# Olive configurations for background error statistics

GMAP stay report (1.10.2006-11.11.2006)

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This report describe the work carried out to implement femars, festat and sigmab Olive configurations for a 6-member Arpege Tropique 3D-VAR FGAT ensemble running operationally on hpcd at ECMWF (experiments 6173, 617D, 617H, 617K, 617L and 617M from /home/mrpm/mrpm611/experiments/Ensemble_CEPMMT on olive@sxalgo1).

# 1. femars, festat and sigmab on tora

## 1.1. femars_diff and femars_full

The femars_diff and femars_full programs are used to write grib files of the differences between two fields or of one field.
The installation and compilation of executables has been done with cy29t2 under the directories /u/gp/mrpa/mrpa673/SEPT2005/pack/test6 for femars_diff (which writes grib file of the difference between two fields) and /u/gp/mrpa/mrpa673/SEPT2005/pack/test7 for femars_full (which writes grib file of one field) using /u/gp/mrpm/mrpm602/gmkpack.6.1/util/gmkpack.

Pack test6 has been generated with command /u/gp/mrpm/mrpm602/gmkpack.6.1/util/gmkpack -r cy29t2 -b op1 -v 04 -u test6 -l L0209 -o x -p arpege. The subroutines for femars_diff are located in src/local/arp/control: cnt3.F90 and grbspa.F90. The script which compile the femars_diff executable is ics_arpege. The executable named ARPEGE is produced in bin -> /work04/mrpa673/SEPT2005/binpack/test6/bin and saved on tora in /u/gp/mrpa/mrpa673/SEPT2005/bin/test6 and on cougar in /cnrm2_mrpa/mrpa/mrpa673/SEPT2005/bin/test6/ARPEGE.

Pack test7 has been generated with command /u/gp/mrpm/mrpm602/gmkpack.6.1/util/gmkpack -r cy29t2 -b op1 -v 04 -u test7 -l L0209 -o x -p arpege. The subroutines for femars_full are located in src/local/arp/control: cnt3.F90 and grbspa.F90. The script which compile the femars_full executable is ics_arpege. The executable named ARPEGE is produced in bin -> /work04/mrpa673/SEPT2005/binpack/test7/bin and saved on tora in /u/gp/mrpa/mrpa673/SEPT2005/bin/test7 and on cougar in /cnrm2_mrpa/mrpa/mrpa673/SEPT2005/bin/test7/ARPEGE.

## 1.2. festat

The festat program computes the balance linear regression coefficients for *stabal96* Jb formulation (output file stab${nflev}_fc${ncases}.bal) and the covariances as defined by the balance (output files stab${nflev}_fc${ncases}.cv for *stabal96* Jb formulation and stab${nflev}_fc${ncases}.cvt for *nonsep93* Jb formulation).

The script used to compile festat program is /u/gp/mrpa/mrpa673/oct2006/festat/festat_46_P31_V_P36_analvorp_T359_cy29t2_2d3m_namelist . It uses the LAPACK library sposv.tar (from /u/gp/mrpe/mrpe684/sce/sposv.tar or /u/gp/mrpa/mrpa673/oct2006/festat/sposv.tar) and the xrd library xr29t2_main.01.L0209.x.a.

The script includes the fortran program stat.F, which has been modified if order to avoid using some parameters with particular values in the code. A list of 12 parameters are set up in a namelist named nam_stat, which is read in the program stat.F :

nflev = number of vertical levels

nsmax = truncation

ncases = number of forecast differences

lstabal = logical variable, set .true. to compute balance operators for *stabal96*

lozone = logical variable, set .true. to compute ozone covariances

lozbal = logical variable, set .true. to compute a balance operator for ozone

lanalbal = logical variable, set .true. to use the analytic horizontal balance

outbal = output file for the balance linear regression coefficients for *stabal96* Jb formulation

outcvt = output file for the covariances as defined by the balance of *nonsep93* Jb formulation

outcvu = output file for the covariances as defined by the balance of *stabal96* Jb formulation

START = start date YYYYMMDD of forecast differences

HOUR = network time

A modification has been introduced in subroutine regpdt, in order to initialize variable stps:
     stps(:,:,:)=0.

The executable MASTAT is saved on cougar in
/cnrm2_mrpa/mrpa/mrpa673/testfestat/P31_V_P33_L46_T359_cy29t2_2d3m_namelist
and also /cnrm2_mrpa/mrpa/mrpa673/oct2006/festat.

## 1.3. sigmab

Pack /u/gp/mrpa/mrpa673/oct2006/pack/lbgobsensemble_cy30t1_op1 contains sigmab subroutines and has been generated for cycle 30t1 with command: /u/gp/mrpm/mrpm602/gmkpack.6.2/util/ gmkpack -r cy30t1 -b op1 -v 21 -u lbgobsensemble_cy30t1_op1 -l L0209 -o x -p arpodb. Daily background error standard deviations are computed in observation space (LBGOBS=.TRUE.) in order to be used for the observation screening and in spectral space (LBGOBS=.FALSE.) in order to be used in the minimization. The same executable can be used to compute monthly background error standard deviations in spectral space.

The sigmab subroutines are located in src/local and have been copied from
/u/gp/mrpm/mrpm611/pack/lbgobsensemble_cy30t1_op1/src/local:
arp/namelist/namvar.h
arp/obs_preproc/fgchk.F90
arp/obs_preproc/defrun.F90
arp/pp_obs/bgobs.F90
arp/setup/susc2b.F90
arp/var/vec2gp.F90
arp/var/fltbgerr.F90
arp/var/bgvecs.F90

The script which compile the sigmab executable is ics_arpodb. The executable is produced in
bin -> /work04/mrpa673/oct2006/binpack/lbgobsensemble_cy30t1_op1/bin with the name ARPODB and saved on cougar in
/cnrm2_mrpa/mrpa/mrpa673/oct2006/pack/lbgobsensemble_cy30t1_op1/bin.

Two modifications have been done:
– in subroutine arp/var/vec2gp.F90: one line for the accumulation of relative humidity variance
   has been commented (this line has been kept only for LBGOBS=.TRUE.):

!SS    zaner  (jrof,jlev) = zaner(jrof,jlev)+zsign*ZRPP(jrof,jlev)**2

– in subroutine arp/obs_preproc/defrun.F90: NGCVVAR has been set to NGCVVAR(:,:)=NOTVAR(:,:) in case of LECMWF=.FALSE.

# 2. femars, festat and sigmab on hpcd

The installation and compilation of executables has been done under the directory /hpcd/tmp/ms/fr/rmz/gmap/pack using /hpcd/ms_perm/hirald/tools/gmkpack.6.2/util/gmkpack.

