# Code_Aster

*Version default*

*Titre : Procédure IMPR_MISS_3D*
*Responsable : Georges DEVESA*

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*Clé : U7.04.11    Révision : 1893*

# Procedure `IMPR_MISS_3D`

## 1     Drank

To write on a file the data input for a seismic study with MISS3D.

The data transmitted by procedure `IMPR_MISS_3D` are:

- the contribution of the loads internal to a superstructure in the form of a second member project on a modal base made up of eigen modes or constrained,
- signals of harmonic excitation or transient associated with these loads,
- signals of seismic excitation,
- parameters of computation of the harmonic or transitory evolution.

The soil or the fluid is modelled by code MISS3D and the superstructures by *Code_Aster*. `IMPR_MISS_3D` must be preceded by a call to `IMPR_MACR_ELEM` [U7.04.33] (with format "MISS_3D") which writes on the same file.

The call to this procedure is répétable. A each call corresponds an evolution calculated by MISS3D whose launching is ensured by `MACRO_MISS_3D` [U7.03.11]. A only one input unit of `MACRO_MISS_3D` can correspond several required calculated evolutions each one by a call to `IMPR_MISS_3D` writing on this same unit.

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## 2     Syntax

```
IMPR_MISS_3D  (

         ♦   MACR_ELEM_DYNA =macro_dyna        ,                    [macr_elem_dyna]
         ♦ |    EXCIT =_F       (  ♦ VECT_ASSE = vecas,      [cham_no_sdaste]
                                 ♦/FONC_MULT      = fonc   ,       [function]
                                   /COEF_MULT  = coeff ,        [R]
                            )
           |   EXCIT_SOL =_F  ( ♦DIRECTION       = (d1, d2, d3),   [l_R]
                               ♦FONC_SIGNAL  = fonc,          [function]
                               ◊NOM_CHAM =       "DEPL",   [DEFAULT]
                                              /  "QUICKLY",
                                              /  "ACCE",
                                              /  "FORC",
                            )
           |   SOURCE_SOL =_F ( ♦DIRECTION       = (d1, d2, d3),   [l_R]
                               ♦POINT     =   (d1, d2, d3), [l_R]

                               ♦FONC_SIGNAL  = fonc,          [function]
                               ◊NOM_CHAM =       "DEPL",   [DEFAULT]
                                              /  "QUICKLY",
                                              /  "ACCE",
                                              /  "FORC",
                            )
           |   SOURCE_FLUIDE =_F (
                               ♦POINT     =   (d1, d2, d3), [l_R]

                               ♦FONC_SIGNAL  = fonc,          [function]
                               ◊NOM_CHAM =       "DEPL",   [DEFAULT]
                                              /  "QUICKLY",
                                              /  "ACCE",
                                              /  "FORC",
                            )

         ♦/INST_INIT=tini               ,                      [R]
            INST_FIN=tfin          ,                      [R]
           /FREQ_INIT          =fini    ,                      [R]
            FREQ_FIN=ffin          ,                     [R]
         ♦PAS=pas                           ,                      [R]

         ◊   UNITE =/unit         ,                  [I]
                    /26          ,                       [DEFAULT]

         ◊   INFO =/1          ,                          [DEFAULT]
                   /2 ,

         ◊TITER =titer         ,                      [l_Kn]

            )
```

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# 3    Operands

## 3.1    Operands **MACR_ELEM_DYNA**

♦MACR_ELEM_DYNA   = macro_dyna

Name of the concept macr_elem_dyna produces by projection on the basis of the modal base eigen modes and static modes of a superstructure modelled by *Code_Aster*.

## 3.2    Key word **EXCIT**

EXCIT

Key word factor defining the internal loads in this structure. Can be repeated to add several loads associated with different signals.

### 3.2.1    Operand **VECT_ASSE**

♦VECT_ASSE     = vecas

Vector assembled corresponding with a loading applied to this structure.
The concept vecas is a field at nodes of quantity DEPL_R.

### 3.2.2    Operands **FONC_MULT/COEF_MULT**

Make it possible respectively to define the signal or the multiplying coefficient of the loading defined in key word EXCIT.

/FONC_MULT     = fonc

Evolution defined point by point by a concept of type function having for parameter the frequency or time according to the type (harmonic or transitory) of the dynamic evolution calculated by MISS3D.

/COEF_MULT     = coeff

multiplying Coefficient of the loading independent of time or the frequency.

## 3.3    Key word **EXCIT_SOL**

|    EXCIT_SOL

Key word factor defining the loads resulting from the soil, given by their direction, their type and the signal in associated time or frequency. Can be repeated to add several loads resulting from the soil. It is compatible with key word EXCIT to combine in the same evolution calculated by MISS3D of the loads applied directly to structure or resulting from the soil.

### 3.3.1    Operand **DIRECTION**

♦DIRECTION     = (d1, d2, d3)

Component of the vector direction of load, renormé to 1. , according to which one recombines the effects of one incident wave P vertical with those of transversal waves SV and SH.

