

RESEARCH DEPARTMENT
MEMORANDUM



To: CopD, FD, RD

Copy: HPS, HES, Alain Joly, François Bouyssel, Claude Fischer,
Ryad El Khatib, Karim Yessad

From: Deborah Salmond, Gabor Radnoti, Tomas Wilhelmsson *et al.*

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Subject: IFS Memorandum Cycle CY43R3

CY43R3 was created during the period 18/Aug/16 - 16/Dec/16 (estimated).

Contributors:

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Merged branch names:

V0:

V1:

V2:

V3:

V4:

V5:

V6:

V7:

V8: - FINAL

Assimilation

- Activate temperature bias correction for old style AIREP aircraft data. (IFS-21)
- Activate use of MWHS2 118GHz channels over land (IFS-28)
- Bug fixes for Array Bounds Checking and Initialisation to NAN (IFS-43)
- Code for Constrained Variational Bias Correction for radiances (IFS-35)
- EnKF improvements+bugfixes to IFS to make EnKF work in 43R1 (IFS-49)
- Harmonise use of microwave sounder channels over land and sea ice (IFS-24)
- OOPS changes in GOM interpolation (aka “Single cobsall”) (IFS-12)
- Passive AMSU-A all sky code changes and VarBC spin up (IFS-42)
- Remove unnecessary transforms in Jb (IFS-45)
- Revive LREPRO4DVAR option (IFS-8)
- Wavelet filter for EDA humidity variances (IFS-32)

Tomas Wilhelmsson - nat_CY43R1_only_repro - NON-METEOROLOGICAL

Revive LREPRO4DVAR option (IFS-8)

Revive the LREPRO4DVAR option.

Files modified(IFS):

```
control/gp_model_ad.F90
module/varbc_class.F90 varbc_eval.F90 varbc_pred.F90 varbc_setup.F90
varbc_table.F90 varbc_to3.F90
setup/suslad3.F90
```

Files deleted(IFS):

```
module/yomgeomad.F90
```

Alan Geer - stg_CY43R1_43R2_v1_single_cobsall - NON-METEOROLOGICAL

OOPS changes in GOM interpolation (aka “Single cobsall”) (IFS-12)

To support OOPS, make only one, rather than two, calls to SUPERGOM%MODEL_IN, formerly known as “cobsall”. This does not alter any science: we still take most fields from before the GP timestep and only the diagnostic hydrometeor variables for all-sky assimilation are taken afterwards. However, this changes the ordering of summations in the adjoint, so it is not bit-reproducible.

Tested in gk06 and gk8j against standard controls: file:///perm/rd/stg/iver/plots/cobsall_43r1_combined/index.html

Files created(IFS):

```
module/iostream_mix.F90.moved
```

Files modified(IFS):

control/scan2m.F90 scan2mad.F90 scan2mtl.F90
module/supergom_class.F90
op_obs/cobs.F90 cobsad.F90 cobsall.F90 cobsallad.F90 cobsalltl.F90

Lars Isaksen - mpi_CY43R1_bias_cor_airep - METEOROLOGICAL

Activate temperature bias correction for old style AIREP aircraft data. (IFS-21)

[No description provided]

Files created(IFS):

module/iostream_mix.F90.moved

Files modified(IFS):

module/varbc_airep.F90

Files modified(ODB):

ddl/getairepid.sql

Peter Weston, Niels Bormann - blacklist_change - METEOROLOGICAL

Harmonise use of microwave sounder channels over land and sea ice (IFS-24)

Data selection blacklist changes to:

- Use MHS channel 4 over snow covered land for consistency with use of SSMIS channel 10.
- Use ATMS channel 6 over cold sea and ATMS channel 7 and 8 over sea ice for consistency with use of AMSU-A channels 5, 6 and 7.
- Use ATMS channels 18 and 19 over cold sea and ATMS channels 20, 21 and 22 over sea ice for consistency with MHS channels 3, 4 and 5.