## 2.1. femars_diff, femars_full and festat

Pack ARPODB30T1_op1 contains femars and festat subroutines and has been generated for cycle 30t1 with command: /hpcd/ms_perm/hirald/tools/gmkpack.6.2/util/gmkpack -r 30t1 -b op1 -v 21 -u ARPODB30T1_op1 -l AIX5 -o x -O -p arpodb .

### *femars*

The femars subroutines are located under src/local/arp/control:

```
-rw-r-----  1 rmz     fr          4769 Nov  6 13:24 cnt3.F90.sav
-rw-r-----  1 rmz     fr          5519 Nov  6 15:11 cnt3.F90_diff
-rw-r-----  1 rmz     fr          5617 Nov  6 15:31 cnt3.F90_full
-rw-r-----  1 rmz     fr         12892 Nov  6 15:33 cnt3.lst
-rw-r-----  1 rmz     fr         15436 Nov  6 15:33 cnt3.o
-rw-r-----  1 rmz     fr          5807 Nov  6 13:24 diffgrib.F.sav
-rw-r-----  1 rmz     fr          6976 Nov  6 15:35 grbspa.F90_diff_full
-rw-r-----  1 rmz     fr         12232 Nov  6 15:33 grbspa.lst
-rw-r-----  1 rmz     fr         17474 Nov  6 15:33 grbspa.o
```

The subroutines needed to create femars_diff executable (which writes grib file of the difference between two fields) are cnt3.F90_diff and grbspa.F90_diff_full. Before compilation they should be copied under the names cnt3.F90 and grbspa.F90.
The script which compile the femars_diff executable is ics_aldodb. The executable is produced in bin@ -> /hpcd/tmp/ms/fr/rmz/gmap/pack/ARPODB30T1_op1/bin/ with name ARPODB and then it should be moved in ARPODB_diff.

The subroutines needed to create femars_full executable (which writes grib file of one field) are cnt3.F90_full and grbspa.F90_diff_full. Before compilation they should be copied under the names cnt3.F90 and  grbspa.F90.
The script which compile the femars_full executable is ics_aldodb. The executable is produced in bin@ -> /hpcd/tmp/ms/fr/rmz/gmap/pack/ARPODB30T1_op1/bin/ with name ARPODB and then it should be moved in ARPODB_full.

Due to the fact that compilation on hpcd give error « #include file "su3fpos.intfb.h" not found », the subroutines cnt3.F90_diff and cnt3.F90_full have been modified by commenting the next lines:

!#include "su3fpos.intfb.h"

```
!IF(LFPOS)THEN
!  CALL SU3FPOS
!ENDIF
```

*festat*

The festat subroutines are located under src/local/ald/programs:

```
-rw-r-----  1 rmz     fr          153899 Nov  6 15:55 NMCSTAT.F.sav
-rw-r-----  1 rmz     fr           62081 Nov  6 16:00 NMCSTAT.F_old
-rw-r-----  1 rmz     fr           78185 Nov  6 15:55 sposv.F.sav
-rw-r-----  1 rmz     fr           78185 Nov  6 16:00 sposv.F_simona
-rw-r-----  1 rmz     fr          129437 Nov  7 14:58 sposv.lst
-rw-r-----  1 rmz     fr           76529 Nov  7 14:58 sposv.o
-rw-r-----  1 rmz     fr           63582 Nov  7 14:47 stat.F_simona
-rw-r-----  1 rmz     fr          111414 Nov  7 14:58 stat.lst
-rw-r-----  1 rmz     fr          211461 Nov  7 14:58 stat.o
```

The subroutines needed to create festat executable are stat.F_simona and sposv.F_simona. Before compilation they should be copied under the names stat.F and sposv.F.
The script which compile the festat executable is ics_ARPODB30T1_op1. This script is not created in this pack, but it has been copied from /home/ms/fr/rmu/pack/ALDODB30T1_op1/ics_ALDODB30T1_op1 and modified by changing the name of the pack and the name of the source (ENTRY=ald/programs/stat.o instead of ENTRY=ald/programs/NMCSTAT.o). The executable is produced in bin@ -> /hpcd/tmp/ms/fr/rmz/gmap/pack/ARPODB30T1_op1/bin/ with name ARPODB30T1_op1.

## 2.2. sigmab

Pack lbgobsensemble_cy30t1_op1 contains sigmab subroutines and has been generated for cycle 30t1 with command: /hpcd/ms_perm/hirald/tools/gmkpack.6.2/util/gmkpack -r 30t1 -b op1 -v 21 -u lbgobsensemble_cy30t1_op1 -l AIX5 -o x -O -p arpodb .

The sigmab subroutines are located in src/local:
arp/namelist/namvar.h
arp/obs_preproc/fgchk.F90
arp/obs_preproc/defrun.F90
arp/pp_obs/bgobs.F90
arp/setup/susc2b.F90
arp/var/vec2gp.F90
arp/var/fltbgerr.F90
arp/var/bgvecs.F90

The script which compile the sigmab executable is ics_arpodb. The executable is produced in bin@ -> /hpcd/tmp/ms/fr/rmz/gmap/pack/lbgobsensemble_cy30t1_op1/bin/ with the name ARPODB. Comparing with tora, the executable ARPODB made on hpcd needs the variable CINBGSTATES from NAMJG to be specified in simple quotas, and not double quotas like it works on tora:
CINBGSTATES='GRIBER' instead of CINBGSTATES="GRIBER".

# 3. Experiment 71OB

This experiment is located in /home/mrpa/mrpa673/experiments on olive@sxproc1. It has been copied from experiment /home/mrpa/mrpa663/experiments/ENS 3DF/60UF which is one Arpege Tropique 3D-VAR FGAT ensemble member. Femars and festat configurations have been added in this experiment and have been tested for few days (femars) and one month (festat) on tora.

Femars configuration include 3 tasks, namely fph2l1, femars_diff and femars_full, that have been added under the family fc, after fullpos (figure 1). These three tasks are performed for each date and each network time from directories YYYYMMDD and HH.



**Figure 1: The fc family including fph2l1, femars_diff and femars_full tasks.**

Task fph2l1 is a post-processing from the full resolution (T359) to a lower resolution (T107) of the 6h forecast produced by this experiment (figure 2).

Task femars_diff (figure 3) compute differences between two 6h forecasts (one from the current experiment and one from an unperturbed experiment, namely 70VB), at full resolution (T359). The namelist needed to run FEMARS executable is the forecast namelist from cy29t2_tropique-op1.01. An Olive shell is used to run FEMARS and the output grib file is stored on cougar in class femars of the current experiment.

Task femars_full (figure 4) is similar to femars_diff, but it writes grib file of the 6h forecast (from the current experiment) post-processed at lower resolution (T107).

