New telemac2d features for v5p1 links from New version features

 v5p1 TELEMAC-2D

Date: 24th May 2001

The principal features of this version v5p1 of TELEMAC-2D are:

- New treatment of Shallow Water Equations as a wave equation
- Developments on porosity
- Development on the drag force of vertical structures.

 New options and new or modified keywords
TREATMENT OF THE LINEAR SYSTEM (TRAITEMENT DU SYSTEME LINEAIRE)

Integer value. The default value is 1

1 : Classical option. Shallow Water equations are treated in their primitive form. Depth and velocity are coupled in the final linear system.
2 : Wave equation. The momentum equation is used to eliminate the velocity in the continuity equation. Automatically sets the following options:

> **MASS-LUMPING ON THE VELOCITY** (MASS-LUMPING SUR LA VITESSE) : 1.
> **IMPLICITATION FOR DIFFUSION OF VELOCITY** (IMPLICITATION POUR LA DIFFUSION DES VITESSES) : 0.
> **IMPLICITATION FOR VELOCITY** (IMPLICITATION POUR LA VITESSE) : 1.
> **IMPLICITATION FOR DEPTH** (IMPLICITATION FOR DEPTH) : 1.
> **C-U PRECONDITIONING** (PRECONDITIONNEMENT C-U) : NO

Moreover, the **TYPE OF ADVECTION** (FORME DE LA CONVECTION) for velocity must be : 1 or 6 (characteristics or PSI). 1 is recommended. These options do not change the results of a steady-state flow but may slightly smooth the results for a flow varying in time. With option 2, **SOLVER : 1** (conjugate gradient) is recommended as the matrix of the final linear system is symmetric.

OUTPUT OF INITIAL CONDITIONS (SORTIE DES CONDITIONS INITIALES)

Logical value. The default value is Yes
If YES, output of initial conditions in the **RESULTS FILE**

VERTICAL STRUCTURES (STRUCTURES VERTICALES)

Logical value. The default value is No
Drag forces from vertical structures are taken into account. **SUBROUTINE DRAGFO** must then be implemented.

MATRIX STORAGE (STOCKAGE DES MATRICES)

Integer value. The default value is 1
Storage 2 has been suppressed (storage 3 is always better)
Storage 3 has been modified to work in parallel mode.
We now have :

3

Storage 1 : classical Element By Element storage Storage 3 : Edge-based storage

Modifications in user subroutines
SUBROUTINE DRAGFO

An example is given in the sources_util directory. The required parameters are:

The drag coefficient **CD**, the diameter of vertical structures **DIAM**, the number of vertical structures **N**, the definition of the area where the drag force will be applied. Only the sum of all **CD*DIAM** is used in the program so more complex situations with different drag coefficients and diameters may as well be treated.

CORPOR

Called only if **TREATMENT OF TIDAL FLATS** (TRAITEMENT DES BANCS DECOUVRANTS) : 3
An example is given in the sources_util directory. Can be used to set a porosity in an area of the computational domain. This porosity is given element by

element. Please note that the value of porosity is previously set by the treatment.