

Please do not redistribute this code. New prospective users can contact Nobuhisa Kobayashi: nk@udel.edu, or Brad Johnson: Bradley.D.Johnson@usace.army.mil

1 Included Files

- **code** contains the CSHORE_USACE.f fortran code and the executables
- **example_application** contains the input file and Matlab script for a planer beach that serves as a simple example application
- **mfiles** has Matlab code for model initiation and result visualization
- **doc** contains several documents pertaining to CSHORE application and theory

2 Compilation

The binary executables are included in this package, but any Fortran 90 compiler can be used to make new executables from the source if necessary and the code is included in the bundle. It is assumed that the executable is named `cshore_usace.out` but the actual files are `cshore_usace_linux.out` and `cshore_usace_win.out` for Linux and Windows, respectively.

3 Model Execution

The detailed documentation for input and output are available in the **doc** directory, but a short table of the minimum data requirements are provided below.

Profile bottom position	z_b [m]	The bottom position series data is supplied in a series from offshore to onshore
Wave height and period	H_{rms} [m], T_p [s]	The offshore wave height and spectral peak period are supplied as a time series
Water level	η [m]	The offshore water level is supplied as a time series
Sediment grain size	d_{50} [mm]	The median grain size

In general, it is easier to run the CSHORE_USACE model using the provided Matlab scripts. The `run_model.m` script will create a valid input file and successful computation for a range of input parameter switches. The script can also function as the basis for a batch run over multiple profiles or input conditions. If, however, Matlab is not available, the model can be executed from the command line and manual edits of the input file.

3.1 Running Without Matlab

The CSHORE_USACE executable depends on a single input file named 'infile' for model domain specification and run parameters. Edit the 'infile' with any text editor in accordance with the accompanying documentation. As an example, to run the provided example, navigate the **example_application** directory and execute
`../code/cshore_usace.out`

3.2 Running With Matlab

Matlab is not used for the computation of hydrodynamics or morphological change, but the provided scripts generate the infile and facilitate use of the results. The main script, titled `run_model.m` is provided in the **example_application** directory. The script file can be edited to alter the domain and physical and model parameters. Furthermore, all of the computed results are returned in the **results** structure for plotting or additional analysis.