

Use of On-Site Variables in AERMET

Applicable to AERMET Version 02081

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Introduction

A more than three dozen variables are available for input of data into AERMET. Some are used directly in the preprocessing of AERMOD meteorological data, while others are not used at all. Those that are not used are placeholders for anticipated uses either in future AERMOD upgrades or in other future models that might use AERMET as their preprocessor.

The information presented here is subject to change in future versions of AERMET, and, in fact, has changed as the result of recent upgrades previous to version 02081.

The on-site variables in AERMET are in two groups:

- single-value and date/time variables, and
- multi-level variables.

Single-value and date/time variables

Variable Name	Description	Is it currently used?
HFLX	Surface heat flux	NO
USTR	Surface friction velocity (u_*)	YES
MHGT	Mixing height	YES
ZOHT	Surface roughness length (hourly)	NO
SAMT	Snow amount	NO
PAMT	Precipitation amount	NO
INSO	Insolation	YES (applicable to daytime only)
NRAD	Net radiation	YES (used for daytime only)

DT01	Temperature difference #1 (upper level minus lower level)	YES (with BULKRN option only)
DT02	Temperature difference #2	NO
DT03	Temperature difference #3	NO
US01	User's scalar #1	NO
US02	User's scalar #2	NO
US03	User's scalar #3	NO
ALTP	Altimeter pressure (setting)	NO
SLVP	Sea level pressure	YES (if PRES is missing)
PRES	Station pressure	YES (if SLVP & PRES are both missing, a default value of 1013.25mb is applied)
CLHT	Ceiling height	NO
TSKC	Sky cover (total/opaque)	YES ("opaque" is used; if "opaque" is missing, "total" is substituted)
OSDY	Day	YES
OSMO	Month	YES
OSYR	Year	YES
OSHR	Hour	YES
OSMN	Minute	YES

Multi-level variables

Variable Name	Description	Is it currently used?
HTnn	Height of level nn	YES
SAnn	Standard deviation of horizontal wind direction at level nn	YES
SEnn	Standard deviation of vertical wind angle at level nn	NO
SVnn	Standard deviation of cross-wind horizontal component of wind speed at level nn	NO
SWnn	Standard deviation of vertical component of wind speed at level nn	YES
SUnn	Standard deviation of along-wind horizontal component of wind speed at level nn	NO
TTnn	Temperature at level nn	YES
WDnn	Wind direction at level nn	YES
WSnn	Wind speed at level nn	YES
VVnn	Vertical wind component at level nn	NO
DPnn	Dew point temperature at level nn	NO
RHnn	Relative humidity at level nn	NO
V1nn	User's vector #1	NO
V2nn	User's vector #2	NO
V3nn	User's vector #3	NO

nn in each of these variable names refers to the level at which the observation was taken. E.g., TT01 is the temperature at the first level, WS02 is the wind speed at the second level, etc.