**BOUMUST User`s Manual**

User’s Manual

## Input

Following are descriptions of parameters in input.txt (NOTE: all parameter names are capital sensitive)

**PROJECTNAME:** name of your project, used for log file and project folder.

**SPECIFICATION OF EQUATION**

EqID: governing equation

EqID=23: GN equation.

EqID=1: nonlinear shallow water equation.

**SPECIFICATION OF DIMENSION**

Mglob: global dimension in  direction.

Nglob: global dimension in  direction.

SPECIFICATION OF GRID SIZE

DX: grid size(m) in  direction.

DY: grid size(m) in  direction.

**SPECIFICATION OF TIME**

TOTAL\_TIME: simulation time in seconds

PLOT\_INTV\_SNAPSHOT: output interval in seconds (Note, output time is not exact because adaptive dt is used.)

PLOT\_INTV\_GAGE: time interval (s) of gauge output.

SCREEN\_INTV: time interval (s) of screen print.

**SPECIFICATION OF BATHYMETRY**

DEPTH\_TYPE: depth input type.

DEPTH\_TYPE=DATA: from a depth file (depth.txt).

The program includes several simple bathymetry configurations such as

DEPTH\_TYPE=FLAT: flat bottom, need DEPTH\_FLAT.

DEPTH\_TYPE=SLOPE: plane beach along  direction. It needs three parameters: slope, SLP, slope starting point, Xslp and depth of flat part, DEPTH\_FLAT.

DEPTH\_FILE: bathymetry file if DEPTH\_TYPE=DATA, the file name must be ‘depth.txt’, and file dimension should be  with the first point as the south-west corner. The read format in the code is shown below.

DO J=1, Nglob

READ(1,\*) (Depth(I,J), I=1,Mglob)

ENDDO

DEPTH\_FLAT: water depth of flat bottom if DEPTH\_TYPE=FLAT or DEPTH\_TYPE=SLOPE (flat part of plane beach).

SLP： slope if DEPTH\_TYPE=SLOPE

Xslp: starting (m) of a slope, if DEPTH\_TYPE=SLOPE

**SPECIFICATION OF INITIAL CONDITION**

INT\_UVZ: logical parameter for initial condition, default is FALSE.

INI\_U: logical parameter for initial , default is FALSE, the name of file must be U.txt, data format is the same as depth data.

INI\_V: logical parameter for initial , default is FALSE, the name of file must be V.txt, data format is the same as depth data.

INI\_Z: logical parameter for initial , default is FALSE, the name of file must be Z.txt, data format is the same as depth data.

**SPECIFICATION OF WAVEMAKER**

WAVEMAKER: wavemaker type.

WAVEMAKER=LEF\_SOL: left boundary solitary, need AMP, DEP and LAGTIME.

WAVEMAKER=INI\_SOL: initial solitary wave, WKN B solution, need AMP, DEP and XWAVEMAKER.

WAVEMAKER=INI\_REG: