



**UNIVERSITÄT BAYREUTH**

**Abt. Mikrometeorologie**

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**Documentation of the experiment EBEX-2000**

**July 20 to August 24, 2000**

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# 1 Introduction

## 1.1 General Information

measuring site	San Joaquin Valley, CA, USA
coordinates	36° 06' N, 119°56' W
height above sea level	220 ft, 67 m
time code	UTC (local time: PDT Pacific Daylight Time)
canopy	irrigated cotton
synoptic observations	if required
soil humidity measurements	by NCAR

## 1.2 Measuring heights

All measuring heights are geometric heights. The zero-plane displacement has to be used for all calculations.

### 1.2.1 Canopy height at field sites

site	date	used from	canopy height	displacement height
8	26.07.00	26.07.00	0.825 m	0.55 m
7	26.07.00	26.07.00	0.825 m	0.55 m
7	08.08.00	04.08.00	0.900 m	0.60 m
7	21.08.00		0.900 m	0.60 m

### 1.2.2 Canopy height of the measuring area

Determination on Aug. 9, 2000 for the whole measuring field.

file	description	CD
c_height.asc	matrix of canopy height data	
c_height_info.txt	info about canopy height measurements	
canopy.xls	raw data of canopy height measurements	

## 1.3 Coordinates of measuring sites

site	position west of trailer	position north of trailer
1	300 m	1149 m

site	position west of trailer	position north of trailer
2	200 m	973 m
3 (until 14 <sup>th</sup> of August)	100 m	800 m
3 (from 14 <sup>th</sup> of August on)	300 m	1700 m
4	300 m	846 m
5	200 m	673 m
6	100 m	500 m
7	300 m	546 m
8	200 m	373 m
9	100 m	200 m
10	300 m	200 m

### 1.3.1 Positions of measuring devices Site 8, during the intercomparison experiment

tower	device	position west from profile tower	position south from profile tower
NCAR	UW sonic	≈ 10 m	≈ 0 m
KNMI	Kaijo Denki, 5cm	≈ 20 m	≈ 0 m
UBT	CSAT3	≈ 30 m	≈ 0 m
City Univ. H.K.	CSAT3	≈ 40 m	≈ 0 m
Uni Basel	Solent HS	≈ 50 m	≈ 3 m
Uni Basel	CSAT	≈ 50 m	≈ 5 m

for details see NCAR documentation

### 1.3.2 Positions of measuring devices Site 7

device	position west of psychrometer tower	position south of psychrometer tower
psychrometer tower	0 m	0 m
wind tower	7 m	0 m
Aster tower	22 m	0 m
C-sat (Germany)	14 m	0 m
C-sat (China)	18 m	0 m
Metek	29 m	0 m
Young	36 m	0 m
radiation horse	7 m to 10 m	12.5 m

## 1.4 Used measuring complexes

measuring			
no.	complex	devices	time and site
1	wind profile	wind direction 7 wind velocities	25.07.00, 16:00 - 24.08.00, 14:45 Site 7
2	temperature-- humidity-profile	7 psychrometers pressure sensor	25.07.00, 16:00 - 24.08.00, 14:45 Site 7
3	soil measurements	2 heat flux plates 5 soil thermometers 1 thermometer at 5 cm height	25.07.00, 16:00 - 25.08.00, 14:40 Site 7
4	radiation measurements	albedometer (short-wave) albedometer (short-wave) net-radiometer PAR-sensor IR-thermometer	25.07.00, 18:30 - 25.08.00, 14:40 Site 7
5	eddy-covariance- reference system	sonic anemometer CSAT3 krypton-hygrometer KH20 fast response temperature sensor inklinometer hygrometer LiCor 75000	26.07.00, 21:00 - 30.07.00, 14:00 Site 8 30.07.00, 19:30 - 25.08.00, 14:30 Site 7
6	eddy-covariance- system	sonic anemometer USA1	28.07.00, 17:00 - 23.08.00, 17:00 Site 7
7	eddy-covariance- system	sonic anemometer Young 81000	28.07.00, 17:00 - 01.08.00, 14:30 (device 1) 09.08.00, 19:30 - 23.08.00, 17:00 (device 2) Site 7

#### 1.4.1 Measuring complex 1: Wind profile

wind velocity			
height [m]	sensor type	no.	calibration/reference
10.70		4719	
8.70		4522	
6.70	Climatronics F460	4505	Climatronics User's
5.70	wind speed	4713	Manual F460 Wind Speed
4.70	sensor	4534	Sensor
2.70		4524	P/N M100075 Rev D
1.70		4529	

