Luleå University of Technology

Atmospheric Physics

F7004R

Meteorological measurements radiosonde

Authors
E.F.M. Weterings
D. Talavera

Supervisors
V. Barabash
M. Milz

February 12, 2019

Table of Contents

1 Find Station No. 03808. Which location is this station attributed to? Where is it situated?

As can be seen from figure 1, the grounstation 03808 is located in south west part of England, more specifically in Camborne.

Figure 1: Europa weather stations.

2 Extract the radiosonde profile data for 2007-07-05 0:00 UTC, 12:00 UTC and 2007-07-06 0:00 UTC

The information can be found online by clicking on the following URL:
`http://weather.uwyo.edu/cgi-bin/sounding?region=europe&TYPE=TEXT%3ALIST&YEAR=2007&MONTH=07&FROM=0500&TO=0600&STNM=03808`

The information can also be found on the next page.

HGHT [m]	TEMP [C]	DWPT [C]	RELH [%]	MIXR [g/kg]	DRCT [deg]	SKNT [knot]	THAT [K]	THTE [K]
88	13.6	11.1	85	8.3	290	15	286.2	309.5
104	13.6	11.2	85	8.37	290	17	286.3	309.8
143	13.4	11.1	86	8.36	290	20	286.6	310
194	12.9	10.8	87	8.25	290	25	286.6	309.8
270	12.2	10.4	89	8.1	290	26	286.6	309.4

520	9.9	9.2	96	7.72	290	31	286.7	308.4
572	9.4	9	97	7.64	290	31	286.7	308.3
686	8.4	8.4	100	7.43	290	32	286.8	307.8
793	7.8	7.8	100	7.22	290	32	287.3	307.7
1066	6.2	6.2	100	6.68	302	28	288.4	307.4
1130	6	6	100	6.66	305	27	288.8	307.9
1224	5.8	5.8	100	6.63	304	28	289.5	308.5
1461	4.4	4.4	100	6.18	300	29	290.4	308.3
1490	4.4	4.2	99	6.12	300	29	290.7	308.5
1519	4.2	3.6	96	5.88	300	29	290.8	307.9
1704	4.6	-0.4	70	4.51	300	32	293.1	306.5
1733	4.6	-0.6	69	4.46	300	32	293.4	306.7
1842	4.6	-1.4	65	4.26	300	32	294.6	307.3
2127	2.6	-1.7	73	4.32	300	34	295.4	308.4
2199	2.4	-2.4	71	4.13	300	34	295.9	308.4
2272	3.2	-4.8	56	3.48	300	34	297.6	308.2
2388	3	-6.7	49	3.05	300	35	298.5	308
2549	2.6	-9.4	41	2.53	299	35	299.8	307.8
3003	-0.3	-12.3	40	2.12	295	37	301.5	308.3
3060	-0.7	-12.7	40	2.07	295	37	301.7	308.3
3360	-2.7	-16.3	34	1.6	295	36	302.8	308
3611	-4.3	-19.3	30	1.28	295	38	303.7	307.9
3856	-5.3	-36.3	7	0.27	295	41	305.2	306.2
3880	-5.5	-36.5	7	0.27	295	41	305.3	306.3
4469	-9.5	-42.5	5	0.16	295	44	307.3	307.9
4589	-10.4	-43.5	5	0.14	295	45	307.6	308.1
4696	-11.3	-44.3	5	0.13	295	48	307.8	308.3
4915	-11.6	-41.4	6	0.18	295	53	309.9	310.6
5169	-12	-38	9	0.27	305	63	312.4	313.4
5241	-12.1	-37.1	11	0.3	303	66	313.1	314.3
5372	-12.7	-27.7	27	0.76	301	71	313.9	316.7
5401	-12.9	-27.1	29	0.8	300	72	314	316.9
5565	-14.1	-24.1	43	1.08	300	68	314.5	318.3
5670	-14.7	-25.7	39	0.95	300	66	315.1	318.4
5746	-15.1	-27.1	35	0.84	300	65	315.5	318.5
5776	-15.4	-26.7	38	0.88	300	64	315.5	318.6
6103	-18.7	-22	75	1.4	303	65	315.3	320.2
6327	-20	-24.1	70	1.19	305	65	316.4	320.6
6376	-20.3	-24.6	68	1.15	305	66	316.6	320.7
6657	-21.9	-39.9	18	0.27	305	73	318.1	319.1
7035	-24.5	-42.5	17	0.22	305	82	319.5	320.3
7158	-24.8	-49.1	9	0.11	305	85	320.7	321.1
7230	-24.9	-52.9	6	0.07	303	85	321.4	321.7
7320	-25.3	-58.3	3	0.04	300	85	322	322.2
7356	-25.5	-57	4	0.04	300	85	322.2	322.4
7393	-25.7	-55.7	4	0.05	301	85	322.4	322.6
7635	-27.3	-44.3	18	0.2	306	86	323.4	324.2
7824	-28.7	-43.4	23	0.22	310	86	324	324.9
8279	-32.1	-41.1	40	0.3	306	91	325.4	326.6
8380	-33	-40.9	45	0.31	305	92	325.5	326.8
8776	-36.4	-40	69	0.36	305	100	326.2	327.6
8863	-37.1	-39.8	76	0.37	306	101	326.3	327.8
8993	-37.7	-40.7	73	0.35	307	103	327.2	328.6
9305	-40.1	-47.1	47	0.18	310	107	328.1	328.9
9350	-40.5	-47.5	47	0.18	310	108	328.2	328.9
9395	-40.8	-47.3	49	0.18	310	108	328.4	329.1
9534	-41.7	-46.7	58	0.2	310	109	329	329.8
9769	-42.9	-50.9	41	0.13	310	110	330.6	331.1
10035	-45.2	-51.3	50	0.13	310	112	331	331.5
10185	-46.5	-51.5	57	0.13	313	119	331.2	331.8
10311	-46.8	-55.2	38	0.08	315	125	332.6	332.9
10337	-46.9	-55.9	35	0.08	315	125	332.8	333.1

10570	-48.9	-59.9	27	0.05	310	122	333.2	333.4
10623	-49.1	-59.1	30	0.05	310	122	333.7	333.9
10972	-51.1	-62.6	24	0.04	310	120	335.9	336.1
11084	-51.7	-63.7	22	0.03	310	118	336.6	336.7
11486	-53.5	-67.5	17	0.02	310	109	339.9	340
11820	-52.9	-70	11	0.01	310	103	346	346
11978	-52.6	-71.3	9	0.01	305	90	348.9	348.9
12010	-52.5	-71.5	8	0.01	305	89	349.5	349.5
12341	-51.9	-73.9	5	0.01	299	86	355.6	355.6
12584	-51.3	-77	3	0.01	295	83	360.4	360.5

