KHIONE

Reference Manual

Version v8p5
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Contents

1. Detail list of keywords

1.1 3D RESULTS FILE

Type :	String
Dimension :	0
Mnemo	ICE_FILES(ICER3D)%NAME
DEFAULT VALUE :	'MANDATORY'
French keyword :	FICHIER DES RESULTATS 3D

Name of the file into which the computation results are written with a periodicity given by the keyword ICE PRINTOUT PERIOD.

1.2 3D RESULTS FILE FORMAT

Type :	String
Dimension :	1
Mnemo	ICE_FILES(ICER3D)%FMT
DEFAULT VALUE :	'SERAFIN'
French keyword :	FORMAT DU FICHIER DES RESULTATS 3D

Format of the RESULTS FILE. Possible choices are:

- SERAFIN : classical single precision format in TELEMAC,

- SERAFIND: classical double precision format in TELEMAC,

- MED : MED double precision format based on HDF5.

1.3 ACCURACY FOR DIFFUSION OF TRACERS

Type :	Real
Dimension :	0
Mnemo	SLVFRZL%EPS
DEFAULT VALUE :	1.E-8
French keyword :	PRECISION POUR LA DIFFUSION DES TRACEURS

Sets the accuracy needed for the computation of the diffusion of frazil. It is not possible to set different values for different solvers, only one is accepted.

1.4 AD NAMES OF DERIVATIVES

Type :   String
Dimension :   2
Mnemo   NAME_ADVAR
DEFAULT VALUE :   'MANDATORY'
French keyword :   AD NOMS DES DERIVEES

Name of user derivatives in 32 characters, 16 for the name, 16 for the unit.

1.5 AD NUMBER OF DERIVATIVES

Type :   Integer
Dimension :   1
Mnemo   NADVAR
DEFAULT VALUE :   0
French keyword :   AD NOMBRE DE DERIVEES

Defines the number of user derivatives, within the framework of the algorithmic differentiation.

1.6 AIR DENSITY

Type :   Real
Dimension :   1
Mnemo   RHO_AIR
DEFAULT VALUE :   1.225
French keyword :   MASSE VOLUMIQUE DE L'AIR

Sets the value of air density.

1.7 ALBEDO OF ICE

Type :   Real
Dimension :   0
Mnemo   ALBE
DEFAULT VALUE :   0.2
French keyword :   ALBEDO DES GLACES

Sets the albedo of ice.

1.8 ANGLE OF ACCUMULATED ICE

Type :   Real
Dimension :   0
Mnemo   CLOG_TETHA
DEFAULT VALUE :   35.
French keyword :   ANGLE D ACCUMULATION DE LA GLACE

TODO: WRITE HELP FOR THAT KEYWORD

1.9 ATMOSPHERE-WATER EXCHANGE MODEL

Type :   Integer
Dimension :   0
Mnemo   ATMOEXCH
DEFAULT VALUE :   0
French keyword :   MODELE D'ECHANGES EAU-ATMOSPHERE

Choice of the atmosphere-water exchange model.

- 0: linearised formula without ice,

- 1: model with complete balance with ice.

1.10   BOLTZMANN CONSTANT (WM-2K-4)

Type :   Real
Dimension :   0
Mnemo   SGMA
DEFAULT VALUE :   5.67E-8
French keyword :   `CONSTANTE DE BOLTZMANN`
TODO: WRITE HELP FOR THAT KEYWORD

1.11   BORDER ICE COVER

Type :   Logical
Dimension :   0
Mnemo   BD_ICE
DEFAULT VALUE :   NO
French keyword :   `GLACE DE BORD STATIQUE`
Computation of border ice cover.

1.12   BOUNDARY CONDITIONS FILE

Type :   String
Dimension :   1
Mnemo   ICE_FILES(ICECLI)%NAME
DEFAULT VALUE :   'MANDATORY'
French keyword :   `FICHIER DES CONDITIONS AUX LIMITES`
Name of the file containing the types of boundary conditions. This file is filled automatically
by the mesh generator through colours that are assigned to the boundary nodes.

1.13   CHANNEL WIDTH FOR THE COMPUTATION OF SURFACE TEMPERATURE

Type :   Real
Dimension :   0
Mnemo   BCH
DEFAULT VALUE :   15.
French keyword :   `LARGEUR DU CHENAL POUR LE CALCUL DE LA TEMPERATURE DE SURFACE`
TODO: WRITE HELP FOR THAT KEYWORD

1.14   CLOGGED BOUNDARY NUMBERS

Type :   Integer
Dimension :   1
Mnemo   NUMCLOG
DEFAULT VALUE :   0
French keyword :   `NUMEROS DES FRONTIERES GLACEES`
List of liquid boundary numbers where intake racks are present.

1.15 CLOGGED SECTIONS

Type :   Integer
Dimension :   1
Mnemo   SECLOG
DEFAULT VALUE :   0
French keyword :   SECTIONS COLMATEES

List of nodes on which the sections represent a clogged rack, goes by couple: sec1_start;sec1_end;sec2_start;sec2_end

1.16 CLOGGING ON BARS

Type :   Logical
Dimension :   0
Mnemo   CLOGGING
DEFAULT VALUE :   NO
French keyword :   COLMATAGE DES GRILLES

Computation of clogging on grid.

1.17 CLOGGING RESULTS FILE

Type :   String
Dimension :   1
Mnemo   ICE_FILES(CLGRFO)%NAME
DEFAULT VALUE :   "
French keyword :   FICHIER DE RESULTATS DE LA GLACE ACCUMULEE

ASCII file of results for clogged ice parameters at water intakes.

1.18 COEFFICIENT FOR CALIBRATION OF BACK RADIATION

Type :   Real
Dimension :   0
Mnemo   COEF_PHIB
DEFAULT VALUE :   1.
French keyword :   COEFFICIENT DE CALAGE DU FLUX RADIATIF ATMOSPHERIQUE

Sets heat flux calibration coefficient for effective back radiation on the free surface.

1.19 COEFFICIENT FOR CALIBRATION OF CONDUCTIVE HEAT TRANSFERT

Type :   Real
Dimension :   0
Mnemo   COEF_PHIH
DEFAULT VALUE :   1.
French keyword :   COEFFICIENT DE CALAGE DU TRANSFERT CONDUCTIF

Sets heat flux calibration coefficient for conductive heat transfert between air and atmosphere.

1.20 COEFFICIENT FOR CALIBRATION OF EVAPORATIVE HEAT TRANSFERT

Type :   Real
Dimension :   0
Mnemo   COEF_PHIE
DEFAULT VALUE :   1.
French keyword :   COEFFICIENT DE CALAGE DU TRANSFERT EVAPORATIF

Sets heat flux calibration coefficient for evaporative heat transfert between air and atmosphere.

1.21   COEFFICIENT FOR CALIBRATION OF PRECIPITATION HEAT TRANSFERT

Type :   Real
Dimension :   0
Mnemo   COEF_PHIP
DEFAULT VALUE :   1.
French keyword :   COEFFICIENT DE CALAGE DU TRANSFERT LIE AUX PRECIPITATIONS
Sets heat flux calibration coefficient for precipitation heat transfert between air and atmosphere.

1.22   COEFFICIENT FOR DIFFUSION OF COVER CONCENTRATION

Type :   Real
Dimension :   1
Mnemo   DIFCONCNU
DEFAULT VALUE :   0.
French keyword :   COEFFICIENT DE DIFFUSION DE LA CONCENTRATION DU COUVERT
Sets the value of the cover concentration diffusivity in 2D. It is a scalar.

1.23   COEFFICIENT FOR DIFFUSION OF COVER THICKNESS

Type :   Real
Dimension :   1
Mnemo   DIFTHINU
DEFAULT VALUE :   0.
French keyword :   COEFFICIENT DE DIFFUSION DE L'EPAISSEUR DU COUVERT
Sets the value of the cover thickness diffusivity in 2D. It is a scalar.

1.24   COEFFICIENT FOR DIFFUSION OF FRAZIL

Type :   Real
Dimension :   2
Mnemo   DIFFRZLNU
DEFAULT VALUE :   1.E-6;1.E-6
French keyword :   COEFFICIENT DE DIFFUSION DU FRASIL
Sets the value of the frazil diffusivity in 2D.

1.25   COEFFICIENT FOR HORIZONTAL DIFFUSION OF FRAZIL

Type :   Real
Dimension :   2
Mnemo   DNUFRZLH
DEFAULT VALUE :   MANDATORY
French keyword :   COEFFICIENT DE DIFFUSION HORIZONTAL DU FRASIL
Sets the values of the horizontal diffusion of frazil in 3D. It is an array, with one value per class, separated by semicolons.

1.26   COEFFICIENT FOR VERTICAL DIFFUSION OF FRAZIL

Type :   Real
Dimension :   2
Mnemo   DNUFRZLV
DEFAULT VALUE :   MANDATORY
French keyword :   COEFFICIENT DE DIFFUSION VERTICAL DU FRASIL

Sets the values of the vertical diffusion of frazil in 3D. It is an array, with one value per class, separated by semicolons.

1.27 CONCENTRATION OF SURFACE ICE WHEN FORMATION

Type :   Real
Dimension :   0
Mnemo   ANFEM0
DEFAULT VALUE :   1.
French keyword :   CONCENTRATION MAXIMALE DU COUVERT DE GLACE
TODO: WRITE HELP FOR THAT KEYWORD

1.28 CONSTANT TURBULENCE PARAMETERS

Type :   Real
Dimension :   3
Mnemo   KTURB
DEFAULT VALUE :   9.6E-4;12.E-4;8.7E-2
French keyword :   PARAMETRES TURBULENTS CONSTANTS
Constant turbulence parameters used to compute nusselt when no turbulence model is used i.e. k, eps, alpha

1.29 CRITICAL VELOCITY FOR DYNAMIC BORDER ICE

Type :   Real
Dimension :   0
Mnemo   VCRBOM
DEFAULT VALUE :   0.4
French keyword :   VITESSE CRITIQUE POUR LA GLACE DE BORD DYNAMIQUE
TODO: WRITE HELP FOR THAT KEYWORD

1.30 CRITICAL VELOCITY FOR STATIC BORDER ICE

Type :   Real
Dimension :   0
Mnemo   VCRBOR
DEFAULT VALUE :   0.07
French keyword :   VITESSE CRITIQUE POUR LA GLACE DE BORD STATIQUE
TODO: WRITE HELP FOR THAT KEYWORD

1.31 CRITICAL WATER TEMPERATURE FOR STATIC BORDER ICE

Type :   Real
Dimension :   0
Mnemo   TC
DEFAULT VALUE :   -1.1
French keyword :   TEMPERATURE D'EAU CRITIQUE POUR LA GLACE DE BORD STATIQUE
TODO: WRITE HELP FOR THAT KEYWORD

1.32 DEWPOINT TEMPERATURE

Type :   Real
Dimension :   0
Mnemo   CST_TDEW
DEFAULT VALUE :   0.
French keyword :   TEMPERATURE DE ROSEE

In °C, dewpoint temperature used when it is not already provided within one of the meteo files.