  

wind direction			
height [m]	sensor type	No.	calibration/reference
12.30	Climatronics F460 wind direction sensor	100076 3806	Climatronics User's Manual F460 Wind Direction Sensor P/N M100076 Rev C

#### 1.4.2 Measuring complex 2: Temperature and humidity profile

temperature and humidity						
height [m]	sensor type	no. wt bulb temp.		no. dry temp.		calibration/reference
10.70		tf7	GÖ02	tt7	8849	
8.70		tt6	91181	tf6	91141	user manual
6.70	Frankenberger aspiration- psychrometer 3010.000 BG	tt3	91301	tf2	91311	Frankenberger electric ventilated aspiration- psychrometer 3010.0000 BG, Issue 10, 10/97
5.70		tf5	9149	tt5	9139	
4.70		tf4	9129	tt4	9119	
2.70		tf3	9028	tt2	8839	
1.70		tf1	9018	tt1	91521	

### 1.4.3 Measuring complex 3: Soil measurements

soil heat flux plates			
height [m]	sensor type	No.	calibration/reference
-0.05 (E)	Rimco HP3 heat flux plate	HP3 65658	Rimco HP3 heat flux plate, application note, calibration certificates HP3178 (2/97) + HP3082 (1/94)
-0.05 (W)		HP3 69813	
soil thermometer			
height [cm]	sensor type	No.	calibration/reference
-50	platinum thermometer Pt 100	0003	1/3 DIN
-20		0004	
-10		0011	
-5		0012	
-2		0016	
5		0005	

### 1.4.4 Measuring complex 4: Radiation measurements

height [m]	sensor type	no.	parameter	calibration/reference
2.05	Kipp & Zonen pyranometer CM 14	970106	short wave above short wave below	Kipp & Zonen: user manual pyranometer CM 11/14, Kipp & Zonen calibration certificate (09. Juni 1997)
2.05	Kipp & Zonen CNR1 net-radiometer	970059	s-w above s-w below l-w above l-w below device temp.	Kipp & Zonen: instruction manual CNR1 net radiometer, Kipp & Zonen calibration certificate (20. November 1997)
2.05	Eppley double direction precision infrared radiometer	32006F3 32007F3	l-w above l-w below body temp. (above and below) 3 dome temp.	instruction sheet for the Eppley PIR (2/95), standardization of the Eppley PIR (25. September 1997)

height [m]	sensor type	no.	parameter	calibration/reference
2.05	LI-COR quantum sensor	LI-190SZ	PAR	LI-COR: certificate of calibration (July 9, 1997)
2.05	Heitronics KT 15.82 D	2244	IR-temp.	Heitronics calibration certificate (20.Okt. 1997)
	AMMONIT, piezoresistive pressure sensor P6520		pressure	AMMONIT pressure sensor P6520, technical data (06.03.95)

#### 1.4.5 Measuring complex 5: Eddy-covariance-reference-system

height [m]	sensor type	no.	calibration/reference
4.7	sonic anemometer CSAT3	S/N 0235-2	Campbell Sci. Ltd. 'User Guide' - 02.04.1998 orientation north
4.7	krypton hygrometer KH20	SN1312	'User Guide' and calibration certificate from 28.03.1999 30 cm to S, 10 cm to E
4.7	fast response temperature sensor AIR150	No. 4	Foken et al. (1997)
4.7	CO <sub>2</sub> /H <sub>2</sub> O-Analyzer LI-7500	75H-0006	see 2.5
4.7	inclinometer LCI-360 data-logger CR23X	701146 SN 1047	sensor specification Campbell Sci. Ltd. 'Operator's Manual' - January 1998

#### 1.4.6 Measuring complex 6: Eddy-covariance-system

height [m]	sensor type	no.	calibration/reference
4.7	sonic anemometer USA1	9905007	user manual 02/99

#### 1.4.7 Measuring complex 7: Eddy-covariance-system

height [m]	sensor type	No.	calibration/reference
4.7	sonic anemometer Young (until 1 <sup>st</sup> of August)	00264	user manual 05/2000
	sonic anemometer Young (from 9 <sup>th</sup> of August)	00219	user manual 05/2000