The blacklist with these changes (as well as the changes in IFS-28) can be found at /home/rd/stpw/Blacklists/43r1/black_ds2016061500_channel_consolidation_for_43r3

IVER results can be seen at the links below (experiments contain the changes listed above as well as the changes from IFS-28 and IFS-10):

- IFS-24 & IFS-28 changes [file:///perm/rd/stpw/iver/plots/Channel_consolidation_merge/index.html]
- IFS-24, IFS-28 & IFS-10 changes [file:///perm/rd/stpw/iver/plots/Channel_consolidation_error_tune_merge/index.html]

Peter Weston, Heather Lawrence, Niels Bormann - stpw_CY43R1_mwhs2_correct_orog_screen - METEOROLOGICAL

Activate use of MWHS2 118GHz channels over land (IFS-28)

Code change to correct orography screening and data selection blacklist change to:

- Activate use of MWHS2 118GHz channels over land

The blacklist with these changes (as well as the changes from IFS-24) can be found at `/home/rd/stpw/Blacklists/43r1/black_ds2016061500_channel_consolidation_for_43r3`

IVER results can be seen at the links below (experiments contain the changes listed above as well as the changes from IFS-24 and IFS-10):

- IFS-24 & IFS-28 changes [file:///perm/rd/stpw/iver/plots/Channel_consolidation_merge/index.html]
- IFS-24, IFS-28 & IFS-10 changes [file:///perm/rd/stpw/iver/plots/Channel_consolidation_error_tune_merge/index.html]

Files modified(IFS):

`mwave/mwave_screen.F90`

Massimo Bonavita - dav_CY43R1_Humidity_Wavelet_Filter - METEOROLOGICAL

Wavelet filter for EDA humidity variances (IFS-32)

This extends the wavelet-based filtering of EDA errors to the humidity variable in the control vector.

Files modified(SCRIPTS):

`gen/ens_errors`

Niels Bormann, Heather Lawrence - str_CY43R1_CVarBC - BIT IDENTICAL

Code for Constrained Variational Bias Correction for radiances (IFS-35)

These modifications allow Constrained Variational Bias Correction (CVarBC) as described in Han and Bormann (2016, Tech Memo 783) for radiances. A new term is added to the cost function that penalises the size of the observational bias corrections (or, in general, the difference of the bias correction from a prescribed value). The modifications are passive for now, but included for activation in a later cycle.

CVarBC is controlled through new namelist parameters in the VarBC YCONFIG structure which can be set in `NAMVARBC_RAD` in `ifstraj` and `ifsmin`. The parameters are: `lvarbc`: Activate CVarBC for this channel/sensor combination (default is off) `alpha_con`: Square root of the scaling factor for the CVarBC cost-function term (default is 1) `biascor_con`: Prior estimate of the bias correction (default is zero) `biaserr_con`: Uncertainty in the prior estimate of the bias correction.

The modifications implement the handling of these new parameters in the VarBC modules `varbc_setup.F90`, `varbc_table.F90`, `varbc_rad.F90`. The difference between the bias correction and the prior bias estimate, normalised by `biaserr_con`, become additional output of the generic VarBC bias correction functions (see module `varbc_eval.F90`, variables `PNDBIAS`). These contributions are squared and added up in the new variable `FJC-VARBC` in the `YOMCOSJO` module in `hjo.F90`, in a similar way as the contributions to the observation cost function. Similarly, for the gradient calculations the normalised bias correction deviations are stored in the new

ODB column ACTUAL_NDBIASCORR in the body table in hjo.F90, and read in departure_joad.F90, in much the same way as the ACTUAL_FGDEPAR column.

Testing for bit-identical results when CVarBC is not activated: gkzn (experiment) vs gl0a (control).

Files modified(IFS):

```
common/yomdb_defs.h yomdb_defs_undef.h yomdb_vars.h
module/varbc_class.F90 varbc_eval.F90 varbc_rad.F90 varbc_setup.F90
varbc_table.F90 yomcosjo.F90 yomdiagvar.F90
oops/allobs_oper_mod.F90
op_obs/departure_jo.F90 departure_joad.F90 departure_jotl.F90 hjo.F90 hop.F90
obsop_varbc.F90
programs/hop_driver.F90
utility/dealcos.F90 prtjo.F90
var/evcost.F90 sualcosjo.F90 sucos.F90 suvar.F90 taskob_thread.F90 taskobad_thread.F90
taskobtl_thread.F90
```

Files modified(ODB):

```
cma2odb/initmdb.F90
ddl/body.h robbody.sql robbody_min.sql robbody_tc.sql
include/compat_fill_mdb_members.h compat_mdb_members.h odb_assoc_cols.h
odb_it_members.h
module/dbase_view_mod.F90
```

