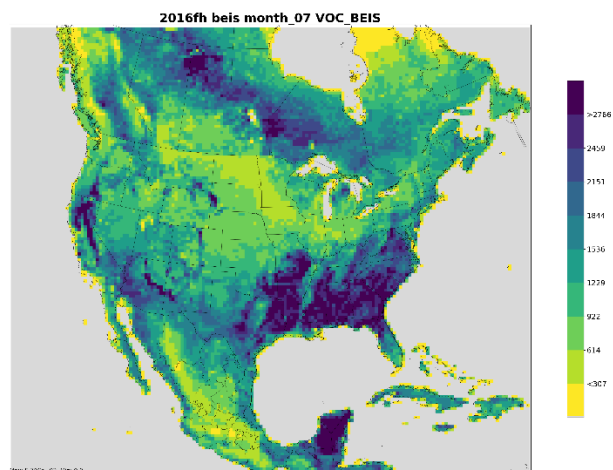


Information to aggregate BELD5 data to another grid with the same map projection

The Biogenic Emissions Landcover Dataset version 5 (BELD5) consists of 257 different landuse types at 1km horizontal resolution that covers the region shown in Figure 1. This region includes all the contiguous United States, Mexico, most of Canada, parts of southern Alaska, and other Caribbean and Central American countries. The 1km BELD5 data is in ONE file that is about 34GB in size (0.77GB when gzipped).

Figure 1. Geographical region covered by the BELD5



For more information on BELD5 landuse types see:

https://www.cmascenter.org/smoke/documentation/4.8/html/ch08s09.html#sect_input_source_beld5

and see the EPA 2017NEI Technical Support Documentation (section 4.6):

https://www.epa.gov/sites/production/files/2020-04/documents/nei2017_tsd_full_30apr2020.pdf

To aggregate the BELD5 to a coarser modeling domain with the same map projection within the region shown in Figure 1 use the SMOKE Utility Tool called **AGGWNDW**. The SMOKE User's Manual has information on this tool here:

<https://www.cmascenter.org/smoke/documentation/4.8/html/ch05s03s02.html>

The BELD5 consists of percentages of landuse types that are in each grid cell. Those percentages of landuse types when summed must equal 100%. AGGWNDW was originally create to aggregate emissions for generate emissions on coarser grid with same map projection but for SMOKEv4.8 functionality was added to support aggregating percentages for use with BELD5. The environment variable setting **AGGREGATE_EMIS_YN** must be set to "N" for aggregating landuse. Otherwise, the rest of the AGGWNDW documentation should be followed to create a new BELD5 file for a coarser domain. To review that means that a GRIDDESC file must be created that defines the desired new grid to output from AGGWNDW. The BELD5 map projection should be defined in the GRIDDESC as the following:

'LAM_40N97W'

2, 33.0D0, 45.D0,-97.D0,-97.D0, 40.D0

The only input file needed for AGGWNDW in this case is the BELD5 1km file. Please see the SMOKEv4.8 User's Manual for more information. A sample csh script named "aggwndw.test.csh" is associated with this document. A copy of the script is also shown below:

```
#!/bin/csh -fx
# Sample script to run aggwndw to aggregate BELD5 1km landuse to a coarser resolution
# with same map projection as BELD5
# J Vukovich USEPA Vukovich.Jeffrey@epa.gov
#
# BELD5 1km file
setenv INFILE BELD5_1US3_FIA6.1_2017CLD_Canada.ncf
# See SMOKE Users Guide for info on GRIDDESC file
setenv GRIDDESC GRIDDESC_test
# Must be set to N when aggregating land use percentages (BELD)
setenv AGGREGATE_EMIS_YN N

# Output grid name is IOAPI_GRIDNAME_1
# The definition of this output grid must be in the GRIDDESC file
#
setenv IOAPI_GRIDNAME_1 12US1_459X299
setenv OUTFILE beld5.aggwndw_v48.12US1.ncf

# SMK_BIN is path to the aggwndw executable
#
$SMK_BIN/aggwndw

exit
```