Some structures of underground data

Summary:
One describes some structures of “underground” data here. It is those which are accessible in the code without passing in argument because their name is known a priori. This is not possible that because these SD are “single” (a kind of aggregate variable).

Note:

For better understanding the concepts evoked in SD underground related on parallelism and the linear solveurs, one will be able to consult the documents:

- *D4.01.03 (Structure of distributed data and parallelism),*
- *U2.08.06 (Note of use of parallelism),*
- *U4.50.01 (Keyword SOLVEUR).*

Contents

1 List of SD underground

The structures of underground data indexed today are:

'&CATASTROPHES '	sd_cata_elem (cf. D4.04.01)
'&MUMPS '	Objects allowing the use of MUMPS and increase of its diagnoses
'&CALCUL.PARALLELE '	For the parallelization of elementary calculations (routine CALCULATION)
'&SSR'	Rigidity of the static macronutrients in STAT_NON_LINE or DYNA_NON_LINE

2 SD '&MUMPS. ****'

Objects related on the description of the treated linear system and the monitoring of the performances of MUMPS (only if SOLVEUR/METHODE=' MUMPS' and INFO=2). They are created in CRESOL/CRSVMU.f, reset after each resolution (those concerning times and the memory) via AMUMPT.F and destroyed at the end of the operator *Aster* (mechanism automatic because of "&" initial).

OBJECT JEVEUX	WKVECT	DESCRIPTION
&MUMPS.NB.MAILLE	V V I nbproc	many meshs per processor.
&MUMPS.INFO.MAILLE	V V I nbproc	many terms of the matrix by processor *(nnz room)*
&MUMPS.INFO.MEMOIRE	V V I nbproc	many terms of factorized by processor (INFORMATION (9) MUMPS)
&MUMPS.INFO.CPU.FACS	V V R nbproc	time CPU + system of the phase of factorization symbolic system of *Code_Aster* , by processor (measured via TIME (5) +TEMPS (6) of UTTCPU in NUMERO.f*)*
&MUMPS.INFO.CPU.CAEL	V V R nbproc	idem for elementary calculations (CALCUL.f*)*
&MUMPS.INFO.CPU.ASSE	V V R nbproc	idem for the assemblies (ASSMAM/VEC/MIV.f *)*
&MUMPS.INFO.CPU.ANAL	V V R nbproc	idem for the phase of analysis of MUMPS (AMUMPT.F)
&MUMPS.INFO.CPU.FACN	V V R nbproc	idem for the digital phase of factorization (AMUMPT.F*)*
&MUMPS.INFO.CPU.SOLV	V V R nbproc	idem for the phase of resolution (AMUMPT.F *)*
&MUMPS.INFO.MEM.EIC	V V I nbproc	Estimate MUMPS (after the phase of analysis) of consumption RAM in In-Core by processor (INFORMATION (15))
&MUMPS.INFO.MEM.EOC	V V I nbproc	Idem in Out-Of-Core by processor (INFORMATION (17))
&MUMPS.INFO.MEM.USE	V V I nbproc	Real consumption (after digital factorization) with the approach chosen by the user (INFORMATION (16))

3 SD '&CALCUL.PARALLELE'

This object is present when one asks for the parallelization of elementary calculations. It is created and destroyed in the routine `calcul.f`. It is used only in routines called by `CALCULATION`. It is a vector of Boolean. Its length is the number of elements of `GREL` "running".

`V (iel): .true.` → the element `iel` must be calculated by the processor.