Twin Otter Airplane Flight Level data provided by the University of Virginia measured over Granite Mountain

FLIGHT-TODWL

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1.0 Data Set Overview

1.1 Time period covered by the data

10/06/2012

10/07/2012

10/09/2012

10/10/2012

10/14/2012

10/17/2012

1.2 Physical location (latitude, longitude, elevation)

See 3rd column of the data files., 0, 0

1.3 Instrument type

Flight level data

1.4 Data provider

Simpson Weather Associates and University of Virginia

1.5 Web address references

http://www3.nd.edu/~dynamics/materhorn/

https://www.eol.ucar.edu/field_projects/materhorn-x

http://www.cirpas.org/instrumentList.html

http://www.swa.com/services/atmospheric-remote-sensing/airborne-and-ground-based-field-campaigns

2.0 Instrument Description

Twin Otter airplane used for inflight atmospheric measurements which included a profiling Doppler wind LiDAR

2.1 Instrument website

http://www.swa.com/services/atmospheric-remote-sensing/airborne-and-ground-based-field-campaigns

2.2 Table of specifications

Accuracy	Range	Frequency	Resolution
See individual instrument websites	See individual instrument websites	See individual instrument websites	See individual instrument websites

3.0 Data Collection and Processing

3.1 Description of data collection

Seven flight measurements were conducted in October of 2012.

3.2 Description of derived parameters and processing techniques used

Original data files are provided.

3.3 Description of quality assurance and control procedures

This dataset was not subject to any quality control or processing it has been provided in its original form.

3.4 Data intercomparisons

4.0 Data Format

4.1 Data file structure

ASCII csv with header

4.2 File naming convention

dataProvider_instrument-instrumentType_samplingFrequency_startDateAndTime.extension

4.3 Data format

comma delimited ASCII

4.4 Data layout

Each file has a header line, which provides the column headers (measured value and unit) for all subsequent rows of data contained within the file.

4.5 List of parameters with units, sampling intervals, frequency, range

Consult description at http://www.cirpas.org/instrumentList.html and http://www.swa.com/services/atmospheric-remote-sensing/airborne-and-ground-based-field-campaigns.

4.6 Data version number and date

raw, v1.0, October 2016

4.7 Description of flags, codes used in the data, and definitions

4.8 Data sample

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Mission Time (s),HH.hhhhhh (Hours),Lat,Long,NovAtel Alt (m),East Vel (m/s),North Vel (m/s),Up Vel (m/s),Roll (deg),Pitch (deg),Heading (deg),Tamb (C),Tdamb (C),RHamb (%),Ps (mb),Wind Speed (m/s),Wind dir(Deg),Vert. Wind (m/s),Surface temp (C),Palt (m),Rad Alt.(m),TAS (m/s),Theta (K),Thetae,MR-h2o (g/Kg),SPHUM (g/Kg),Rho-dry (Kg/M^3),LWC-Wire (g/m^3),Gerber PSA (cm^2/M^3),Gerber LWC (g/m^3),Gerber Re (um),PCASP-CONC (#/CC),PCASP-Vol (um^3/cc),CASFWD-CONC (#/CC),CASFWD-VOL (CC/M^3),,,CPC1 (#/CC),CPC1 dT (C),UFCPC (#/CC),CIP-CONC (#/CC),CIP-VOL (CC/m^3),BB up (V),BB T up (V),IR up (V),IR T up (V),BB Dn (V),BB T dn (V),IR dn (V),IR T dn (V)
 2317.47,19.535,40.612545,111.991656,1415.220032,-2.711617,21.118952,0.077976,0.616572,-1.955332,352.622804,11.410663,-6.82812,27.018755,-9999,1.973635,351.7,-0.042907,25.51273,1315.550874,0.984634,24.547268,296.653234,304.935969,2.666093,2.659004,-9999,-9999,0.00039,0.000182,-0.00258,293.754621,1.509374,-9999,-9999,-9999,17400,22.7,29400,0,0,0.231878,0.235599,0.234007,0.225536,0.236181,0.235019,0.234221,0.23626
 2318.47,19.535278,40.612746,111.991693,1415.285294,-2.97916,23.422169,0.101241,0.829733,-1.963591,352.589365,11.793712,-6.6786,26.648982,-9999,3.164965,352.2,-0.053383,25.562528,1314.615807,0.936982,28.004902,297.042822,305.42963,2.696882,2.689628,-9999,-9999,0.000542,0.000149,0.02836,276.531398,1.693253,-9999,-9999,-
```

```
9999,-
9999,16900,22.7,28200,0,0,0.229892,0.234104,0.232503,0.223969,0.23347
5,0.232389,0.231637,0.234131
 2319.47,19.535556,40.612967,111.991732,1415.396347,-
3.294703,25.597511,0.055787,0.544501,-1.900744,352.699066,10.804218,-
6.27598,29.362789,-9999,4.155962,352.92,-
0.027585,25.940819,1314.017057,0.920884,31.129712,296.005148,304.6034
49,2.781984,2.774266,-9999,-
9999,0.000501,0.000133,0.01898,267.917302,1.313926,-9999,-9999,-
9999,-
9999,17200,22.7,30200,0,0,0.230132,0.234461,0.233196,0.224899,0.23247
9,0.231082,0.229482,0.231344
```

5.0 Data Remarks

5.1 PI's assessment of the data

5.2 Missing data periods

5.3 Software compatibility

6.0 References

[1] Fernando, H. J. S., E. R. Pardyjak, S. Di Sabatino, F. K. Chow, S. F. J. DeWekker, S. W. Hoch, J. Hacker, J. C. Pace, T. Pratt, Z. Pu, J. W. Steenburgh, C. D. Whiteman, Y. Wang, D. Zajic, B. Balsley, R. Dimitrova, G. D. Emmitt, C. W. Higgins, J. C. R. Hunt, J. G. Knievel, D. Lawrence, Y. Liu, D. F. Nadeau, E. Kit, B. W. Blomquist, P. Conry, R. S. Coppersmith, E. Creegan, M. Felton, A. Grachev, N. Gunawardena, C. Hang, C. M. Hocut, G. Huynh, M. E. Jeglum, D. Jensen, V. Kulandaivelu , M. Lehner, L. S. Leo, D. Liberzon, J. D. Massey, K. McEnerney, S. Pal, T. Price, M. Sghiatti, Z. Silver, M. Thompson, H. Zhang, T. Zsedrovits, 2015: The MATERHORN – Unraveling the Intricacies of Mountain Weather, BAMS, doi: http://dx.doi.org/10.1175/BAMS-D-13-00131.1.

[2] http://www.cirpas.org/instrumentList.html

[3] http://www.swa.com/services/atmospheric-remote-sensing/airborne-and-ground-based-field-campaigns