Festat task (figure 5) is placed inside the LOOP_FEST loop over the network hours 00, 06, 12 and 18. The statistics is computed using 186 6h forecast differences at full resolution (T359), coming from a 6-member Arpege Tropique 3D-VAR FGAT ensemble run over 31 days. Olive Shell Recup_fichiers is used to retrieve the 186 forecast differences, while the Olive Shell FESTAT set up the 12 parameters in the namelist nam_stat and run the festat executable.

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🏠 home [ 7 ]  📋 clipboard [ 0 ]  🗑 trash [ 7 ]  ❤ favorites [ 5 ]

⭐ experiments | 71OB | fc | 61AY | minim

📷 Search from fph2l1...

help      / > home > mrpa > mrpa673 > experiments > 71OB > YYYYMMDD > HH > CUTOFF > fc

◀ **fph2l1** ▶

**action** [ browse ]

edit
inspect
configure
xml

**sms command**

[ update ]
[ apply ]

| | | |
|---|---|---|
| **NPROC** | 3 | |
| **PROFILE** | mem:3840 cpu:1790 time:150 wrap:ok nproc:3 | |
| **TRUNCATION_UPD** | 107 | |

variables

sms functions

**trigger**      forecast==complete

sequence

Clim_HR  Clim_LR  Forecast_HR  Namelist  Arpege  Forecast_LR  Listing

**Clim_HR**

format :
  "unknown"

local :
  "Const.Clim"

Meteo::Clim::Model

```
genv       = cy29t2_tropique-op1.01
model      = arpege
month      = UNDEF
truncation = 359
```

**Clim_LR**

format :
  "unknown"

local :
  "const.clim.000"

Meteo::Clim::Model

```
genv       = cy29t2_tropique-op1.01
model      = arpege
month      = UNDEF
truncation = 107
```

**Forecast_HR**

format :
  "fa"

local :
  "ICMSHFH2LINIT"

Meteo::Historic

```
class      = forecast
cutoff     = UNDEF
date       = UNDEF
experiment = 71OB
model      = arpege
term       = 6
```

**Namelist**

format :
  "ascii"

local :
  "fort.4"

Meteo::Namelist

```
binary = arpege
genv   = cy29t2_tropique-op1.01
nproc  = 3
source = namelisth21107
```

**Arpege**

format :
  "vpp5000"

local :
  "ARPEGE.EX"

mode :
  "h2l"

Meteo::Arpege

```
genv = cy29t2_tropique-op1.01
```

**Forecast_LR**

format :
  "fa"

local :
  "PFFH2L000+0000"

Meteo::Guessbr

```
class      = forecast
cutoff     = UNDEF
date       = UNDEF
experiment = 71OB
model      = arpege
term       = 6
```

**Listing**

format :
  "ascii"

local :
  "+exec"

Meteo::Listing

```
binary     = arpege
class      = forecast
cutoff     = UNDEF
date       = UNDEF
experiment = 71OB
task       = %SMSNAME%
```

**Figure 2: The fph2l1 configuration.**

Archive   Biblio   Gco   Olive   Swapp

home [ 7 ]   clipboard [ 0 ]   trash [ 7 ]   favorites [ 5 ]

Search from femars_diff...

experiments | 71OB | fc | 61AY | minim

help    / > home > mrpa > mrpa673 > experiments > 71OB > YYYYMMDD > HH > CUTOFF > fc

## femars_diff

**action [ browse ]**

edit
inspect
configure
xml

**sms command**
[ update ]
[ apply ]

**variables**

| | |
|---|---|
| **NPROC** | 1 |
| **PROFILE** | mem:2300 cpu:50 wrap:ok |
| **NAMSOURCE** | $NAMFC{$CUTOFF} |

**sms functions**

**trigger**    forecast==complete

**sequence**

Historic1 Historic2 Namelist FEMARS gribdiff Listing

**Historic1**

format :
  "fa"

local :
  "ICMSHSTATFGIN"

Meteo::Historic
- class = forecast
- cutoff = UNDEF
- date = UNDEF
- experiment = 71OB
- model = arpege
- term = 6

**Historic2**

format :
  "fa"

local :
  "ICMSHSTATANIN"

Meteo::Historic
- class = forecast
- cutoff = UNDEF
- date = UNDEF
- experiment = 70VB
- model = arpege
- term = 6

**Namelist**

format :
  "ascii"

local :
  "fort.4"

Meteo::Namelist
- binary = arpege
- genv = cy29t2_tropique-op1.01
- nproc = 1
- source = UNDEF

**FEMARS**

format :
  "unknown"

local :
  "MASTER"

Olive::Shell
- source = export VPP_MBX_SIZE=64000000 export ZOPT="-W1,-d100,-g250"
  export PATH=/usr/vecbin: cp /u/gp/mrpa/mrpa673/SEPT2005/bin/test6/ARPEGE
  MASTER cp ICMSHSTATFGIN ICMSHSTATINIT ls -l ./MASTER -c001 -vmeteo -eSTAT
  -t1. -ft0 -asli ls -l

**gribdiff**

format :
  "unknown"

local :
  "gribdiff"

Meteo::Misc
- class = femars
- cutoff = UNDEF
- date = UNDEF
- experiment = 71OB
- model = arpege
- store = 0606P32OPEgribdiff_

**Listing**

format :
  "ascii"

local :
  "NODE.001_01"

Meteo::Listing
- binary = femars
- class = forecast
- cutoff = UNDEF
- date = UNDEF
- experiment = 71OB
- task = %SMSNAME%

**Figure 3: The femars_diff configuration.**

olive @ sxproc1 / mrpa673

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Search from femars_full...

experiments | 71OB | fc | 61AY | minim

help    / > home > mrpa > mrpa673 > experiments > 71OB > YYYYMMDD > HH > CUTOFF > fc

## femars_full

**variables**

action [ browse ]

NPROC            1

edit

PROFILE          mem:2300 cpu:50 wrap:ok

inspect

NAMSOURCE        $NAMFC{$CUTOFF}

configure

xml

**sms functions**

sms command

trigger          fph2l1==complete

update

apply

**sequence**

Historic Namelist FEMARS gribdiff Listing

**Historic**

format :          Meteo::Guessbr
 "fa"
                   area       = tropique
                   class      = forecast
local :            cutoff     = UNDEF
 "ICMSHSTATFGIN"
                   date       = UNDEF
                   experiment = 71OB
                   model      = arpege
                   term       = 6
                   truncation = 107

**Namelist**

format :          Meteo::Namelist
 "ascii"
                   binary = arpege
                   genv   = cy29t2_tropique-op1.01
local :            nproc  = 1
 "fort.4"           source = UNDEF

**FEMARS**

format :          Olive::Shell
 "unknown"
                   source = export VPP_MBX_SIZE=64000000 export ZOPT="-W1,-d100,-g250"
local :            export PATH=/usr/vecbin: cp /u/gp/mrpa/mrpa673/SEPT2005/bin/test7/ARPEGE
 "MASTER"           MASTER cp ICMSHSTATFGIN ICMSHSTATINIT ls -l ./MASTER -c001 -vmeteo -eSTAT
                    -t1. -ft0 -asli ls -l

