Status of using Environment Canada’s BELD4 in EPA modeling domains
Environment Canada’s BELD4 database

- Provided 1km resolution tif files for 92 BELD4 landuse types
- Current BELD4 databases use MODIS landuse for Canada
- EPA ORD working to implement these Environment Canada data into more modular BELD4 generation process but this will take time
- In the meantime, EPA EIA Group has come up with a interim solution
  - Convert 1km tifs to IOAPI netcdf
  - Aggregate/interpolate to large 4km grid for North America
  - Further aggregate to EPA 36km and 12km modeling domains
Normalize Isoprene emissions for summer (g Carbon/hour)

Beta with EC BELD4
Normalize Isoprene emissions for summer (grams Carbon/hour)

EC_BELD4 - Beta difference

Layer 1 AVG_ISOFSa-AVG_ISOFSb

a=b3grd.after_envcan.ncf, b=b3grd_36US3_2016ff_16j.ncf

Min=-3926546 at (27,113), Max=17431094 at (93,122)
Preliminary results for 36US3 grid

- Normalized isoprene emissions increasing up to 50% in some provinces.
- Main reasons are MODIS mixed forest, evergreen needleleaf, and deciduous isoprene emissions factors are “averaged” factors.
- Environment Canada BELD4 indicating a large percent of forests in Alberta and Saskatchewan are made up of Poplar and Aspen trees which are in a group of trees that have the very high isoprene emissions factors in BEIS3 (26250 gC/km**2-hr).
- Analysis has just begun and has only included normalized emissions in the 36km modeling domain.
- More analysis on 36km and 12km domains to come.