GetEFDC User's Guide

1. Introduction

GetEFDC is a Fortran utility developed by Dynamic Solutions International LLC (DSI) to extract the output files generated by EFDCPlus (formerly EFDC_DSI) from binary to ASCII format. GetEFDC is an open source tool and is only intended as a building block, it is not a final model output analysis tool. The user should modify GetEFDC to meet their specific needs.

The common binary files that are generated by EFDCPlus are as follows:

a. EE_WS.OUT
b. EE_VEL.OUT
c. EE_WC.OUT
d. EE_WQ.OUT
e. EE_DRIFTER.OUT
f. EE_BED.OUT
g. EE_BC.OUT
h. SGZLAYER.OUT (for 083_OMP in case of IGRIDV = 2)

EE_WQ.OUT and EE_DRIFTER.OUT are the optional outputs based on the terms activated in EFDC model, in which EE_WQ.OUT is the output for water quality and EE_DRIFTER.OUT is for LPT simulations. When KB > 1 then EE_BED.OUT is also available.

The code for GetEFDC is provided in the download page of DSI website at http://www.efdc-explorer.com/downloads/efdc-dsi-model.html . The utility can be found on the "Utilities" tab in the "Downloads" page. It includes the executable file "GetEFDC.exe" and the source code in FORTRAN.

The source code files of GetEFDC include:

Main program:

- getefdc.f90

and 8 Modules:

- infomod.f90,
- efdcpromod.f90,
- tecmod.f90,
- geteeoutmod.f90,
- xyijconv.f90,
- gethfreqout.f90,
- globalvars.f90

For 083_OMP, if IGRIDV > 0 then the output is based on the vertical layer defined in sgxlayer.inp / SGZLAYER.OUT.

2. Running GetEFDC

2.1 Windows

GetEFDC can be found in the sub directory Utilities of the folder where EEMS is installed. By default the installation folder is:

```
C:\Program Files (x86)\DSI\EEMS8.3\Utilities\GetEFDC
```

After the successful install we will have the following files

- GetEFDC.exe
- getefdcrun.bat
- getefdc.inp
- GetEFDC_User_Guide(RYYMMDD).pdf

The syntax for running the utility is as follows:

```
GetEFDC.exe getefdc.inp
```

where getefdc.inp is the input file storing the information for the extraction and is described in Section 3.

2.2 Linux

In order to run GetEFDC in Linux the user needs to implement the following steps:

- Only use the FORTRAN source code F90 in GetEFDC folder
- Replace the character "\" with "/" in getefdc.f90 in order that the program can properly find the output folder of the computed model:

```
OUTFOLDER = TRIM(INPFOLDER)//'#output/'
```

- Compile and build GetEFDC using Makefile provided with the source code.

2.3. Output

After running GetEFDC a sub-folder "RESULT" is generated in the folder "#output" of the working model. The extracted files are ASCII with the following conventions for the file names:

- First characters group shows the constituent, such as SAL for salinity
- Second character group is TSK_ which is the time series of the layer K, such as TSK_4 is time series for the layer K=4
- The last character group is _DOM for the domain or CEL for the selected cells
- The vertical profiles for the constituents at the selected cells use the group _PROF in the file names, such as SAL_PROF.DAT

3. The master file of GetEFDC

"getefdc.inp" is the master file that stores all the information about the parameters of interest which the user is trying to extract. This file must be edited for every change to input parameters. A sample of the master file is included in the GetEFDC folder. The input parameters in this file are as follows:

- The full path of the folder containing "efdc.inp" file, such as:

  E:\Projects\EFDC_Testing\restart\caloo-autorun_1\efdc.inp

- LAYK The number of layer in the vertical to get data for 2DH display (>0)

  LAYK = 0 Extract the depth-averaged data
  k>0 Extract the data at layer of k
  -1 Extract High Frequency output
  -2 Extract data for time series (TS) at a height above bed (m)
  -3 Read TMP.DAT file and write an array data file for TECPLOT

- ZOPT This parameter is used in case of LAYK=-2
  ZOPT = 1 Extract TS data at the depth under water surface
  2 Extract TS data at the height above bottom

- JULTIME Julian time point for a selected layer,
  if > MAXTIME then JULTIME=MAXTIME
  JULTIME = 0 Extract data for all snapshots

- NLOC Number of locations (cells) to extract data. The location can be given as
  Index (I,J) or UTM coordinates (X,Y) via the parameter INDEX.

- ROTA The option for rotation of velocity components (U,V)
  ROTA = 0 Extract (U,V) without rotation
  1 (U,V) components are rotated to the true east and true north directions

- INDEX = 0 UTM (X,Y) of cells are used
  1 Indices (I,J) of cells are used

- VPROF The option to extract data for vertical profile, 0 (No)/ 1(Yes)

- TECPLOT The option to extract data for 2DH Tecplot, 0 (No)/ 1(Yes)

- NDRIFTER: A successive set of number of particles to extract data for (X,Y,Z)

- I/X I Indices or X abscissa of cells to extract data

- J/Y J Indices or Y coordinates of cells to extract data

- ZINT Height under water surface or above bed to extract data in case LAYK=-2

Please note that the lines which start with "**" in the "getefdc.inp" file are comments and will be ignored.