03808 Camborne Observations at 00Z 05 Jul 2007

PRES hPa	HGHT m	TEMP C	DWPT C	RELH %	MIXR g/kg	DRCT deg	SKNT knot	THTA K	THTE K	THTV K
1007.0	88	13.6	11.1	85	8.30	290	15	286.2	309.5	287.6
1005.0	104	13.6	11.2	85	8.37	290	17	286.3	309.8	287.8
1000.0	143	13.4	11.1	86	8.36	290	20	286.6	310.0	288.0
994.0	194	12.9	10.8	87	8.25	290	25	286.6	309.8	288.0
985.0	270	12.2	10.4	89	8.10	290	26	286.6	309.4	288.0
956.0	520	9.9	9.2	96	7.72	290	31	286.7	308.4	288.0
950.0	572	9.4	9.0	97	7.64	290	31	286.7	308.3	288.0
937.0	686	8.4	8.4	100	7.43	290	32	286.8	307.8	288.1
925.0	793	7.8	7.8	100	7.22	290	32	287.3	307.7	288.5
895.0	1066	6.2	6.2	100	6.68	302	28	288.4	307.4	289.5
888.0	1130	6.0	6.0	100	6.66	305	27	288.8	307.9	290.0
878.0	1224	5.8	5.8	100	6.63	304	28	289.5	308.5	290.7
853.0	1461	4.4	4.4	100	6.18	300	29	290.4	308.3	291.5
850.0	1490	4.4	4.2	99	6.12	300	29	290.7	308.5	291.8
847.0	1519	4.2	3.6	96	5.88	300	29	290.8	307.9	291.9
828.0	1704	4.6	-0.4	70	4.51	300	32	293.1	306.5	293.9
825.0	1733	4.6	-0.6	69	4.46	300	32	293.4	306.7	294.2
814.0	1842	4.6	-1.4	65	4.26	300	32	294.6	307.3	295.3
786.0	2127	2.6	-1.7	73	4.32	300	34	295.4	308.4	296.2
779.0	2199	2.4	-2.4	71	4.13	300	34	295.9	308.4	296.7
772.0	2272	3.2	-4.8	56	3.48	300	34	297.6	308.2	298.2
761.0	2388	3.0	-6.7	49	3.05	300	35	298.5	308.0	299.1
746.0	2549	2.6	-9.4	41	2.53	299	35	299.8	307.8	300.3
705.0	3003	-0.3	-12.3	40	2.12	295	37	301.5	308.3	301.9
700.0	3060	-0.7	-12.7	40	2.07	295	37	301.7	308.3	302.1
674.0	3360	-2.7	-16.3	34	1.60	295	36	302.8	308.0	303.1
653.0	3611	-4.3	-19.3	30	1.28	295	38	303.7	307.9	303.9
633.0	3856	-5.3	-36.3	7	0.27	295	41	305.2	306.2	305.3
631.0	3880	-5.5	-36.5	7	0.27	295	41	305.3	306.3	305.4
585.0	4469	-9.5	-42.5	5	0.16	295	44	307.3	307.9	307.3
576.0	4589	-10.4	-43.5	5	0.14	295	45	307.6	308.1	307.6
568.0	4696	-11.3	-44.3	5	0.13	295	48	307.8	308.3	307.8
552.0	4915	-11.6	-41.4	6	0.18	295	53	309.9	310.6	310.0
534.0	5169	-12.0	-38.0	9	0.27	305	63	312.4	313.4	312.5
529.0	5241	-12.1	-37.1	11	0.30	303	66	313.1	314.3	313.2
520.0	5372	-12.7	-27.7	27	0.76	301	71	313.9	316.7	314.1
518.0	5401	-12.9	-27.1	29	0.80	300	72	314.0	316.9	314.2
507.0	5565	-14.1	-24.1	43	1.08	300	68	314.5	318.3	314.7
500.0	5670	-14.7	-25.7	39	0.95	300	66	315.1	318.4	315.2
495.0	5746	-15.1	-27.1	35	0.84	300	65	315.5	318.5	315.6
493.0	5776	-15.4	-26.7	38	0.88	300	64	315.5	318.6	315.6
472.0	6103	-18.7	-22.0	75	1.40	303	65	315.3	320.2	315.6
458.0	6327	-20.0	-24.1	70	1.19	305	65	316.4	320.6	316.6
455.0	6376	-20.3	-24.6	68	1.15	305	66	316.6	320.7	316.9
438.0	6657	-21.9	-39.9	18	0.27	305	73	318.1	319.1	318.1
416.0	7035	-24.5	-42.5	17	0.22	305	82	319.5	320.3	319.5
409.0	7158	-24.8	-49.1	9	0.11	305	85	320.7	321.1	320.7
405.0	7230	-24.9	-52.9	6	0.07	303	85	321.4	321.7	321.4
400.0	7320	-25.3	-58.3	3	0.04	300	85	322.0	322.2	322.0
398.0	7356	-25.5	-57.0	4	0.04	300	85	322.2	322.4	322.2
396.0	7393	-25.7	-55.7	4	0.05	301	85	322.4	322.6	322.4
383.0	7635	-27.3	-44.3	18	0.20	306	86	323.4	324.2	323.4
373.0	7824	-28.7	-43.4	23	0.22	310	86	324.0	324.9	324.0
350.0	8279	-32.1	-41.1	40	0.30	306	91	325.4	326.6	325.4
345.0	8380	-33.0	-40.9	45	0.31	305	92	325.5	326.8	325.6
326.0	8776	-36.4	-40.0	69	0.36	305	100	326.2	327.6	326.2
322.0	8863	-37.1	-39.8	76	0.37	306	101	326.3	327.8	326.4
316.0	8993	-37.7	-40.7	73	0.35	307	103	327.2	328.6	327.3
302.0	9305	-40.1	-47.1	47	0.18	310	107	328.1	328.9	328.1
300.0	9350	-40.5	-47.5	47	0.18	310	108	328.2	328.9	328.2
298.0	9395	-40.8	-47.3	49	0.18	310	108	328.4	329.1	328.4

292.0	9534	-41.7	-46.7	58	0.20	310	109	329.0	329.8	329.1
282.0	9769	-42.9	-50.9	41	0.13	310	110	330.6	331.1	330.6
271.0	10035	-45.2	-51.3	50	0.13	310	112	331.0	331.5	331.0
265.0	10185	-46.5	-51.5	57	0.13	313	119	331.2	331.8	331.3
260.0	10311	-46.8	-55.2	38	0.08	315	125	332.6	332.9	332.6
259.0	10337	-46.9	-55.9	35	0.08	315	125	332.8	333.1	332.8
250.0	10570	-48.9	-59.9	27	0.05	310	122	333.2	333.4	333.2
248.0	10623	-49.1	-59.1	30	0.05	310	122	333.7	333.9	333.7
235.0	10972	-51.1	-62.6	24	0.04	310	120	335.9	336.1	335.9
231.0	11084	-51.7	-63.7	22	0.03	310	118	336.6	336.7	336.6
217.0	11486	-53.5	-67.5	17	0.02	310	109	339.9	340.0	339.9
206.0	11820	-52.9	-70.0	11	0.01	310	103	346.0	346.0	346.0
201.0	11978	-52.6	-71.3	9	0.01	305	90	348.9	348.9	348.9
200.0	12010	-52.5	-71.5	8	0.01	305	89	349.5	349.5	349.5
190.0	12341	-51.9	-73.9	5	0.01	299	86	355.6	355.6	355.6
183.0	12584	-51.3	-77.0	3	0.01	295	83	360.4	360.5	360.4
179.0	12727	-50.9	-78.9	2	0.00	298	78	363.3	363.4	363.3
177.0	12800	-51.3	-79.7	2	0.00	300	76	363.9	363.9	363.9
170.0	13061	-52.7	-82.5	2	0.00	295	69	365.8	365.8	365.8
169.0	13099	-52.9	-82.9	1	0.00	295	70	366.0	366.1	366.0
162.0	13372	-51.8	-82.9	1	0.00	295	77	372.4	372.4	372.4
157.0	13575	-50.9	-82.9	1	0.00	304	68	377.2	377.2	377.2
154.0	13700	-51.6	-84.0	1	0.00	310	63	378.1	378.1	378.1
150.0	13870	-52.5	-85.5	1	0.00	305	61	379.4	379.4	379.4
149.0	13913	-52.7	-85.7	1	0.00	303	61	379.8	379.8	379.8
145.0	14090	-52.3	-85.3	1	0.00	295	63	383.5	383.5	383.5
142.0	14226	-52.0	-85.0	1	0.00	305	64	386.3	386.3	386.3
135.0	14554	-51.2	-84.2	1	0.00	305	52	393.3	393.3	393.3
134.0	14602	-51.1	-84.1	1	0.00	305	52	394.3	394.3	394.3
124.0	15106	-51.7	-84.7	1	0.00	300	49	402.1	402.1	402.1
114.0	15652	-52.3	-85.3	1	0.00	310	41	410.7	410.7	410.7
105.0	16185	-52.5	-85.5	1	0.00	310	36	420.1	420.1	420.1
100.0	16500	-53.3	-86.3	1	0.00	310	33	424.5	424.5	424.5
93.0	16966	-54.3	-86.8	1	0.00	300	27	431.3	431.3	431.3
88.2	17306	-55.1	-87.1	1	0.00	294	23	436.4	436.4	436.4
85.0	17543	-55.0	-87.0	1	0.00	290	20	441.2	441.2	441.2
80.0	17931	-54.8	-86.8	1	0.00	305	17	449.3	449.3	449.3
76.6	18209	-54.7	-86.7	1	0.00	311	17	455.1	455.2	455.1
74.0	18432	-53.7	-86.1	1	0.00	315	17	461.8	461.8	461.8
71.0	18698	-52.5	-85.4	1	0.00	10	8	469.9	469.9	469.9
70.6	18735	-52.3	-85.3	1	0.00	6	8	471.0	471.0	471.0
70.0	18790	-52.7	-85.7	1	0.00	0	8	471.3	471.3	471.3
67.4	19033	-54.5	-87.5	1	0.00	315	8	472.5	472.5	472.5
66.0	19167	-53.6	-86.7	1	0.00	290	8	477.2	477.2	477.2
63.2	19445	-51.9	-84.9	1	0.00	327	10	487.0	487.0	487.0
63.0	19466	-51.9	-84.9	1	0.00	330	10	487.5	487.5	487.5
61.0	19674	-51.8	-84.8	1	0.00	40	7	492.2	492.2	492.2
57.0	20113	-51.6	-84.6	1	0.01	295	7	502.2	502.3	502.2
55.0	20344	-51.5	-84.5	1	0.01	0	0	507.6	507.6	507.6
54.5	20403	-51.5	-84.5	1	0.01	347	1	509.0	509.0	509.0
52.0	20706	-51.5	-84.5	1	0.01	280	6	515.9	515.9	515.9
50.0	20960	-51.5	-84.5	1	0.01	5	5	521.7	521.7	521.7
49.3	21052	-51.1	-85.1	1	0.01	360	5	524.7	524.8	524.7
48.0	21226	-50.1	-84.1	1	0.01	350	6	531.2	531.3	531.2
47.8	21253	-49.9	-83.9	1	0.01	358	7	532.2	532.3	532.2
47.0	21364	-49.9	-83.9	1	0.01	30	10	534.7	534.8	534.7
46.0	21504	-50.0	-84.0	1	0.01	90	11	537.9	537.9	537.9
44.0	21795	-50.1	-84.1	1	0.01	135	6	544.5	544.6	544.5
43.9	21810	-50.1	-84.1	1	0.01	128	6	544.8	544.9	544.8
43.1	21931	-49.3	-83.3	1	0.01	71	5	549.7	549.8	549.7
42.0	22100	-49.3	-83.3	1	0.01	350	3	553.8	553.9	553.8
40.0	22421	-49.2	-83.2	1	0.01	175	3	561.8	561.8	561.8
38.0	22757	-49.1	-83.2	1	0.01	90	4	570.2	570.3	570.2
36.4	23040	-49.1	-83.1	1	0.01	67	7	577.4	577.5	577.4
34.0	23488	-49.1	-83.1	1	0.01	30	12	588.7	588.9	588.7
30.0	24310	-49.1	-83.1	1	0.01	70	7	610.2	610.3	610.2
29.4	24443	-49.1	-83.1	1	0.01	63	8	613.7	613.8	613.7
28.0	24763	-48.8	-82.8	1	0.02	45	9	623.1	623.2	623.1
27.4	24905	-48.7	-82.7	1	0.02	60	13	627.3	627.5	627.3

27.0	25001	-48.9	-82.9	1	0.02	70	16	629.3	629.5	629.3
26.7	25075	-49.1	-83.1	1	0.02	71	16	630.8	631.0	630.8
24.3	25695	-47.5	-82.5	1	0.02	79	17	652.7	652.9	652.7
24.0						80	17			

Station information and sounding indices

```
                            Station number: 3808
                          Observation time: 070705/0000
                          Station latitude: 50.22
                         Station longitude: -5.32
                         Station elevation: 88.0
                           Showalter index: 8.64
                              Lifted index: 8.22
   LIFT computed using virtual temperature: 8.18
                               SWEAT index: 174.41
                                   K index: 11.30
                        Cross totals index: 18.90
                   Vertical totals index: 19.10
                     Totals totals index: 38.00
     Convective Available Potential Energy: 14.21
            CAPE using virtual temperature: 15.51
                      Convective Inhibition: 0.00
            CINS using virtual temperature: 0.00
                         Equilibrum Level: 844.14
Equilibrum Level using virtual temperature: 842.90
                 Level of Free Convection: 953.06
            LFCT using virtual temperature: 954.64
                    Bulk Richardson Number: 0.64
         Bulk Richardson Number using CAPV: 0.70
  Temp [K] of the Lifted Condensation Level: 282.93
Pres [hPa] of the Lifted Condensation Level: 956.04
     Mean mixed layer potential temperature: 286.60
              Mean mixed layer mixing ratio: 8.01
              1000 hPa to 500 hPa thickness: 5527.00
Precipitable water [mm] for entire sounding: 19.63
```

