

## Getting Familiar with MITgcm

This handout is designed as a guide to get familiar with a typical MITgcm configuration. Begin by opening your terminal and moving into the MITgcm/verification/tutorial\_barotropic\_gyre directory.

## The Model Configuration

Questions:

1. What files are in the code directory?
2. What are the contents of the SIZE.h file?
3. What files are in the input directory?
4. What are the contents of the data file?
5. What do you suppose the bathy.bin and windx\_cosy.bin files contain?

## Activity :

Use the notebook associated with this handout to fill in the grid information gathered from the files above and plot the bathy.bin and windx\_cosy.bin files.

## Building the model

As described on the course note [HERE](#), we can compile the model code with the following lines:

```
../../../../tools/genmake2 -of ../../../../tools/build_options/darwin_amd64_gfortran -mods ../code  
make depend  
make
```

Questions:

1. What does the first line do?
2. What does the second line do?
3. What does the third line do?

### Running the model for 200 minutes (10 timesteps)

Before running the model, we need to link the files from the input directory to the run directory, along with the mitgcmuv file.

In addition, set the following parameter in the data file in &PARM01:


```
useSingleCPUio=.TRUE.,
```

Then, run the file with

```
./mitgcmuv > output.txt
```

Questions:

1. What files now exist in the run directory?
2. What do you suppose these files are?

 Activity:

Use the notebook associated with this handout to plot some of the initial files.

### Running the model for 1 year

Questions:

1. How many timesteps are equal to one year?
2. How many seconds (approximately) are in 1 month?

In the data file, change nTimesteps to run for one year and the dumpFreq to be the seconds to be 1 month. Then, rerun the model.

 Activity:

Use the notebook associated with this handout to plot the same files after one year.