**gribdiff**

format :          Meteo::Misc
 "unknown"
                   class      = femars
                   cutoff     = UNDEF
local :            date       = UNDEF
 "gribdiff"         experiment = 71OB
                   model      = arpege
                   store      = 06P32gribdiff_

**Listing**

format :          Meteo::Listing
 "ascii"
                   binary     = femars
                   class      = forecast
local :            cutoff     = UNDEF
 "NODE.001_01"      date       = UNDEF
                   experiment = 71OB
                   task       = %SMSNAME%

**Figure 4: The femars_full configuration.**

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help      / > home > mrpa > mrpa673 > experiments > 71OB > LOOP_FEST

# festat

| | | variables |
|---|---|---|
| **action** [ browse ] | NPROC | 1 |
| edit | PROFILE | mem:1200 cpu:9000 wrap:ok |
| inspect | START | 20050118 |
| configure | HOUR | $FEST |
| xml | NFCST | 186 |
| | NMEMI | 31 |
| **sms command** | NMEMB | 36 |
| [ update ] | NFLEV | 46 |
| [ apply ] | ECH | 06 |

**sequence**

Recup_fichiers FESTAT stab_bal stab_cvt stab_cv Listing

### Recup_fichiers

format :
"unknown"

local :
"ensdiff"

📁 Olive::Shell

```
source = /bin/ksh NMEMB1=3311 3311( NMEMB + 1 )) echo NDAYS=3311 3311(
NFCST / (NMEMB1-NMEMI) )) echo
ENSDIFFS=/home/m/mrpa/mrpa673/SEPT2005/stat/POB_cy29t2_arpt_obsmetr cp
/usr/local/bin/decdate decdate ls -ltr if [ != "ALL" ] ; then offset=0
DAT2=`decdate 20050118` echo while [ -lt ] ; do offset=3311 3311( offset +
1 )) echo "loop over the number of days: " , # imemb=31 while [ -lt ] ; do
if [ -eq 36 ]; then imemb1= imemb2=31 imemb3=3311 3311( NMEMB1 - NMEMI ))
else imemb1= imemb2=3311 3311( imemb + 1 )) imemb3=3311 3311( imemb2 -
NMEMI )) fi index=3311 3311( ((offset-1) * (NMEMB1-NMEMI)) + imemb3 ))
offset2= echo "loop over the members: " ,,,, # [ -lt 100 ] && offset2="0"
[ -lt 10 ] && offset2="00" # file=0606PPgribdiff_ echo ,ensdiff ftget
///P-P/ ensdiff imemb=3311 3311( imemb + 1 )) done ls -ltr # DAT2=`decdate
+1` # done fi
```

### FESTAT

format :
"unknown"

local :
"MASTAT"

📁 Olive::Shell

```
source = /bin/ksh export VPP_MBX_SIZE=64000000 export
ZOPT="-W1,-d100,-g250" export PATH=/usr/vecbin: LSTABAL=.true.
LOZONE=.false. LOZBAL=.false. LANALBAL=.true. outbal=stab46_fc186.bal
outcvt=stab46_fc186.cvt outcvu=stab46_fc186.cv echo "catting the
namelists..." cat<nam_stat 46 359 186 20050118 EOF # cat nam_stat # ftget
/home/m/mrpa/mrpa673/oct2006/festat/MASTAT MASTAT chmod u+x MASTAT ls -lrt
./MASTAT > lola 2>&1 ls -ltr
```

### stab_bal

format :
"unknown"

local :
"stab46_fc186.bal"

🖼 Meteo::Misc

```
remote = cougar:xp/71OB/festat//stab46_fc186.bal
```

### stab_cvt

format :
"unknown"

local :
"stab46_fc186.cvt"

🖼 Meteo::Misc

```
remote = cougar:xp/71OB/festat//stab46_fc186.cvt
```

### stab_cv

format :
"unknown"

local :
"stab46_fc186.cv"

🖼 Meteo::Misc

```
remote = cougar:xp/71OB/festat//stab46_fc186.cv
```

### Listing

format :
"ascii"

local :
"lola"

🖼 Meteo::Listing

```
remote = cougar:xp/71OB/festat//listing.festat
```

**Figure 5: The festat configuration.**

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# 4. Experiment 61AY

This experiment is located in /home/mrpa/mrpa673/experiments on olive@sxproc1. It has been copied from experiment /home/mrpm/mrpm611/experiments/Ensemble_validation/6153 on olive@sxalgo1. The experiment has been configured to test the background error standard deviation computation (sigmab) for a specific date (in the observation space and in the spectral space) and for a longer period (one month for example).

A minimization task (figure 6) is used together with the sigmab executable. The Olive Shell Recup_fichiers is used to retrieve the 6-member ensemble 6h forecasts grib files. The Background, Guess3h and Initial files are taken as the 6h forecast from the operational suite post-processed at lower resolution (T107). The minimization namelist is taken from cy30t1_tropique-op1.08 and modified by Olive Gnam namelist. The output grib file with background error standard deviations is stored on cougar in class sigmab.

**CCMA**

format :
 "odb/compressed"

local :
 "CCMA"

Meteo::Observations
- class      = screening
- cutoff     = UNDEF
- date       = 2006082800
- experiment = 6153
- model      = arpege
- part       = mix
- stage      = screen

**Chanspec**

format :
 "unknown"

local :
 "chanspec_noaa.dat"

Meteo::Chanspec
- genv = cy30t1_tropique-op1.08

**Correl**

format :
 "unknown"

local :
 "correl.dat"

Meteo::Correl
- genv = cy30t1_tropique-op1.08

**Cstlim**

format :
 "unknown"

local :
 "cstlim_noaa.dat"

Meteo::Cstlim
- genv = cy30t1_tropique-op1.08

**Errgribvor**

format :
 "unknown"

local :
 "errgrib"

Meteo::Errgribvor
- genv = cy30t1_tropique-op1.08
- hh   = UNDEF

**Guess3h**

format :
 "fa"

local :
 "ICMSHMINIINIT"

Meteo::Guessbr
- class      = 4dupd1
- cutoff     = UNDEF
- date       = UNDEF
- experiment = 61AY
- model      = arpege
- term       = 3

**Initial**

format :
 "fa"

local :
 "ICMSHMINIIMIN"

Meteo::Guessbr
- class      = 4dupd1
- cutoff     = UNDEF
- date       = UNDEF
- experiment = 61AY
- model      = arpege
- term       = 3

**Rszcoef**

format :
 "unknown"

local :
 "rszcoef_fmt"

Meteo::Rszcoef
- genv = cy30t1_tropique-op1.08

**Rt_Coef_IEEE**

format :
 "unknown"

local :
 "rt_coef_atovs_newpred_ieee.dat"

