

File for Kenny's R code for Bayesian weather simulations outlined in Kennymultisite_Bayes.pdf.

.R, .RData, and .csv Files

- R code multisite covariance scripts.R
- ethiopia_full_data.RData
- lat_long_details.csv
- nino34.long.data
- gibbs_out_031212_G5000.RData
- post_list_G5000_0312.RData
- myfunctions.R

This data file might be useful in terms of resuming an old run:

- start_list_v2.RData

Needed R Libraries

You need to get at least one, if not two different R packages installed. You can install them with the following commands:

```
library(bayesm)
library(MASS)
library(msm)
library(LaplacesDemon)
library(mvtnorm)
```

Creating the C Shared Libraries

The C functions were written with R 2.15. Download [here](#) and run the exec file on your mac: There are two C files that need to be compiled into shared libraries for R to use.

This time we compile it into a .so shared object file using R CMD SHLIB from the terminal command line, not from within R.

This is actually a two step process. First, compile the .c code into a .o object file. Than, create the shared object .so from the .o object file.

Use the following commands on a Mac. Make sure the zdraw and draw_gamma files are in the directory that you execute the below.

To create zdraw.so:

```
llvm-gcc -arch x86_64 -std=gnu99 -  
I/Library/Frameworks/R.framework/Resources/include -DNDEBUG -  
I/usr/local/include -fPIC -mtune=core2 -g -O2 -c zdraw.c -o zdraw.o  
  
llvm-gcc -arch x86_64 -std=gnu99 -dynamiclib -Wl,-headerpad_max_install_names -  
undefined dynamic_lookup -single_module -multiply_defined suppress -  
L/usr/local/lib -L/usr/local/lib -o zdraw.so zdraw.o -  
F/Library/Frameworks/R.framework/.. -framework R -Wl,-framework -  
Wl,CoreFoundation
```

To create draw_gamma.so:

```
llvm-gcc -arch x86_64 -std=gnu99 -  
I/Library/Frameworks/R.framework/Resources/include -DNDEBUG -  
I/usr/local/include -fPIC -mtune=core2 -g -O2 -c draw_gamma.c -o  
draw_gamma.o  
  
llvm-gcc -arch x86_64 -std=gnu99 -dynamiclib -Wl,-headerpad_max_install_names -  
undefined dynamic_lookup -single_module -multiply_defined suppress -  
L/usr/local/lib -L/usr/local/lib -o draw_gamma.so draw_gamma.o -  
F/Library/Frameworks/R.framework/.. -framework R -Wl,-framework -  
Wl,CoreFoundation
```

Get both c files to compile into shared libraries and load them into R without error using the following R code:

```
dyn.load('zdraw.so')  
dyn.load('draw_gamma.so')
```