Data format sd_spectre

Summarized:

Contents

1 General information

the data structure sd_spectre store the relative data with an excitation spectrum turbulent.

2 Tree structure of Data format

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the sd_spectre (K19)

    ♦   ".VAIN"   :   OJB    S    V    I

    ◊   ".VARE"   :   OJB    S    V    R

    ♦   ".VATE"   :   OJB    S    V    K16

    ◊   ".VAVF"   :   OJB    S    V    K8

    ◊   ".NNOE"   :   OJB    S    V    K8
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2.1 Object .VAIN

".VAIN" : S V I LONG=1 or 3

the length of the object are worth 1 if the spectrum is of type SPEC_LONG_COR_x or SPEC_CORR_CONV_x and is worth 3 if the spectrum is of type SPEC_EXCI_POINT or SPEC_FONC_FORME

V (1)	identifying spectrum = 1 if the spectrum is SPEC_LONG_COR_1 or SPEC_CORR_CONV_1 = 2 if the spectrum is SPEC_LONG_COR_2 or SPEC_CORR_CONV_2 = 3 if the spectrum is SPEC_LONG_COR_3 or SPEC_CORR_CONV_3 = 4 if the spectrum is SPEC_LONG_COR_4 = 11 if the spectrum is SPEC_FONC_FORME = 21 if the spectrum is SPEC_EXCI_POINT
V (2)	0 if one provides an interspectrum and 1 if not.
V (3)	many nodes where are applied specific excitations (nbno)

2.2 Object .VARE

".VARE" : S V R LONG=12, 1 or nbno

the length of the object are worth 12 except if the spectrum is of type SPEC_EXCI_POINT in which case its length is of 1 if one does not provide an interspectrum and nbno if an interspectrum is provided. The contents of this vector depend on the type of spectrum.

If the spectrum is of type SPEC_LONG_COR_1	
V (1)	correlation length
V (2)	viscosity kinematical of the fluid

If the spectrum is of type SPEC_LONG_COR_2	
V (1)	correlation length
V (2)	reduced frequency of cut
V (3)	Φ0 coefficients of the spectrum
V (4)	coefficients β of the spectrum

If the spectrum is of type SPEC_LONG_COR_3	
V (1)	correlation length
V (2)	reduced frequency of cut
V (3)	Φ01 coefficients of the spectrum
V (4)	coefficients β1 of the spectrum
V (5)	Φ02 coefficients of the spectrum
V (6)	coefficients β2 of the spectrum

If the spectrum is of type SPEC_LONG_COR_4	
V (1)	correlation length
V (2)	rate of vacuum (flow diphasic)
V (3)	coefficients β of the spectrum
V (4)	coefficients γ of the spectrum

If the spectrum is of type SPEC_CORR_CONV_1	
V (1)	the first correlation length
V (2)	the second correlation length
V (3)	velocity of the fluid skirting the structure studied
V (4)	density of the fluid
V (5)	cut-off frequency of the spectrum
V (6)	constant giving the amplitude of the spectrum of pressures
V (7)	hydraulic diamtere
V (8)	coefficient convective velocity of the vortexes in the axial direction (IE that of flow)
V (9)	coefficient convective velocity of the vortexes in the orthoradial direction

If the spectrum is of type SPEC_CORR_CONV_2	
V (1)	velocity of the fluid
V (2)	cut-off frequency of the spectrum
V (3)	coefficient the convective velocity of the vortexes in the axial direction (IE that of flow)
V (4)	coefficient convective velocity of the vortexes in the orthoradial direction

Note:

inconsistency with Doc. U which does not authorize the user to define this velocity. However it is licit in the code.

If the spectrum is of type SPEC_CORR_CONV_3 , the object does not exist

If the spectrum is of type SPEC_FONC_FORME , the object does not exist

If the spectrum is of type SPEC_EXCI_POINT	
V (1)	density of the fluid if one V does not define
an interspectrum (1 with nbno)	list of the angles defining the directions of the force vectors and moments of each node if an interspectrum is provided.

2.3 Object .VATE

".VATE" : S V K16 LONG=13 or 5 or 4+nbno or 4+nbfonc

the length of the object are worth 13 except in the two following cases: the spectrum is of type SPEC_EXCI_POINT in which case its length is of 5 if one does not provide an interspectrum and of 4+nbno if an interspectrum is provided.

the spectrum is of type SPEC_FONC_FORME in which case its length is of 5 if one does not provide an interspectrum and of 4+nbfonc if an interspectrum is provided.