Meteo::Rtcoefatovs
- genv = cy30t1_tropique-op1.08

**Rt_Coef_AIRS_IEEE**

format :
 "unknown"

local :
 "rt_coef_airs_newpred_ieee_nag2.dat"

Meteo::Rtcoefairs
- genv = cy30t1_tropique-op1.08

**Rtmtb_Err**

format :
 "unknown"

local :
 "rmtberr_noaa.dat"

Meteo::Rmtberr
- genv = cy30t1_tropique-op1.08

**Sigma_B**

format :
 "unknown"

local :
 "sigmab.dat"

Meteo::Sigmab
- genv = cy30t1_tropique-op1.08

**Stabal_bal**

format :
 "unknown"

local :
 "stabal96.bal"

Meteo::Stabalbal
- genv = cy30t1_tropique-op1.08

**Stabal_cv**

format :
 "unknown"

local :
 "stabal96.cv"

Meteo::Stabalcv
- genv = cy30t1_tropique-op1.08

**Namelist**

format :
 "ascii"

local :
 "fort.4"

Meteo::Namelist
- binary = arpege
- genv = cy30t1_tropique-op1.08
- nproc = 5
- source = namelistmin1311

Olive::Gnam
- delta_default = &NAMJG
  CINBGSTATES="GRIBER", N_BGDATES=3,
  N_BGMEMBERS=7, / &NAMVAR LTOVSCV=.TRUE.,
  LAVCGL=.TRUE., LBGTRUNC=.TRUE.,
  LWRISIGB=.TRUE., LBGOBS=.FALSE.,
  NITER=1, NBGTRUNC=42, /

**Modified by**
 ◆ **Setup Update 1**

**Arpege**

finalterm :
 "6"

format :
 "vpp5000"

local :
 "ARPEGE.EX"

mode :
 "minim"

timescheme :
 "sli"

timestep :
 "1800"

Meteo::Arpege
- remote =
  delage:/home/m/mrpa/mrpa673/oct2006/pack/lbgobsensemble_cy30t1_op1/bin/ARPODB

Taken from **arpege**

**Listing**

format :
 "ascii"

local :
 "+exec"

Meteo::Listing
- binary   = arpege
- class    = 4dupd1
- cutoff   = UNDEF
- date     = UNDEF
- experiment = 61AY
- task     = %SMSNAME%

**sigma_b**

format :
 "unknown"

local :
 "sigma_b"

Meteo::Misc
- class    = sigmab
- cutoff   = assim
- date     = UNDEF
- experiment = 61AY
- model    = arpege
- store    = sigma_b

**Figure 6: The sigmab configuration.**

# 5. Experiment 61BB

This experiment is located in /home/mrpm/mrpm611/experiments/Ensemble_CEPMMT on olive@sxalgo1 and is configured to run on hpcd. The experiment contains 2 loops:
– one loopdate over the dates and network hours, which has 2 families, namely femars and sigmab1.
– one loop over the network hours, which has family sigmab2 and task festat.

The architecture of the experiment is presented below.

**Node Skeleton 61BB**
 **family** 61BB
   **directory** YYYYMMDD
     **directory** HH
       **directory** CUTOFF
         **family** femars
           **directory** LOOP_MEMB
             **task** fph2l
             **task** femars_full
             **task** femars_diff
           **family** memb_6173
             **symlink** fph2l -> ../LOOP_MEMB/fph2l
             **symlink** femars_full -> ../LOOP_MEMB/femars_full
             **symlink** femars_diff -> ../LOOP_MEMB/femars_diff
           **family** memb_617D
             **symlink** fph2l -> ../LOOP_MEMB/fph2l
             **symlink** femars_full -> ../LOOP_MEMB/femars_full
             **symlink** femars_diff -> ../LOOP_MEMB/femars_diff
           **family** memb_617H
             **symlink** fph2l -> ../LOOP_MEMB/fph2l
             **symlink** femars_full -> ../LOOP_MEMB/femars_full
             **symlink** femars_diff -> ../LOOP_MEMB/femars_diff
           **family** memb_617K
             **symlink** fph2l -> ../LOOP_MEMB/fph2l
             **symlink** femars_full -> ../LOOP_MEMB/femars_full
             **symlink** femars_diff -> ../LOOP_MEMB/femars_diff
           **family** memb_617L
             **symlink** fph2l -> ../LOOP_MEMB/fph2l
             **symlink** femars_full -> ../LOOP_MEMB/femars_full
             **symlink** femars_diff -> ../LOOP_MEMB/femars_diff
           **family** memb_617M
             **symlink** fph2l  -> ../LOOP_MEMB/fph2l
             **symlink** femars_full  -> ../LOOP_MEMB/femars_full
             **symlink** femars_diff -> ../LOOP_MEMB/femars_diff
          **family** sigmab1
           **task** fph2l1

**task** minim1
          **task** fph2l2
          **task** minim2
      **family** 00
        **family** assim
          **symlink** femars -> ../../HH/CUTOFF/femars
          **symlink** sigmab1 -> ../../HH/CUTOFF/sigmab1
      **family** 06
        **family** assim
          **symlink** femars -> ../../HH/CUTOFF/femars
          **symlink** sigmab1 -> ../../HH/CUTOFF/sigmab1
      **family** 12
        **family** assim
          **symlink** femars -> ../../HH/CUTOFF/femars
          **symlink** sigmab1 -> ../../HH/CUTOFF/sigmab1
      **family** 18
        **family** assim
          **symlink** femars -> ../../HH/CUTOFF/femars
          **symlink** sigmab1 -> ../../HH/CUTOFF/sigmab1
    **family** loopdate
      **symlink** 00 -> ../YYYYMMDD/00
      **symlink** 06 -> ../YYYYMMDD/06
      **symlink** 12 -> ../YYYYMMDD/12
      **symlink** 18 -> ../YYYYMMDD/18
    **directory** LOOP_HOUR
      **family** sigmab2
        **task** fph2l1
        **task** minim1
        **task** fph2l2
        **task** minim2
      **task** festat
    **family** hour_00
      **symlink** sigmab2 -> ../LOOP_HOUR/sigmab2
      **symlink** festat -> ../LOOP_HOUR/festat
    **family** hour_06
      **symlink** sigmab2 -> ../LOOP_HOUR/sigmab2
      **symlink** festat -> ../LOOP_HOUR/festat
    **family** hour_12
      **symlink** sigmab2 -> ../LOOP_HOUR/sigmab2
      **symlink** festat -> ../LOOP_HOUR/festat
    **family** hour_18
      **symlink** sigmab2 -> ../LOOP_HOUR/sigmab2
      **symlink** festat -> ../LOOP_HOUR/festat

Family femars includes a loop (named LOOP_MEMB) over the 6 members of the Arpege Tropique 3D-VAR FGAT ensemble running on hpcd: 6173, 617D, 617H, 617K, 617M and 617L (figure 7).

