

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

**Due at the start of the next class (Thursday 27 August)**

The next mini assignment is to set up a gridded field in your existing FORTRAN code.

1. Reset NX to 21.
2. Use a PARAMETER statement to set DX to 100.0 meters.
3. Assign the values to PSI ( I ) using a DO loop.
  - a) the DO loop should run from I=1 to I=NX.
  - b) we will describe PSI via the function

$$\psi(x) = \cos\left(\frac{2\pi x}{1000.0 \text{ m}}\right)$$

Let's assume that I=1 has an  $x$  value of 0 meters. Because all of our grid points are evenly spaced at an interval of DX, hopefully it is therefore clear that  $x = \text{REAL}(I-1) * \text{DX}$ . You can use this form when you code up the equation to assign the values for PSI, or you can alternatively declare X as another variable in your code, and define it in the DO loop. Note that we use the REAL card because some FORTRAN compilers treat the product of an integer  $\times$  a real as an integer (not what we want here).

4. Instead of printing "hello world", have your code print out each value of  $x$  and PSI after it has been defined.
5. Print out your code and your printed values and bring them to class to receive credit.