**Settings for WRF….only**

export LC\_LIBRARY\_PATH=/apps/netcdf/installed/lib

module load gcc/4.9.2

module load openmpi/1.8.4

export LC\_LIBRARY\_PATH=/apps/libpng/libpng-1.4.13/lib:$LD\_LIBRARY\_PATH

module load ncview

**download met data (GFS)……….**

$ cd WRF\_UAE/WPS

Make changes in the *namelist.wps* file

**./geogrid.exe**

will generate *geo\_em.d01.nc*

**link met data**

./link\_grib.csh /home/fkaragulian/WRF\_UAE/forcing\_data/

ln -sf ungrib/Variable\_Tables/Vtable.GFS Vtable

**./ungrib.exe**

will generate *FILE:2017-03-29\_06*

**./metgrid.exe**

will generate *met\_em.d01.2017-03-28\_12:00:00.nc*

$ cd WRF\_UAE/WRFV3/test/em\_real

**link ungribbed met files…..in the working directory**

ln -sf ../../../WPS/met\_em\* .

ln -sf /home/fkaragulian/WRF\_UAE/WPS/met\_em\* .

update NAMELIST.INPUT

**Run real.exe**

bsub -n 6 -J job\_name -o vk.%J.out -e vk.%J.err -q normal mpirun **./real.exe**

will generate *wrfinput\_d01* (initialization file)

will generate wrfbdy\_d01 (boundary conditions file)

**Run wrf.exe**

bsub -n 6 -J job\_name -o vk.%J.out -e vk.%J.err -q normal mpirun **./wrf.exe**

will generate *wrfout\_d01\_2017-03-12\_06:00:00* (these are .nc files)

**check SUCCESS!!!**

**## ## ## ### ## ### ## ## ## ## ### ## ### ## ## ## ## ### ## ### ##**

**WRF-CHEM**

***cd into your WRF dir. I put the WRF code in your home dir and the wrfchem code.***

Untar wrf code.

Then untar wrfchem code inside wrf code.

tar -xvzf WRFV3.7.1.TAR.gz

tar -xvzf WRFV3-Chem-3.7.1.TAR.gz

WRFV3.7.1.TAR.gz  
WRFV3-Chem-3.7.1.TAR.gz

export LD\_LIBRARY\_PATH=/home/fkaragulian/wrf\_libraries\_gfort\_noquadmath/hdf/h4dir/lib:/home/fkaragulian/wrf\_libraries\_gfort\_noquadmath/hdf/h5dir\_1.8.13/lib:/home/fkaragulian/wrf\_libraries\_gfort\_noquadmath/hdf/h5dir/lib:/home/fkaragulian/local/lib:/home/fkaragulian/gfortran/installed\_noquadmath/lib64:/home/fkaragulian/wrf\_libraries\_gfort\_noquadmath/local/lib:/home/fkaragulian/wrf\_libraries\_gfort\_noquadmath/bin/mpich-install/lib/:$LD\_LIBRARY\_PATH

export JASPERLIB=/home/fkaragulian/wrf\_libraries\_gfort\_noquadmath/local/lib

export JASPERINC=/home/fkaragulian/wrf\_libraries\_gfort\_noquadmath/local/include

export EM\_CORE=1

export WRF\_CHEM=1

export NETCDF=/home/fkaragulian/wrf\_libraries\_gfort\_noquadmath/local

export WRF\_KPP=1

export YACC='/home/fkaragulian/wrf\_libraries\_gfort\_noquadmath/local/bin/yacc -d'

export PATH=/home/fkaragulian/wrf\_libraries\_gfort\_noquadmath/bin/mpich-install/bin/:/home/fkaragulian/local/ncl\_nodap/bin:/home/fkaragulian/wrf\_libraries\_gfort\_noquadmath/local/bin:/home/fkaragulian/gfortran/installed\_noquadmath/bin:$PATH:/home/fkaragulian/bin

export FLEX\_LIB\_DIR=/home/fkaragulian/wrf\_libraries\_gfort\_noquadmath/local/lib

module load gcc/4.9.2

module load openmpi/1.8.4

Then

**./configure  
./compile em\_real 2>&1 |tee compile.log**

-----------------------------------------------------------------------------------------

Use **./clean -a** to clean previous compilation

**Compilation of Emission Inventory**

Go to directory:

/disk3/fkaragulian/WRFV3/test/em\_real/PREP-CHEM-SRC-1.5/bin/build/

edit file:

Include.mk.gfortan

Add:

**NETCDF=/apps/netcdf/netcdf-4.1.3-usr-gcc** for NETCDF

**HDF5=/apps/hdf5/hdf5-1.8.13** for HDF5

Go to directory

/disk3/fkaragulian/WRFV3/test/em\_real/PREP-CHEM-SRC-1.5/src/

edit file:

edgar\_emissions.f90

go to lines from 840 to 845:

add spaces to the end of the names 'ENERGY', 'INDUSTRY', and 'TRANSPORT', until the length of all the names be the same as each other and equal to the length of 'AGRICULTURE' and 'RESIDENTIAL' (i.e. equal to 11 characters). the final modification must be like bellow:

**CODE:**[**SELECT ALL**](http://forum.wrfforum.com/viewtopic.php?f=39&t=9199)

841         'AGRICULTURE',&  
842         'ENERGY     ',&  
843         'INDUSTRY   ',&  
844         'RESIDENTIAL',&  
845         'TRANSPORT  '/)

Download EGDAR/HTAP emission data

cd /home/fkaragulian/WRFV3/test/em\_real/

wget <http://www.acom.ucar.edu/webt/wrf-chem/processors/EDGAR-HTAP.tgz>

extract the EDGAR/HTAP data:

tar -xvzf EDGAR-HTAP.tgz

**anthro\_emiss**

Download **anthro\_emiss** from this page:

<https://www2.acom.ucar.edu/wrf-chem/wrf-chem-tools-community>

<http://www.acom.ucar.edu/wrf-chem/download.shtml>

….. also EDGAR-HTAP

Load anthro\_emiss in HCP

Untar “ANTHRO.tar”

**cd ANTHRO/src/**

……read the README.anthro\_emis

Set the environmental variable for the right fortran compiler

export FC=/apps/gcc/gcc-4.9.2/bin/gfortran

export NETCDF\_DIR=/apps/netcdf/netcdf-4.1.3-usr-gcc

export NETCDF\_DIR=/disk3/fkaragulian/wrf\_libraries\_gfort\_noquadmath/local/

proceed with the compilation of anthro\_emiss

./make\_anthro

it will build the executable anthro\_emis

unzip EDGAR-HTAP.tar

look at the file “**MOZCART.inp**” as example of input file for the emission

cd /home/fkaragulian/EDGAR-HTAP/

Execution DATE\_TIME of the WRFChem will be taken from the files:

wrfinput\_d01 in the /home/fkaragulian/WRF\_UAE/WRFV3/test/em\_real/ directory…that is the one indicated in the namelist.input (from GFS met data)

make a copy of the MOZCART.inp in the ANTHRO/src/ directroy

export LD\_LIBRARY\_PATH=/apps/netcdf/netcdf-4.1.3-usr-gcc/lib/:$LD\_LIBRARY\_PATH

To run anthro\_emis issue the command:

./anthro\_emis < MOZCART.inp > MOZCART\_FK.out

….it will generate files:

wrfchemi\_00z\_d01

wrfchemi\_12z\_d01

#### RUN the WRFChem model ###########################

source "/home/fkaragulian/WRFV3/wrfchem\_env.txt"

cd /home/fkaragulian/WRFV3/test/em\_real/

**link ungribbed met files…..in the working directory**

ln -sf /home/fkaragulian/WRF\_UAE/WPS/met\_em\* .

**link wrfchemi\_00z\_d01 files generated from ANTRO**

**ln -s ../../../ANTHRO/src/wrfchemi\_\* ./**

**/home/fkaragulian/WRFV3/test/em\_real/**

update the **NAMELIST.INPUT.CHEM**

**change to gfortaran processor in the Makefile in the /disk3/fkaragulian/WRFV3/wesely/ directory**

**Run real.exe**

bsub -n 6 -J job\_name -o vk.%J.out -e vk.%J.err -q normal mpirun **./real.exe**

will generate *wrfinput\_d01* (initialization file)

will generate wrfbdy\_d01 (boundary conditions file)

**Run wrf.exe**

bsub -n 6 -J job\_name -o vk.%J.out -e vk.%J.err -q normal mpirun **./wrf.exe**

will generate *wrfout\_d01\_2017-03-12\_06:00:00* (these are .nc files)