1.33 DICTIONARY

Type :   String
Dimension :   1
Mnemo
DEFAULT VALUE :   'KHIONE.DICO'
French keyword :   DICTIONNAIRE

Key word dictionary.

1.34 DYNAMIC ICE COVER

Type :   Logical
Dimension :   0
Mnemo   DYN_ICOVER
DEFAULT VALUE :   NO
French keyword :   COUVERT DE GLACE DYNAMIQUE

Computation of dynamic ice cover.

1.35 EAST OR WEST LONGITUDE

Type :   Real
Dimension :   0
Mnemo   ETADIR
DEFAULT VALUE :   -1.
French keyword :   LONGITUDE EST OU OUEST

-1., for west longitudes; +1. for east longitudes

1.36 ENERGY BALANCE VERSION

Type :   Integer
Dimension :   0
Mnemo   INRJB
DEFAULT VALUE :   1
French keyword :   VERSION DU BILAN ENERGETIQUE

Choice of the energy balance version.

1.37 EQUIVALENT SURFACE ICE THICKNESS

Type :   Real
Dimension :   0
Mnemo   THIE
DEFAULT VALUE :   0.001
French keyword :   EPAISSEUR DE COUVERT DE GLACE CARACTERISTIQUE

TODO: WRITE HELP FOR THAT KEYWORD

1.38 FINITE VOLUME SCHEME FOR FRAZIL DIFFUSION

Type :	Integer
Dimension :	2
Mnemo	MVIST_FRZL
DEFAULT VALUE :	1;1
French keyword :	SCHEMA VOLUMES FINIS POUR LA DIFFUSION DU FRAZIL

Choice of the finite volume diffusion model:

- 1: explicit P1 finite element,

- 2: two points flux,

- 3: reconstructed two points flux.

1.39 FLOCCULATION AFLOC PARAMETER

Type :	Real
Dimension :	0
Mnemo	AFLOC
DEFAULT VALUE :	1.E3
French keyword :	PARAMETRE AFLOC POUR LA FLOCULATION

Choice of flocculation **AFLOC** parameter.

1.40 FORTRAN FILE

Type :	String
Dimension :	1
Mnemo	NOMFOR
DEFAULT VALUE :	”
French keyword :	FICHIER FORTRAN

Name of the FORTRAN file or directory to be submitted, including specific subroutines of the model.

1.41 FRAZIL CRYSTALS DIAMETER THICKNESS RATIO

Type :	Real
Dimension :	0
Mnemo	DE
DEFAULT VALUE :	10.
French keyword :	RATIO DIAMETRE EPAISSEUR D'UN CRISTAL DE FRASIL

TODO: WRITE HELP FOR THAT KEYWORD

1.42 FRAZIL CRYSTALS RADIUS

Type :	Real
Dimension :	1
Mnemo	RK_FRZL
DEFAULT VALUE :	4.1E-4
French keyword :	RAYON DES CRISTAUX DE FRASIL

TODO: WRITE HELP FOR THAT KEYWORD

1.43 **FRAZIL SEEDING RATE**

Type :   Real
Dimension :   1
Mnemo   SEEDR
DEFAULT VALUE :   100.
French keyword :   `TAUX D'ENSEMENCEMENT DE FRASIL`
Number of crystals per unit surface added per second.

1.44 **FRAZIL UNDER COVER DEPOSITION PROBABILITY**

Type :   Real
Dimension :   1
Mnemo   DEPK
DEFAULT VALUE :   1.
French keyword :   `PROBABILITE DE DEPOSITION DE SOUS COUVERT DU FRAZIL`
TODO: WRITE HELP FOR THAT KEYWORD

1.45 **FRAZIL UNDER COVER REENTRAINMENT COEFFICIENT**

Type :   Real
Dimension :   1
Mnemo   EROK
DEFAULT VALUE :   1.E-4
French keyword :   `COEFFICIENT DE REENTRAINEMENT DU FRAZIL SOUS COUVERT`
TODO: WRITE HELP FOR THAT KEYWORD

1.46 **FREEZING POINT OF WATER**

Type :   Real
Dimension :   0
Mnemo   CST_TMELT
DEFAULT VALUE :   0.
French keyword :   `TEMPERATURE DE CONGELATION DE L'EAU`
TODO: WRITE HELP FOR THAT KEYWORD

1.47 **GEOMETRY FILE**

Type :   String
Dimension :   0
Mnemo   ICE_FILES(ICEGEO)%NAME
DEFAULT VALUE :   ''
French keyword :   `FICHIER DE GEOMETRIE`
Geometry file identical to the TELEMAC-2D one.

1.48 **GEOMETRY FILE FORMAT**

Type :   String
Dimension :   1
Mnemo   ICE_FILES(ICEGEO)%FMT
DEFAULT VALUE :   'SERAFIN'
French keyword :   `FORMAT DU FICHIER DE GEOMETRIE`
Format of the `GEOMETRY FILE`. Possible choices are:

- SERAFIN : classical single precision format in TELEMAC,

- SERAFIND: classical double precision format in TELEMAC,

- MED : MED double precision format based on HDF5.

1.49   GLOBAL LONGITUDE, IN DEGREES

Type :   Real
Dimension :   0
Mnemo   ALSM
DEFAULT VALUE :   75.
French keyword :   LONGITUDE GLOBALE, EN DEGRES
Sets the global longitude, in degrees.

1.50   GRAPHIC PRINTOUT PERIOD

Type :   Integer
Dimension :   0
Mnemo   LEOPRD
DEFAULT VALUE :   1
French keyword :   PERIODE POUR LES SORTIES GRAPHIQUES
Determines, in number of time steps, the printout period for the VARIABLES FOR GRAPHIC
PRINTOUTS in the RESULTS FILE.

1.51   HEAT BUDGET

Type :   Logical
Dimension :   0
Mnemo   THERMAL_BUDGET
DEFAULT VALUE :   YES
French keyword :   BILAN THERMIQUE
Computation of the thermal exchanges in KHIONE.

1.52   HEIGHT OF MEASURED WIND

Type :   Real
Dimension :   0
Mnemo   WINDZ
DEFAULT VALUE :   4.5
French keyword :   HAUTEUR DE MESURE DU VENT
Sets the height at which the wind is measured, in meters.

1.53   ICE COVER IMPACT ON HYDRODYNAMIC

Type :   Logical
Dimension :   0
Mnemo   ICOVER_IMPACT
DEFAULT VALUE :   NO
French keyword :   IMPACT DU COUVERT SUR L'HYDRODYNAMIQUE
Computation of ice cover impact on the hydrodynamic.

1.54 ICE DENSITY

Type :	Real
Dimension :	1
Mnemo	RHO_ICE
DEFAULT VALUE :	916.8
French keyword :	MASSE VOLUMIQUE DE LA GLACE

Sets the value of ice density, in kg/m^3.

1.55 ICE FRICTION COEFFICIENT

Type :	Real
Dimension :	1
Mnemo	FICE
DEFAULT VALUE :	0.04
French keyword :	COEFFICIENT DE FROTTEMENT

Sets the value of the friction coefficient for the selected formulation. It is noteworthy that the meaning of this figure changes according to the selected formula (Chezy, Strickler, etc.):

- 1: linear coefficient,

- 2: Chezy coefficient,

- 3: Strickler coefficient,

- 4: Manning coefficient,

- 5: Nikuradse grain size.

1.56 ICE-AIR HEAT EXCHANGE COEFFICIENT

Type :	Real
Dimension :	0
Mnemo	LIN_ICEAIR
DEFAULT VALUE :	12.189
French keyword :	COEFFICIENT D'ECHANGE THERMIQUE GLACE-AIR

Sets the linearised heat flux exchange coefficient between ice and air.

1.57 ICE-AIR HEAT EXCHANGE CONSTANT

Type :	Real
Dimension :	0
Mnemo	CST_ICEAIR
DEFAULT VALUE :	-32.547
French keyword :	CONSTANTE D'ECHANGE THERMIQUE GLACE-AIR

Sets the linearised heat flux exchange constant between ice and air.

1.58 INCLUDE ICE DYNAMICS

Type :	Logical
Dimension :	0
Mnemo	ICEDYNAMICS
DEFAULT VALUE :	NO
French keyword :	INCLURE LA DYNAMIQUE DES GLACES

Switch the surface ice dynamics processes.

1.59 INITIAL CONDITIONS

Type :   String
Dimension :   1
Mnemo   CDTINI
DEFAULT VALUE :   'WITHOUT ICE COVER'
French keyword :   CONDITIONS INITIALES

Makes it possible to define the initial conditions with ice cover. The possible values are as follows:

- WITHOUT ICE COVER,

- CONSTANT ICE COVER,

- SPECIAL. The initial conditions with the water depth should be stated in the **CONDICE** subroutine.

1.60 INITIAL COVER CONCENTRATION VALUE

Type :   Real
Dimension :   1
Mnemo   CONC0
DEFAULT VALUE :   0.
French keyword :   VALEUR INITIALE DE CONCENTRATION DU COUVERT

Sets the initial values of cover concentration.

1.61 INITIAL COVER THICKNESS VALUE

Type :   Real
Dimension :   1
Mnemo   THI0
DEFAULT VALUE :   0.
French keyword :   VALEUR INITIALE D'EPAISSEUR DU COUVERT

Sets the initial values of cover thickness.

1.62 INITIAL FRAZIL CONCENTRATION VALUES

Type :   Real
Dimension :   2
Mnemo   FRZL0
DEFAULT VALUE :   0.;0.
French keyword :   VALEURS INITIALES DE CONCENTRATION DU FRASIL

Sets the initial values of frazil concentration.

1.63 KINEMATIC WATER VISCOSITY

Type :   Real
Dimension :   1
Mnemo   XNU
DEFAULT VALUE :   1.792E-6
French keyword :   VISCOSITE CINEMATIQUE DE L'EAU

Specifies the water kinematic viscosity. In m/s^2.

1.64 LATENT HEAT OF ICE

Type :	Real
Dimension :	1
Mnemo	LH_ICE
DEFAULT VALUE :	3.34E5
French keyword :	CHALEUR LATENTE DE LA GLACE

Sets the value of the latent heat of ice.

1.65 LAW FOR FRICTION COEFFICIENT

Type :	Integer
Dimension :	1
Mnemo	IFICE
DEFAULT VALUE :	0
French keyword :	LOI POUR LE COEFFICIENT DE FROTTEMENT

Selection between constant friction coefficient of linearly dependant on ice cover thickness.