## 1.5 Sensor connections of the CR23X-Logger (in home)

Kanal	Sensor	Farbe
<b>Wheatstone-Brücke</b>		
1H		H-Brücke
1L		L-Brücke
Erde		G-Brücke
Ex1		schwarz
<b>Temperaturfühler Pt150</b>		
L Wheatst.		braun (weiß)
G Wheatst.		grün (gelb)
2H		weiß (braun)
2L		gelb (grün)
<b>KH 20</b>		
3H		weiß
3L		schwarz
Erde		transparent
<b>dessen Stromversorgung</b>		
Power / G		schwarz
Power / 12V		rot
<b>Temperatur- und Feuchtefühler</b>		
4H (7)		gelb
4L (8)		braun
Erde		lila
<b>dessen Stromversorgung</b>		
Power / G		rot
Power / 12V		blau
<b>CSAT3</b>		
G (zw. Power und Control I/O)		schwarz und transparent
C1		grün
C2		weiß
C3		braun
<b>dessen Stromversorgung</b>		
Power / G		transp + schwarz
Power / 12V		rot
<b>Drucksensor</b>		
5H (9)		Signal
Erde		Masse
<b>Inklinometer (zeitweise in Betrieb)</b>		
6H (11)	x-Komponente	weiß
6L (12)	y-Komponente	braun
Erde		Schirm

## 2 Calibrations

### 2.1 Calibrations for instruments on profile tower

Sampling rate 1.0 sec, averaging time 5.0 min

device	calibration factor	factor in logger	factor in software
F460 wind speed sensor	$(f / 9.511 + 0.3) / 1.965$ f = frequency	$(f / 9.511 + 0.3) / 1.965$ f = frequency	0.87825
F460 wind direction sensor	1.0	1.0	until 27.07.00, 23:45: < 30°: 30° - signal > 30°: 390° - signal from 27.07.00, 23:45: < 330° : signal + 30° > 330° : signal - 30°
Rimco heat flux plate HP3 65658	$1 / 0.243 \cdot 10^4$	$1 / 0.243 \cdot 10^3$	10
Rimco heat flux plate HP3 69813	$1 / 0.227 \cdot 10^4$	$1 / 0.227 \cdot 10^3$	10

### 2.2 Calibrations for instruments on radiation horse

device	calibration factor	factor in logger	factor in software
Kipp & Zonen pyranometer CM 14	$1 / 4.87 \cdot 10^6$	$1 / 4.87 \cdot 10^6$	1.0
Kipp & Zonen CNR1 net-radiometer	$1 / 9.91 \cdot 10^6$	$1 / 9.91 \cdot 10^6$	1.0
Eppley double direc- tion precision infrared radiometer; LW oben <sup>1</sup>	$1 / 4.12 \cdot 10^6$	$10^6$	$1 / 4.12$
Eppley double direc- tion precision infrared radiometer; LW unten	$1 / 4.27 \cdot 10^6$	$10^6$	$1 / 4.27$

<sup>1</sup> Temperatures measured in Eppley Pyrgeometer are calculated by:

$$T = \frac{1}{0.0010295 + 0.0002391 \cdot T1 + 0.1568 \cdot T1}$$

$$T1 = \ln \frac{15000 \cdot signal}{11.996 - signal}$$

### 2.3 Calibration for AIR150 Platinum fast response temperature sensor

sensor no.	date / time	temperature coefficient [1/K]	R (t <sub>0</sub> ) [Ω]	t <sub>0</sub> [°C]
4	23.07.00	0.00363 <sup>2</sup>	150 <sup>2</sup>	22.2 <sup>2</sup>

### 2.4 Calibration of Krypton hygrometer No. 1312

date	time	path [mm]	calibration
23.07.00	all time	13.13	30.07.00, 15-16, used for the exp.

date	time	path [mm]	XKw	ln V <sub>0</sub>	V <sub>0</sub> [mV]
30.07.00	15:19	13.1	-0.1863	10.405	
	15:33	13.1	-0.1814	10.305	
	mean	13.1	-0.184	10.35	31257
28.08.00	21:26	13.1	-0.2262	10.091	
	21:33	13.1	-0.219	10.244	
	21:39	13.1	-0.247	10.42	
	mean	13.1	0.231	10.25	28282