03808 Camborne Observations at 12Z 05 Jul 2007

PRES hPa	HGHT m	TEMP C	DWPT C	RELH %	MIXR g/kg	DRCT deg	SKNT knot	THTA K	THTE K	THTV K
1002.0	88	13.6	13.4	99	9.73	180	15	286.6	313.8	288.3
1001.0	99	13.4	13.3	99	9.67	180	16	286.5	313.5	288.1
1000.0	109	13.2	13.0	99	9.49	180	17	286.4	312.9	288.0
998.0	126	13.0	13.0	100	9.51	180	19	286.3	312.9	287.9
994.0	160	12.8	12.8	100	9.43	180	24	286.5	312.8	288.1
989.0	202	12.6	12.6	100	9.34	175	25	286.6	312.8	288.2
985.0	236	12.4	12.4	100	9.26	180	27	286.8	312.7	288.4
972.0	347	12.0	12.0	100	9.14	195	32	287.5	313.2	289.1
963.0	425	11.7	11.7	100	9.05	195	35	287.9	313.5	289.5
952.0	521	11.4	11.4	100	8.95	205	36	288.6	313.8	290.1
943.0	601	11.1	11.1	100	8.86	205	36	289.0	314.1	290.6
928.0	735	10.6	10.6	100	8.72	213	35	289.9	314.7	291.4
925.0	762	10.6	10.6	100	8.75	215	35	290.1	315.1	291.7
923.0	780	10.6	10.6	100	8.74	220	35	290.3	315.2	291.8
900.0	991	10.2	10.1	99	8.69	238	36	292.0	317.0	293.5
886.0	1122	10.8	10.8	100	9.26	248	37	293.9	320.7	295.6
866.0	1313	10.4	10.0	97	8.98	264	38	295.4	321.6	297.1
865.0	1323	10.4	10.1	97	9.02	265	38	295.6	321.9	297.2
859.0	1381	10.7	10.4	98	9.29	270	43	296.4	323.5	298.1
855.0	1420	10.8	10.6	99	9.47	268	45	296.9	324.6	298.6
852.0	1449	11.4	11.3	99	9.96	266	46	297.9	327.1	299.7
850.0	1469	11.4	11.1	98	9.85	265	47	298.1	327.0	299.8
842.0	1548	11.2	10.1	93	9.30	266	46	298.7	326.1	300.3
810.0	1871	9.2	7.1	87	7.87	269	44	299.9	323.3	301.3
804.0	1933	8.8	6.9	88	7.81	270	43	300.1	323.4	301.5
773.0	2258	6.6	5.7	94	7.48	267	46	301.1	323.6	302.5
744.0	2571	5.0	4.3	95	7.03	265	48	302.6	323.9	303.9
727.0	2760	4.0	3.4	96	6.76	270	45	303.6	324.2	304.8
713.0	2918	3.0	1.4	89	5.99	275	43	304.2	322.6	305.3
710.0	2952	2.8	1.0	88	5.83	275	43	304.3	322.2	305.4
700.0	3067	2.0	0.7	91	5.78	275	42	304.7	322.5	305.7
676.0	3348	0.2	-1.0	92	5.29	273	42	305.7	322.1	306.7
648.0	3686	-1.3	-3.5	85	4.59	270	41	307.8	322.2	308.6
640.0	3785	-1.7	-4.2	83	4.40	271	41	308.4	322.3	309.2
607.0	4205	-3.9	-9.9	63	2.98	277	42	310.5	320.2	311.1
601.0	4284	-3.9	-18.9	30	1.44	278	43	311.4	316.3	311.7
594.0	4376	-4.3	-19.3	30	1.41	280	43	312.0	316.8	312.3
593.0	4389	-4.4	-19.3	30	1.40	280	43	312.0	316.8	312.3
582.0	4535	-5.8	-19.6	33	1.39	270	45	312.0	316.8	312.3
565.0	4767	-8.1	-20.1	37	1.38	280	50	312.0	316.7	312.3
557.0	4878	-8.7	-13.2	70	2.50	280	46	312.6	320.9	313.1
551.0	4962	-8.3	-11.2	80	2.97	280	43	314.0	323.8	314.6
537.0	5161	-9.3	-12.2	79	2.80	280	35	315.1	324.4	315.7
529.0	5277	-9.9	-12.8	79	2.70	275	32	315.8	324.8	316.3
518.0	5439	-10.7	-13.7	79	2.58	277	37	316.7	325.4	317.2
511.0	5543	-11.7	-14.3	81	2.49	278	41	316.7	325.1	317.2
500.0	5710	-12.3	-15.8	75	2.24	280	46	318.0	325.6	318.4
495.0	5787	-12.7	-16.4	74	2.16	280	50	318.4	325.8	318.9
479.0	6037	-13.9	-18.3	69	1.90	280	55	319.9	326.5	320.3
455.0	6423	-16.9	-20.7	72	1.63	280	62	320.9	326.6	321.2
426.0	6917	-20.7	-23.7	77	1.33	285	52	322.1	326.9	322.4
424.0	6951	-20.9	-23.9	77	1.31	285	51	322.3	327.0	322.6
400.0	7380	-23.5	-26.8	74	1.07	290	61	324.4	328.3	324.6
397.0	7435	-23.8	-27.2	74	1.04	290	60	324.6	328.4	324.8
389.0	7583	-24.8	-28.3	72	0.96	280	64	325.3	328.8	325.5
376.0	7831	-26.3	-30.1	70	0.84	285	71	326.4	329.6	326.6
375.0	7850	-26.5	-30.2	71	0.83	285	72	326.5	329.6	326.6
358.0	8185	-29.3	-31.7	80	0.76	287	72	327.0	329.9	327.2
340.0	8553	-31.3	-36.3	61	0.51	290	73	329.2	331.1	329.3
339.0	8573	-31.4	-36.4	61	0.50	290	73	329.2	331.2	329.3
316.0	9069	-34.9	-39.9	60	0.38	290	82	331.1	332.6	331.2