1.66 LAW OF ICE COVER FRICTION

Type :	Integer
Dimension :	1
Mnemo	IFROT
DEFAULT VALUE :	4
French keyword :	LOI DE FROTTEMENT SOUS LE COUVERT DE GLACE

Selects the type of formulation used for the under ice cover friction. The possible laws are as follows (refer to the Principle note):

- 0: no friction against bottom,

- 1: Haaland formula,

- 2: Chezy formula,

- 3: Strickler formula,

- 4: Manning formula,

- 5: Nikuradse formula.

1.67 LIGHT EXTINCTION COEFFICIENT

Type :	Real
Dimension :	1
Mnemo	EXTINC
DEFAULT VALUE :	0.2
French keyword :	COEFFICIENT D EXTINCTION DE LA LUMIERE

In m^{-1} for solar radiation penetration in 3D.

1.68   LISTING PRINTOUT PERIOD

Type :   Integer
Dimension :   0
Mnemo   LISPRD
DEFAULT VALUE :   1
French keyword :   PERIODE DE SORTIE LISTING

Determines, in number of time steps, the printout period of the VARIABLES TO BE PRINTED. The results are systematically printed out on the listing file (file CAS.SORTIE at the workstation).

1.69   LOCAL LONGITUDE, IN DEGREES

Type :   Real
Dimension :   0
Mnemo   ALLM
DEFAULT VALUE :   75.43
French keyword :   LONGITUDE LOCALE, EN DEGRES

Sets the local longitude, in degrees.

1.70   MASS-BALANCE

Type :   Logical
Dimension :   1
Mnemo   WQBILMAS
DEFAULT VALUE :   NO
French keyword :   BILAN DE MASSE

Determines whether a check of the mass-balance over the domain is done or not.

1.71   MAXIMAL FRICTION COEFFICIENT

Type :   Real
Dimension :   1
Mnemo   FICE_MAX
DEFAULT VALUE :   0.04
French keyword :   COEFFICIENT DE FROTTEMENT MAXIMAL

Sets the maximal friction coefficient when it depends linearly on the ice cover thickness.

1.72   MAXIMUM NUMBER OF BOUNDARIES

Type :   Integer
Dimension :   1
Mnemo   MAXFRO
DEFAULT VALUE :   30
French keyword :   NOMBRE MAXIMUM DE FRONTIERES

maximal number of boundaries in the mesh. Used for dimensioning arrays. Can be increased if needed

1.73 MAXIMUM NUMBER OF ITERATIONS FOR SOLVER FOR TRACERS

Type :   Integer
Dimension :   1
Mnemo   SLVFRZL(I)%NITMAX
DEFAULT VALUE :   60
French keyword :   MAXIMUM D'ITERATIONS POUR LE SOLVEUR POUR LES TRACEURS
Limits the number of solver iterations for the diffusion of frazil.

1.74 MINIMAL THICKNESS OF ICE COVER

Type :   Real
Dimension :   0
Mnemo   PRE_MIN
DEFAULT VALUE :   1.E-3
French keyword :   EPAISSEUR MINIMALE DU COUVERT DE GLACE
Minimal thickness of the ice cover

1.75 MINIMUM NUMBER OF FRAZIL CRYSTALS

Type :   Real
Dimension :   0
Mnemo   MINNK
DEFAULT VALUE :   7.1586E4
French keyword :   NOMBRE MINIMUM DE CRISTAUX DE FRASIL
Minimum number of crystals per unit volume.

1.76 MODEL FOR ESTIMATION OF TURBULENCE PARAMETERS

Type :   Integer
Dimension :   0
Mnemo   ITURB
DEFAULT VALUE :   1
French keyword :   MODELE POUR L'ESTIMATION DES PARAMETRES DE TURBULENCE

- 0: constant values set in the code,

- 1: values estimated from vertical integration of a mixed length model,

- 2: values computed and given by TELEMAC-2D.

1.77 MODEL FOR FRAZIL SEEDING

Type :   Integer
Dimension :   0
Mnemo   ISEED
DEFAULT VALUE :   1
French keyword :   MODELE POUR L'ENSEMENCEMENT DU FRASIL
Choice of the model for frazil seeding.

1.78   MODEL FOR MASS EXCHANGE BETWEEN FRAZIL AND ICE COVER

Type :   Integer
Dimension :   0
Mnemo   IPREC
DEFAULT VALUE :   0
French keyword :   MODELE POUR LES ECHANGES ENTRE FRASIL ET COUVERT
Choice for mass exchange model between frazil and ice cover.

- 0 : no mass exchange,

- 1 : simple model with net deposition flux.

- 2 : simple model with erosion and deposition flux.

1.79   MODEL FOR THE BUOYANCY VELOCITY

Type :   Integer
Dimension :   0
Mnemo   IBUOY
DEFAULT VALUE :   2
French keyword :   MODELE POUR LE CALCUL DU VITESSE DE FLOTTAISON
TODO: WRITE HELP FOR THAT KEYWORD

1.80   MODEL FOR THE FLOCCULATION AND BREAKUP

Type :   Integer
Dimension :   0
Mnemo   IFLOC
DEFAULT VALUE :   1
French keyword :   MODELE POUR LA FLOCULATION ET RUPTURE
Choice of the model for flocculation and breakup, only for multi-class model.

1.81   MODEL FOR THE ICE COVER PRESSURE GRADIENT

Type :   Integer
Dimension :   1
Mnemo   IPRES
DEFAULT VALUE :   2
French keyword :   MODELE POUR LE GRADIENT DE PRESSION DE COUVERT
TODO: WRITE HELP FOR THAT KEYWORD

1.82   MODEL FOR THE NUSSELT NUMBER

Type :   Integer
Dimension :   0
Mnemo   NUSSI
DEFAULT VALUE :   1
French keyword :   MODELE POUR LE CALCUL DU NOMBRE DE NUSSELT
TODO: WRITE HELP FOR THAT KEYWORD

1.83   MODEL FOR THE SECONDARY NUCLEATION

Type :	Integer
Dimension :	0
Mnemo	ISNUC
DEFAULT VALUE :	2
French keyword :	MODELE POUR LA NUCLEATION SECONDAIRE

Choice of the model for secondary nucleation, only for multi-class model.

1.84   MODEL FOR UNDER COVER FRICTION

Type :	Integer
Dimension :	1
Mnemo	IFRIC
DEFAULT VALUE :	2
French keyword :	MODELE POUR LE FROTTEMENT SOUS COUVERT

Selection of a friction model for under cover

1.85   NUMBER OF CLASSES FOR SUSPENDED FRAZIL ICE

Type :	Integer
Dimension :	0
Mnemo	NC_FRA
DEFAULT VALUE :	1
French keyword :	NOMBRE DE CLASSES POUR LA SUSPENSION DE FRASIL

Sets the number of classes of suspended frazil ice granules.

1.86   NUSSELT NUMBER

Type :	Real
Dimension :	0
Mnemo	NUSS
DEFAULT VALUE :	4.
French keyword :	NOMBRE DE NUSSELT

TODO: WRITE HELP FOR THAT KEYWORD

1.87   NUSSELT NUMBER FOR HEAT TRANSFER BETWEEN WATER AND ICE

Type :	Real
Dimension :	0
Mnemo	ATA
DEFAULT VALUE :	7.541
French keyword :	NOMBRE DE NUSSELT POUR LE TRANFERT THERMIQUE GLACE-EAU

TODO: WRITE HELP FOR THAT KEYWORD

1.88   PARALLEL PROCESSORS

Type :	Integer
Dimension :	1
Mnemo	NCSIZE
DEFAULT VALUE :	0
French keyword :	PROCESSEURS PARALLELES

Number of processors for domain partition.

- 0: 1 machine, compiling without parallel library,

- 1: 1 machine, compiling with a parallel library,

- 2: 2 processors or machines in parallel etc...

1.89 PHYSICAL CHARACTERISTICS OF THE INTAKE RACK

Type :   Real
Dimension :   4
Mnemo   CLOG_RACK
DEFAULT VALUE :   0.06;0.01;0.06;0.01
French keyword :   PARAMETRES PHYSIQUES DE LA GRILLE D ENTREE

Characteristics of vertical and transverse bars, in order of appearance:

- 1: distance between the centre of the transverse bars,

- 2: diameter of the transverse bars,

- 3: distance between the centre of the vertical bars,

- 4: diameter of the vertical bars.

A zero diameter for one particular set of bars will result in not having those bars on the rack.

1.90 POROSITY OF ACCUMULATED ICE

Type :   Real
Dimension :   0
Mnemo   CLOG_EFC
DEFAULT VALUE :   0.67
French keyword :   POROSITE DE LA GLACE ACCUMULEE

TODO: WRITE HELP FOR THAT KEYWORD

1.91 POROSITY OF SURFACE ICE

Type :   Real
Dimension :   0
Mnemo   SURF_EF
DEFAULT VALUE :   0.4
French keyword :   POROSITE DE LA GLACE DE SURFACE

TODO: WRITE HELP FOR THAT KEYWORD

1.92 PRECONDITIONING FOR DIFFUSION OF TRACERS

Type :   Integer
Dimension :   1
Mnemo   SLVFRZL(I)%PRECON
DEFAULT VALUE :   2
French keyword :   PRECONDITIONNEMENT POUR LA DIFFUSION DES TRACEURS

Choice of preconditioning for the diffusion of frazil. Possible choices are:

- 0: no preconditioning,

- 2: diagonal,

- 3: diagonal with the condensed matrix in 3D,

- 5: diagonal with absolute values in 3D,

- 7: Crout,

- 11: Gauss-Seidel EBE in 3D,

- 13: matrix defined by the user in 3D,

- 14: diagonal and Crout,

- 17: direct solver on the vertical in 3D,

- 21: diagonal condensed and Crout in 3D,

- 34: diagonal and direct solver on the vertical in 3D.

1.93   PRESCRIBED COVER CONCENTRATION VALUES

Type :	Real
Dimension :	2
Mnemo	PRECONC
DEFAULT VALUE :	MANDATORY
French keyword :	`VALEURS IMPOSEES DES CONCENTRATIONS DE COUVERT`

Cover concentration values prescribed at the inflow boundaries. Determines the imposed value of cover concentration at the first boundary, then at the second and so on, with the same logic as tracers.

1.94   PRESCRIBED COVER THICKNESS VALUES

Type :	Real
Dimension :	2
Mnemo	PRETHI
DEFAULT VALUE :	MANDATORY
French keyword :	`VALEURS IMPOSEES DE L'EPAISSEUR DU COUVERT`

Cover thickness values prescribed at the inflow boundaries. Determines the imposed value of cover concentration at the first boundary, then at the second and so on, with the same logic as tracers.

1.95   PRESCRIBED FRAZIL CONCENTRATION VALUES

Type :	Real
Dimension :	2
Mnemo	PREFRZL
DEFAULT VALUE :	MANDATORY
French keyword :	`VALEURS IMPOSEES DES CONCENTRATIONS DE FRASIL`

Frazil concentration values prescribed at the inflow boundaries. Determines the imposed value of frazil classes at the first boundary, then at the second and so on, with the same logic as tracers.