### 2.5 Calibration of Licor-7500

#### 2.5.1 Basic calibration (16.01.00)

	CO <sub>2</sub> calibration values	H <sub>2</sub> O calibration values
A	1.22539 * 10 <sup>2</sup>	4.62931 * 10 <sup>3</sup>
B	1.34671 * 10 <sup>4</sup>	3.1071 * 10 <sup>6</sup>
C	2.00579 * 10 <sup>7</sup>	1.98011 * 10 <sup>8</sup>
D	-5.1928 * 10 <sup>9</sup>	
E	6.5927 * 10 <sup>11</sup>	
XS	0.0086	-0.0037
Z	0.0005	-0.0008

<sup>2</sup> Determination of temperature coefficient and reference temperature are made according to the measurements of 7<sup>th</sup> and 11<sup>th</sup> of August 2000 (psychrometer dry temperature at 4.7 m).

$$t_{output} = \left\{ \frac{[(t_{signal} \cdot 0.6667) - 1]}{0.00363} \right\} + 22.2$$

for ratio 100 Ω reference resistance to R (t<sub>0</sub>) = 150 Ω equal to 0.6667.

### 2.5.2 Zero/span calibration (12.07.00)

	CO <sub>2</sub>	H <sub>2</sub> O
zero	0.96	1.03
span	0.99	1.02
at	377 µmol/mol	15° C dew point

### 2.5.3 Calibration of Licor-7500, Calibration of Licor-7500-span

date from	time from	0V H <sub>2</sub> O	5V H <sub>2</sub> O	0V CO <sub>2</sub>	5V CO <sub>2</sub>
30.07.00		250 mmol/m <sup>3</sup>	1250 mmol/m <sup>3</sup>	10 mmol/m <sup>3</sup>	20 mmol/m <sup>3</sup>
01.08.00	21.10	250 mmol/m <sup>3</sup>	1250 mmol/m <sup>3</sup>	10 mmol/m <sup>3</sup>	25 mmol/m <sup>3</sup>
13.08.00	20.15	0 mmol/m <sup>3</sup>	1250 mmol/m <sup>3</sup>	10 mmol/m <sup>3</sup>	25 mmol/m <sup>3</sup>

## 3 Synoptical data

date	time	clouds	x/8
26.07.00	13:00 – 24:00	--	0
27.07.00	13:00 – 24:00	--	0
28.07.00	13:00 – 20:00	--	0
	20:00 – 21:45	Ci	1
	21:45 – 23:00	Ci	3
	23:00 – 24:00	Ci, Ac	3
29.07.00	13:00 – 17:00	Ci	2
	17:00 – 24:00	Ci, Ac	3
30.07.00	13:00 – 14:15	Ci, Ac	1
	14:45 – 17:00	--	0
	17:00 – 24:00	Ci, Ac	2
31.07.00	13:00 – 16:00	Ci, Ac	1
	16:00 – 20:00	Ci, Ac	2
	20:00 – 24:00	Ci, Cs, Ac	1
01.08.00	14:00 – 16:00	Ac, Sc, Ci, As	5
	16:00 – 19:00	Ac, Sc, Ci, As	7
	19:00 – 20:30	Ac, Ci	1
	20:30 – 24:00	--	0
03.08.00	13:00 – 18:00	Sc	2
	19:00 – 21:00	Sc	1
	21:00 – 24:00	--	0
04.08.00	15:00 – 24:00	--	0
05.08.00	16:00 – 23:00	--	0

date	time	clouds	x/8
06.08.00	16:00 – 22:00	--	0
07.08.00	16:00 – 23:00	--	0
08.08.00	15:00 – 24:00	--	0
09.08.00	15:00 – 22:00	--	0
10.08.00	15:00 – 21:00	--	0
11.08.00	14:00 – 22:00	--	0
12.08.00	14:00 – 18:00	--	0
13.08.00	16:00 – 23:00	--	0
14.08.00	14:00 – 22:00	--	0
15.08.00	16:30 – 18:00	--	0
	18:00 – 21:00	Ci	1
	15:00 – 23:00	--	0
16.08.00	15:00 – 23:00	--	0
17.08.00	15:00 – 19:00	--	0
18.08.00	16:00 – 21:00	--	0
19.08.00	16:00 – 20:00	--	0
20.08.00	14:00 – 20:00	--	0
21.08.00	16:00 – 24:00	--	0
22.08.00	15:00 – 19:00	--	0
23.08.00	19:00 – 21:00	Sc	2
			(because of field fire)
	21:00 – 24:00	--	0
	14:30 – 21:00	--	0
24.08.00	21:00 – 24 :00	Ci	1
		Ac lenticularis (SE)	

