MEA 712: (An Introduction to) Mesoscale Atmospheric Modeling
First mini computing assignment

Before embarking on the more complicated tasks that will come later in the semester, we are going to build up a very very simple model, step by step. The goal is to brush up our coding skills and familiarize everyone with what a finite difference model "looks like".

Due at the start of the first class (Tuesday 25 August)

The first mini assignment is to simply set up the FORTRAN code.

1. Find a computer you can use that has a FORTRAN compiler on it. I recommend Bigdog, which is the PAMS cluster. It has good compilers and can be accessed from anywhere. In order to get an account on Bigdog, go to:
   http://www.pams.ncsu.edu/pco/hpc/linux_accounts.html

2. Set up a program named `SIMPLEMOD`, with `STOP` and `END` statements at the end.

3. Before doing anything else, add `IMPLICIT NONE` just below the `PROGRAM` statement. This is always the safest way to go!

4. Declare the variables to be used in the code.

   a) Our model will be 1–D, extending only in the x–direction. The number of points on the domain will be `NX`, which is an integer.

   b) Use a `PARAMETER` statement to assign a value to `NX`. For now, it can be any integer value that you like.

   c) The spacing between the points on our grid (with units of meters) will be represented by the variable `DX`, which is a real.

   d) Our simple model will be used to timestep forward the variable `PSI`, which is a real. We will represent this variable on each grid point, so the dimension of `PSI` should be `NX`.

   e) We will use the index `I` to represent which grid point we're looking at/working on. It should be an integer.

   f) Add a `PRINT *, 'HELLO WORLD!'` statement as the body of your code, and make sure that it compiles and runs. On Bigdog, I like the Portland Group compilers... to add them to your path, type `add pgi` at the Unix prompt. The compiler is them `pgf90`. Try `man pgf90` if you need help.

5. Print out your code and bring it to class to receive credit.