1.96   PREVIOUS ICE BLOCKS COMPUTATION FILE

Type :   String
Dimension :   1
Mnemo   ICE_FILES(ICEBLK)%NAME
DEFAULT VALUE :   ''
French keyword :   FICHIER BLOCS DE GLACE DU CALCUL PRECEDENT

Name of a file containing the results of ice blocks from an earlier Lagrangian computation. The last recorded time step will provide the initial conditions for the new computation.

1.97   PREVIOUS ICE BLOCKS COMPUTATION FILE FORMAT

Type :   String
Dimension :   1
Mnemo   ICE_FILES(ICEBLK)%FMT
DEFAULT VALUE :   'SERAFIN'
French keyword :   FORMAT DU FICHIER BLOCS DE GLACE DU CALCUL PRECEDENT

Previous ice cover blocks computation results file format. Possible values are:

- UNKNOWN : not-yet-defined single precision format in TELEMAC,

- UNKNOWND: not-yet-defined double precision format in TELEMAC.

1.98   PREVIOUS ICE COVER COMPUTATION FILE

Type :   String
Dimension :   1
Mnemo   ICE_FILES(ICECOV)%NAME
DEFAULT VALUE :   ''
French keyword :   FICHIER COUVERT DE GLACE DU CALCUL PRECEDENT

Name of a file containing the results of an earlier ice cover computation which was made on the same mesh. The last recorded time step will provide the initial conditions for the new computation.

1.99   PREVIOUS ICE COVER COMPUTATION FILE FORMAT

Type :   String
Dimension :   1
Mnemo   ICE_FILES(ICECOV)%FMT
DEFAULT VALUE :   'SERAFIN'
French keyword :   FORMAT DU FICHIER COUVERT DE GLACE DU CALCUL PRECEDENT

Previous ice cover computation results file format. Possible values are:

- SERAFIN : classical single precision format in TELEMAC,

- SERAFIND: classical double precision format in TELEMAC.

1.100   REFERENCE FILE

Type :   String
Dimension :   0
Mnemo   ICE_FILES(ICEREF)%NAME
DEFAULT VALUE :   ''
French keyword :   FICHIER DE REFERENCE

Name of the binary-coded result file used to validate the compuation. If VALIDATION = YES,

the results of the computation will be compared with the values of this file. The comparison is done by the subroutine **BIEF_VALIDA**.

1.101 REFERENCE FILE FORMAT

Type :	String
Dimension :	1
Mnemo	ICE_FILES(ICEREF)%FMT
DEFAULT VALUE :	'SERAFIN'
French keyword :	FORMAT DU FICHIER DE REFERENCE

Format of the REFERENCE FILE. Possible choices are:

- SERAFIN : classical single precision format in TELEMAC,

- SERAFIND: classical double precision format in TELEMAC,

- MED : MED double precision format based on HDF5.

1.102 RELATIVE MODEL ELEVATION FROM MEAN SEA LEVEL

Type :	Real
Dimension :	0
Mnemo	MODELZ
DEFAULT VALUE :	0.
French keyword :	ELEVATION DU MODELE RELATIVE AU NIVEAU MOYEN DES OCEANS

Sets the relative model elevation from mean sea level.

1.103 RESULTS FILE

Type :	String
Dimension :	0
Mnemo	ICE_FILES(ICERES)%NAME
DEFAULT VALUE :	'MANDATORY'
French keyword :	FICHIER DES RESULTATS

Name of the file into which the computation results are written with a periodicity given by TELEMAC

1.104 RESULTS FILE FORMAT

Type :	String
Dimension :	1
Mnemo	ICE_FILES(ICERES)%FMT
DEFAULT VALUE :	'SERAFIN'
French keyword :	FORMAT DU FICHIER DES RESULTATS

Format of the RESULTS FILE. Possible choices are:

- SERAFIN : classical single precision format in TELEMAC,

- SERAFIND: classical double precision format in TELEMAC,

- MED : MED double precision format based on HDF5.

1.105   SALINITY

Type :   Logical
Dimension :   0
Mnemo   SALINITY
DEFAULT VALUE :   NO
French keyword :   SALINITE

Add salinity tracer and modify freezing point of water accordingly.

1.106   SCHEME FOR ADVECTION OF TRACERS

Type :   Integer
Dimension :   1
Mnemo   SCHADVFRZL
DEFAULT VALUE :   5
French keyword :   SCHEMA POUR LA CONVECTION DES TRACEURS

Choice of the advection scheme for the frazil and the cover, ERIA works only in 2D.

1.107   SCHEME FOR DIFFUSION OF FRAZIL IN 3D

Type :   Integer
Dimension :   1
Mnemo   SCHDFRZL
DEFAULT VALUE :   1
French keyword :   SCHEMA POUR LA DIFFUSION DU FRASIL EN 3D

Monitors the choice of the diffusion scheme for frazil in 3D simulations. Possible choices are:

- 0: no diffusion,

- 1: implicit,

- 2: vertical diffusion only.

1.108   SCHEME OPTION FOR ADVECTION OF TRACERS

Type :   Integer
Dimension :   1
Mnemo   OPTADV_FRZL
DEFAULT VALUE :   4
French keyword :   OPTION DU SCHEMA POUR LA CONVECTION DES TRACEURS

If N or PSI SCHEME: 1=explicit 2=predictor-corrector 3= predictor-corrector second-order in time 4= implicit

1.109   SCHEME OPTION FOR THERMAL GROWTH

Type :   Integer
Dimension :   0
Mnemo   ITGM
DEFAULT VALUE :   1
French keyword :   OPTION DU SCHEMA POUR LA CROISSANCE THERMIQUE

Time integration option for the frazil thermal growth source term.

1.110 SECONDARY NUCLEATION NMAX PARAMETER

Type :   Real
Dimension :   0
Mnemo   SNNMAX
DEFAULT VALUE :   6.E6
French keyword :   PARAMETRE NMAX POUR LA NUCLEATION SECONDAIRE

Choice of secondary nucleation NMAX parameter.

1.111 SETTLING COEFFICIENT OF FRAZIL ON BARS

Type :   Real
Dimension :   0
Mnemo   AF
DEFAULT VALUE :   1.
French keyword :   COEFFICIENT DE DEPOSITION DES GLACES SUR BARRES

TODO: WRITE HELP FOR THAT KEYWORD

1.112 SOLAR CONSTANT

Type :   Real
Dimension :   0
Mnemo   SIO
DEFAULT VALUE :   1380.
French keyword :   CONSTANTE SOLAIRE

Sets the solar constant. The solar constant, a measure of flux density, is the mean solar electromagnetic radiation (the solar irradiance) per unit area that would be incident on a plane perpendicular to the rays, at a distance of one astronomical unit (AU) from the Sun (roughly the mean distance from the Sun to the Earth). The solar constant includes all types of solar radiation, not just the visible light. It is measured by satellite as being 1.361 kilowatts per square meter (kW/m^2) at solar minimum and approximately 0.1 % greater (roughly 1.362 kW/m^2) at solar maximum. The solar "constant" is not a physical constant in scientific sense; that is, it is not like the Planck constant or the speed of light, which are absolutely constant in physics. The solar constant is merely an average of the actually varying value. It has been shown to vary in the past 400 years over a range of less than 0.2 %.

1.113 SOLVER FOR DIFFUSION OF TRACERS

Type :   Integer
Dimension :   1
Mnemo   SLVFRZL(I)%SLV
DEFAULT VALUE :   1
French keyword :   SOLVEUR POUR LA DIFFUSION DES TRACEURS

Choice of the solver for suspension resolution. Possible choices are:

- 1: conjugate gradient,

- 2: conjugate residual,

- 3: conjugate gradient on a normal equation,

- 4: minimum error,

- 5: squared conjugate gradient,

- 6: CGSTAB,

- 7: GMRES,

- 8: direct solver.

1.114 SOLVER OPTION FOR DIFFUSION OF TRACERS

Type :   Integer
Dimension :   1
Mnemo   SLVFRZL(I)%KRYLOV
DEFAULT VALUE :   5
French keyword :   OPTION DU SOLVEUR POUR LA DIFFUSION DES TRACEURS
Dimension of Krylov space for the GMRES method (7).

1.115 SPECIFIC HEAT OF ICE

Type :   Real
Dimension :   1
Mnemo   CP_ICE
DEFAULT VALUE :   2.04E+03
French keyword :   CHALEUR SPECIFIQUE DE LA GLACE
Sets the value of the specific heat of ice, in J/kg/K.

1.116 STEERING FILE

Type :   String
Dimension :   1
Mnemo
DEFAULT VALUE :   "
French keyword :   FICHIER DES PARAMETRES
Name of the file containing parameters of the ice computation. Provided by the user.

1.117 SUN RISE ANGLE

Type :   Real
Dimension :   0
Mnemo   ALPHRD
DEFAULT VALUE :   0.
French keyword :   ANGLE DU SOLEIL LEVANT
Sets the sun rise angle, 0 degrees for the horizontal.

1.118 SUN SET ANGLE

Type :   Real
Dimension :   0
Mnemo   ALPHSD
DEFAULT VALUE :   180.
French keyword :   ANGLE DU SOLEIL COUCHANT
Sets the sun set angle, 180 degrees for the horizontal.

1.119 THERMAL CONDUCTIVITY BETWEEN WATER AND FRAZIL

Type :	Real
Dimension :	0
Mnemo	TC_WT
DEFAULT VALUE :	0.56594
French keyword :	CONDUCTIVITE THERMIQUE ENTRE EAU ET FRASIL

TODO: WRITE HELP FOR THAT KEYWORD

1.120 THERMAL CONDUCTIVITY OF BLACK ICE

Type :	Real
Dimension :	0
Mnemo	TC_BI
DEFAULT VALUE :	2.24
French keyword :	CONDUCTIVITE THERMIQUE DE LA GLACE SOMBRE

TODO: WRITE HELP FOR THAT KEYWORD

1.121 THERMAL CONDUCTIVITY OF SNOW

Type :	Real
Dimension :	0
Mnemo	TC_S
DEFAULT VALUE :	0.3
French keyword :	CONDUCTIVITE THERMIQUE DE LA NEIGE

TODO: WRITE HELP FOR THAT KEYWORD

1.122 TITLE

Type :	String
Dimension :	1
Mnemo	TITCAS
DEFAULT VALUE :	''
French keyword :	TITRE

Title of the case being considered.

1.123 VALIDATION

Type :	Logical
Dimension :	1
Mnemo	WQVALID
DEFAULT VALUE :	NO
French keyword :	VALIDATION

This option is primarily used for the validation documents. If this keyword is equal to YES, the REFERENCE FILE is then considered as a reference which the computation is going to be compared with. The REFERENCE FILE is then considered as a reference which the computation is going to be compared with. The comparison is done by the subroutine **BIEF_VALIDA**, which can be modified so as to include, for example, a comparison with an exact solution.

