Hi Katherine

Here are some instructions for running the diffusivity version of the CEM

You actually only need the CEM\_init.dat and CEM code files.

The CEM\_init.dat file is annotated. There are a number of flags and settings that are irrelevant for the diffusivity calculations (e.g. Lisa’s rock calculations flag) so you can leave these as they are. Hopefully, the ones that are relevant make sense!

The code runs using U and A values. You’ll see there are three different sets of U, A variables with which to set the U and A values one might be testing in the model.

The key flags and variables are:

DoDiff  
DiffCalcSteps  
nDiffSteps  
Initial\_Asym (initial A value)  
Initial\_Highness (initial U value)  
Diff\_Asym (the A value you want to use for the diffusivity calculations)  
Diff\_Highness (the U value you want to use for the diffusivity calculations)

Running the CEM

Set the various values in CEM\_init.dat to those you need and fire up the CEM in the same directory, then let it chuntle away until it stops!

I haven’t had much success reading in existing CEM coastlines (in fact, none at all!) so I always started from scratch I’m afraid, running up a new model over which to run the diffusivity and flux calculations. A bit laborious, I agree, but it was easier to let the models run on our HP cluster than spend time trying to sort out a coding issue.

The output file containing the diffusivity and flux data is CEM\_diff.dat. The included file is an example. I just use Excel to process the data. Essentially, you get the diffusivity, flux and other data for each cell in the model. The example represents a coastline 200 km long, so there are 2000 100 m cells. The Relative diffusivity data in the file (line 10) are correct, except that that sign is wrong. We shall call this ‘an undocumented feature’ of the CEM diffusivity code!! Andrew A pointed out to me that the sign was wrong, so I simply change the sign in Excel by multiplying the line of data by -1 and placing the result in a line of cells below! Another fudge!!

The program also outputs the wave climate data for the diffusivity runs.

Hope this all makes sense, but shout loudly if not and if I can help!

Chris