Standard Deviation	µmol m^{-2} s^{-1}
50	Quantum (PAR) - Standard Deviation	µmol m^{-2} s^{-1}

Flags

1	Data fine
5	Less than 90 data lines in 15 minute averaging period
6	No data present during 15 minute averaging period

Ceilometer Data

No standard data format as data is stored in binary form. The data is extracted each time it is required.

LAS

LAS Fast

Column	Variable	Units	Instrument
1	Day of Year (DOY)	-	
2	Time (HHMM)	-	
3	Seconds	-	
4	Milliseconds	-	
5	U	m s-1	CSAT
6	V	m s-1	CSAT
7	W	m s-1	CSAT
8	T	°C	CSAT
9	diag		CSAT
10	q	mV	Krypton
11	LAS -UCN2 log of Cn2		LAS

LAS Daily

Column	Variable	Units
1	Year	-
2	Month	-
3	Day	-
4	Hour	-
5	Minute	-
6	Second	-
7	UCn2 average	V
8	UCn2 std dev	V
9	demod average	mV
10	demod std dev	mV

Satellite Pictures

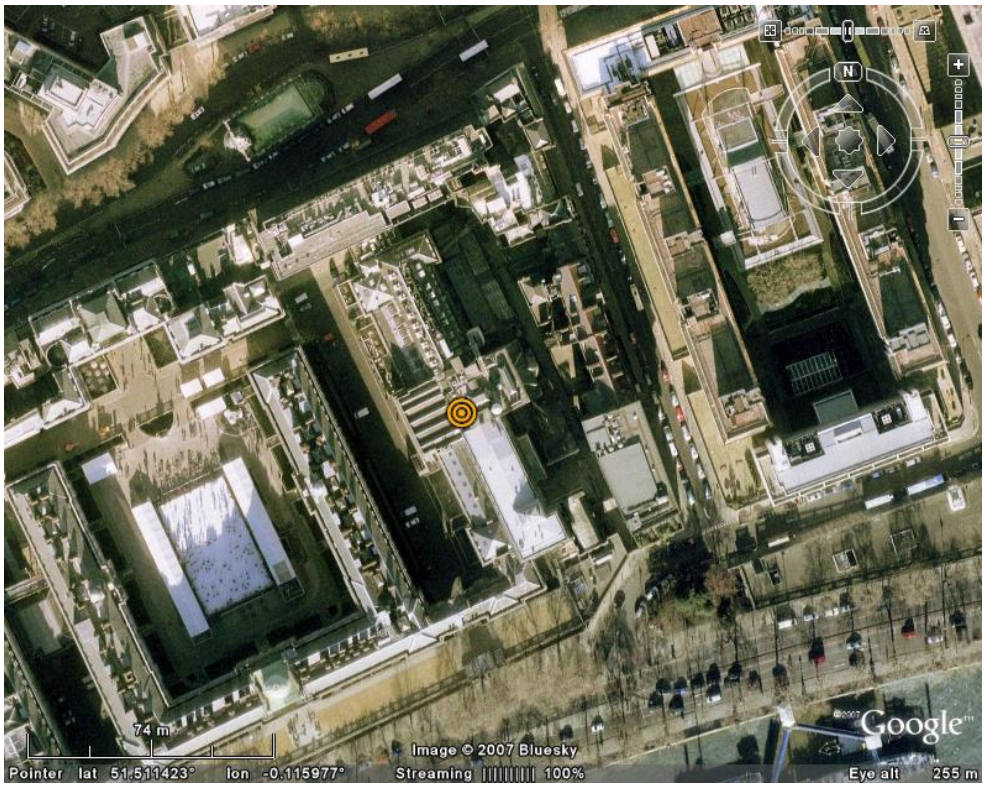

Figure 1. Local scale (100 m radius) around KCL field site (Google Earth, 2007)

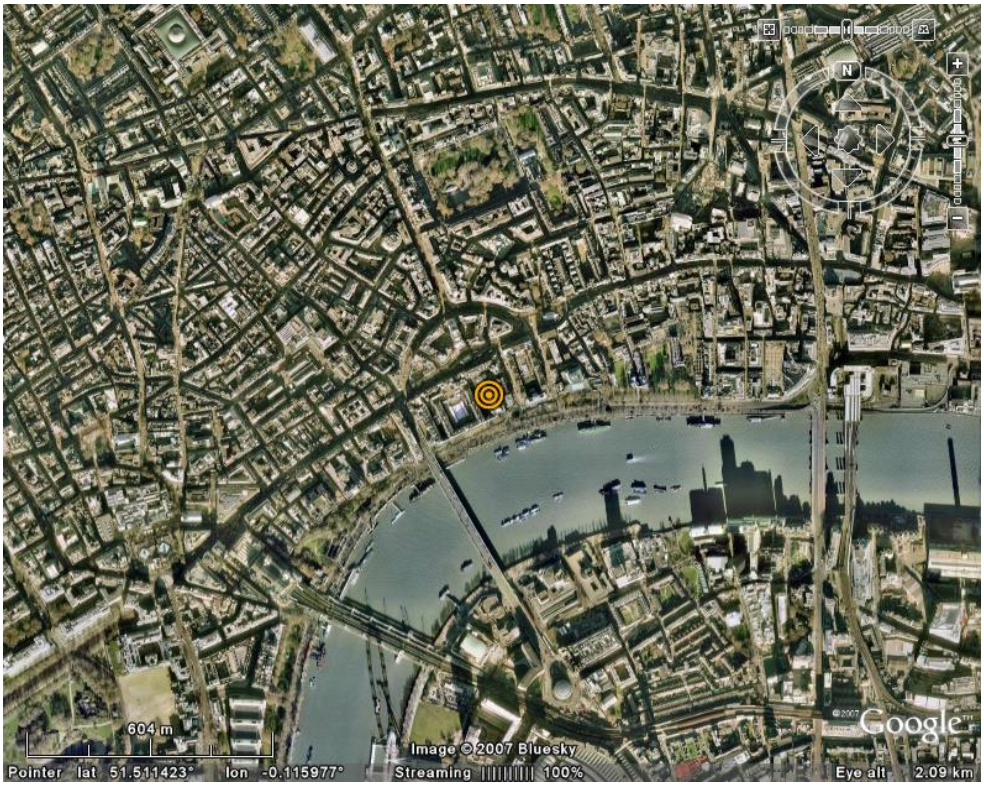

Figure 2. Mesoscale (1 km radius) around KCL field site (Google Earth, 2007).

Field Notes

Up to date field notes are available on the field site webpage (http://geography.kcl.ac.uk/micromet/index.htm).