Peter Weston, Alan Geer - stpw_CY43R1_amsua_allsky_for_43r3 - NON-METEOROLOGICAL

Passive AMSU-A all sky code changes and VarBC spin up (IFS-42)

Code changes to enhance existing AMSU-A all sky including:

- Allow use of AMSU-A all sky over land
- Remove cost saving satellite and channel restrictions
- Make screening more consistent for different cloud proxies

Data selection blacklist change to:

- Remove deprecated inland sea, latitude and land blacklisting
- Spin up VarBC coefficients for all all sky AMSU-A satellites

The blacklist with these changes can be found at /home/rd/stpw/Blacklists/43r1/black_ds2016061500_amsua_-allsky_for_43r3

IVER results will appear at the link below:

- IFS-42 changes [file:///perm/rd/stpw/iver/plots/Passive_AMSU_A_all_sky_merge/index.html]

Files created(IFS):

mwave/mwave_assign_emis_amsua.F90

Files modified(IFS):

module/varbc_allsky.F90

mwave/mwave_emis.F90 mwave_obsop_traj.F90 mwave_screen.F90 mwave_setup.F90

Files modified(ODB):

buf2odb/b2o_convert_atovs.F90

Files modified(SCRIPTS):

gen/prelcrad_screen

Deborah Salmond - das_CY43R1_FIXES - BIT IDENTICAL

Bug fixes for Array Bounds Checking and Initialisation to NAN (IFS-43)

[No description provided]

Files created(IFS):

module/yom_atlas_ifs.F90

Files modified(IFS):

adiab/cpedia.F90 gp_derivatives.F90

control/gp_model_ad.F90

module/spectral_variables_mod.F90 varbc_pred.F90

mwave/mwave_emis.F90 mwave_get_tl.F90 mwave_obsop_traj.F90

op_obs/obshorad.F90

phys_ec/surftstp_layer.F90

setup/suafn1.F90 suatlas_mesh.F90

var/evcost.F90 subj.F90

Deborah Salmond, Mike Fisher - das_CY43R1_JB_TRANSFORMS - BIT IDENTICAL

Remove unnecessary transforms in Jb (IFS-45)

[No description provided]

Files modified(IFS):

adiab/spchor.F90

var/balnonlinad.F90 balnonlintl.F90 balomegaad.F90 balomegatl.F90 cvar3.F90 cvar3ad.F90

cvar3in.F90 cvar3inad.F90 subjvarens.F90 subjwavgen.F90 subjwavgen_hybraw.F90

Mats Hamrud, Massimo Bonavita - nar_CY43R1_enkf_G - BIT IDENTICAL

EnKF improvements+bugfixes to IFS to make EnKF work in 43R1 (IFS-49)

A number of improvements to the EnKF code including support for assimilation of rain-affected radiances. A

couple of fixes to the IFS to make EnKF work in 43R1. Should be bit-identical apart from when running the (non-operational) EnKF. Have run 2 cycle 4Dvar experiment gl1j that is bit-identical to control dag/gk2l.

Files modified(ENKF):

```
module/analysis_mod.F03 comp_kernel_mod.F03 control_mod.F03 corr_stats_mod.F03 covar_-  
local_mod.F03 enkf_utils.F03 inflation_mod.F03 obs_base_mod.F03 obs_constants.F03  
obs_distr_mod.F03 state_geometry.F03 state_mod.F03 state_utils.F03 xb_state_mod.F03
```

Files modified(IFS):

```
op_obs/bgobs.F90 departure_jo.F90
```

Files modified(ODB):

```
cma2odb/matchupdb.F90  
ddl/ecmwf_matchup_body.sql global_enkf_body_10.sql global_enkf_body_100.sql  
global_enkf_body_110.sql global_enkf_body_120.sql global_enkf_body_20.sql  
global_enkf_body_30.sql global_enkf_body_40.sql global_enkf_body_50.sql  
global_enkf_body_60.sql global_enkf_body_70.sql global_enkf_body_80.sql  
global_enkf_body_90.sql matchup_body.sql  
scripts/create_global_enkf_sql.ksh
```

Files modified(SCRIPTS):

```
def/inc_libs.py  
gen/eda_err_save enkf_anal enkf_ecfs preCleanFDB wave_assimtrajs
```