1.124   VARIABLES FOR 3D GRAPHIC PRINTOUTS

Type :   String
Dimension :   1
Mnemo   VARD3D
DEFAULT VALUE :   ''
French keyword :   VARIABLES 3D POUR LES SORTIES GRAPHIQUES

Names of variables that may be written in the RESULTS FILE. Every variable is represented by a group of letters with any separator between them , ; or blank.

1.125   VARIABLES FOR GRAPHIC PRINTOUTS

Type :   String
Dimension :   1
Mnemo   VARDES
DEFAULT VALUE :   ''
French keyword :   VARIABLES POUR LES SORTIES GRAPHIQUES

Names of variables that may be written in the ICE RESULTS FILE. Every variable is represented by a group of letters with any separator between them , ; or blank.

1.126   VARIABLES TO BE PRINTED

Type :   String
Dimension :   1
Mnemo   VARIMP
DEFAULT VALUE :   ''
French keyword :   VARIABLES A IMPRIMER

Necessary keyword but does not do much.

1.127   VISIBILITY

Type :   Real
Dimension :   0
Mnemo   CST_VISBI
DEFAULT VALUE :   1.E13
French keyword :   VISIBILITE

In km, visibility used when it is not already provided within one of the meteo files.

1.128   WATER DENSITY

Type :   Real
Dimension :   1
Mnemo   RO0
DEFAULT VALUE :   999.82
French keyword :   MASSE VOLUMIQUE DE L'EAU

Sets the value of water density, in kg/m^3.

1.129 **WATER SPECIFIC HEAT**

Type :   Real
Dimension :   0
Mnemo   CP_EAU
DEFAULT VALUE :   4185.5
French keyword :   CHALEUR SPECIFIQUE DE L'EAU
Sets the value of the specific heat of water, in J/kg/K.

1.130 **WATER-AIR HEAT EXCHANGE COEFFICIENT**

Type :   Real
Dimension :   0
Mnemo   LIN_WATAIR
DEFAULT VALUE :   20.
French keyword :   COEFFICIENT D'ECHANGE THERMIQUE EAU-AIR
Sets the heat exchange coefficient between water and air.

1.131 **WATER-AIR HEAT EXCHANGE CONSTANT**

Type :   Real
Dimension :   0
Mnemo   CST_WATAIR
DEFAULT VALUE :   -50.
French keyword :   CONSTANTE D'ECHANGE THERMIQUE EAU-AIR
Sets the heat exchange constant between water and air.

1.132 **WATER-ICE HEAT TRANSFER COEF. FOR SUPERCOOLED TURBULENT FLOW**

Type :   Real
Dimension :   0
Mnemo   CIW1
DEFAULT VALUE :   1118.
French keyword :   CONST. POUR LE FLUX THERMIQUE TURBULENT GLACE-EAU EN SURFUSION
TODO: WRITE HELP FOR THAT KEYWORD

1.133 **WATER-ICE HEAT TRANSFER COEF. FOR TURBULENT FLOW**

Type :   Real
Dimension :   0
Mnemo   CWI1
DEFAULT VALUE :   1448.
French keyword :   CONST. POUR LE FLUX THERMIQUE TURBULENT GLACE-EAU
TODO: WRITE HELP FOR THAT KEYWORD

2. List of keywords classified according to type

2.1 CLOGGING

```
CLOGGING ON BARS
CLOGGING RESULTS FILE
```

2.1.1 BOUNDARY CONDITIONS

```
CLOGGED BOUNDARY NUMBERS
CLOGGED SECTIONS
```

2.1.2 PHYSICAL PARAMETERS

GLACE

```
ANGLE OF ACCUMULATED ICE
POROSITY OF ACCUMULATED ICE
```

GRID

```
PHYSICAL CHARACTERISTICS OF THE INTAKE RACK
```

2.2 COMPUTATION ENVIRONMENT

2.2.1 GLOBAL

```
MAXIMUM NUMBER OF BOUNDARIES
PARALLEL PROCESSORS
TITLE
```

2.2.2 INITIALIZATION

```
INITIAL CONDITIONS
```

2.2.3   **INPUT**
        DATA
        BOUNDARY CONDITIONS FILE
        FORTRAN FILE
        GEOMETRY FILE
        GEOMETRY FILE FORMAT
        REFERENCE FILE
        REFERENCE FILE FORMAT
        STEERING FILE
        VALIDATION

2.2.4   **OUTPUT**
        LISTING
        LISTING PRINTOUT PERIOD
        MASS-BALANCE
        VARIABLES TO BE PRINTED

        RESULTS
        3D RESULTS FILE
        3D RESULTS FILE FORMAT
        GRAPHIC PRINTOUT PERIOD
        RESULTS FILE
        RESULTS FILE FORMAT
        VARIABLES FOR 3D GRAPHIC PRINTOUTS
        VARIABLES FOR GRAPHIC PRINTOUTS

2.2.5   **RESTART**
        PREVIOUS ICE BLOCKS COMPUTATION FILE
        PREVIOUS ICE BLOCKS COMPUTATION FILE FORMAT
        PREVIOUS ICE COVER COMPUTATION FILE
        PREVIOUS ICE COVER COMPUTATION FILE FORMAT

2.3   **FRAZIL**
        FLOCCULATION AFLOC PARAMETER
        MODEL FOR FRAZIL SEEDING
        MODEL FOR THE FLOCCULATION AND BREAKUP
        MODEL FOR THE SECONDARY NUCLEATION
        SCHEME OPTION FOR THERMAL GROWTH
        SECONDARY NUCLEATION NMAX PARAMETER

2.3.1   **BOUNDARY CONDITIONS**
        PRESCRIBED FRAZIL CONCENTRATION VALUES

2.3.2 CALIBRATION COEFFICIENT

```
SETTLING COEFFICIENT OF FRAZIL ON BARS
```

2.3.3 DIFFUSION

```
COEFFICIENT FOR DIFFUSION OF FRAZIL
COEFFICIENT FOR HORIZONTAL DIFFUSION OF FRAZIL
COEFFICIENT FOR VERTICAL DIFFUSION OF FRAZIL
```

2.3.4 INITIAL CONDITION

```
INITIAL FRAZIL CONCENTRATION VALUES
```

2.3.5 NUMERICAL PARAMETERS

```
ACCURACY FOR DIFFUSION OF TRACERS
MAXIMUM NUMBER OF ITERATIONS FOR SOLVER FOR TRACERS
PRECONDITIONING FOR DIFFUSION OF TRACERS
SCHEME FOR ADVECTION OF TRACERS
SCHEME FOR DIFFUSION OF FRAZIL IN 3D
SCHEME OPTION FOR ADVECTION OF TRACERS
SOLVER FOR DIFFUSION OF TRACERS
SOLVER OPTION FOR DIFFUSION OF TRACERS
```

2.3.6 PHYSICAL PARAMETERS

```
CHANNEL WIDTH FOR THE COMPUTATION OF SURFACE TEMPERATURE
FRAZIL CRYSTALS DIAMETER THICKNESS RATIO
FRAZIL CRYSTALS RADIUS
FRAZIL SEEDING RATE
FRAZIL UNDER COVER DEPOSITION PROBABILITY
FRAZIL UNDER COVER REENTRAINMENT COEFFICIENT
FREEZING POINT OF WATER
MINIMUM NUMBER OF FRAZIL CRYSTALS
MODEL FOR THE BUOYANCY VELOCITY
NUMBER OF CLASSES FOR SUSPENDED FRAZIL ICE
```

2.3.7 PRECIPITATION

```
COEFFICIENT FOR DIFFUSION OF COVER CONCENTRATION
COEFFICIENT FOR DIFFUSION OF COVER THICKNESS
INITIAL COVER CONCENTRATION VALUE
INITIAL COVER THICKNESS VALUE
MINIMAL THICKNESS OF ICE COVER
MODEL FOR MASS EXCHANGE BETWEEN FRAZIL AND ICE COVER
PRESCRIBED COVER CONCENTRATION VALUES
PRESCRIBED COVER THICKNESS VALUES
```

2.3.8 TURBULENCE

```
CONSTANT TURBULENCE PARAMETERS
MODEL FOR ESTIMATION OF TURBULENCE PARAMETERS
MODEL FOR THE NUSSELT NUMBER
NUSSELT NUMBER
```

2.4 GENERAL

```
ENERGY BALANCE VERSION
SALINITY
```

2.4.1 PHYSICAL PARAMETERS

```
AIR DENSITY
ICE DENSITY
KINEMATIC WATER VISCOSITY
POROSITY OF SURFACE ICE
WATER DENSITY
```

2.5 ICE COVER

```
BORDER ICE COVER
CRITICAL VELOCITY FOR DYNAMIC BORDER ICE
CRITICAL VELOCITY FOR STATIC BORDER ICE
DYNAMIC ICE COVER
ICE COVER IMPACT ON HYDRODYNAMIC
```

2.5.1 ICE DYNAMICS

```
INCLUDE ICE DYNAMICS
```

2.5.2 PHYSICAL PARAMETERS

```
CONCENTRATION OF SURFACE ICE WHEN FORMATION
CRITICAL WATER TEMPERATURE FOR STATIC BORDER ICE
MODEL FOR THE ICE COVER PRESSURE GRADIENT
```

FRICTION
```
EQUIVALENT SURFACE ICE THICKNESS
ICE FRICTION COEFFICIENT
LAW FOR FRICTION COEFFICIENT
LAW OF ICE COVER FRICTION
MAXIMAL FRICTION COEFFICIENT
MODEL FOR UNDER COVER FRICTION
```

2.6   INTERNAL

```
DICTIONARY
```

2.7   NUMERICAL PARAMETERS

2.7.1   AUTOMATIC DIFFERENTIATION

```
AD NAMES OF DERIVATIVES
AD NUMBER OF DERIVATIVES
```

2.7.2   DIFFUSION

```
FINITE VOLUME SCHEME FOR FRAZIL DIFFUSION
```

2.8   THERMAL BUDGET

```
HEAT BUDGET
```

2.8.1   CALIBRATION COEFFICIENT

```
COEFFICIENT FOR CALIBRATION OF BACK RADIATION
COEFFICIENT FOR CALIBRATION OF CONDUCTIVE HEAT TRANSFERT
COEFFICIENT FOR CALIBRATION OF EVAPORATIVE HEAT TRANSFERT
COEFFICIENT FOR CALIBRATION OF PRECIPITATION HEAT TRANSFERT
```

2.8.2   CONSTANT

```
BOLTZMANN CONSTANT (WM-2K-4)
ICE-AIR HEAT EXCHANGE COEFFICIENT
ICE-AIR HEAT EXCHANGE CONSTANT
WATER-AIR HEAT EXCHANGE CONSTANT
WATER-ICE HEAT TRANSFER COEF. FOR SUPERCOOLED TURBULENT FLOW
WATER-ICE HEAT TRANSFER COEF. FOR TURBULENT FLOW
```