## 4 Used programs

### 4.1 Logger program Vaisala

begin: date	time	end: date	time	name
24.07.00	20:20	25.08.00	14:40	Amerika.qsp

## 4.2 Programs for CSAT-3

### 4.2.1 Logger program CR23X

begin: date	time	end: date	time	name
		04.08.00	16:00	CSAT3_24
04.08.00	16:00	25.08.00	14:30	CSAT3_26

### 4.2.2 Specific program descriptions (including not used versions)

name	tables	instruction 96	LiCor 7500
CSAT3_22	2	56: ASCII, 19200 Baud	no
CSAT3_23	2	56: ASCII, 19200 Baud	no
CSAT3_2A	2	no	no
CSAT3_2B	2	no	yes
CSAT3_2C	1	no	yes
CSAT3_24	1	66: binary, 19200 Baud	no
CSAT3_25	1	66: binary, 19200 Baud	yes
CSAT3_26	1	no	no

## 4.3 Calculation programs

### 4.3.1 Calculation program for turbulence data (files for 'Bayreuther Turbulenzknecht')

begin: date	time	end: date	time	name
		04.08.2000	16:00	T24_CSAT
04.08.2000	16:00	25.08.00	14:30	T26_CSAT
04.08.2000	16:00	25.08.00	14:30	T27_UMSP
04.08.2000	16:00	25.08.00	14:30	T27_CSAT

### 4.3.2 Specific program descriptions

name	description	data set	calibration
T24_CSAT	TXX-program	ASTER system	included
T26_CSAT	TXX-program	CR23X	raw calibration
T27_UMSP	calculation of daily files from CR23X files	CR23X	included
T27_CSAT	TXX-program	T27_UMSP	no

## 5 Data archives

### 5.1 Raw Data of profile tower and radiation Horse

file	begin	end	CD
000724.csv	24.07.00 20:20:00	24.07.00 21:15:00	
	25.07.00 15:50:00	25.07.00 23:55:00	
	26.07.00 00:00:00	26.07.00 16:00:00	2
000726.csv	26.07.00 15:10:00	27.07.00 14:55:00	2
000727a.csv	27.07.00 14:00:00	27.07.00 23:50:00	30
000727b.csv	27.07.00 23:50:00	28.07.00 22:45:00	2
000728.csv	28.07.00 19:00:00	29.07.00 16:25:00	30
000729.csv	29.07.00 14:00:00	30.07.00 19:05:00	2
000730.csv	30.07.00 14:00:00	30.07.00 22:10:00	
	30.07.00 22:55:00	31.07.00 16:00:00	2
000731a.csv	31.07.00 16:00:00	31.07.00 19:00:00	2
000731b.csv	31.07.00 18:30:00	01.08.00 15:20:00	2
000801.csv	01.08.00 14:00:00	01.08.00 16:25:00	
	01.08.00 16:35:00	02.08.00 19:15:00	2
	02.08.00 23:25:00	03.08.00 16:00:00	
000803.csv	03.08.00 14:00:00	04.08.00 16:10:00	2
000804.csv	04.08.00 14:00:00	05.08.00 18:55:00	2
000805.csv	05.08.00 14:00:00	06.08.00 17:20:00	2
000806.csv	06.08.00 14:00:00	07.08.00 17:20:00	2
000807.csv	07.08.00 14:00:00	08.08.00 17:10:00	2
000808.csv	08.08.00 14:00:00	09.08.00 16:50:00	2
000809.csv	09.08.00 14:00:00	10.08.00 17:35:00	16
000810.csv	10.08.00 14:00:00	11.08.00 17:20:00	16
000811.csv	11.08.00 14:00:00	12.08.00 16:20:00	16
000812.csv	12.08.00 14:00:00	13.08.00 17:35:00	16
000813.csv	13.08.00 14:00:00	14.08.00 17:10:00	16
000814.csv	14.08.00 14:00:00	15.08.00 17:15:00	16
000815.csv	15.08.00 14:00:00	16.08.00 17:10:00	16
000816.csv	16.08.00 14:00:00	17.08.00 17:00:00	16
000817.csv	17.08.00 14:00:00	18.08.00 17:10:00	16
000818.csv	18.08.00 14:00:00	19.08.00 17:00:00	30
000819.csv	19.08.00 14:00:00	20.08.00 17:00:00	30
000820.csv	20.08.00 14:00:00	21.08.00 17:20:00	30
000821.csv	21.08.00 14:00:00	22.08.00 17:20:00	30
000822.csv	22.08.00 14:00:00	23.08.00 17:10:00	30
000823.csv	23.08.00 14:00:00	24.08.00 17:00:00	30
000824.csv	24.08.00 14:00:00	25.08.00 14:35:00	30