**Figure 7: The loop over the ensemble members.**

LOOP_MEMB has inside three tasks: fph2l, femars_full and femars_diff.

Task fph2l is a post-processing at low resolution (T107) of the 6h forecast from each member of the ensemble.

Femars_full (figure 8) writes a grib file of the 6h forecast post-processed at T107 of each member. This grib files is stored on cougar in the class femars of the experiment corresponding to the member. These grib files will be used for computation of background error standard deviations (in sigmab tasks).

Femars_diff (figure 9) computes differences between two 6h forecasts at full resolution (T359) coming from the current member and the next member (defined in LOOP_MEMB) and writes a grib file stored on cougar in the class femars of the experiment corresponding to the current member. These grib files will be used in the computation of background error statistics in festat task.

Family sigmab1 has 4 tasks: fph2l1, minim1, fph2l2 and minim2.

Tasks fph2l1 and fph2l2 perform post-processing at low resolution (T107) of the 6h (for fph2l1) and 3h (for fph2l2) forecasts from the operational suite. These low resolution forecasts will be used as Background, Guess3h and Initial states in minim1 (the 6h forecast) and minim2 (the 3h forecast) tasks.

Minimization tasks minim1 and minim2 are used together with the sigmab executable to compute daily background error standard deviations in observation space (minim1 – figure 10) and spectral space (minim2). The Olive Shell Recup_fichiers is used to retrieve the 6-member ensemble 6h forecasts grib files produced by femars_full task. The minimization namelist is taken from cy30t1_tropique-op1.01 and modified by gnam_multihost (set up for hpcd) and Olive Gnam namelist. The output grib file with background error standard deviations is stored on cougar in class sigmab1 (file sigma_b_obs for minim1 and sigma_b_spec for minim2).

olive @ sxalgo1 / mrpm611                              **Swapp  Olive  Archive  Gco  Biblio**

🔵 home [ 8 ]  🔲 clipboard [ 0 ]  🔵 trash [ 15 ]  🔵 favorites [ 3 ]          🔺 Search from femars_full...
⭐ experiments | diagnostics | cleaning

help          / > home > mrpm > mrpm611 > experiments > Ensemble_CEPMMT > 61BB > YYYYMMDD > HH > CUTOFF >
              femars > LOOP_MEMB

🔵 **femars_full** 🔵

**action** [ browse ]                                                                            **variables**

**edit**           **NPROC**              1
**inspect**        **PROFILE**            mem:250 cpu:20 wrap:ok
**configure**      **NAMSOURCE**          namelistfc
**xml**

                                                                                               **sms functions**
**sms command**    **trigger**            fph2l==complete
[ update ]
[ apply ]                                                                                        **sequence**
                                                            Historic Namelist FEMARS gribdiff Listing

**Historic**

format :                  🖼 Meteo::Guessbr
  "fa"
local :                      ■ area       = tropique
  "ICMSHSTATFGIN"            ■ class      = femars
                             ■ cutoff     = assim
                             ■ date       = UNDEF
                             ■ experiment = UNDEF
                             ■ model      = arpege
                             ■ term       = 6
                             ■ truncation = 107

**Namelist**

format :                  🖼 Meteo::Namelist
  "ascii"
                             ■ binary = arpege
local :                      ■ genv   = cy30t1_tropique-op1.01
  "fort.4"                   ■ nproc  = 1
                             ■ source = namelistfc

                          **Modified by**
                             • **gnam_multihost**

**FEMARS**

format :                  📁 Olive::Shell
  "unknown"
                             ■ source = export ZOPT="-W1,-d100,-g250" cp
local :                        /hpcd/tmp/ms/fr/rmz/gmap/pack/ARPODB30T1_op1/bin/ARPODB_full MASTER cp
  "MASTER"                     ICMSHSTATFGIN ICMSHSTATINIT ls -l ./MASTER -c001 -vmeteo -eSTAT -t1. -ft0
                               -asli ls -l

**gribdiff**

format :                  🖼 Meteo::Misc
  "unknown"
                             ■ class      = femars
local :                      ■ cutoff     = assim
  "gribdiff"                 ■ date       = UNDEF
                             ■ experiment = UNDEF
                             ■ model      = arpege
                             ■ store      = 06Pgribfull_

**Listing**

format :                  🖼 Meteo::Listing
  "ascii"
                             ■ binary     = femars
local :                      ■ class      = femars
  "NODE.001_01"              ■ cutoff     = assim
                             ■ date       = UNDEF
                             ■ experiment = UNDEF
                             ■ task       = %SMSNAME%

**Figure 8: The femars_full task.**

olive @ sxalgo1 / mrpm611

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Search from femars_diff...

experiments | diagnostics | cleaning

help      / > home > mrpm > mrpm611 > experiments > Ensemble_CEPMMT > 61BB > YYYYMMDD > HH > CUTOFF >
          femars > LOOP_MEMB

**femars_diff**

action [ browse ]                                                              variables

edit
inspect        NPROC              1
configure      PROFILE            mem:1810 cpu:50 wrap:ok
xml            NAMSOURCE          namelistfc

                                                                               sequence
sms command                                        Historic1 Historic2 Namelist FEMARS gribdiff Listing

update
apply          **Historic1**

               format :                    Meteo::Historic
                 "fa"                           class      = forecast
                                                cutoff     = assim
               local :                          date       = UNDEF
                 "ICMSHSTATFGIN"                experiment = UNDEF
                                                model      = arpege
                                                term       = 6

               **Historic2**

               format :                    Meteo::Historic
                 "fa"                           class      = forecast
                                                cutoff     = assim
               local :                          date       = UNDEF
                 "ICMSHSTATANIN"                experiment = UNDEF
                                                model      = arpege
                                                term       = 6

               **Namelist**

               format :                    Meteo::Namelist
                 "ascii"                        binary = arpege
                                                genv   = cy30t1_tropique-op1.01
               local :                          nproc  = 1
                 "fort.4"                        source = namelistfc

                                           **Modified by**
                                             • gnam_multihost

               **FEMARS**

               format :                    Olive::Shell
                 "unknown"                      source = export ZOPT="-W1,-d100,-g250" cp
                                                /hpcd/tmp/ms/fr/rmz/gmap/pack/ARPODB30T1_op1/bin/ARPODB_diff MASTER cp
               local :                          ICMSHSTATFGIN ICMSHSTATINIT ls -l ./MASTER -c001 -vmeteo -eSTAT -t1. -ft0
                 "MASTER"                       -asli ls -l

               **gribdiff**

               format :                    Meteo::Misc
                 "unknown"                      class      = femars
                                                cutoff     = assim
               local :                          date       = UNDEF
                 "gribdiff"                     experiment = UNDEF
                                                model      = arpege
                                                store      = 0606PPgribdiff_