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### 3.3.2    Operand FONC_SIGNAL

Makes it possible to define the multiplying signal of the loading resulting from the soil defined in key word EXCIT_SOL.

♦FONC_SIGNAL  = fonc

Evolution defined point by point by a concept of type function having for parameter the frequency or time according to the type (harmonic or transitory) of the dynamic evolution calculated by MISS3D.

### 3.3.3    Operand NOM_CHAM

Makes it possible to define the type of imposition of a request resulting from the soil.

◊NOM_CHAM  =        "DEPL"
                /   "QUICKLY"
                /   "ACCE"
                /   "FORC"

the request is respectively in displacement, velocity, acceleration or imposed force.

## 3.4    Key word SOURCE_SOL

| SOURCE_SOL

Key word factor defining the loads resulting from point sources in the soil field, given by their direction, the coordinates of the source, their type and the signal in associated time or frequency. Can be repeated to add several loads resulting from point sources in the soil. It is not compatible with key keys EXCIT, EXCIT_SOL and SOURCE_FLUIDE.

### 3.4.1    Operand DIRECTION

♦DIRECTION    = (d1, d2, d3)

Component of the vector direction of load, renormé to 1.

### 3.4.2    Operand POINT

♦POINT = (d1, d2, d3)

Coordinated point source in the soil.

### 3.4.3    Operand FONC_SIGNAL

Makes it possible to define the multiplying signal of the loading resulting from the soil defined in key word SOURCE_SOL.

♦FONC_SIGNAL  = fonc

Evolution defined point by point by a concept of type function having for parameter the frequency or time according to the type (harmonic or transitory) of the dynamic evolution calculated by MISS3D.

### 3.4.4    Operand NOM_CHAM

Makes it possible to define the type of imposition of a request resulting from the soil.

◊NOM_CHAM  =        "DEPL"
                /   "QUICKLY"

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```
/  "ACCE"
/  "FORC"
```

the request is respectively in displacement, velocity, acceleration or imposed force.

## 3.5     Key word SOURCE_FLUIDE

```
|  SOURCE_FLUIDE
```

Key word factor defining the loads resulting from point sources in the fluid field, given by the coordinates of the source, their type and the signal in associated time or frequency. Can be repeated to add several loads resulting from point sources in the fluid. It is not compatible with key keys EXCIT, EXCIT_SOL and SOURCE_SOL.

### 3.5.1    Operand POINT

♦POINT = (d1, d2, d3)

Coordinated point source in the fluid.

### 3.5.2    Operand FONC_SIGNAL

Makes it possible to define the multiplying signal of the loading resulting from the soil defined in key word SOURCE_FLUIDE.

♦FONC_SIGNAL  = fonc

Evolution defined point by point by a concept of type function having for parameter the frequency or time according to the type (harmonic or transitory) of the dynamic evolution calculated by MISS3D.

### 3.5.3    Operand NOM_CHAM

Makes it possible to define the type of imposition of a request resulting from the soil.

```
◊NOM_CHAM  =      "DEPL"
/  "QUICKLY"
/  "ACCE"
/  "FORC"
```

the request is respectively in displacement, velocity, acceleration or imposed force.

## 3.6     Operand DIRE_ONDE

Makes it possible  to enter a direction of incident wave P common to loads EXCIT_SOL

◊DIRE_ONDE    = (d1, d2, d3)

Component of the vector direction of wave P, renormé to 1.

## 3.7     Operands INST_INIT / INST_FIN

Present in the case of a transient computation by MISS3D.

/♦INST_INIT      = tini

Urgent of beginning of transient computation.

♦INST_FIN  = tfin

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Urgent of end of transient computation. The time of end must be such compared to time step that the number of times of computation must be an exclusive multiple of powers of numbers 2,3 or 5: for example 1000,1200,1500 but not 1400.

## 3.8    Operands `FREQ_INIT` / `FREQ_FIN`

Present in the case of a harmonic computation by MISS3D.

/♦FREQ_INIT      = finished

Frequency of beginning of harmonic computation.

♦FREQ_FIN  = fine

Frequency of end of harmonic computation.

## 3.9    Operand `NOT`

♦PAS   = not

Value of time step or frequency according to the nature (transitory or harmonic) of computation.

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## 3.10  Operand UNITE

◊UNITE = links

logical Number of unit for the printing with the format of code MISS3D.

## 3.11  Operand TITER

◊TITER = title

Makes it possible to the user to define the evolution calculated by MISS3D. Appears in the file written with the format of code MISS3D.

## 3.12  Operand INFO

◊INFO

Indicates a level of printing for information in the file "MESSAGE".

/1   Printing of the title (if there exists) and amongst modes of the modal base of projection of the dynamic macro-element.
/2   Printing of the characteristics of loadings and the associated signals.