2.8.3   METEOROLOGICAL PROCESSES

```
ALBEDO OF ICE
ATMOSPHERE-WATER EXCHANGE MODEL
```

AIR

```
DEWPOINT TEMPERATURE
VISIBILITY
```

POSITION
EAST OR WEST LONGITUDE
GLOBAL LONGITUDE, IN DEGREES
LOCAL LONGITUDE, IN DEGREES

SUN
RELATIVE MODEL ELEVATION FROM MEAN SEA LEVEL
SOLAR CONSTANT
SUN RISE ANGLE
SUN SET ANGLE

WIND
HEIGHT OF MEASURED WIND

2.8.4 PHYSICAL PARAMETERS
LATENT HEAT OF ICE
LIGHT EXTINCTION COEFFICIENT
SPECIFIC HEAT OF ICE
WATER SPECIFIC HEAT
WATER-AIR HEAT EXCHANGE COEFFICIENT

2.8.5 THERMAL CONDUCTIVITY
THERMAL CONDUCTIVITY BETWEEN WATER AND FRAZIL
THERMAL CONDUCTIVITY OF BLACK ICE
THERMAL CONDUCTIVITY OF SNOW

2.8.6 TURBULENCE
NUSSELT NUMBER FOR HEAT TRANSFER BETWEEN WATER AND ICE

3. Glossary

3.1 English/French glossary

3D RESULTS FILE	FICHIER DES RESULTATS 3D
3D RESULTS FILE FORMAT	FORMAT DU FICHIER DES RESULTATS 3D
ACCURACY FOR DIFFUSION OF TRACERS	PRECISION POUR LA DIFFUSION DES TRACEURS
AD NAMES OF DERIVATIVES	AD NOMS DES DERIVEES
AD NUMBER OF DERIVATIVES	AD NOMBRE DE DERIVEES
AIR DENSITY	MASSE VOLUMIQUE DE L'AIR
ALBEDO OF ICE	ALBEDO DES GLACES
ANGLE OF ACCUMULATED ICE	ANGLE D ACCUMULATION DE LA GLACE
ATMOSPHERE-WATER EXCHANGE MODEL	MODELE D'ECHANGES EAU-ATMOSPHERE
BOLTZMANN CONSTANT (WM-2K-4)	CONSTANTE DE BOLTZMANN
BORDER ICE COVER	GLACE DE BORD STATIQUE
BOUNDARY CONDITIONS FILE	FICHIER DES CONDITIONS AUX LIMITES
CHANNEL WIDTH FOR THE COMPUTATION OF SURFACE TEMPERATURE	LARGEUR DU CHENAL POUR LE CALCUL DE LA TEMPERATURE DE SURFACE
CLOGGED BOUNDARY NUMBERS	NUMEROS DES FRONTIERES GLACEES
CLOGGED SECTIONS	SECTIONS COLMATEES
CLOGGING ON BARS	COLMATAGE DES GRILLES
CLOGGING RESULTS FILE	FICHIER DE RESULTATS DE LA GLACE ACCUMULEE
COEFFICIENT FOR CALIBRATION OF BACK RADIATION	COEFFICIENT DE CALAGE DU FLUX RADIATIF ATMOSPHERIQUE
COEFFICIENT FOR CALIBRATION OF CONDUCTIVE HEAT TRANSFERT	COEFFICIENT DE CALAGE DU TRANSFERT CONDUCTIF
COEFFICIENT FOR CALIBRATION OF EVAPORATIVE HEAT TRANSFERT	COEFFICIENT DE CALAGE DU TRANSFERT EVAPORATIF
COEFFICIENT FOR CALIBRATION OF PRECIPITATION HEAT TRANSFERT	COEFFICIENT DE CALAGE DU TRANSFERT LIE AUX PRECIPITATIONS
COEFFICIENT FOR DIFFUSION OF COVER CONCENTRATION	COEFFICIENT DE DIFFUSION DE LA CONCENTRATION DU COUVERT

COEFFICIENT FOR DIFFUSION OF COVER THICKNESS	COEFFICIENT DE DIFFUSION DE L'EPAISSEUR DU COUVERT
COEFFICIENT FOR DIFFUSION OF FRAZIL	COEFFICIENT DE DIFFUSION DU FRASIL
COEFFICIENT FOR HORIZONTAL DIFFUSION OF FRAZIL	COEFFICIENT DE DIFFUSION HORIZONTAL DU FRASIL
COEFFICIENT FOR VERTICAL DIFFUSION OF FRAZIL	COEFFICIENT DE DIFFUSION VERTICAL DU FRASIL
CONCENTRATION OF SURFACE ICE WHEN FORMATION	CONCENTRATION MAXIMALE DU COUVERT DE GLACE
CONSTANT TURBULENCE PARAMETERS	PARAMETRES TURBULENTS CONSTANTS
CRITICAL VELOCITY FOR DYNAMIC BORDER ICE	VITESSE CRITIQUE POUR LA GLACE DE BORD DYNAMIQUE
CRITICAL VELOCITY FOR STATIC BORDER ICE	VITESSE CRITIQUE POUR LA GLACE DE BORD STATIQUE
CRITICAL WATER TEMPERATURE FOR STATIC BORDER ICE	TEMPERATURE D'EAU CRITIQUE POUR LA GLACE DE BORD STATIQUE
DEWPOINT TEMPERATURE	TEMPERATURE DE ROSEE
DICTIONARY	DICTIONNAIRE
DYNAMIC ICE COVER	COUVERT DE GLACE DYNAMIQUE
EAST OR WEST LONGITUDE	LONGITUDE EST OU OUEST
ENERGY BALANCE VERSION	VERSION DU BILAN ENERGETIQUE
EQUIVALENT SURFACE ICE THICKNESS	EPAISSEUR DE COUVERT DE GLACE CARACTERISTIQUE
FINITE VOLUME SCHEME FOR FRAZIL DIFFUSION	SCHEMA VOLUMES FINIS POUR LA DIFFUSION DU FRAZIL
FLOCCULATION AFLOC PARAMETER	PARAMETRE AFLOC POUR LA FLOCULATION
FORTRAN FILE	FICHIER FORTRAN
FRAZIL CRYSTALS DIAMETER THICKNESS RATIO	RATIO DIAMETRE EPAISSEUR D'UN CRISTAL DE FRASIL
FRAZIL CRYSTALS RADIUS	RAYON DES CRISTAUX DE FRASIL
FRAZIL SEEDING RATE	TAUX D'ENSEMENCEMENT DE FRASIL
FRAZIL UNDER COVER DEPOSITION PROBABILITY	PROBABILITE DE DEPOSITION DE SOUS COUVERT DU FRAZIL
FRAZIL UNDER COVER REENTRAINMENT COEFFICIENT	COEFFICIENT DE REENTRAINEMENT DU FRAZIL SOUS COUVERT
FREEZING POINT OF WATER	TEMPERATURE DE CONGELATION DE L'EAU
GEOMETRY FILE	FICHIER DE GEOMETRIE
GEOMETRY FILE FORMAT	FORMAT DU FICHIER DE GEOMETRIE
GLOBAL LONGITUDE, IN DEGREES	LONGITUDE GLOBALE, EN DEGRES
GRAPHIC PRINTOUT PERIOD	PERIODE POUR LES SORTIES GRAPHIQUES
HEAT BUDGET	BILAN THERMIQUE
HEIGHT OF MEASURED WIND	HAUTEUR DE MESURE DU VENT
ICE COVER IMPACT ON HYDRODYNAMIC	IMPACT DU COUVERT SUR L'HYDRODYNAMIQUE
ICE DENSITY	MASSE VOLUMIQUE DE LA GLACE
ICE FRICTION COEFFICIENT	COEFFICIENT DE FROTTEMENT

ICE-AIR HEAT EXCHANGE COEFFICIENT	COEFFICIENT D'ECHANGE THERMIQUE GLACE-AIR
ICE-AIR HEAT EXCHANGE CONSTANT	CONSTANTE D'ECHANGE THERMIQUE GLACE-AIR
INCLUDE ICE DYNAMICS	INCLURE LA DYNAMIQUE DES GLACES
INITIAL CONDITIONS	CONDITIONS INITIALES
INITIAL COVER CONCENTRATION VALUE	VALEUR INITIALE DE CONCENTRATION DU COUVERT
INITIAL COVER THICKNESS VALUE	VALEUR INITIALE D'EPAISSEUR DU COUVERT
INITIAL FRAZIL CONCENTRATION VALUES	VALEURS INITIALES DE CONCENTRATION DU FRASIL
KINEMATIC WATER VISCOSITY	VISCOSITE CINEMATIQUE DE L'EAU
LATENT HEAT OF ICE	CHALEUR LATENTE DE LA GLACE
LAW FOR FRICTION COEFFICIENT	LOI POUR LE COEFFICIENT DE FROTTEMENT
LAW OF ICE COVER FRICTION	LOI DE FROTTEMENT SOUS LE COUVERT DE GLACE
LIGHT EXTINCTION COEFFICIENT	COEFFICIENT D EXTINCTION DE LA LUMIERE
LISTING PRINTOUT PERIOD	PERIODE DE SORTIE LISTING
LOCAL LONGITUDE, IN DEGREES	LONGITUDE LOCALE, EN DEGRES
MASS-BALANCE	BILAN DE MASSE
MAXIMAL FRICTION COEFFICIENT	COEFFICIENT DE FROTTEMENT MAXIMAL
MAXIMUM NUMBER OF BOUNDARIES	NOMBRE MAXIMUM DE FRONTIERES
MAXIMUM NUMBER OF ITERATIONS FOR SOLVER FOR TRACERS	MAXIMUM D'ITERATIONS POUR LE SOLVEUR POUR LES TRACEURS
MINIMAL THICKNESS OF ICE COVER	EPAISSEUR MINIMALE DU COUVERT DE GLACE
MINIMUM NUMBER OF FRAZIL CRYSTALS	NOMBRE MINIMUM DE CRISTAUX DE FRASIL
MODEL FOR ESTIMATION OF TURBULENCE PARAMETERS	MODELE POUR L'ESTIMATION DES PARAMETRES DE TURBULENCE
MODEL FOR FRAZIL SEEDING	MODELE POUR L'ENSEMENCEMENT DU FRASIL
MODEL FOR MASS EXCHANGE BETWEEN FRAZIL AND ICE COVER	MODELE POUR LES ECHANGES ENTRE FRASIL ET COUVERT
MODEL FOR THE BUOYANCY VELOCITY	MODELE POUR LE CALCUL DU VITESSE DE FLOTTAISON
MODEL FOR THE FLOCCULATION AND BREAKUP	MODELE POUR LA FLOCULATION ET RUPTURE
MODEL FOR THE ICE COVER PRESSURE GRADIENT	MODELE POUR LE GRADIENT DE PRESSION DE COUVERT
MODEL FOR THE NUSSELT NUMBER	MODELE POUR LE CALCUL DU NOMBRE DE NUSSELT
MODEL FOR THE SECONDARY NUCLEATION	MODELE POUR LA NUCLEATION SECONDAIRE
MODEL FOR UNDER COVER FRICTION	MODELE POUR LE FROTTEMENT SOUS COUVERT

