Atmonsys Lidar Aerosol Backscatter Coefficients

Datatset Authors: Johannes Speidel *(johannes.speidel@kit.edu),* Hannes Vogelmann *(vogelmann@kit.edu)* KIT IMK-IFU Garmisch-Partenkirchen, Germany

Introduction: Data from the vertical staring ATMONSYS lidar aerosol channel @532nm. For data availability see the chart at the end of this document.

Version: 1 *(preliminary during cloudy conditions, please contact us for individual solutions on data during cloudy phases)*

Time of Interest: 2019/08/27 to 2019/09/29 (see plot for detailed information on data availability)

Physical location: WLEF tall tower, Park Falls, WI, (45.9454N ; -90.2731)

Data Frequency: Typically 20s, 30s at the earlier dates

General Instrument Description: Vertical staring elastic backscatter aerosol lidar channel for aerosol backscatter coefficients @532nm. Only operated if personnel present at site. No operation during rain. For data availability see the chart at the end of this document.

Vertical resolution: 7.5m

Temporal resolution: 20s (30s at the earliest dates)

Restrictions in value precision due to unknown lidar ratios in the Klett-Fernald algorithm (Fernald 1984, Klett 1985).

Data collection: Only possible with staff present at the instrument, typically during daytime only

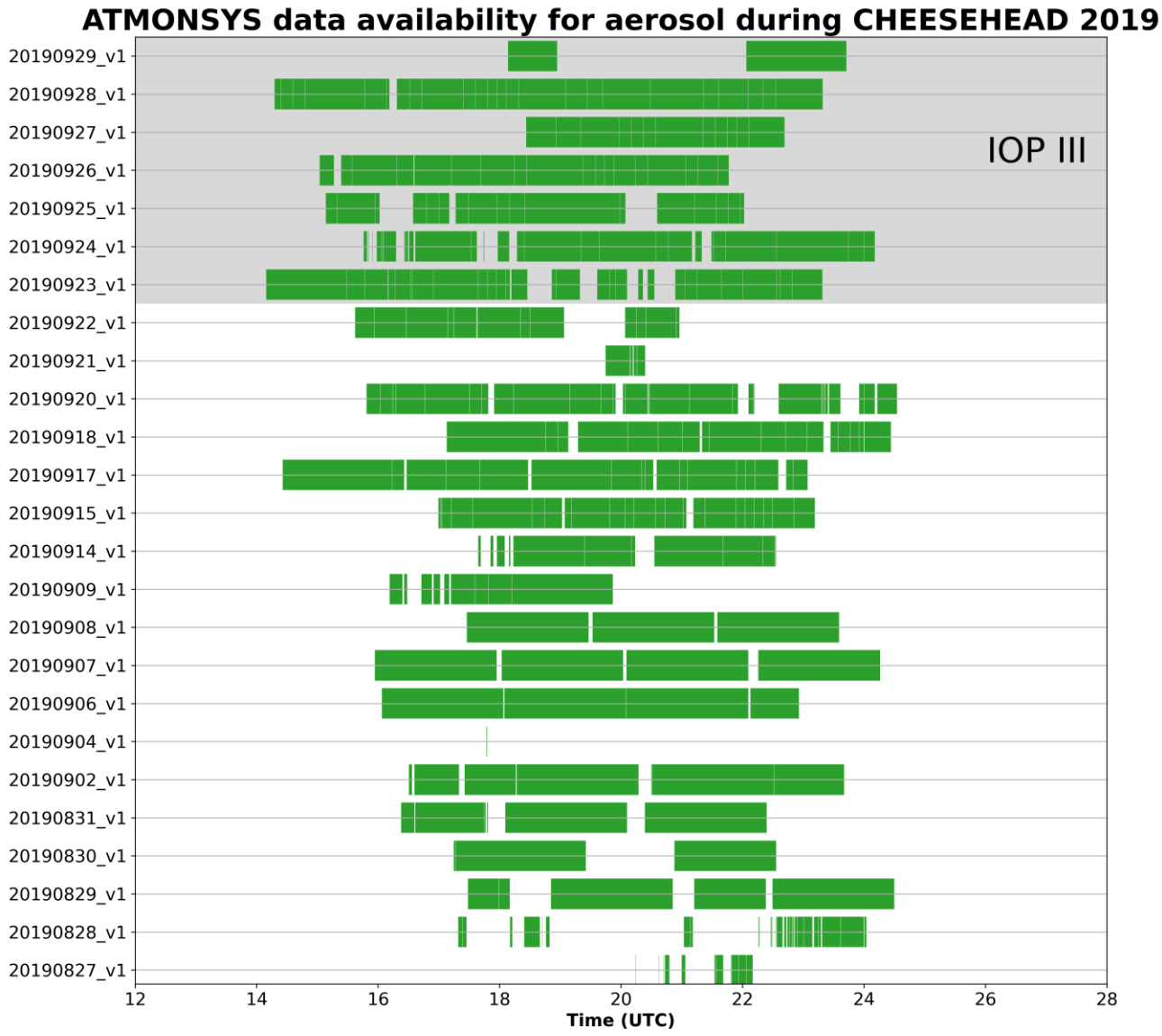
Derived parameters: aerosol backscatter coefficients (Klett-Fernald algorithm) | planetary boundary layer height estimations

File format: NetCDF with variable descriptions

Parameters:

Measurements start time (UTC),
end time (UTC),
rawdata (counts),
data flags (counts),
aerosol backscatter coefficients (1/(m*sr)^-1),
boundary layer height (m)

Flags: Not 0 if transient digitizer registered signal overload (mainly due to clouds)


ATMONSYS data availability for aerosol during CHEESEHEAD 2019
IOP III
20190929_v1
20190928_v1
20190927_v1
20190926_v1
20190925_v1
20190924_v1
20190923_v1
20190922_v1
20190921_v1
20190920_v1
20190918_v1
20190917_v1
20190915_v1
20190914_v1
20190909_v1
20190908_v1
20190907_v1
20190906_v1
20190904_v1
20190902_v1
20190831_v1
20190830_v1
20190829_v1
20190828_v1
20190827_v1
12
14
16
18
20
22
24
26
28
Time (UTC)