The contents of this vector depend on the type of spectrum.

If the spectrum is of type SPEC_LONG_COR_1	
V (1)	"SPEC_LONG_COR_1 "
V (2)	"LONG_COR "
V (3)	name of the concept function of the fluid profile velocity
V (4)	"VISC_CINE "

If the spectrum is of type SPEC_LONG_COR_2	
V (1)	"SPEC_LONG_COR_2 "
V (2)	"LONG_COR "
V (3)	name of the concept function of the fluid profile velocity
V (4)	"FREQ_COUP "
V (5)	"PHI0 "
V (6)	"BETA "

If the spectrum is of type SPEC_LONG_COR_3	
V (1)	"SPEC_LONG_COR_3 "
V (2)	"LONG_COR "
V (3)	name of the concept function of the fluid profile velocity
V (4)	"FREQ_COUP "

V (5)	"PHI0_1 "
V (6)	"BETA_1 "
V (7)	"PHI0_2 "
V (8)	"BETA_2 "

If the spectrum is of type SPEC_LONG_COR_4	
V (1)	"SPEC_LONG_COR_4 "
V (2)	"LONG_COR "
V (3)	name of the concept function of the fluid profile velocity
V (4)	"TAUX_VIDE "
V (5)	"BETA
V (6)	"GAMMA

If the spectrum is of type SPEC_CORR_CONV_1	
V (1)	"SPEC_CORR_CONV_1 "
V (2)	"LONG_COR_1 "
V(3)	"LONG_COR_2 "
V (4)	"VITE_FLUI "
V (5)	"RHO_FLUI "
V (6)	"FREQ_COUP "
V (7)	"K "
V (8)	"D_FLUI "
V (9)	"COEF_VITE_FLUI_A "
V (10)	"COEF_VITE_FLUI_O "
V (11)	name of the method of correlation (GENERALE , CORCOS or AU_YANG)

If the spectrum is of type SPEC_CORR_CONV_2	
V (1)	"SPEC_CORR_CONV_2 "
V (2)	name of the concept of type function defining the spectrum of pressure according to frequency
V (3)	"VITE_FLUI "
V (4)	"FREQ_COUP "
V (5)	name of the method of correlation (GENERALE , CORCOS or AU_YANG)
V (6)	"COEF_VITE_FLUI_A "
V (7)	"COEF_VITE_FLUI_O "

If the spectrum is of type SPEC_CORR_CONV_3	
V (1)	"SPEC_CORR_CONV_ 3 "
V (2)	name of the concept of the type table_ function containing the analytical functions which make it possible to define the turbulent excitation spectrum

If the spectrum is of type SPEC_FONC_FORME

V (1)	"SPEC_FONC_FORME "
V (2)	name of the concept of the type caraelem
V (3)	name of the concept of the type V
models (4)	" GRAPPE_1 " or name of L" interspectrum if one provides one of them
V (5)	so V (4) = " GRAPPE_1 " ⇒ V (5) = "DEB. IT_180 " or " DEBIT_300 " so V (4) ≠ " GRAPPE_1 " ⇒ V (5 with 4+nbfonc) : list concepts functions defining the family of the shape functions associated with L" interspectrum

If the spectrum is of type SPEC_EXCI_POINT	
V (1)	"SPEC_EXCI_POINT "
V (2)	name of the concept of the caraelem type
V (3)	name of the concept of the type V
models (4)	" GRAPPE_2 " or name of the interspectrum if one provides one of them.
V (5)	So V (4) is worth " GRAPPE_2 " ⇒ V (5) = standard of flow (" ASC_CEN ", " ASC_EXC ", " DES_CEN " or " DES_EXC ") So V (4) ≠ " GRAPPE_2 " ⇒ V (5 with 4+nb No) : nature of L" specific excitation (" FORCE " or " MOMENT ")

2.4 Object .VAVF

".VAVF" : S V K8 LONG=1

There N" exists that for the types of spectrum SPEC_LONG_COR_x and SPEC_CORR_CONV_x

V (1)	name of the concept of type function of the fluid profile velocity.

Note:

this object is redundant with L" object VATE . Moreover, for the spectrums of the SPEC_CORR_CONV_x type , there N" is no fluid profile velocity and it is thus empty.

2.5 Object .NNOE

".NNOE" : S V K8 LONG=nbno

This object exists only for the spectrums of the type SPEC_EXCI_POINT or SPEC_FONC_FORME .

V (1 with nbno)	list of the names of the nodes of application of the excitation