Atmosphere - Composition

- CAMS updates of scripts (IFS-62)
- Change post-processing of aerosol fields (IFS-64)
- Changes to UVI processor (IFS-66)
- Improvements for CAMS aerosol model (IFS-63)
- Revised aerosol climatology based on CAMS system (IFS-38)
- Updates of CAMS model (IFS-65)

Alessio Bozzo, Angela Benedetti, Johannes Flemming, Peter Bechtold, Richard Forbes, Robin Hogan - paab_CY43R1_CAMSaer_final - METEOROLOGICAL

Revised aerosol climatology based on CAMS system (IFS-38)

Revised aerosol distribution based on control run of the CAMS interim reanalysis (Flemming et al, 2016), bias corrected to match the total AOD of the reanalysis. Impact of the revision in anthropogenic secondary organic emission shows negligible impact and will not be included in this version. Revised stratospheric background aerosol, reduced to match recent estimates. This has generally a (small) positive impact.

Branch `paab_CY43R1_CAMSaer_BIC_newbuilt_noSTRBKG` for early development. The aerosol climatology is saved in a series of subroutines as (very) long data statements. The aerosol background species are as for the old Tegen climatology.

The final branch is `paab_CY43R1_CAMSaer_final`. This branch has the aerosol climatology saved as a set of NetCDF files for each aerosol type and the background types are consistent with the aerosol species in the new climatology. Results with the two branches are very close and the comparison using FC only runs at Tco399 are here:

```
/perm/rd/paab/iver/plots/43r1_summer_maccaer_FC_tco399_final /perm/rd/paab/iver/plots/43r1_winter_maccaer_-FC_tco399_final
```

Analysis experiments at Tco639 are `gl4f` (summer, matching `gk2k`) and `gl4g` (winter, matching `gkih`). Iver plots:

```
/perm/rd/paab/iver/plots/43r1_CAMSaerV2_winter /perm/rd/paab/iver/plots/43r1_CAMSaerV2_summer
```

Climate runs: `exp gkqv` (early branch); `exp gl51` (final branch)

Files created(IFS):

```
module/easy_netcdf.F90 radiation_io.F90
```

Files modified(IFS):

```
module/yoeaeratm.F90 yoeaerc.F90 yoeaerop.F90 yoerad.F90  
namelist/naerad.nam.h  
phys_ec/aer_bdgtmss.F90 aer_phy1.F90 aer_phy3.F90 aer_rrtm.F90 su_aerop.F90  
suaerv.F90 sumaccbc1.F90 sumaccbc2.F90 sumaccor1.F90 sumaccor2.F90 sumaccsd1.F90  
sumaccsd2.F90 sumaccsd3.F90 sumaccss1.F90 sumaccss2.F90 sumaccss3.F90  
sumaccsu1.F90
```

phys_radi/radintg.F90 radlswr.F90 rrtm_ecrt_140gp_mcica.F90 srtm_srtm_224gp_mcica.F90
suecrad.F90 surdi15.F90

Richard Engelen - stj_CY43R1_bug_fixes - BIT IDENTICAL

CAMS updates of scripts (IFS-62)

- fetchobs change to enable using CAMS AI data (requires overlay)
- clean-up of fire scripts
- add PMAp to fetchobs
- hourly post-processing of surface fields in OD_MODE and hourly calculation of UV

Files modified(IFS):

phys_ec/phys_arrays_ini.F90
phys_radi/uvradi.F90

Files modified(SCRIPTS):

gen/fetchobs get_fire_emis get_gems_surface get_nrt_fire_chem getenkf getgrb
model prep_flux prep_initcond
sms/getfcdata.sms p4setup.sms

Files deleted(SCRIPTS):

gen/get_fire_emis_ctm

Richard Engelen - disr_CY43R1_CAMS_new_nitrate_newdrydep_resolcor - BIT IDENTICAL

Improvements for CAMS aerosol model (IFS-63)

- new aerosol optical properties
- debug of dry deposition
- fix the score degradation brought by the resolution change
- dry deposition velocities computed dynamically depending on particle size and meteorological parameters
- nitrate and ammonium module based on Hauglustaine et al ACP 2014. (Three new prognostic variables: nitrate fine mode (reaction of HNO₃ and NH₃), nitrate coarse mode (heterogeneous uptake of HNO₃ over dust and SS particles), and ammonium. The inputs are HNO₃, NH₃ and SO₄ from the chemistry, as well as DD and SS mass mixing ratios from the aerosol module)
- debug of sedimentation speed for sea-salt (and adjustment in the fraction of SS that is scavenged)
- use of SO₂ dry deposition velocities from SUMO instead of the fixed velocities

