Structure of Data sd_spectre

Summary:

Contents

1 General information

The structure of data sd_spectre store the relative data with a spectrum of turbulent excitation.

2 Tree structure of the Structure of Data

sd_spectre (K19)

- ♦ '.VAIN' : OJB S V I
- ◊ '.VARE' : OJB S V R
- ♦ '.VATE' : OJB S V K16
- ◊ '.NNOE' : OJB S V K8

2.1 Object .VAIN

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

The length of the object is 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)	identifier of the 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 a interspectre is provided 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 is 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 a interspectre and nbno if a interspectre 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)	length of correlation
V (2)	kinematic viscosity of the fluid

If the spectrum is of type SPEC_LONG_COR_2	
V (1)	length of correlation
V (2)	reduced frequency of cut
V (3)	coefficients Φ_0 spectrum
V (4)	coefficients β of the spectrum

If the spectrum is of type SPEC_LONG_COR_3	
V (1)	length of correlation
V (2)	reduced frequency of cut
V (3)	coefficients Φ_{01} spectrum
V (4)	coefficients β_1 spectrum
V (5)	coefficients Φ_{02} spectrum
V (6)	coefficients β_2 spectrum

If the spectrum is of type SPEC_LONG_COR_4	
V (1)	length of correlation
V (2)	rate of vacuum (diphasic flow)
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)	first length of correlation
V (2)	second length of correlation
V (3)	speed of the fluid skirting the studied structure
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 diameter
V (8)	coefficient the convective speed of the swirls in the axial direction (IE that of the flow)
V (9)	coefficient the convective speed of the swirls in the direction orthoradiale

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

Note:

inconsistency with Doc. U which does not authorize the user to define this speed. 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 does not define a interspectre
V (1 with nbno)	list of the angles defining the directions of the vectors of forces and moments of each node if a interspectre 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 is 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 a interspectre and of 4+nbno if a interspectre is provided.

the spectrum is of type SPEC_FONC_FORME in which case its length is of 5 if one does not provide a interspectre and of 4+nbfonc if a interspectre 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 speed
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 speed
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 speed
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 speed
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 (GENERAL , 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 the frequency
V (3)	'VITE_FLUI '
V (4)	'FREQ_COUP '
V (5)	name of the method of correlation (GENERAL , 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 who allow to define the turbulent spectrum of excitation

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 model
V (4)	'GRAPPE_1' or name of L' interspectre if one provides one of them
V (5)	if V (4) = 'GRAPPE_1' ⇒ V (5) = 'DEB. IT_180' or 'DEBIT_300' if V (4) ≠ 'GRAPPE_1' ⇒ V (5 with 4+nbfonc) : list of the concepts of the type table_fonction defining the family of the functions of form associated with the interspectre. Each concept table_fonction consists of two functions which correspond to the components of the function of form on the two orthogonal directions with that of neutral fibre of the structure.

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

2.4 Object .NNOE

'.NNOE' : S V K8 LONG=nbno

This object exists only for the spectra 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