

Cycling Strategy in Harmonie (a re-hash of Daniel's talk)

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*“Harmonie: a sledgehammer
designed to crack a nut” –
Anonymous, RMI*



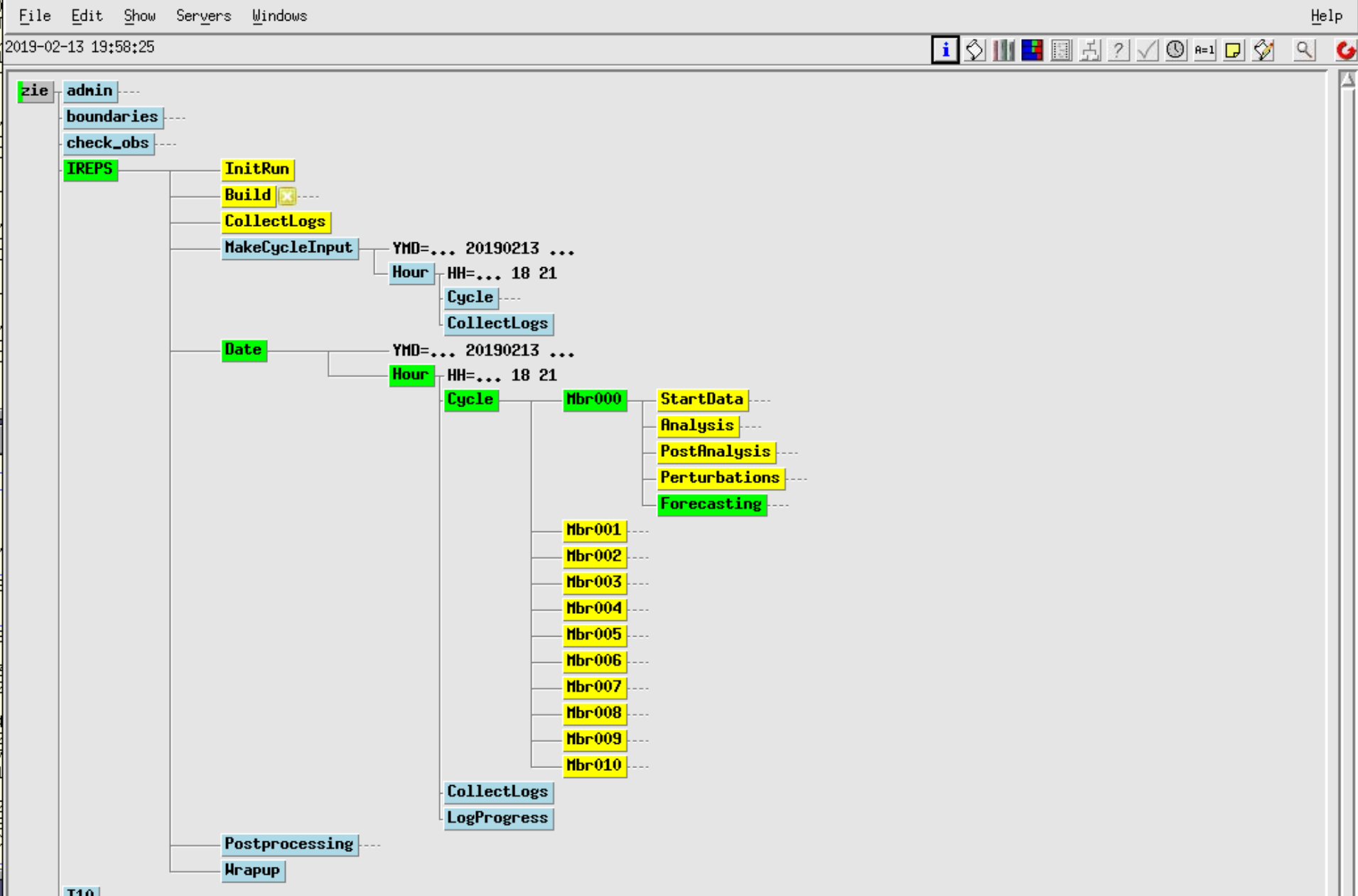


Harmonie →



**Any NWP
problem!** →





family Date

```
if ( $ENV{SCHEDULER} eq 'ECFLOW' and $ENV{TASK_LIMIT} > 0 )
  limit DATE $ENV{TASK_LIMIT}
  inlimit DATE
endif
repeat date YMD $ENV{StartDate} $ENV{EndDate}
complete [ $ENV{COMPLETE_FAMILY} = /:Date:/ ]
trigger ( Build == complete )
```

