

# TEXT of Uni\_bio.bat

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setenv RUNNUM Bio_UNIFIED      Just a name that identifies the run
setenv MODEL BEIS3            BEIS3 or BEIS2 algorithm
setenv EFACT V2              Named after the 3 type of emission factors
                             v1/v2/v3
setenv LAYERS 7              Layers in the Cannopy model
setenv ISOP 1                Factor Applied to the Isoprene emission factor
                             Used under GLOBEIS, good for sensitivity analysis
setenv MET1 satel           Type of satellite data for PAR to use. Points to
                             a file name allong with temp_lay.
setenv TEMP_LAY 15m         The vertical layer in the met model that the
                             temperature values should come from.

setenv EMS_LOC $EMS_RAW/biome3/common Set the biome3 EMS_LOC directory.
sas -sysparm "$EFACT" load_efact.sas Load the emissions factors "V2" in this example

sas -sysparm "5524;3012;2808;2412;12" subset_beld3.sas
                             This program reads in the beld3 data and rebuilds
                             a biomass dataset for the local grid. Setting up
                             these numbers.
sas -sysparm "beld3" create_bioest.sas take the biomass data created in the previous
                             line and create emissions estimates for standard
                             conditions.

source $EMS_BIN/u980715.mej Set up the first day environment variables.
source bio_day_uni.bat      Run bio_day_uni.bat for each day.(SEE below)
source $EMS_BIN/u980716.mej Good programs might use "FOR EACH" commands here
                             but "Good" programers is the critical word. ;-)
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source bio_day_uni.bat
source $EMS_BIN/u980717.mej
source bio_day_uni.bat
source $EMS_BIN/u980718.mej
source bio_day_uni.bat
source $EMS_BIN/u980719.mej
source bio_day_uni.bat
source $EMS_BIN/u980720.mej
source bio_day_uni.bat
source $EMS_BIN/u980721.mej
source bio_day_uni.bat
source $EMS_BIN/u980722.mej
source bio_day_uni.bat
source $EMS_BIN/u980723.mej
source bio_day_uni.bat
source $EMS_BIN/u980724.mej
source bio_day_uni.bat
source $EMS_BIN/u980725.mej
source bio_day_uni.bat
```

Text of bio\_day\_uni.bat

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setenv CASE "$RUNNUM.$MODEL.$EFACT.$LAYERS.$ISOP.$MET1.$TEMP_LAY" Set CASE reports and
                                                                    uamv/CAMX style files
                                                                    will use this variable to
                                                                    name files.

echo $CASE                                                                    Echo it out to the screen
                                                                    so you can keep track of
                                                                    what is running.

echo $EMSDAY

setenv EMS_LOC $EMS_RAW/met/common                                                                    Set EMS_LOC to
                                                                    directory
                                                                    containing met
                                                                    data. All days in
                                                                    one directory.

sas -sysparm "ems.$EMSDAY.unif.12.lay1temp_satpar.ascii" readbeis3.sas Read the met data
                                                                    file for the day
                                                                    we're working on.

sas -sysparm "$MODEL;$LAYERS;$ISOP" -print "btap.$CASE.$EMSDAY.lst" btap.sas
                                                                    Run Btap, This program takes the
                                                                    standard condition emissions estimates
                                                                    made by create_bioest.sas and applies
                                                                    current met information.

cd web
sas biorep.sas                                                                    Run biorep.sas reporting
                                                                    program.Look at it's outputs.
                                                                    They are very interesting.

cd $EMS_BIN
sas -print "fastspec_bio.$CASE.$EMSDAY.lst" fastspec_bio.sas Speciate the results.
gzip -f $EMS_AIR/uam_low_biogenic.$EMSDAY.$CASE.ascii GZIP the output files.
mv $EMS_RUN/bioemis.ssd01 $EMS_RUN/bioemis.ssd01.$CASE.$EMSDAY GZIP bioemis output
                                                                    emissions file. It's big.

gzip -f $EMS_RUN/bioemis.ssd01.$CASE.$EMSDAY

```

That's it! Running this model is pretty simple. The difficulty is understanding the data that drives it. There are many different types of data most inventory staff are unfamiliar with. Some of the questions I ask often are

- What are the emission factors?
- What is the biomass in county X or Cell i,j?
- What does the met field look like for this day.
- What do these emissions look like, By county, Cell, Species, or State? See web reports.
- What does the hourly profile look like.

Here is a table of the sensitivity runs LADCO did for the eastern Unified.

They were all run by batch jobs like 1day\_biorun4.B3.V2.7.2.Pierce.15M.bat

Check out the biogenic emissions modeling page at [www.ladco.org/biogenics/index.html](http://www.ladco.org/biogenics/index.html)



# LADCO Sensitivity Runs

Table 1. BIOME 3 Results for Selective sensitivities (Estimates for July 15<sup>th</sup> 1998).

Run#	Biogenics Algorithm	EF Version	Canopy Layers	Isoprene Divisor	PAR Source	Temp. Height	Isoprene tons/day	NOX Tons/Day	OVOC Tons/Day	TERP Tons/Day
B0	B3	V2	7	1	Pierce	15M	139,773	5,206	38,747	34,198
B1	B3	V1	7	1	Pierce	15M	139,773	5,206	129,148	34,198
B2	B3	V2	7	1	Pierce	surf	142,328	5217	38,865	43,297
B3	B3	V2	5	1	Pierce	15M	139,322	5,206	38,747	34,198
B4	B3	V2	7	2	Pierce	15M	102,521	5,206	38,747	34,198
B5	B3	V2	7	5	Pierce	15M	80,171	5,206	38,747	34,198
B6	B2	V2	7	1	Pierce	15M	131444	5,206	38,747	34,198
B7	B3	V2	7	1	Wilkinson	15M	119,983	5,206	38,747	34,198
B8	B3	V2	20	1	Pierce	15M	139,981	5,206	38,747	34,198
B9	B3	V2	3	1	Pierce	15M	134,043	5,206	38,747	34,198

Files you want to know about.

ASCII files

\$SEMS\_RAW/biome3/common/tile\*.dat.

\$SEMS\_RAW/biome3/common/beis3\_efact\*

\$SEMS\_RAW/biome3/common/usag.dat

\$SEMS\_RAW/biome3/common/usfia.dat

\$SEMS\_RAW/met/common/ems\*.ascii

SAS Datasets.

ems.bioest

ems.beld

ems.efact

ems\_run.bioemis

ems\_run.metdata

BELD3 tiles for north america.

Are the emissions factors for the different types of estimates. There is a divide 2 and Divide 5 version that divides the oak emission factors by 2 and 5 times.

Agriculture species fractions by county

Forest Species crown fractions by county.

Met data from MM5

Standard conditions base emissions estimates

Stid,cyid,cell, species specific land area.

All emissions factors by species, canopy type, leaf area index, and leaf mass density.

Output emissions estimates

Day specific met data