               **Listing**

               format :                    Meteo::Listing
                 "ascii"                        binary     = femars
                                                class      = femars
               local :                          cutoff     = assim
                 "NODE.001_01"                  date       = UNDEF
                                                experiment = UNDEF
                                                task       = %SMSNAME%

help    / > home > mrpm > mrpm611 > experiments > Ensemble_CEPMMT > 61BB > YYYYMMDD > HH > CUTOFF > sigmab1

## minim1

**action** [ browse ]

edit
inspect
configure
xml

**sms command**

[ update ]

[ apply ]

**variables**

| NPROC | 16 |
| PROFILE | mem:540 cpu:120 wrap:ok |

**sms functions**

| trigger | -a fph2l1==complete and ../femars==complete |

**sequence**

Recup_fichiers  Rt_Coeg_tgz  Rtmtb_Err_airs  Background  CCMA  Chanspec  Correl  Cstlim  Errarlbvor  Guess6h  Initial  Rszcoef
Rt_Coef_IEEE  Rt_Coef_AIRS_IEEE  Rtmtb_Err  Sigma_B  Stabal_bal  Stabal_cv  Namelist  Arpege  Listing  sigma_b

### Recup_fichiers

format :
  "unknown"

local :
  "GRIBER"

Olive::Shell

```
source = /bin/ksh # Inline shell source set -x
ENSGRIBFULL=/home/m/mrpm/mrpm611/xp ECH=06 STARTD=`expr | cut -c1-8` echo
RR= echo NDAYS=1 STARTMBR=1 NBR=7 # # Case of files identified by date
(NDAYS=number) : # offsetd=0 #DATE=`decdate ` DATE= while [ -lt ] ; do
offsetd=3311( offsetd + 1 )) offsetd2= [ -lt 100 ] && offsetd2="0" [
-lt 10 ] && offsetd2="00" offsetm=0 MBR= while [ -lt ] ; do offsetm=3311
3311( offsetm + 1 )) offsetm2= [ -lt 100 ] && offsetm2="0" [ -lt 10 ] &&
offsetm2="00" if [ -eq 1 ] ; then MEMB=6173 elif [ -eq 2 ] ; then
MEMB=617D elif [ -eq 3 ] ; then MEMB=617H elif [ -eq 4 ] ; then MEMB=617K
elif [ -eq 5 ] ; then MEMB=617L elif [ -eq 6 ] ; then MEMB=617M elif [ -eq
7 ] ; then MEMB=6173 fi echo "ftget Pgribfull_" ftget
//HA/femars/Pgribfull_ GRIBERm_d MBR=3311 3311( MBR + 1 )) done #
DATE=`decdate +1` done
```

### Rt_Coeg_tgz

format :
  "unknown"

local :
  "var.sat.misc_rtcoef.01.tgz"

Meteo::Rtcoeftgz

```
genv = cy30t1_tropique-op1.01
```

### Rtmtb_Err_airs

format :
  "unknown"

local :
  "rmtberr_airs.dat"

Meteo::Rmtberrairs

```
genv = cy30t1_tropique-op1.01
```

### Background

format :
  "fa"

local :
  "ICMRFMINI0000"

Meteo::Guessbr

```
class      = sigmab1
cutoff     = assim
date       = UNDEF
experiment = 61BB
model      = arpege
term       = 6
```

### CCMA

format :
  "odb/compressed"

local :
  "CCMA"

Meteo::Observations

```
class      = 4dupd1
cutoff     = assim
date       = UNDEF
experiment = 6173
model      = arpege
part       = mix
stage      = min
```

## Chanspec

format :
  "unknown"

Meteo::Chanspec
  ■ genv = cy30t1_tropique-op1.01

local :
  "chanspec_noaa.dat"

## Correl

format :
  "unknown"

Meteo::Correl
  ■ genv = cy30t1_tropique-op1.01

local :
  "correl.dat"

## Cstlim

format :
  "unknown"

Meteo::Cstlim
  ■ genv = cy30t1_tropique-op1.01

local :
  "cstlim_noaa.dat"

## Errgribvor

format :
  "unknown"

Meteo::Errgribvor
  ■ genv = cy30t1_tropique-op1.01
  ■ hh   = UNDEF

local :
  "errgrib"

## Guess6h

format :
  "fa"

Meteo::Guessbr
  ■ class      = sigmab1
  ■ cutoff     = assim
  ■ date       = UNDEF
  ■ experiment = 61BB
  ■ model      = arpege
  ■ term       = 6

local :
  "ICMSHMINIINIT"

## Initial

format :
  "fa"

Meteo::Guessbr
  ■ class      = sigmab1
  ■ cutoff     = assim
  ■ date       = UNDEF
  ■ experiment = 61BB
  ■ model      = arpege
  ■ term       = 6

local :
  "ICMSHMINIIMIN"

## Rszcoef

format :
  "unknown"

Meteo::Rszcoef
  ■ genv = cy30t1_tropique-op1.01

local :
  "rszcoef_fmt"

## Rt_Coef_IEEE

format :
  "unknown"

Meteo::Rtcoefatovs
  ■ genv = cy30t1_tropique-op1.01

local :
  "rt_coef_atovs_newpred_ieee.dat"

## Rt_Coef_AIRS_IEEE

format :
  "unknown"

Meteo::Rtcoefairs
  ■ genv = cy30t1_tropique-op1.01

local :
  "rt_coef_airs_newpred_ieee_nag2.dat"

**Rtmtb_Err**

format :
 "unknown"

local :
 "rmtberr_noaa.dat"

Meteo::Rmtberr
- genv = cy30t1_tropique-op1.01

**Sigma_B**

format :
 "unknown"

local :
 "sigmab.dat"

Meteo::Sigmab
- genv = cy30t1_tropique-op1.01

**Stabal_bal**

format :
 "unknown"

local :
 "stabal96.bal"

Meteo::Stabalbal
- genv = cy30t1_tropique-op1.01

**Stabal_cv**

format :
 "unknown"

local :
 "stabal96.cv"

Meteo::Stabalcv
- genv = cy30t1_tropique-op1.01

**Namelist**

format :
 "ascii"

local :
 "fort.4"

Meteo::Namelist
- binary = arpege
- genv = cy30t1_tropique-op1.01
- nproc = 16
- source = namelistmin1311

Olive::Gnam
- delta_default = &NAMJG CINBGSTATES='GRIBER', N_BGDATES=1, N_BGMEMBERS=7, / &NAMVAR LTOVSCV=.TRUE., LAVCGL=.TRUE., LBGTRUNC=.TRUE., LWRISIGB=.TRUE., LBGOBS=.TRUE., NITER=1, NBGTRUNC=42, /

