**SWAN Files:**

Each file can be opened and edited as a text file regardless of the file extension. The files included in this folder allow the user to run the model for the Ea wind scenario for each of the 4 water level scenarios.

Scenario 'Ea' represents winds from the East at 5 m/s. Model runs were completed for 16 wind directions, with 4 wind speeds per directions (5, 10, 15, 20 m/s). The letter after the wind direction (E, in this case) corresponds to the wind speed (a = 5 m/s, b = 10 m/s, c = 15 m/s, d = 20 m/s). Only the 5 m/s scenario is included in this example.

**Model Grids:**

G600 = 600 meter coarse grid (Gulf of Maine)

G300 = 300 meter medium grid (Massachusetts Bay)

G20 = 20 meter fine grid (Boston Harbor)

**Water level scenarios**, based on NOAA annual exceedance probability (2023):

G20a = MSL

G20b = 1 year storm

G20c = 10 year storm

G20d = 100 year storm

**Bathymetry files:**

bathy600.bot

bathy300.bot

bathy20.bot

**Nest files:**

G600Ea.nst

G300Ea.nst

**How to use the files:**

* To run SWAN, the user will need to download and install the source code, available for free at <https://swanmodel.sourceforge.io/download/download.htm>.
* The code required to run the model is contained in each .swn file. Within each .swn, the bathymetry file (.bot) is required as an input. The nested grid (.nst) is required as an output if you will be using the model results as inputs for another model run. These .swn files also include a Matlab .mat as an output, but these are not included in this data package.
* This model is set up as a nested grid. The largest grid (G600) is run first, outputting the G600Ea.nst file. This file becomes an input for the G300 model run. The G300Ea.nst file becomes an input for the G20 model runs. The G20 files do not output a .nst.
* To recreate the model results of the Ea scenarios, the user must complete six model runs. The G600 is first, followed by the G300 run. Following that, the four water level scenarios can be run in any order.
  + If you only want the results for a single scenario (e.g. G20a), the .nst files included in this package allow you to run the scenario without running the G600 and G300 scenarios first.
* If the user wants to run the model for wind scenarios other than Ea, they can change the values in the line of code below for *all* .swn files:

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Description automatically generated

**Wind direction (°)**

**Wind speed (m/s)**