## 5.2 Excel Sheets of profile tower and radiation horse

file	date	failures		devices	CD
		begin	end		
Profilmast000725.xls	25.07.00		14:50:00	all	2
		14:55:00	18:20:00	radiation	
		15:35:00	15:40:00	all	
		17:40:00	18:15:00	all	
Profilmast000726.xls	26.07.00	15:05:00	15:10:00	all	2
Profilmast000727.xls	27.07.00	17:50:00	22:20:00	KT 15 tf (4.7 m, 5.7 m)	2
Profilmast000728.xls	28.07.00				2
Profilmast000729.xls	29.07.00	16:50:00		tf (8.7 m)	2
		19:20:00	19:55:00	all	
Profilmast000730.xls	30.07.00		20:40:00	tf (8.7 m)	2
		17:55:00		tf (6.7 m)	
		22:15:00	22:50:00	alle	
Profilmast000731.xls	31.07.00		17:25:00	tf (6.7 m)	2
		15:50:00	20:20:00	tf (8.7 m)	
		23:40:00	23:50:00	all	
Profilmast000801.xls	01.08.00	16:30:00	16:40:00	all	2
		18:10:00		tf (6.7 m)	
Profilmast000802.xls	02.08.00			tf (6.7 m)	2
		19:20:00	23:30:00	all	
Profilmast000803.xls	03.08.00			tf (6.7 m)	2
Profilmast000804.xls	04.08.00		16:50:00	tf (6.7 m)	2
Profilmast000805.xls	05.08.00	18:00:00	21:45:00	radiation, u (1.7, 2.7, 4.7 m)	2
Profilmast000806.xls	06.08.00	13:30:00	14:00:00	CM14, Eppley, u (1.7, 2.7 m)	2
		18:00:00		CM14, Eppley, u (1.7, 2.7 m)	
Profilmast000807.xls	07.08.00		10:45:00	CM14, Eppley, u (1.7, 2.7 m)	2
Profilmast00808.xls	08.08.00				2
Profilmast0809.xls	09.08.00				16
Profilmast0810.xls	10.08.00				16
Profilmast0811.xls	11.08.00	19:15:00		CM14, Eppley, u (1.7, 2.7 m)	16



file	date	failures		devices	CD
		begin	end		
Profilmast0812.xls	12.08.00		17:00:00	CM14, Eppley, u (1.7, 2.7 m)	16
Profilmast0813.xls	13.08.00	16:35:00 19:10:00	00:00:00	tf (2.7 m, 6.7 m) CM14, Eppley, u (1.7, 2.7 m)	16
Profilmast0814.xls	14.08.00		18:25:00	tf (2.7 m, 6.7 m)	16
Profilmast0815.xls	15.08.00	00:35:00 16:25:00 22:50:00	06:35:00 17:40:00	tf (6.7 m) tf (6.7 m) tf (2.7 m)	16
Profilmast000816.xls	16.08.00		06:55:00	tf (2.7 m)	16
		16:30:00 17:00:00	17:40:00	tf (2.7 m) tf (6.7 m)	
Profilmast000817.xls	17.08.00		13:10:00	tf (2.7 m)	16
		11:25:00 16:30:00 16:50:00	16:25:00	CM14, Eppley CM14, Eppley, u (1.7, 2.7 m) tf (2.7 m)	
Profilmast000818.xls	18.08.00		17:30:00	CM14, Eppley, u (1.7, 2.7 m) tf (2.7 m)	16
		17:50:00 19:55:00		tf (6.7 m) Eppley	
Profilmast000819.xls	19.08.00		17:20:00	Eppley tf (2.7, 6.7 m)	30
		21:00:00 17:10:00	22:40:00	CM14, Eppley, u (1.7, 2.7m) tf 1.7	
Profilmast000820.xls	20.08.00	05:25:00	17:30:00	CM14, Eppley, u (1.7, 2.7 m)	30
			17:00:00 17:25:00 17:50:00 19:20:00	tf (2.7m) tf (6.7 m) tf (1.7 m) tf (6.7 m)	
Profilmast000821.xls	21.08.00				30
Profilmast000822.xls	22.08.00	19:45:00		tf (6.7 m)	30
Profilmast000823.xls	23.08.00			tf (6.7 m)	30
Profilmast000824.xls	24.08.00		10:00:00	tf (6.7 m)	30
		14:45:00		u, tt, tf (all), pressure	