304.0	9338	-36.9	-40.3	71	0.38	290	87	332.0	333.5	332.1
300.0	9430	-37.3	-41.9	62	0.32	290	89	332.7	334.0	332.8
294.0	9569	-38.4	-43.8	57	0.27	295	91	333.1	334.2	333.1
290.0	9663	-39.1	-45.1	53	0.24	293	91	333.4	334.3	333.4
284.0	9803	-40.3	-46.3	53	0.21	290	92	333.7	334.6	333.7
261.0	10371	-44.9	-50.9	51	0.14	290	97	335.0	335.6	335.0
256.0	10501	-46.0	-52.0	51	0.12	285	98	335.3	335.8	335.3
251.0	10633	-47.1	-53.1	50	0.11	285	106	335.6	336.0	335.6
250.0	10660	-47.3	-53.3	50	0.11	285	106	335.6	336.1	335.6
249.0	10686	-47.3	-53.3	50	0.11	285	106	336.0	336.5	336.0
235.0	11060	-50.8	-57.1	47	0.07	290	106	336.3	336.6	336.3
231.0	11171	-51.8	-58.3	46	0.06	285	107	336.4	336.7	336.4
228.0	11255	-52.6	-59.2	45	0.06	285	111	336.5	336.7	336.5
213.0	11695	-56.7	-63.7	41	0.03	285	104	336.7	336.9	336.7
209.0	11814	-57.5	-63.9	44	0.03	285	102	337.3	337.5	337.3
202.0	12028	-58.9	-64.2	50	0.03	290	99	338.4	338.5	338.4
200.0	12090	-59.3	-64.3	52	0.03	290	97	338.7	338.9	338.7
195.0	12250	-58.1	-66.9	31	0.02	290	89	343.1	343.2	343.1
191.0	12381	-57.1	-69.1	20	0.02	286	93	346.7	346.8	346.7
190.0	12415	-57.0	-69.5	19	0.02	285	94	347.3	347.4	347.3
184.0	12619	-56.8	-71.6	14	0.01	290	103	351.0	351.1	351.0
180.0	12759	-56.5	-73.1	11	0.01	295	100	353.5	353.6	353.5
179.0	12794	-56.5	-73.5	10	0.01	296	96	354.2	354.2	354.2
175.0	12939	-54.4	-74.6	7	0.01	300	80	359.9	359.9	359.9
174.0	12976	-53.9	-74.9	6	0.01	300	79	361.4	361.4	361.4
170.0	13127	-53.0	-77.2	4	0.01	300	77	365.3	365.3	365.3
163.0	13400	-51.3	-81.3	2	0.00	307	59	372.5	372.5	372.5
160.0	13520	-51.7	-82.4	1	0.00	310	51	373.8	373.8	373.8
154.0	13769	-52.5	-84.6	1	0.00	295	43	376.5	376.5	376.5
150.0	13940	-53.1	-86.1	1	0.00	295	47	378.4	378.4	378.4
144.0	14202	-53.5	-85.5	1	0.00	295	50	382.1	382.1	382.1
138.0	14474	-53.6	-85.8	1	0.00	295	53	386.6	386.6	386.6
135.0	14615	-53.7	-86.0	1	0.00	300	58	388.9	388.9	388.9
131.0	14808	-53.8	-86.3	1	0.00	300	51	392.1	392.1	392.1
127.0	15006	-53.9	-86.5	1	0.00	295	46	395.4	395.4	395.4
125.0	15108	-53.9	-86.6	1	0.00	290	47	397.1	397.1	397.1
121.0	15316	-54.0	-86.9	1	0.00	310	45	400.6	400.6	400.6
119.0	15423	-54.1	-87.0	1	0.00	315	41	402.5	402.5	402.5
118.0	15477	-54.1	-87.1	1	0.00	311	39	403.4	403.4	403.4
115.0	15641	-54.7	-87.3	1	0.00	300	33	405.3	405.3	405.3
113.0	15752	-55.1	-87.4	1	0.00	295	35	406.6	406.6	406.6
111.0	15866	-55.5	-87.5	1	0.00	296	36	407.9	407.9	407.9
106.0	16159	-55.2	-87.2	1	0.00	300	39	413.8	413.8	413.8
100.0	16530	-54.9	-86.9	1	0.00	310	31	421.4	421.4	421.4
85.0	17567	-56.9	-88.9	1	0.00	320	22	437.4	437.5	437.4
83.3	17696	-57.1	-89.1	1	0.00	319	21	439.5	439.5	439.5
77.0	18199	-55.4	-87.9	1	0.00	315	17	453.0	453.0	453.0
70.5	18764	-53.5	-86.5	1	0.00	329	9	468.6	468.6	468.6
70.0	18810	-53.5	-86.5	1	0.00	330	8	469.6	469.6	469.6
66.0	19186	-55.2	-87.4	1	0.00	5	3	473.8	473.8	473.8
65.4	19244	-55.5	-87.5	1	0.00	344	4	474.4	474.4	474.4
64.0	19382	-54.3	-86.8	1	0.00	295	7	479.9	480.0	479.9
62.1	19575	-52.7	-85.7	1	0.00	322	6	487.7	487.7	487.7
56.0	20240	-52.7	-85.7	1	0.00	55	3	502.3	502.3	502.3
53.1	20583	-52.7	-85.7	1	0.00	171	10	510.0	510.0	510.0
53.0	20595	-52.7	-85.7	1	0.00	175	10	510.3	510.3	510.3
51.0	20842	-52.4	-85.4	1	0.01	300	7	516.5	516.6	516.5
50.0	20970	-52.3	-85.3	1	0.01	340	4	519.8	519.8	519.8
49.0	21101	-52.1	-85.2	1	0.01	65	2	523.2	523.3	523.2
41.0	22260	-50.4	-84.3	1	0.01	95	6	554.9	554.9	554.9
39.8	22453	-50.1	-84.1	1	0.01	94	7	560.3	560.4	560.3
36.5	23021	-48.3	-82.3	1	0.01	91	10	579.0	579.1	579.0
36.0	23111	-48.7	-82.7	1	0.01	90	11	580.4	580.5	580.4
35.0	23296	-49.4	-83.4	1	0.01	110	8	583.1	583.2	583.2
34.3	23429	-49.9	-83.9	1	0.01	89	8	585.2	585.3	585.2
33.0	23682	-48.7	-82.7	1	0.01	50	8	594.7	594.9	594.7
32.3	23823	-48.1	-82.1	1	0.01	71	17	600.1	600.2	600.1
32.0	23885	-48.1	-82.1	1	0.01	80	21	601.7	601.8	601.7
30.0	24310	-48.1	-82.1	1	0.02	100	13	612.9	613.0	612.9

29.0	24534	-48.1	-82.1	1	0.02	85	11	618.9	619.0	618.9
27.0	25006	-48.1	-82.1	1	0.02	65	12	631.6	631.8	631.6
26.0	25255	-48.1	-82.1	1	0.02	70	23	638.5	638.6	638.5
25.0	25514	-48.1	-82.1	1	0.02	110	15	645.7	645.9	645.7
24.0	25785	-46.7	-81.2	1	0.02	115	9	657.4	657.6	657.4
23.2	26011	-45.5	-80.5	1	0.03	79	10	667.2	667.5	667.2
23.0	26068	-45.6	-80.6	1	0.03	70	10	668.7	668.9	668.7
21.0	26675	-46.3	-81.3	1	0.03	80	21	684.1	684.3	684.1
20.5	26836	-46.5	-81.5	1	0.03	80	21	688.2	688.5	688.2
20.0	27000	-46.1	-81.1	1	0.03	80	21	694.3	694.6	694.3
19.0	27343	-45.4	-80.6	1	0.03	95	16	706.8	707.1	706.8
17.0	28087	-43.8	-79.5	1	0.04	80	17	734.6	735.1	734.6
15.7	28619	-42.7	-78.7	1	0.05	86	27	755.1	755.7	755.2
15.0	28929	-42.2	-78.4	1	0.06	90	32	766.7	767.3	766.7
13.0	29899	-40.7	-77.4	1	0.08	90	22	804.0	804.9	804.0
12.1	30386	-39.9	-76.9	1	0.09	99	26	823.4	824.5	823.4
12.0	30443	-39.7	-76.8	1	0.09	100	26	826.1	827.2	826.1
10.0	31700	-34.9	-73.9	1	0.17	80	15	888.1	890.3	888.2
9.6	31985	-34.1	-73.1	1	0.20	80	20	901.5	904.2	901.6
9.0	32439	-32.4	-72.0	1	0.25	80	29	924.9	928.2	925.0
8.7	32678	-31.5	-71.5	1	0.28			937.3	941.1	937.5
8.0	33272	-31.3	-71.3	1	0.32			960.9	965.2	961.0