NUMBER OF CLASSES FOR SUSPENDED FRAZIL ICE	NOMBRE DE CLASSES POUR LA SUSPENSION DE FRASIL
NUSSELT NUMBER	NOMBRE DE NUSSELT
NUSSELT NUMBER FOR HEAT TRANSFER BETWEEN WATER AND ICE	NOMBRE DE NUSSELT POUR LE TRANFERT THERMIQUE GLACE-EAU
PARALLEL PROCESSORS	PROCESSEURS PARALLELES
PHYSICAL CHARACTERISTICS OF THE INTAKE RACK	PARAMETRES PHYSIQUES DE LA GRILLE D ENTREE
POROSITY OF ACCUMULATED ICE	POROSITE DE LA GLACE ACCUMULEE
POROSITY OF SURFACE ICE	POROSITE DE LA GLACE DE SURFACE
PRECONDITIONING FOR DIFFUSION OF TRACERS	PRECONDITIONNEMENT POUR LA DIFFUSION DES TRACEURS
PRESCRIBED COVER CONCENTRATION VALUES	VALEURS IMPOSEES DES CONCENTRATIONS DE COUVERT
PRESCRIBED COVER THICKNESS VALUES	VALEURS IMPOSEES DE L'EPAISSEUR DU COUVERT
PRESCRIBED FRAZIL CONCENTRATION VALUES	VALEURS IMPOSEES DES CONCENTRATIONS DE FRASIL
PREVIOUS ICE BLOCKS COMPUTATION FILE	FICHIER BLOCS DE GLACE DU CALCUL PRECEDENT
PREVIOUS ICE BLOCKS COMPUTATION FILE FORMAT	FORMAT DU FICHIER BLOCS DE GLACE DU CALCUL PRECEDENT
PREVIOUS ICE COVER COMPUTATION FILE	FICHIER COUVERT DE GLACE DU CALCUL PRECEDENT
PREVIOUS ICE COVER COMPUTATION FILE FORMAT	FORMAT DU FICHIER COUVERT DE GLACE DU CALCUL PRECEDENT
REFERENCE FILE	FICHIER DE REFERENCE
REFERENCE FILE FORMAT	FORMAT DU FICHIER DE REFERENCE
RELATIVE MODEL ELEVATION FROM MEAN SEA LEVEL	ELEVATION DU MODELE RELATIVE AU NIVEAU MOYEN DES OCEANS
RESULTS FILE	FICHIER DES RESULTATS
RESULTS FILE FORMAT	FORMAT DU FICHIER DES RESULTATS
SALINITY	SALINITE
SCHEME FOR ADVECTION OF TRACERS	SCHEMA POUR LA CONVECTION DES TRACEURS
SCHEME FOR DIFFUSION OF FRAZIL IN 3D	SCHEMA POUR LA DIFFUSION DU FRASIL EN 3D
SCHEME OPTION FOR ADVECTION OF TRACERS	OPTION DU SCHEMA POUR LA CONVECTION DES TRACEURS
SCHEME OPTION FOR THERMAL GROWTH	OPTION DU SCHEMA POUR LA CROISSANCE THERMIQUE
SECONDARY NUCLEATION NMAX PARAMETER	PARAMETRE NMAX POUR LA NUCLEATION SECONDAIRE
SETTLING COEFFICIENT OF FRAZIL ON BARS	COEFFICIENT DE DEPOSITION DES GLACES SUR BARRES
SOLAR CONSTANT	CONSTANTE SOLAIRE

SOLVER FOR DIFFUSION OF TRACERS	SOLVEUR POUR LA DIFFUSION DES TRACEURS
SOLVER OPTION FOR DIFFUSION OF TRACERS	OPTION DU SOLVEUR POUR LA DIFFUSION DES TRACEURS
SPECIFIC HEAT OF ICE	CHALEUR SPECIFIQUE DE LA GLACE
STEERING FILE	FICHIER DES PARAMETRES
SUN RISE ANGLE	ANGLE DU SOLEIL LEVANT
SUN SET ANGLE	ANGLE DU SOLEIL COUCHANT
THERMAL CONDUCTIVITY BETWEEN WATER AND FRAZIL	CONDUCTIVITE THERMIQUE ENTRE EAU ET FRASIL
THERMAL CONDUCTIVITY OF BLACK ICE	CONDUCTIVITE THERMIQUE DE LA GLACE SOMBRE
THERMAL CONDUCTIVITY OF SNOW	CONDUCTIVITE THERMIQUE DE LA NEIGE
TITLE	TITRE
VALIDATION	VALIDATION
VARIABLES FOR 3D GRAPHIC PRINTOUTS	VARIABLES 3D POUR LES SORTIES GRAPHIQUES
VARIABLES FOR GRAPHIC PRINTOUTS	VARIABLES POUR LES SORTIES GRAPHIQUES
VARIABLES TO BE PRINTED	VARIABLES A IMPRIMER
VISIBILITY	VISIBILITE
WATER DENSITY	MASSE VOLUMIQUE DE L'EAU
WATER SPECIFIC HEAT	CHALEUR SPECIFIQUE DE L'EAU
WATER-AIR HEAT EXCHANGE COEFFICIENT	COEFFICIENT D'ECHANGE THERMIQUE EAU-AIR
WATER-AIR HEAT EXCHANGE CONSTANT	CONSTANTE D'ECHANGE THERMIQUE EAU-AIR
WATER-ICE HEAT TRANSFER COEF. FOR SUPERCOOLED TURBULENT FLOW	CONST. POUR LE FLUX THERMIQUE TURBULENT GLACE-EAU EN SURFUSION
WATER-ICE HEAT TRANSFER COEF. FOR TURBULENT FLOW	CONST. POUR LE FLUX THERMIQUE TURBULENT GLACE-EAU

3.2 French/English glossary

AD NOMBRE DE DERIVEES	AD NUMBER OF DERIVATIVES
AD NOMS DES DERIVEES	AD NAMES OF DERIVATIVES
ALBEDO DES GLACES	ALBEDO OF ICE
ANGLE D ACCUMULATION DE LA GLACE	ANGLE OF ACCUMULATED ICE
ANGLE DU SOLEIL COUCHANT	SUN SET ANGLE
ANGLE DU SOLEIL LEVANT	SUN RISE ANGLE
BILAN DE MASSE	MASS-BALANCE
BILAN THERMIQUE	HEAT BUDGET
CHALEUR LATENTE DE LA GLACE	LATENT HEAT OF ICE
CHALEUR SPECIFIQUE DE L'EAU	WATER SPECIFIC HEAT
CHALEUR SPECIFIQUE DE LA GLACE	SPECIFIC HEAT OF ICE
COEFFICIENT D EXTINCTION DE LA LUMIERE	LIGHT EXTINCTION COEFFICIENT

COEFFICIENT D'ECHANGE THERMIQUE EAU-AIR	WATER-AIR HEAT EXCHANGE COEFFICIENT
COEFFICIENT D'ECHANGE THERMIQUE GLACE-AIR	ICE-AIR HEAT EXCHANGE COEFFICIENT
COEFFICIENT DE CALAGE DU FLUX RADIATIF ATMOSPHERIQUE	COEFFICIENT FOR CALIBRATION OF BACK RADIATION
COEFFICIENT DE CALAGE DU TRANSFERT CONDUCTIF	COEFFICIENT FOR CALIBRATION OF CONDUCTIVE HEAT TRANSFERT
COEFFICIENT DE CALAGE DU TRANSFERT EVAPORATIF	COEFFICIENT FOR CALIBRATION OF EVAPORATIVE HEAT TRANSFERT
COEFFICIENT DE CALAGE DU TRANSFERT LIE AUX PRECIPITATIONS	COEFFICIENT FOR CALIBRATION OF PRECIPITATION HEAT TRANSFERT
COEFFICIENT DE DEPOSITION DES GLACES SUR BARRES	SETTLING COEFFICIENT OF FRAZIL ON BARS
COEFFICIENT DE DIFFUSION DE L'EPAISSEUR DU COUVERT	COEFFICIENT FOR DIFFUSION OF COVER THICKNESS
COEFFICIENT DE DIFFUSION DE LA CONCENTRATION DU COUVERT	COEFFICIENT FOR DIFFUSION OF COVER CONCENTRATION
COEFFICIENT DE DIFFUSION DU FRASIL	COEFFICIENT FOR DIFFUSION OF FRAZIL
COEFFICIENT DE DIFFUSION HORIZONTAL DU FRASIL	COEFFICIENT FOR HORIZONTAL DIFFUSION OF FRAZIL
COEFFICIENT DE DIFFUSION VERTICAL DU FRASIL	COEFFICIENT FOR VERTICAL DIFFUSION OF FRAZIL
COEFFICIENT DE FROTTEMENT	ICE FRICTION COEFFICIENT
COEFFICIENT DE FROTTEMENT MAXIMAL	MAXIMAL FRICTION COEFFICIENT
COEFFICIENT DE REENTRAINEMENT DU FRAZIL SOUS COUVERT	FRAZIL UNDER COVER REENTRAINMENT COEFFICIENT
COLMATAGE DES GRILLES	CLOGGING ON BARS
CONCENTRATION MAXIMALE DU COUVERT DE GLACE	CONCENTRATION OF SURFACE ICE WHEN FORMATION
CONDITIONS INITIALES	INITIAL CONDITIONS
CONDUCTIVITE THERMIQUE DE LA GLACE SOMBRE	THERMAL CONDUCTIVITY OF BLACK ICE
CONDUCTIVITE THERMIQUE DE LA NEIGE	THERMAL CONDUCTIVITY OF SNOW
CONDUCTIVITE THERMIQUE ENTRE EAU ET FRASIL	THERMAL CONDUCTIVITY BETWEEN WATER AND FRAZIL
CONST. POUR LE FLUX THERMIQUE TURBULENT GLACE-EAU	WATER-ICE HEAT TRANSFER COEF. FOR TURBULENT FLOW
CONST. POUR LE FLUX THERMIQUE TURBULENT GLACE-EAU EN SURFUSION	WATER-ICE HEAT TRANSFER COEF. FOR SUPERCOOLED TURBULENT FLOW
CONSTANTE D'ECHANGE THERMIQUE EAU-AIR	WATER-AIR HEAT EXCHANGE CONSTANT
CONSTANTE D'ECHANGE THERMIQUE GLACE-AIR	ICE-AIR HEAT EXCHANGE CONSTANT
CONSTANTE DE BOLTZMANN	BOLTZMANN CONSTANT (WM-2K-4)
CONSTANTE SOLAIRE	SOLAR CONSTANT
COUVERT DE GLACE DYNAMIQUE	DYNAMIC ICE COVER