file	date	failures			CD
		begin	end	devices	
		14:55:00	15:05:00	radiation	
		15:40:00	16:50:00	soil sensors	
		15:40:00	17:35:00	radiation	
Profilmast000825.xls	25.08.00	14:40:00		radiation	30

### 5.3 Raw Data of CSAT3

file	DOY	begin		end		CD (dat)	CD (zip)
		date	time	date	time		
Earlier data collected on aster system cosmo during intercomparison							
Data collected on aster system daisy							
csat0730	212	30.07.00	19:25	30.07.00	22:12	3	21
csat0731	213	31.07.00	00:00	31.07.00	23:59	3	21
csat0801	214	01.08.00	00:00	02.08.00	00:00	4	21
csat0802	215	02.08.00	00:00	03.08.00	00:00	4	21
csat0803	216	03.08.00	00:00	03.08.00	23:58	5	21
csat0804	217	04.08.00	00:00	04.08.00	16:15	5	21
Data collected on laptop in the field							
csat0804.dat	217	04.08.00	16:01	05.08.00	00:07	1	2
csat0805.dat	218	05.08.00	00:16	05.08.00	03:00	2	10
	218	05.08.00	18:27	06.08.00	00:00		
csat0806.dat	219	06.08.00	16:45	06.08.00	19:07	2	11
csat806b.dat	219	06.08.00	19:07	06.08.00	19:18	2	11
csat806c.dat	219	06.08.00	19:18	07.08.00	00:02	2	11
csat806d.dat	220	07.08.00	00:02	07.08.00	00:03	2	11
csat806e.dat	220	07.08.00	00:03	07.08.00	00:15	2	11
csat807a.dat	220	07.08.00	00:15	07.08.00	00:46	2	11
csat807b.dat	220	07.08.00	00:46	07.08.00	16:59	2	11
Time and date are recorded in UTC + 7 hours							
csat807c.dat	221	08.08.00	00:10	08.08.00	00:32	2	10
csat807d.dat	221	08.08.00	00:32	08.08.00	23:59	2	10
csat808a.dat	221	08.08.00	23:59	10.08.00	00:04	2	10
csat809a.dat	222	09.08.00	23:41	10.08.00	01:47	7	11
csat809b.dat	223	10.08.00	01:49	10.08.00	23:59	7	11
csat810a.dat	224	11.08.00	00:00	11.08.00	23:59	7	11
csat811a.dat	225	12.08.00	00:07	12.08.00	23:59	10	13
csat812a.dat	225	12.08.00	23:59	14.08.00	00:00	10	13

		begin		end			
file	DOY	date	time	date	time	CD (dat)	CD (zip)
csat813a.dat	227	14.08.00	00:00	14.08.00	23:59	10	13
csat814a.dat	227	14.08.00	23:37	16.08.00	00:02	11	18
csat815a.dat	229	16.08.00	00:02	16.08.00	23:59	11	18
csat816a.dat	230	17.08.00	00:02	17.08.00	22:01	13	20
csat817a.dat	230	17.08.00	22:01	19.08.00	00:01	13	20
csat818a.dat	231	18.08.00	23:42	19.08.00	00:34	18	28
csat819a.dat	232	19.08.00	23:38	21.08.00	00:01	18	28
csat820a.dat	234	21.08.00	00:01	22.08.00	00:00	18	28
csat821a.dat	235	22.08.00	00:10	22.08.00	22:00	20	20
csat822a.dat	236	23.08.00	00:01	24.08.00	00:08	20	20
csat823a.dat	236	23.08.00	23:41	24.08.00	23:59	28	28
csat824a.dat	237	24.08.00	23:59	25.08.00	21:30	28	28