Station information and sounding indices

```
                            Station number: 3808
                          Observation time: 070705/1200
                          Station latitude: 50.22
                         Station longitude: -5.32
                         Station elevation: 88.0
                           Showalter index: 0.49
                              Lifted index: 8.07
   LIFT computed using virtual temperature: 8.19
                                SWEAT index: 273.22
                                    K index: 33.50
                        Cross totals index: 23.40
                    Vertical totals index: 23.70
                      Totals totals index: 47.10
     Convective Available Potential Energy: 0.00
            CAPE using virtual temperature: 0.00
                     Convective Inhibition: 0.00
            CINS using virtual temperature: 0.00
                          Equilibrum Level: 969.83
Equilibrum Level using virtual temperature: 969.84
                 Level of Free Convection: 973.09
            LFCT using virtual temperature: 973.09
                   Bulk Richardson Number: 0.00
         Bulk Richardson Number using CAPV: 0.00
  Temp [K] of the Lifted Condensation Level: 285.22
Pres [hPa] of the Lifted Condensation Level: 973.09
     Mean mixed layer potential temperature: 287.47
              Mean mixed layer mixing ratio: 9.18
              1000 hPa to 500 hPa thickness: 5601.00
Precipitable water [mm] for entire sounding: 34.70
```

03808 Camborne Observations at 00Z 06 Jul 2007

PRES hPa	HGHT m	TEMP C	DWPT C	RELH %	MIXR g/kg	DRCT deg	SKNT knot	THTA K	THTE K	THTV K
1003.0	88	13.4	10.0	80	7.74	280	16	286.3	308.1	287.6
1001.0	103	13.6	10.3	80	7.91	279	17	286.7	309.0	288.0
1000.0	111	13.4	10.1	80	7.81	279	18	286.6	308.6	287.9
988.0	212	12.7	9.6	82	7.64	275	26	286.8	308.4	288.1
965.0	410	11.2	8.6	84	7.31	281	33	287.3	308.0	288.5
948.0	557	9.7	7.8	88	7.06	285	38	287.2	307.2	288.4
932.0	699	8.2	7.1	93	6.83	285	37	287.1	306.4	288.2
925.0	761	7.8	7.0	95	6.84	285	37	287.3	306.7	288.5
916.0	842	7.0	6.5	96	6.65	285	39	287.3	306.2	288.4
897.0	1014	5.4	5.3	99	6.26	293	36	287.3	305.2	288.4
891.0	1069	5.5	4.7	94	6.04	295	35	288.0	305.3	289.1
887.0	1106	5.6	4.3	91	5.90	296	36	288.5	305.4	289.5
875.0	1218	5.0	2.9	86	5.42	300	40	289.0	304.6	289.9
872.0	1246	5.6	2.8	82	5.40	299	40	289.9	305.5	290.8
862.0	1340	5.2	1.5	77	4.97	295	42	290.4	304.9	291.3
852.0	1436	5.2	-0.8	65	4.25	291	43	291.4	304.0	292.1
850.0	1455	5.6	-1.4	61	4.08	290	43	292.0	304.1	292.7
838.0	1572	6.3	-5.3	43	3.08	285	45	293.9	303.3	294.5
827.0	1680	7.0	-9.0	31	2.35	288	46	295.8	303.1	296.2
820.0	1750	6.9	-10.2	28	2.16	290	47	296.4	303.1	296.8
814.0	1810	6.8	-11.2	26	2.01	286	49	296.9	303.2	297.3
810.0	1850	7.4	-17.6	15	1.19	283	51	298.0	301.9	298.2
806.0	1891	7.2	-17.5	15	1.21	280	52	298.2	302.2	298.4
794.0	2014	6.8	-17.2	16	1.26	280	50	299.0	303.1	299.2
774.0	2224	7.0	-31.0	5	0.37	280	48	301.4	302.8	301.5
768.0	2287	6.7	-30.6	5	0.39	280	47	301.8	303.2	301.9
756.0	2416	6.2	-29.8	5	0.43	279	48	302.6	304.1	302.7
727.0	2735	3.9	-32.1	5	0.36	275	50	303.5	304.8	303.5
716.0	2859	3.0	-33.0	5	0.33	273	50	303.8	305.0	303.9
700.0	3041	2.0	-36.0	4	0.25	270	50	304.7	305.6	304.7
697.0	3076	2.0	-36.0	4	0.26	270	50	305.0	306.0	305.1
688.0	3180	1.2	-37.1	4	0.23	270	51	305.4	306.2	305.4
670.0	3392	-0.3	-39.4	3	0.19	275	50	306.0	306.7	306.0
649.0	3647	-2.1	-42.1	3	0.15	274	55	306.7	307.2	306.7
600.0	4267	-4.5	-44.5	3	0.12	270	67	310.8	311.3	310.9
593.0	4359	-4.9	-44.9	3	0.12	270	66	311.4	311.9	311.5
584.0	4479	-5.6	-45.9	3	0.11	270	64	312.0	312.4	312.0
562.0	4779	-7.3	-48.3	2	0.09	270	65	313.4	313.8	313.4
544.0	5032	-9.3	-47.0	3	0.10	270	66	314.0	314.4	314.1
540.0	5089	-9.7	-46.7	3	0.11	267	65	314.2	314.6	314.2
538.0	5118	-9.8	-46.9	3	0.10	265	65	314.3	314.8	314.4
517.0	5424	-11.3	-49.3	3	0.08	268	72	316.2	316.5	316.2
510.0	5528	-11.3	-39.3	8	0.25	269	74	317.4	318.4	317.4
500.0	5680	-12.5	-31.5	19	0.55	270	77	317.7	319.8	317.8
481.0	5974	-14.2	-28.0	30	0.80	270	84	319.2	322.1	319.4
464.0	6246	-15.7	-24.7	46	1.12	268	87	320.6	324.6	320.8
456.0	6377	-15.9	-30.9	26	0.64	267	88	321.9	324.3	322.1
450.0	6477	-16.3	-27.3	38	0.91	266	89	322.7	326.0	322.9
443.0	6593	-17.2	-27.6	40	0.90	265	90	322.9	326.2	323.1
429.0	6832	-19.2	-28.1	45	0.89	265	85	323.4	326.7	323.6
410.0	7169	-21.9	-28.9	53	0.86	274	91	324.1	327.3	324.3
409.0	7187	-22.0	-28.7	55	0.88	275	91	324.2	327.4	324.4
400.0	7350	-23.1	-26.8	72	1.07	270	94	324.9	328.8	325.1
399.0	7368	-23.3	-26.8	73	1.08	270	94	324.9	328.8	325.1
385.0	7628	-25.1	-27.9	77	1.00	270	95	325.9	329.6	326.1
372.0	7878	-26.8	-29.0	81	0.94	270	103	326.8	330.3	327.0
371.0	7897	-26.9	-29.1	82	0.93	271	103	326.9	330.4	327.1
363.0	8053	-28.4	-30.0	86	0.88	275	100	326.9	330.2	327.1
349.0	8335	-31.1	-31.7	94	0.78	275	102	327.0	329.9	327.1
345.0	8416	-31.3	-31.7	96	0.79	275	102	327.8	330.7	327.9
339.0	8541	-31.5	-35.1	70	0.57	275	103	329.2	331.4	329.3