DICTIONNAIRE	DICTIONARY
ELEVATION DU MODELE RELATIVE AU NIVEAU MOYEN DES OCEANS	RELATIVE MODEL ELEVATION FROM MEAN SEA LEVEL
EPAISSEUR DE COUVERT DE GLACE CARACTERISTIQUE	EQUIVALENT SURFACE ICE THICKNESS
EPAISSEUR MINIMALE DU COUVERT DE GLACE	MINIMAL THICKNESS OF ICE COVER
FICHIER BLOCS DE GLACE DU CALCUL PRECEDENT	PREVIOUS ICE BLOCKS COMPUTATION FILE
FICHIER COUVERT DE GLACE DU CALCUL PRECEDENT	PREVIOUS ICE COVER COMPUTATION FILE
FICHIER DE GEOMETRIE	GEOMETRY FILE
FICHIER DE REFERENCE	REFERENCE FILE
FICHIER DE RESULTATS DE LA GLACE ACCUMULEE	CLOGGING RESULTS FILE
FICHIER DES CONDITIONS AUX LIMITES	BOUNDARY CONDITIONS FILE
FICHIER DES PARAMETRES	STEERING FILE
FICHIER DES RESULTATS	RESULTS FILE
FICHIER DES RESULTATS 3D	3D RESULTS FILE
FICHIER FORTRAN	FORTRAN FILE
FORMAT DU FICHIER BLOCS DE GLACE DU CALCUL PRECEDENT	PREVIOUS ICE BLOCKS COMPUTATION FILE FORMAT
FORMAT DU FICHIER COUVERT DE GLACE DU CALCUL PRECEDENT	PREVIOUS ICE COVER COMPUTATION FILE FORMAT
FORMAT DU FICHIER DE GEOMETRIE	GEOMETRY FILE FORMAT
FORMAT DU FICHIER DE REFERENCE	REFERENCE FILE FORMAT
FORMAT DU FICHIER DES RESULTATS	RESULTS FILE FORMAT
FORMAT DU FICHIER DES RESULTATS 3D	3D RESULTS FILE FORMAT
GLACE DE BORD STATIQUE	BORDER ICE COVER
HAUTEUR DE MESURE DU VENT	HEIGHT OF MEASURED WIND
IMPACT DU COUVERT SUR L'HYDRODYNAMIQUE	ICE COVER IMPACT ON HYDRODYNAMIC
INCLURE LA DYNAMIQUE DES GLACES	INCLUDE ICE DYNAMICS
LARGEUR DU CHENAL POUR LE CALCUL DE LA TEMPERATURE DE SURFACE	CHANNEL WIDTH FOR THE COMPUTATION OF SURFACE TEMPERATURE
LOI DE FROTTEMENT SOUS LE COUVERT DE GLACE	LAW OF ICE COVER FRICTION
LOI POUR LE COEFFICIENT DE FROTTEMENT	LAW FOR FRICTION COEFFICIENT
LONGITUDE EST OU OUEST	EAST OR WEST LONGITUDE
LONGITUDE GLOBALE, EN DEGRES	GLOBAL LONGITUDE, IN DEGREES
LONGITUDE LOCALE, EN DEGRES	LOCAL LONGITUDE, IN DEGREES
MASSE VOLUMIQUE DE L'AIR	AIR DENSITY
MASSE VOLUMIQUE DE L'EAU	WATER DENSITY
MASSE VOLUMIQUE DE LA GLACE	ICE DENSITY
MAXIMUM D'ITERATIONS POUR LE SOLVEUR POUR LES TRACEURS	MAXIMUM NUMBER OF ITERATIONS FOR SOLVER FOR TRACERS

MODELE D'ECHANGES EAU-ATMOSPHERE	ATMOSPHERE-WATER EXCHANGE MODEL
MODELE POUR L'ENSEMENCEMENT DU FRASIL	MODEL FOR FRAZIL SEEDING
MODELE POUR L'ESTIMATION DES PARAMETRES DE TURBULENCE	MODEL FOR ESTIMATION OF TURBULENCE PARAMETERS
MODELE POUR LA FLOCULATION ET RUPTURE	MODEL FOR THE FLOCCULATION AND BREAKUP
MODELE POUR LA NUCLEATION SECONDAIRE	MODEL FOR THE SECONDARY NUCLEATION
MODELE POUR LE CALCUL DU NOMBRE DE NUSSELT	MODEL FOR THE NUSSELT NUMBER
MODELE POUR LE CALCUL DU VITESSE DE FLOTTAISON	MODEL FOR THE BUOYANCY VELOCITY
MODELE POUR LE FROTTEMENT SOUS COUVERT	MODEL FOR UNDER COVER FRICTION
MODELE POUR LE GRADIENT DE PRESSION DE COUVERT	MODEL FOR THE ICE COVER PRESSURE GRADIENT
MODELE POUR LES ECHANGES ENTRE FRASIL ET COUVERT	MODEL FOR MASS EXCHANGE BETWEEN FRAZIL AND ICE COVER
NOMBRE DE CLASSES POUR LA SUSPENSION DE FRASIL	NUMBER OF CLASSES FOR SUSPENDED FRAZIL ICE
NOMBRE DE NUSSELT	NUSSELT NUMBER
NOMBRE DE NUSSELT POUR LE TRANFERT THERMIQUE GLACE-EAU	NUSSELT NUMBER FOR HEAT TRANSFER BETWEEN WATER AND ICE
NOMBRE MAXIMUM DE FRONTIERES	MAXIMUM NUMBER OF BOUNDARIES
NOMBRE MINIMUM DE CRISTAUX DE FRASIL	MINIMUM NUMBER OF FRAZIL CRYSTALS
NUMEROS DES FRONTIERES GLACEES	CLOGGED BOUNDARY NUMBERS
OPTION DU SCHEMA POUR LA CONVECTION DES TRACEURS	SCHEME OPTION FOR ADVECTION OF TRACERS
OPTION DU SCHEMA POUR LA CROISSANCE THERMIQUE	SCHEME OPTION FOR THERMAL GROWTH
OPTION DU SOLVEUR POUR LA DIFFUSION DES TRACEURS	SOLVER OPTION FOR DIFFUSION OF TRACERS
PARAMETRE AFLOC POUR LA FLOCULATION	FLOCCULATION AFLOC PARAMETER
PARAMETRE NMAX POUR LA NUCLEATION SECONDAIRE	SECONDARY NUCLEATION NMAX PARAMETER
PARAMETRES PHYSIQUES DE LA GRILLE D ENTREE	PHYSICAL CHARACTERISTICS OF THE INTAKE RACK
PARAMETRES TURBULENTS CONSTANTS	CONSTANT TURBULENCE PARAMETERS
PERIODE DE SORTIE LISTING	LISTING PRINTOUT PERIOD
PERIODE POUR LES SORTIES GRAPHIQUES	GRAPHIC PRINTOUT PERIOD
POROSITE DE LA GLACE ACCUMULEE	POROSITY OF ACCUMULATED ICE
POROSITE DE LA GLACE DE SURFACE	POROSITY OF SURFACE ICE
PRECISION POUR LA DIFFUSION DES TRACEURS	ACCURACY FOR DIFFUSION OF TRACERS
PRECONDITIONNEMENT POUR LA DIFFUSION DES TRACEURS	PRECONDITIONING FOR DIFFUSION OF TRACERS

PROBABILITE DE DEPOSITION DE SOUS COUVERT DU FRAZIL	FRAZIL UNDER COVER DEPOSITION PROBABILITY
PROCESSEURS PARALLELES	PARALLEL PROCESSORS
RATIO DIAMETRE EPAISSEUR D'UN CRISTAL DE FRASIL	FRAZIL CRYSTALS DIAMETER THICKNESS RATIO
RAYON DES CRISTAUX DE FRASIL	FRAZIL CRYSTALS RADIUS
SALINITE	SALINITY
SCHEMA POUR LA CONVECTION DES TRACEURS	SCHEME FOR ADVECTION OF TRACERS
SCHEMA POUR LA DIFFUSION DU FRASIL EN 3D	SCHEME FOR DIFFUSION OF FRAZIL IN 3D
SCHEMA VOLUMES FINIS POUR LA DIFFUSION DU FRAZIL	FINITE VOLUME SCHEME FOR FRAZIL DIFFUSION
SECTIONS COLMATEES	CLOGGED SECTIONS
SOLVEUR POUR LA DIFFUSION DES TRACEURS	SOLVER FOR DIFFUSION OF TRACERS
TAUX D'ENSEMENCEMENT DE FRASIL	FRAZIL SEEDING RATE
TEMPERATURE D'EAU CRITIQUE POUR LA GLACE DE BORD STATIQUE	CRITICAL WATER TEMPERATURE FOR STATIC BORDER ICE
TEMPERATURE DE CONGELATION DE L'EAU	FREEZING POINT OF WATER
TEMPERATURE DE ROSEE	DEWPOINT TEMPERATURE
TITRE	TITLE
VALEUR INITIALE D'EPAISSEUR DU COUVERT	INITIAL COVER THICKNESS VALUE
VALEUR INITIALE DE CONCENTRATION DU COUVERT	INITIAL COVER CONCENTRATION VALUE
VALEURS IMPOSEES DE L'EPAISSEUR DU COUVERT	PRESCRIBED COVER THICKNESS VALUES
VALEURS IMPOSEES DES CONCENTRATIONS DE COUVERT	PRESCRIBED COVER CONCENTRATION VALUES
VALEURS IMPOSEES DES CONCENTRATIONS DE FRASIL	PRESCRIBED FRAZIL CONCENTRATION VALUES
VALEURS INITIALES DE CONCENTRATION DU FRASIL	INITIAL FRAZIL CONCENTRATION VALUES
VALIDATION	VALIDATION
VARIABLES 3D POUR LES SORTIES GRAPHIQUES	VARIABLES FOR 3D GRAPHIC PRINTOUTS
VARIABLES A IMPRIMER	VARIABLES TO BE PRINTED
VARIABLES POUR LES SORTIES GRAPHIQUES	VARIABLES FOR GRAPHIC PRINTOUTS
VERSION DU BILAN ENERGETIQUE	ENERGY BALANCE VERSION
VISCOSITE CINEMATIQUE DE L'EAU	KINEMATIC WATER VISCOSITY
VISIBILITE	VISIBILITY
VITESSE CRITIQUE POUR LA GLACE DE BORD DYNAMIQUE	CRITICAL VELOCITY FOR DYNAMIC BORDER ICE
VITESSE CRITIQUE POUR LA GLACE DE BORD STATIQUE	CRITICAL VELOCITY FOR STATIC BORDER ICE

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[1] J-M. HERVOUET. *Hydrodynamics of free surface flows. Modelling with the finite element method.* John Wiley & Sons, Ltd, Paris, 2007.