SCICHEM Version 3.2.2

The SCICHEM model has been updated to Version 3.2.2 on November 26, 2019. This is mainly a bug fix release, with the addition of a preprocessor CTM2SCICHEM that converts CAMx or CMAQ files into appropriate ambient background files. Following are the fixes associated with the release.

* One of the lengths (YLENA) defining an Area Source was erroneously checked as if it were the orientation angle. As such, it was limited to 360 meters.
* The SCICHEM GUI was unable to open projects using Area Sources for viewing.
* Incorrect diameters were associated with PM2.5 and PM10 particle materials defined using Keyword input. In both cases, the diameter was set to 0.1 micron. Note that this did not apply to PM2.5 and PM10 species defined in an IMC file.
* Some elements in a computational structure associated with chemical species were used before being initialized. This gave unpredictable results: calculations on Windows platforms ran without problems while some (but not all) calculations on Linux platforms generated obviously bad results.
* The use of some ASOS 1-minute data files resulted in errors, even though they were properly constructed. The error occurred when a non-numerical character was present in column 67. SCICHEM now throws an error if non-numerical characters are in columns *68* through 90.
* Using a MEDOC file with a two-dimensional precipitation rate field (PRECIP) in conjunction with a separate terrain file resulted in a crash on some installations (but not on all). Some Fortran pointers were not properly nullified.
* It was assumed when reading WRF files that the land use categories (if present) corresponded to those of the 24-category USGS scheme, which was the default prior to WRF 3.8. This was obviously incorrect for other schemes, particularly for calculations using WRF 3.8 and later, when the 20-category MODIS scheme became the default. Notably, schemes employing more than 24 categories fail reading the WRF file or crash. SCICHEM now determines the land use scheme and number of categories from WRF file attributes ‘MMINLU’ and ‘NUM\_LANC\_CAT’, respectively.
* Projects defined using Keyword input could not specify an emissions file in conjunction with the PRIME downwash model. This was always possible with namelist input.
* An emissions file could not be specified for multicomponent sources.
* CTM2SCICHEM converts hourly 3D concentration files generated by Chemical Transport Models (CAMx or CMAQ) into ambient background concentration files for SCICHEM. The tool is comprised of a csh run script that calls various Fortran and ncl (NCAR Command Language) functions.