331.0	8710	-31.7	-39.7	45	0.37	275	106	331.1	332.6	331.2
320.0	8949	-32.5	-46.5	23	0.18	275	110	333.2	334.0	333.3
313.0	9104	-33.7	-48.7	21	0.15	275	113	333.7	334.3	333.7
300.0	9400	-36.3	-50.3	22	0.13	270	111	334.1	334.6	334.1
297.0	9470	-36.9	-50.7	23	0.12	270	108	334.2	334.7	334.2
286.0	9731	-39.1	-52.1	24	0.11	268	111	334.7	335.1	334.7
273.0	10047	-41.9	-53.5	27	0.10	265	115	335.1	335.5	335.1
265.0	10249	-43.7	-54.3	30	0.09	270	108	335.3	335.7	335.3
260.0	10378	-44.9	-54.9	32	0.09	268	107	335.4	335.8	335.4
250.0	10640	-47.3	-55.3	39	0.08	265	105	335.6	336.0	335.6
249.0	10666	-47.5	-55.3	40	0.08	265	106	335.6	336.0	335.7
236.0	11015	-50.6	-55.9	54	0.08	270	105	336.1	336.5	336.1
231.0	11155	-51.9	-56.1	60	0.08	274	97	336.3	336.6	336.3
229.0	11211	-51.7	-56.8	54	0.08	275	94	337.4	337.8	337.4
223.0	11382	-51.1	-59.1	38	0.06	270	96	340.9	341.2	340.9
207.0	11860	-53.8	-63.9	28	0.03	265	105	344.0	344.1	344.0
200.0	12080	-55.1	-66.1	24	0.03	270	112	345.4	345.5	345.4
193.0	12307	-56.5	-68.5	21	0.02	270	114	346.6	346.7	346.6
192.0	12341	-56.0	-68.8	19	0.02	275	115	348.0	348.1	348.0
184.0	12615	-51.7	-71.2	8	0.01	280	92	359.1	359.2	359.1
181.0	12721	-50.1	-72.1	6	0.01	282	82	363.5	363.6	363.5
178.0	12831	-50.0	-74.1	4	0.01	285	71	365.4	365.5	365.4
171.0	13093	-49.7	-79.0	2	0.00	275	60	370.0	370.1	370.0
170.0	13132	-49.7	-79.7	2	0.00	274	61	370.7	370.8	370.7
163.0	13407	-50.2	-81.0	1	0.00	265	67	374.4	374.4	374.4
159.0	13569	-50.5	-81.7	1	0.00	270	71	376.6	376.6	376.6
153.0	13821	-50.9	-82.9	1	0.00	275	69	380.0	380.0	380.0
150.0	13950	-50.1	-84.1	1	0.00	275	59	383.5	383.6	383.5
148.0	14038	-49.4	-83.4	1	0.00	275	54	386.2	386.2	386.2
147.0	14082	-49.1	-83.1	1	0.00	275	55	387.5	387.5	387.5
142.0	14308	-50.6	-84.6	1	0.00	275	60	388.7	388.7	388.7
141.0	14354	-50.9	-84.9	1	0.00	277	59	389.0	389.0	389.0
136.0	14588	-51.4	-85.2	1	0.00	285	52	392.1	392.1	392.1
125.0	15134	-52.5	-85.8	1	0.00	285	35	399.6	399.6	399.6
123.0	15238	-52.8	-85.9	1	0.00	275	31	401.1	401.1	401.1
120.0	15398	-53.1	-86.1	1	0.00	268	33	403.3	403.3	403.3
119.0	15451	-53.3	-86.2	1	0.00	265	34	403.9	403.9	403.9
113.0	15781	-54.6	-87.2	1	0.00	270	42	407.5	407.5	407.5
106.0	16189	-56.1	-88.4	1	0.00	290	31	412.0	412.1	412.0
103.0	16373	-56.9	-88.9	1	0.00	275	33	414.1	414.1	414.1
102.0	16435	-57.1	-89.1	1	0.00	275	34	414.8	414.8	414.8
100.0	16560	-56.9	-88.9	1	0.00	280	36	417.5	417.5	417.5
96.0	16819	-56.7	-88.7	1	0.00	280	36	422.8	422.8	422.8
91.7	17111	-56.5	-88.5	1	0.00	277	29	428.8	428.8	428.8
89.0	17302	-55.0	-87.5	1	0.00	275	25	435.4	435.4	435.4
86.7	17469	-53.7	-86.7	1	0.00	289	21	441.3	441.3	441.3
85.0	17596	-54.4	-87.1	1	0.00	300	18	442.5	442.5	442.5
80.0	17981	-56.5	-88.4	1	0.00	305	9	445.9	445.9	445.9
74.5	18435	-58.9	-89.9	1	0.00	293	14	449.9	450.0	449.9
73.4	18529	-56.7	-88.7	1	0.00	291	15	456.5	456.5	456.5
73.0	18564	-56.8	-88.8	1	0.00	290	15	457.0	457.0	457.0
71.7	18678	-57.1	-89.1	1	0.00	292	15	458.7	458.7	458.7
70.0	18830	-56.7	-88.7	1	0.00	295	16	462.7	462.8	462.7
67.7	19044	-53.7	-86.7	1	0.00	333	14	473.6	473.7	473.6
67.0	19110	-54.0	-86.8	1	0.00	345	14	474.4	474.4	474.4
66.0	19206	-54.5	-87.0	1	0.00	0	10	475.5	475.5	475.5
63.7	19434	-55.5	-87.5	1	0.00	340	5	478.0	478.0	478.0
62.0	19607	-54.8	-87.1	1	0.00	325	1	483.2	483.3	483.2
59.0	19925	-53.6	-86.4	1	0.00	315	6	492.9	493.0	492.9
58.4	19991	-53.3	-86.3	1	0.00	351	4	495.0	495.0	495.0
58.0	20035	-53.5	-86.5	1	0.00	15	3	495.4	495.4	495.4
56.5	20204	-54.5	-87.5	1	0.00	38	4	496.9	497.0	496.9
53.0	20615	-53.7	-86.7	1	0.00	95	7	508.0	508.1	508.1
51.0	20863	-53.2	-86.2	1	0.00	280	3	514.8	514.9	514.8
50.0	20990	-52.9	-85.9	1	0.00	300	3	518.4	518.4	518.4
49.0	21120	-52.6	-85.6	1	0.01	70	4	522.1	522.1	522.1
48.7	21160	-52.5	-85.5	1	0.01	64	4	523.2	523.3	523.2
46.2	21500	-52.9	-85.9	1	0.01	9	2	530.2	530.2	530.2
46.0	21529	-52.8	-85.8	1	0.01	5	2	531.1	531.1	531.1

