Model Change Bulletin (MCB) 13
AERMET version 23132 (May 12, 2023), listed by change type

AERMET 23132 represents an update of the AERMET code from version 22112. The changes listed in this document reflect changes made to AERMET since the 22112 version. Listed with each change are the affected AERMET stages and data types (Upper air, National Weather Service (NWS), ONSITE (site-specific observed), or PROG (prognostic data).

Bug Fixes

Item	Modification	Stage	Data Type
1	Correct format statement in subroutine NEW_SOUND to correct issue with soundings out of sequence	1	UPPERAIR
2	Correct a bug in subroutine MECH_HT to use unsmoothed mixing height when u* is missing for the hour.	2	SURFACE/ ONSITE/PROG
3	Add a check for missing wind speed in subroutine AVG_HR to account for negative values used as missing value indicators.	1	ONSITE
4	Initialize variables and correct issues with Linux compilation	All	All
5	Correct format statement in subroutine READINP	All	All
6	Correct format in subroutine WINDS when issuing message that winds were reset to 0.28 m/s for SURFACE observations.	2	SURFACE
7	Correct bug to allow primary surface characteristics keywords to be used with AERSURF2 file in subroutine AERSURF	2	SURFACE/ ONSITE
8	Correct bug in PBL_TEST to appropriately check for missing surface characteristics keywords	2	SURFACE/ ONSITE/PROG
9	Correct WBAN number for Terre Haute, IN in subroutine SFC_INIT	1	SURFACE
10	Correct bug to read ASOS flag correctly for SURFACE data in subroutine SURF_PATH	1	SURFACE
11	Set PBLID in subroutine PBL_TEST to either ONSITE/PROG ID or SURFACE ID; Also, do not write elevation for PBLID in subroutine DATES_LOCS	2	SURFACE/ ONSITE/PROG
12	Correct bug for sounding target hours when beginning of window is in previous day of sounding in subroutines PBL_PROC and CHECK_OBS	2	UPPERAIR
13	Correct bugs in PBL_TEST for UPPERAIR location when using ONSITE/PROG mixing heights and no UPPERAIR data.	2	ONSITE/PROG

14	Correct bug to only set SURFACE winds to calm if not missing	2	SURFACE
15	Correct logic bug in subroutine READ_ISHD when getting weather codes; Affects only ISHD data	1	SURFACE
16	Correct bug in READ_FSL, READ_IGRA, and READ_6201 to only decrease nsnd(3) when nsnd(3) > 2; nsnd(3) is number of valid soundings per day	1	UPPERAIR
17	Correct bug for pressure calculations to set NWS elevation even if not an NWS observation	2	SURFACE/ ONSITE
18	Correct bug when writing PROFILE file to only write temperature when hour is substituted by ONSITE hours	2	ONSITE
19	Change error to warning when checking for GMT/longitude mismatch	1	All
20	Correct bug to sum ONSITE sub-hourly precipitation variables instead of averaging	1	ONSITE
21	Correct bug to check for ONSITE THRESHOLD in Stage 1 output EXTRACT or QAOUT file	2	ONSITE/PROG
22	Correct bug to write longitude east or west designation in OUTPUT (surface) header record in subroutine SFC_HEADER	2	SURFACE/ ONSITE/PROG
23	Set variable DATE_HR_STR in READ_SAM	1	SURFACE
24	Put check for S_LEVELS in UP_MODIFY inside hour loop	1	UPPERAIR
25	Only set ndays -1 when ndays > 1 in reporting observations in OBS_SUM	2	All
26	Correct FORMSTR in DATES_LOC to allow for negative double digit GMT to LST (i.e, -12 hours)	All	All

Formulation Update

Item	Modification	Stage	Data Type
1	Include subroutine COARE1 and associated subroutine and keywords for inclusion of COARE processing for ONSITE or PROG overwater data	2	ONSITE/ PROG

Enhancements

Item	Modification	Stage	Data Type
1	Add more QA on number of observations/hour for sub-hourly data in OS_PROC, READ_OS, AVG_HR, CALC_WINDS, CHECK_HTS	1	ONSITE
2	Add NWS elevation to SURFACE EXTRACT and QAOUT file when derived from ISHD data	1	SURFACE
3	Check OUTPUT and PROFILE file for format overflows and NaN	2	All

Miscellaneous

Item	Modification	Stage	Data Type
1	Modified PBL_PROC and WRITE_SRSS to only get target sounding hours and UPPERAIR sunrise/sunset times when UPPERAIR data being used in Stage 2.	2	UPPERAIR
2	Add more QA checks to ONSITE/PROG heights when OSHEIGHTS not specified	1	ONSITE/PROG
3	Add warning when UPPERAIR data has GMT to LST of 0 and longitude does not indicate location is in time zone of Prime Meridian. use GMT to LST conversion based on longitude for UPPERAIR sunrise/sunset calculations	2	UPPERAIR
4	Update AERMET to allow multi-level data to be out of ascending order.	1	ONSITE/PROG
5	Initial GMTLST for all data types to -9 to avoid issues when actual GMT to LST is 9 hours	All	All