INCA HOWTO
7 aout 2012

Your questions

how to change the frequency of the saving, ie hourly, 3 hourly, daily or monthly ?

→ *INCA*

INCA3/src/INCA_SRC/outfld_init.F90

you need to change the variable «REAL :: ecritchim = 1./86400»

→ LMDZ

In physiq.def

```
# Noms des fichiers
phys_out_filenames=      histmth histday histhf  histhf3h histhf3hm histstn
# Sortir ou non les fichiers
phys_out_filekeys=       y       y       y       y       y          n
# Niveaux de sorties
phys_out_filelevels=     5       5       5       5       5          5
### Type de fichier : global (n) ou stations (y)
phys_out_filestations =  n       n       n       n       n          y
### Frequences des sorties
phys_out_filetimesteps = 1.day,  1.day,  0.25day, 0.125day, 0.125day, 1800.s
```

how to save a variable that was not saved before ?

→*INCA*

Solution 1 :

INCA3/INP/inca_xxx.inp (or INCA3/INP/inca_xxx.def in last version)

```
     Outputs
       Write frequency = 1d
       Start File Number = 001
       Density = 4
       Retention time = 1y

      Species
       Inst
*          All
       Endlst
       Avgr
         Pb210
         HNO3,HNO4,NO2,NO,NO3,N2O5,PAN,MPAN
       Endlst
      Endent

Group Members, Surface Flux, Deposition Velocity,
Photorates, Reaction rates, Washout rates, External Forcing
```

NOT USE

Solution 2 :

If you want add a variable in inca_avgr complete these routines :

src/INCA_SRC/outfld_init_2.F90 and outfld_2.F90

If you wand add a new output file, copy these routines :

src/INCA_SRC/ini_diagnostics.F90 and write_diagnostics.F90

And don't forget to add them to inca.card

→ *LMDZ*

First verify that this variable is not already write in one file (histday, histmth, ...), maybe in another output level than yours. For this you can check routines

LMDZ/libf/phylmd/phys_output_mod.F90 and phys_output_write.h

If not, you can try to modify these routines or write to

lmdz-svp@lmd.jussieu.fr

First step for debug
Script_output file

If in **run.card** : PeriodState=Fatal

→ Read the file **Script_Outputxxxx**

```
########################################
#      ANOTHER GREAT SIMULATION      #
########################################
 First part : pre-run
########################################
#     DIR BEFORE RUN EXECUTION       #
########################################
 Second part :  run
########################################
#      DIR AFTER RUN EXECUTION       #
########################################
 Third part :  post_run
```

Errors in the first part – some ideas :

- if it's a new run : had we remove the run.card ?
- if we continue a run : had we change PeriodState=OnQueue in run.card ?
- if there is the message « does not exist » there is a problem with an input file

```
--Debug1--> !!!! IGCM_config_Initialize Error PeriodState :
--Debug1--> Completed
--Debug1--> !!!!!!!!!!
IGCM_debug_Exit :  IGCM_config_Initialize Error PeriodState :  xxxx
!!!!!!!!!!!!!!!!!!!!!!!!!!
!! IGCM_debug_CallStack !!
!-----------------------!
IGCM_debug_Verif_Exit : Something wrong append.
                        EXIT THE JOB.
Fri Apr 22 12:14:29 MET 2011
```

In run.card PeriodState ≠ OnQueue
xxxx = Completed ou Fatal

```
--Debug1--> IGCM_post_CheckModuloFrequency : Master=1M Slave=1D
----------Debug3--> config_UserChoices_PeriodLength frequency 1D not compatbile with
----------Debug3--> config_Post_RebuildFrequency frequency : 1M
IGCM_debug_Exit :  Check your frequency

!!!!!!!!!!!!!!!!!!!!!!!!!!
!! IGCM_debug_CallStack !!
!-----------------------!
--Debug1--> IGCM_post_CheckModuloFrequency : Master=1M Slave=1M
--Debug1--> IGCM_post_CheckModuloFrequency : Master=1M Slave=1M
--Error--> IGCM_card_WriteOption
/scratch/cont003/p24cozic/RONA/modipsl/config/LMDZINCA_v3/EXP_AER_2/run.card
Configuration PeriodState Fatal

/scratch/cont003/p24cozic/RONA/modipsl/config/LMDZINCA_v3/EXP_AER_2/run.card is
not readable or not writable
IGCM_debug_Exit :  IGCM_card_WriteOption
!!!!!!!!!!!!!!!!!!!!!!!!!!
!! IGCM_debug_CallStack !!
!-----------------------!
IGCM_debug_Verif_Exit : Something wrong append.
                        EXIT THE JOB.
```

Post-treatment Frequencies are false

Errors in second part :

- time limit exceeded → we didn't ask enough time in header job
- memory message → we didn't ask enough memory in header job
- if there is this message :

```
================================================================
EXECUTION of : mpirun -f ./run_file > out_run_file 2>&1
Return code of executable : 1
IGCM_debug_Exit :  EXECUTABLE

!!!!!!!!!!!!!!!!!!!!!!!!
!! IGCM_debug_CallStack !!
!-----------------------!

!-----------------------!
IGCM_sys_Cp : out_run_file xxxxxxxxxxxx_out_run_file_error
================================================================
```

→ read the file Debug/xxxxxxxxxxxx_out_run_file_error

Errors in third part :

- If we re-run an old simulation : had we remove all the files ? $SCRATCHDIR/IGCM_OUT/... and $CCCSTOREDIR/IGCM_OUT/...
- if there is a message on restartphy file, it's a problem in the seconde part.

TP

- TP1 :

The simulation crach during the second part

- TP2 :

The simulation finish well, but some output files are missing...