45.0	21671	-52.3	-85.5	1	0.01	55	10	535.6	535.6	535.6
44.0	21817	-51.9	-85.2	1	0.01	90	10	540.2	540.2	540.2
43.0	21966	-51.4	-84.9	1	0.01	70	5	545.0	545.0	545.0
42.0	22119	-50.9	-84.6	1	0.01	40	10	549.9	549.9	549.9
40.5	22355	-50.1	-84.1	1	0.01	44	14	557.5	557.6	557.5
40.0	22436	-50.4	-84.3	1	0.01	45	16	558.7	558.8	558.7
38.0	22770	-51.8	-84.9	1	0.01	105	15	563.6	563.6	563.6
37.5	22856	-52.1	-85.1	1	0.01	107	15	564.8	564.9	564.8
35.0	23305	-50.9	-84.3	1	0.01	120	14	579.3	579.4	579.3
34.0	23494	-50.4	-84.0	1	0.01	140	10	585.4	585.5	585.4
33.0	23688	-49.8	-83.7	1	0.01	0	0	591.9	592.0	591.9
32.4	23808	-49.5	-83.5	1	0.01	13	3	595.8	595.9	595.8
31.0	24096	-50.6	-84.6	1	0.01	45	10	600.4	600.5	600.4
30.4	24224	-51.1	-85.1	1	0.01	69	14	602.4	602.5	602.5
30.0	24310	-50.9	-84.9	1	0.01	85	16	605.3	605.4	605.3
29.0	24531	-49.6	-83.6	1	0.01	75	20	614.8	614.9	614.8
28.8	24577	-49.3	-83.3	1	0.01			616.8	616.9	616.8
27.0	24999	-49.5	-83.5	1	0.01			627.7	627.8	627.7

Station information and sounding indices

```
                              Station number: 3808
                            Observation time: 070706/0000
                            Station latitude: 50.22
                           Station longitude: -5.32
                           Station elevation: 88.0
                             Showalter index: 13.67
                                Lifted index: 11.14
   LIFT computed using virtual temperature: 11.05
                                 SWEAT index: 163.01
                                     K index: -21.30
                         Cross totals index: 11.10
                       Vertical totals index: 18.10
                         Totals totals index: 29.20
     Convective Available Potential Energy: 9.48
            CAPE using virtual temperature: 11.65
                      Convective Inhibition: -0.34
            CINS using virtual temperature: -0.10
                          Equilibrum Level: 873.37
 Equilibrum Level using virtual temperature: 872.72
                   Level of Free Convection: 932.58
            LFCT using virtual temperature: 934.66
                     Bulk Richardson Number: 0.16
          Bulk Richardson Number using CAPV: 0.19
  Temp [K] of the Lifted Condensation Level: 281.52
Pres [hPa] of the Lifted Condensation Level: 934.95
     Mean mixed layer potential temperature: 286.99
              Mean mixed layer mixing ratio: 7.44
              1000 hPa to 500 hPa thickness: 5569.00
Precipitable water [mm] for entire sounding: 13.92
```

3 Plot the profiles of temperature T, dewpoint temperature T_D and relative humidity RH for each of theses dates. (T and T_D in one plot, RH in a separate one) Use a suitable altitude coordinate!

4 How are T and T_D related to each other? Consider RH for your argumentation

The dew point temperature (T_D) is the temperature of which the air must be cooled to to become saturated with water vapour. This is dependent on the current temperature and the relative humidity (RH). When the temperature increases, it can hold more water vapour and thus the dew point temperature increases for the same relative humidity (RH). When the relative humidity increases, under the same temperature, then the dew point temperature goes up as well. The correlation between these parameters can be seen in figure 2.

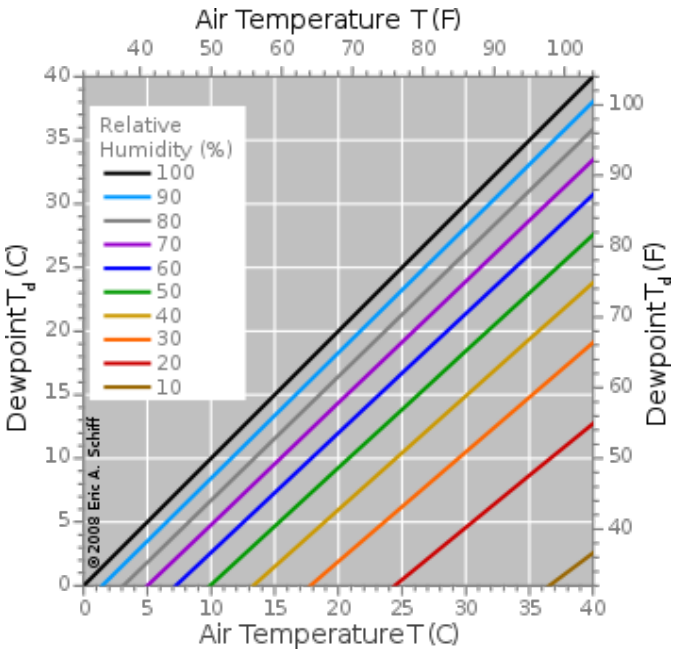

Figure 2: Air temperature, dewpoint and relative humidity relation [1].

When cooled below the dew point temperature, the airborne water vapor will condense to form liquid water (dew). When air cools to its dew point through contact with a surface that is colder than the air, water will condense on the surface.

The dew point temperature can be calculated using equation 1 [1].

$$T_D = \frac{c\gamma(T, RH)}{b - \gamma(T, RH)} \tag{1}$$

With $\gamma(T, RH)$ being given by equation 2 [1].

$$\gamma(T, RH) = ln\left(\frac{RH}{100}\right) + \frac{bT}{c + T} \tag{2}$$

The constants b and c are different, dependent on which model is being used. In the NOAA (National Oceanic and Atmospheric Administration) model are: $b = 18.678$ and $c = 257.14\,^{\circ}\mathrm{C}$ [1].

When the relative humidity is above 50%, equation 3 can be used. This approach is accurate to within $\pm 1\,^{\circ}\mathrm{C}$ [1].

$$T_D \approx T - \frac{100 - RH}{5} \tag{3}$$

5 At which altitude for these data is the tropopause height located? What method do you use to determine the tropopause?

The definition of the position of the tropopause, given by the World Meteorological organization, is [2]:
The boundary between the troposphere and the stratosphere, where an abrupt change in lapse rate usually occurs. It is defined as the lowest level at which the lapse rate decreases to 2° C/km or less, provided that the average lapse rate between this level and all higher levels within 2 km does not exceed 2° C/km.

This means that the Tropopause altitude of the given dates are located at:
5 July 2007 00Zulu: m.
5 July 2007 12Zulu: m.
6 July 2007 00Zulu: m.

6 Describe the some crucial differences between the tropospheric parts of the above plotted profiles. What did probably happen during that date?

7 Plot the data for 2007-07-05, 12:00 UTC as Stuve diagram. What does the Stuve diagram show? What do the different "help lines" mean. What is this type of diagram used for? Use internet resources to find out

References

[1] Wikipedia, "Dew point temperature," 2 2019. https://en.wikipedia.org/wiki/Dew_point.

[2] Geneva: Secretariat of the World Meteorological Organization, ed., *International Meteorological Vocabulary*. 2 1992. ISBN 92-63-02182-1.