

## **Model Change Bulletin (MCB) 4**

### **AERSURFACE Version 24142 (May 21, 2024)**

Version 24142 of AERSURFACE is an update and replacement of version 20060. It includes enhancements to support processing of 1992, 2001-2021 land cover data, including percent impervious and percent tree canopy (where available) to supplement concurrent land cover data.

Version 24142 of AERSURFACE still includes the ZORAD and ZOEFF options for determining roughness. The ZORAD option is equivalent to the method used in AERSURFACE 20060 and is recommended for regulatory applications. The ZOEFF option was introduced in version 19039\_DRFT as a research grade option and is the equivalent of an alpha option, meant only for review and is not intended for regulatory applications at this time.

This version of AERSURFACE includes the following modifications relative to the previous version 20060:

<b>Enhancements from v20060 to v24142</b>	
<b>Item</b>	<b>Enhancement</b>
1	Added file checks for user input files (i.e., land cover, impervious, and canopy data) for both the RUN or NOT, RUNORNOT keyword settings.
2	Decoupled the datatype and year parts of the DATAFILE keyword to allow compatibility with all current and future NLCD years. The format remains 4-digit data type (NLCD, MPRV, or CNPY) followed by a 4-digit year.
3	The Airport (AP) and Non-Airport (NONAP) flags have been renamed to LOWZ0 and HIGHZ0 respectively. The AP and NONAP flags remain in the code for backwards compatibility.
<b>Miscellaneous Updates and Bug Fixes in v24142</b>	
<b>Item</b>	<b>Update</b>
1	Increased the NLCD file resolution tolerance from 0.01 to 0.1 to accommodate for NLCD files downloaded from the MRLC that do not have an exact 30m x 30m resolution.
2	Updated the code to prevent users from having grid sizes less than or equal to 10km x 10km because the calculations for bowen ratio and albedo require at least a 10km x 10km distance around the centerpoint.
3	Removed unused warning and error messages.