New telemac3d features for v5p5 links from New version features

v5p5 TELEMAC-3D

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The principal features of this version v5p5 of TELEMAC-3D are:

- Wave equation in 3D
- Several options for reconstructing the 3D mesh

Beware: Very important notice in subroutine CONDIM:

- Initialization of free surface must be cancelled (the line to cancel will appear as an error if compiled).
- Call to subroutine **CALCOT** is changed, only arguments **Z** and **H%R** remain.

New options and new or modified keywords

Edge-based storage is now possible with **MATRIX STORAGE : 3** and **STOCKAGE DES MATRICES : 3**

Default is 1, for EBE storage

MESH TRANSFORMATION (TRANSFORMATION DU MAILLAGE)

Integer. The default is 1
Specifies how to reconstruct the 3D mesh between the bottom and the free surface

0 : user defined (in user subroutine CALCOT)
1 : sigma transformation (planes evenly spaced)
2 : spacing given by an array **ZSTAR** between 0 and 1 for every plane. To be specified in **CONDIM**.
3 : fixed plane (goes with keywords **NUMBER OF THE INTERMEDIATE REFERENCE LEVEL** and ELEVATION OF INTERMEDIATE REFERENCE LEVEL).
4 : all planes horizontal if possible (if not will avoid obstacles on the bottom and the free surface). Real elevations must be given in **CONDIM** in array **ZSTAR**.

COMPUTATION CONTINUED (SUITE DE CALCUL)

Logical. The default value is .FALSE.
A different number of planes may now be specified.

OPTION FOR THE HYDROSTATIC STEP (OPTION POUR L'ETAPE HYDROSTATIQUE)

Two options available:

1 : as before
2 : wave equation

A notable speed-up, nearly a factor 2 in hydrostatic mode, but sometimes unstable. When unstable, may be stabilized by setting : **IMPLICITATION FOR DIFFUSION = 2.**, but this is not yet fully investigated, at least safe when looking for a steady state.

VARIABLES POUR LES SORTIES GRAPHIQUES 2D (VARIABLES FOR 2D GRAPHIC PRINTOUTS)

String. The default values are 'U,V,H,B'
See below all the options available with their mnemo.

Enlish	French
'U=“depth averaged velocity along x axis (m/s)”'	'U=“vitesse moyenne suivant l'axe des x (m/s)”'
'V=“depth averaged velocity along y axis (m/s)”'	'V=“vitesse moyenne suivant l'axe des y (m/s)”'
'C=“celerity (m/s)”'	'C=“celerite (m/s)”'
'H=“water depth (m)”'	'H=“hauteur d'eau (m)”'
'S=“free surface elevation (m)”'	'S=“cote de surface libre (m)”'
'B=“bottom elevation (m)”'	'B=“cote du fond (m)”'
'F=“Froude number (m)”'	'F=“nombre de Froude (m)”'
'Q=“scalar discharge (m2/s)”'	'Q=“debit scalaire (m2/s)”'
'I=“discharge along x (m2/s)”'	'I=“debit suivant x (m2/s)”'
'J=“discharge along y (m2/s)”'	'J=“debit suivant y (m2/s)”'
'M=“norm of velocity (m/s)”'	'M=“norme de la vitesse (m/s)”'
'X=“wind along x axis (m/s)”'	'X=“vent suivant l'axe des x (m/s)”'
'Y=“wind along y axis (m/s)”	'Y=“vent suivant l'axe des y (m/s)”'
'P=“atmospheric pressure (Pa)”'	'P=“pression atmospherique (Pa)”'
'W=“friction coefficient”'	'W=“coefficient de frottement”'
'RB=“non erodable bottom elevation (m)”'	'RB=“cote des fonds non erodables (m)”'
'FD=“thickness of the fresh deposits (m)”'	'FD=“epaisseur des depots frais (m)”'
'EF=“erosion rate (kg/m3/s)”'	'EF=“flux d''erosion (kg/m3/s)”'
'DP=“probability of deposition”'	'DP=“probabilite de depot”'
'US=“friction velocity”'	'US=“vitesse de frottement”'

Keywords removed

NUMBER OF SURFACE DRIVING VELOCITY SMOOTHINGS (NOMBRE DE LISSAGES DE LA VITESSE DE SL)
NUMBER OF FREE SURFACE SMOOTHINGS (NOMBRE DE LISSAGES DE LA SURFACE LIBRE)
DYNAMIC BC (CL DYNAMIQUE)
NON-REFLECTING BC (CL NON-REFLECHISSANTE)
NUMBER OF INTERMEDIATE VELOCITY DIVERGENCE SMOOTHINGS (NOMBRE DE LISSAGES DE LA DIVERGENCE INTERMEDIAIRE)
SOLVER FOR FREE SURFACE (SOLVEUR POUR LA SURFACE LIBRE)
ACCURACY FOR FREE SURFACE (PRECISION POUR LA SURFACE LIBRE)
PRECONDITIONING FOR FREE SURFACE (PRECONDITIONNEMENT POUR LA SURFACE LIBRE)
MAXIMUM NUMBER OF ITERATIONS FOR FREE SURFACE (MAXIMUM D'ITERATIONS POUR LA SURFACE LIBRE)
SCHEME FOR FREE SURFACE (SCHEMA POUR LA SURFACE LIBRE)
IMPLICITNESS FOR FREE SURFACE (IMPLICITATION POUR LA SURFACE LIBRE)

New user subroutine and modifications in user subroutines

SUBROUTINE CALCOT

All comments are now in English.

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