family Hour

```
repeat enumerated HH &Env('HH_LIST', 'union')
complete ( ( ( ../Date:YMD <= $ENV{StartDate} ) and \
            ( Hour:HH < $ENV{StartHour} ) ) or \
            ( ( ../Date:YMD >= $ENV{EndDate} ) and \
            ( Hour:HH > $ENV{EndHour} ) ) )
```

family Cycle

```
1 --- (EEF $ENV{ENCMETDCT} $ENV{ENCMFACT})
```

Outline – The Three Families

- MakeCycleInput - Inputs
- Date – Outputs
- PostProcessing – Monitor & Archive

- ... and a closer look at
 - System definitions
 - Harmonie configurations
 - scr/include.ass



Before we start ... configurations

- Harmonie setup
 - r /path/to/system \
 - h HOST \
 - c CONFIGURATION **
 - d DOMAIN
 - AROME
 - **AROME_3DVAR (default)**
 - AROME_BD_ARO
 - **AROME_JB**
 - AROME_CLIMSIM
 - AROME_MUSC
 - ... https://hirlam.org/trac/browser/Harmonie/scr/Harmonie_configurations.pm



Before we start ... Env_system

- Env_system -> config-sh/config.platform
 - *HOST0/HOST1* (e.g. *ecgate & cca*)
 - HM_DATA -> input output data
 - HM_LIB -> directory for scripts/code
 - HM_CLDATA -> climate “databases” directory
 - HM_SAT_CONST -> satellite “constant” files
 - JBDIR -> **B** matrix files



Before we start ... scr/include.ass

- **B** matrix files names/locations
- DA settings: REDZONE/REDNMC
- USEOBSOUL=0/1
- Obs selection: *OBTYPE_OBS*=0/1
- Obs window/time-slots
- ODB settings
- VARBC settings

MakeCycleInput – sms/config_exp.h

- Climate, LBC & Observations

MakeCycleInput – sms/config_exp.h

- Climate, LBC & Observations

- CLIMDIR=\$HM_DATA/climate

- Const.Clim.sfx

- ecoclimapI_covers_param.bin

- ecoclimapI_covers_param.dat

- ecoclimapII_af_covers_param.bin

- ecoclimapII_af_covers_param.dat

- ecoclimapII_eu_covers_param.bin

- ecoclimapII_eu_covers_param.dat

- gmted2010.dir

- gmted2010.hdr

- mXX: $01 \leq XX \leq 12$

- PGD.fa -> Const.Clim.sfx

- PGD_prel.fa

MakeCycleInput – sms/config_exp.h

- Climate, LBC & Observations

MakeCycleInput – sms/config_exp.h

- Climate, LBC & Observations
 - BDDIR=\$HM_DATA/\${BDLIB}/archive/
@YYYY@/@MM@/@DD@/@HH@
YYYY/MM/DD/HH/fcYYYYMMDD_HH+fff
e.g 2018/08/19/06/fc20180819_06+006
 - gl_bd converts IFS GRIB to FA LBC files

MakeCycleInput – sms/config_exp.h

- Climate, LBC & Observations

MakeCycleInput – sms/config_exp.h

- Climate, LBC & Observations
 - OBDIR=\$HM_DATA/observations
 - obYYYYMMDDHH, e.g. ob2018081912
 - *Prepare_ob* task “splits” this BUFR file using ShuffleBuf
 - *sat*YYYYMMDDHH where *sat*=amsua, amsub, iasi, ...

Date – sms/config_exp.h

- Forecast & Data Assimilation
 - WORK=\$HM_DATA/YYYYMMDD_HH
 - ARCHIVE_ROOT=\$HM_DATA/archive
 - Forecast output (incl. first-guess) stored in YYYY/MM/DD/HH sub-directories
 - MX*, ICMSH*, PF*, odb_stuff.tar
 - At ECMWF: archive data copied to ECFS

Postprocessing – sms/config_exp.h

- “Extracted” monitoring data
 - Stored in \$ARCHIVE_ROOT/extract
 - Obsmon sqlite databases
 - vfld/vobs ASCII point forecast/observation files for verification

The log files!

- Task log files written to \$JOBOUTDIR
 - Defined in Env_system
 - ecgate:/hpc/perm/ms/CC/\$USER/HARMONIE/\$EXP
 - cca:/hpc/perm/ms/CC/\$USER/HARMONIE/\$EXP
- Log files gathered by CollectLogs task
 - Written to HTML file
 - ecgate:/scratch/ms/CC/USER/hm_home/\$EXP/archive/log