**Modified by**
- **gnam_multihost**
- **Setup Update 1**

**Arpege**

finalterm :
 "6"

format :
 "vpp5000"

local :
 "ARPEGE.EX"

mode :
 "minim"

timescheme :
 "sli"

timestep :
 "1800"

Meteo::Arpege
- remote = /hpcd/tmp/ms/fr/rmz/gmap/pack/lbgobsensemble_cy30t1_op1/bin/ARPODB

**Listing**

format :
 "ascii"

local :
 "+exec"

Meteo::Listing
- binary    = arpege
- class     = sigmab1
- cutoff    = assim
- date      = UNDEF
- experiment = 61BB
- task      = %SMSNAME%
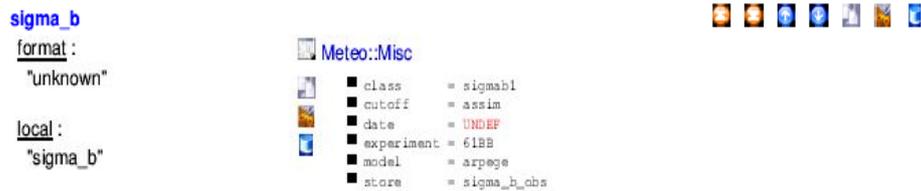
**Figure 10: The minim1 task.**

The family sigmab2 from LOOP_HOUR contains 4 tasks: two inactive tasks (fph2l1 and minim1) and two active tasks (fph2l2 and minim2).

These 4 tasks are similar to the tasks from sigmab1, except the fact that the background error standard deviations are computed for a longer period (one months for example). The number of days over which sigmab is computed is specified in Olive Gnam by variable N_BGDATES (the computation of sigmab has been tested for the moment only for two days, because the grib files produced by femars where available only for two days).

The Background, Guess3h and Initial states are taken from the start date of the period over which sigmab is computed. Tasks fph2l1 and minim1 are inactive because with the current executable the computation of sigmab in observation space is not possible for more than one day (because the observation operator has to be linearized around a background state).

Festat task (figure 11) computes statistics using 6h forecast differences at full resolution (T359), coming from the 6-member ensemble. The statistics can be computed over a 1-2 months period, starting from the date set up by variable STARTD. The variable NFCST set up the number of forecast differences (number of ensemble members x number of days) used to compute the statistics. For the moment, it has been set to 12, because only 2 days of forecast differences grib files where available, but the period over which the statistics is computed should be longer (1-2 months), in order to assure positive definite covariance matrices. The Olive Shell Recup_fichiers is used to retrieve the NFCST forecast differences, while the Olive Shell FESTAT set up the 12 parameters in the namelist nam_stat and run the festat executable. The output files are stored on cougar in the directory corresponding to start date STARTD and class festat.

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experiments | diagnostics | cleaning

Search from festat...

help    / > home > mrpm > mrpm611 > experiments > Ensemble_CEPMMT > 61BB > LOOP_HOUR

**festat**

**variables**

action [ browse ]

edit
inspect
configure
xml

sms command

[ update ]
[ apply ]

| | |
|---|---|
| NPROC | 1 |
| PROFILE | mem:1200 cpu:9000 wrap:ok |
| NFCST | 12 |
| NMEMI | 1 |
| NMEMB | 6 |
| NFLEV | 46 |
| ECH | 06 |
| STARTD | 20060922 |
| SWAPP_OUTPUT_STRATEGY | archive,workdir |
| SWAPP_ARCHIVE_SELECT | type:Listing|Misc |

**sequence**

Recup_fichiers FESTAT stab_bal stab_cvt stab_cv Listing

**Recup_fichiers**

format :
"unknown"

local :
"ensdiff"

Olive::Shell

```
source = /bin/ksh NMEMB1=3311 3311( NMEMB + 1 )) echo NDAYS=3311 3311(
NFCST / (NMEMB1-NMEMI )) echo ENSDIFFS=/home/m/mrpm/mrpm611/xp ls -ltr if
[ != "ALL" ] ; then offset=0 DAT2=20060922 echo while [ -lt ] ; do
offset=3311 3311( offset + 1 )) echo "loop over the number of days: " , #
imemb=1 while [ -lt ] ; do if [ -eq 1 ] ; then MEMB1=617D ; MEMB2=617D
elif [ -eq 2 ] ; then MEMB1=617D ; MEMB2=617H elif [ -eq 3 ] ; then
MEMB1=617H ; MEMB2=617K elif [ -eq 4 ] ; then MEMB1=617K ; MEMB2=617L elif
[ -eq 5 ] ; then MEMB1=617L ; MEMB2=617M elif [ -eq 6 ] ; then MEMB1=617M
; MEMB2=6173 fi index=3311 3311( ((offset-1) * (NMEMB1-NMEMI)) + imemb ))
offset2= echo "loop over the members: " ,,,, # [ -lt 100 ] && offset2="0"
[ -lt 10 ] && offset2="00" # file=0606PPgribdiff_ echo ,ensdiff ftget
//HA/femars/ ensdiff imemb=3311 3311( imemb + 1 )) done ls -ltr #
DAT2=`smsdate -D +1` # done fi
```

**FESTAT**

format :
"unknown"

local :
"MASTAT"

Olive::Shell

```
source = /bin/ksh export ZOPT="-W1,-d100,-g250" LSTABAL=.true.
LOZONE=.false. LOZBAL=.false. LANALBAL=.true. outbal=stab_fc12.bal
outcvt=stab46_fc12.cvt outcvu=stab46_fc12.cv echo "catting the
namelists..." cat<nam_stat 46 359 12 20060922 BOF # cat nam_stat # cp
/hpcd/tmp/ms/fr/rmz/gmap/pack/ARPODB30T1_op1/bin/ARPODB30T1_OP1 MASTAT ls
-lrt ./MASTAT > lola 2>&1 ls -ltr
```

**stab_bal**

format :
"unknown"

local :
"stab46_fc12.bal"

Meteo::Misc

```
class      = festat
cutoff     = assim
date       = 20060922
experiment = 61BB
model      = arpege
store      = stab46_fc12.bal
```

**stab_cvt**

format :
"unknown"

local :
"stab46_fc12.cvt"

Meteo::Misc

```
class      = festat
cutoff     = assim
date       = 20060922
experiment = 61BB
model      = arpege
store      = stab46_fc12.cvt
```

**stab_cv**

format :
"unknown"

local :
"stab46_fc12.cv"

Meteo::Misc

```
class      = festat
cutoff     = assim
date       = 20060922
experiment = 61BB
model      = arpege
store      = stab46_fc12.cv
```

**Listing**

format :
"ascii"

local :
"lola"

Meteo::Listing

```
binary     = festat
class      = festat
cutoff     = assim
date       = 20060922
experiment = 61BB
task       = %SMSNAME%
```

**Figure 11: The festat task.**