#### 5.4 Raw Data of LI-COR 7500

file	DOY	date	CD	CD (zip)
earlier data included in csat-file				
lic0805	218	05.08.00	8	16
lic0806	219	06.08.00	8	16
lic0807	220	07.08.00	8	16
lic0808	221	08.08.00	8	16
lic0809	222	09.08.00	8	16
lic0810	223	10.08.00	9	16
lic0811	224	11.08.00	9	16
lic0812	225	12.08.00	12	16
lic0813	226	13.08.00	12	16
lic0814	227	14.08.00	14	16
lic0815	228	15.08.00	14	16
lic0816	229	16.08.00	15	21
lic0817	230	17.08.00	15	21
lic0818	231	18.08.00	17	21
lic0819	232	19.08.00	17	21
lic0820	233	20.08.00	19	21
lic0821	234	21.08.00	19	21
lic0822	235	22.08.00	29	30
lic0823	236	23.08.00	29	30

## 5.5 Raw Data of METEK USA1

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file	DOY	date	CD	CD (zip)
usa0728	210	28.07.00	6	16
usa0729	211	29.07.00	6	16
usa0730	212	30.07.00	3	16
usa0731	213	31.07.00	3	16
usa0801	214	01.08.00	4	21
usa0802	215	02.08.00	4	21
usa0803	216	03.08.00	5	21
usa0804	217	04.08.00	5	21
usa0805	218	05.08.00	6	21
usa0806	219	06.08.00	6	21
usa0807	220	07.08.00	6	21
usa0808	221	08.08.00	8	21
usa0809	222	09.08.00	8	21
usa0810	223	10.08.00	9	21
usa0811	224	11.08.00	9	21
usa0812	225	12.08.00	12	21
usa0813	226	13.08.00	12	21
usa0814	227	14.08.00	14	21
usa0815	228	15.08.00	14	21
usa0816	229	16.08.00	15	21
usa0817	230	17.08.00	15	21
usa0818	231	18.08.00	17	21
usa0819	232	19.08.00	17	21
usa0820	233	20.08.00	19	21
usa0821	234	21.08.00	19	21
usa0822	235	22.08.00	29	30
usa0823	236	23.08.00	29	30

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## 5.6 Raw Data of YOUNG 81000

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file	DOY	date	CD	CD (zip)
y810728	210	28.07.00	6	31
y810729	211	29.07.00	6	31
y810730	212	30.07.00	3	31
y810731	213	31.07.00	3	31
y810809	222	09.08.00	9	31

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file	DOY	date	CD	CD (zip)
y810810	223	10.08.00	9	31
y810811	224	11.08.00	9	31
y810812	225	12.08.00	12	31
y810813	226	13.08.00	12	31
y810814	227	14.08.00	14	31
y810815	228	15.08.00	14	31
y810816	229	16.08.00	15	31
y810817	230	17.08.00	15	31
y810818	231	18.08.00	17	31
y810819	232	19.08.00	17	31
y810820	233	20.08.00	19	31
y810821	234	21.08.00	19	31
y810822a	235	22.08.00	29	30, 31
y810822b	235	22.08.00	29	30, 31
y810823	236	23.08.00	29	30, 31

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**Bisher erschienene Arbeiten der Reihe 'Universität Bayreuth, Abt. Mikrometeorologie, Arbeitsergebnisse'**

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01	Foken	Der Bayreuther Turbulenzknecht	01/99
02	Foken	Methode zur Bestimmung der trockenen Deposition von Bor	02/99
03	Liu	Error analysis of the modified Bowen ratio method	02/99
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05	Hierteis	Dokumentation des Experimentes Dlouha Louka	03/99
06	Mangold	Dokumentation des Experiments am Standort Weidenbrunnen, Juli/August 1998	07/99
07	Heinz, Handorf, Foken	Strukturanalyse der atmosphärischen Turbulenz mittels Wavelet-Verfahren zur Bestimmung von Austauschprozessen über dem antarktischen Schelfeis	07/99
08	Foken	Comparison of the sonic anemometer Young Model 81000 during VOITEX-99	10/99
09	Foken et al.	Lufthygienisch-Bioklimatische Kennzeichnung des oberen Egertales, Zwischenbericht 1999	11/99
10	Sodemann	Stationsdatenbank zum BStMLU-Projekt Lufthygienisch-Bioklimatische Kennzeichnung des oberen Egertales	03/00
11	Neuner	Dokumentation zur Erstellung der meteorologischen Eingabedateien für das Modell BEKLIMA	10/00
12	Foken et al.	Dokumentation des Experimentes VOITEX-99	12/00
13	Bruckmeier et al.	Documentation of the experiment EBEX-2000, July 20 to August 24, 2000	01/01