- complexification of SO2 to SO4 conversion (add diurnal cycle, dependency on temperature and humidity)
- increase of SO4 dry deposition velocity over oceans
- use of separate emission files for SOA sources that are now scaled on non-BB CO emissions (instead of using the emissions from the chemistry)
- same obs error for aerosols over sea and land
- use of dry mass mixing ratio for sea-salt as a prognostic variable
- update of PM10/PM2.5 diagnostic
- 20 wavelengths instead of 19 for optical properties (addition of 10 micron wavelength)
- debug of PDELP in aer_phy2.F90

Files created(IFS):

phys_ec/aer_dcoff.F90 aer_drydepvel.F90 aer_no3nh4.F90 aer_vgrav.F90

Files modified(IFS):

fullpos/hpos.F90
 module/parfpos.F90 surface_fields_mix.F90 yoeaeratm.F90 yoeaerop.F90
 yoeaersnk.F90 yoeaersrc.F90 yom_grib_codes.F90 yom_ygfl.F90 yomafn.F90
 namelist/naeaer.nam.h
 obs_preproc/reo3sin.F90
 op_obs/aer_lidsimad.F90 aer_lidsimop.F90 aer_lidsimtl.F90 aod_ad.F90
 aod_dualcv_ad.F90 aod_dualcv_op.F90 aod_dualcv_tl.F90 aod_op.F90 aod_tl.F90
 rao_ad.F90 rao_op.F90 rao_tl.F90
 phys_ec/aer_bdgtmss.F90 aer_dmsso.F90 aer_drydep.F90 aer_lidsim.F90 aer_phy1.F90
 aer_phy2.F90 aer_phy3.F90 aer_phy3_layer.F90 aer_rrtm.F90 aer_scavin.F90
 aer_sedimnt.F90 aer_so2so4.F90 aer_src.F90 aer_ssalt.F90 aerc_scav.F90
 aerini_layer.F90 phys_arrays_ini.F90 su_aerop.F90 su_aerp.F90 su_aerw.F90
 phys_radi/radintg.F90
 setup/su_surf flds.F90 suafn1.F90 suafn2.F90 suafn3.F90 supp.F90
 var/rdfpinc.F90

Files modified(SCRIPTS):

gen/gems_setup get_fire_emis get_gems_surface getmars ifsmin ifstraj model

Richard Engelen, Zak Kipling - cxzk.CY43R1.CAMS_tcaero - BIT IDENTICAL

Change post-processing of aerosol fields (IFS-64)

Introduce post-processing of aerosol variables (including existing AOD and PMx and new total column masses) in lagged mode

Files modified(IFS):

adiab/cpedia.F90
 fullpos/hpos.F90
 module/iogride_mod.F90 parfpos.F90 surface_fields_mix.F90 yomafn.F90

phys_ec/postphy_layer.F90
setup/su_surf_flds.F90 suafn1.F90 suafn2.F90 suafn3.F90 sudefo_gflattr.F90 sugfl2.F90
supp.F90

Files modified(SCRIPTS):

gen/ansfc gems_ifsnam.pl gems_setup ifstraj model restart_999
sms/sfc.sms

Richard Engelen, Johannes Flemming - naj_CY43R1_for_43r3_CIFS - BIT IDENTICAL

Updates of CAMS model (IFS-65)

- New namelist (NAMCOMPO), module (YOMCOMPO) and structure (YRCOMPO(TYPE=TCOMPO)) for variables controlling composition related parameters (more details in next email)
- Global mass diagnostics extended to GHG (it contains all CAMS tracers)
- Aircraft emissions for CO2 (scripts and code)
- New routine for GHG_sources (ifs/phys_ec/ghg_main.F90), i.e. CH4 loss rates and CO2 air craft emissions
- Option to include dry deposition velocity as input to tracer diffusion routine for all tracers (LCHEM-DDFLX_DIR)

Files created(IFS):

module/eras_rsbiasscorr.F90 yomcompo.F90
namelist/namcompo.nam.h
phys_ec/ghg_main.F90

Files modified(IFS):

chem/aer2massdia.F90 chem_emi3d.F90 chem_init.F90 chem_main.F90 chem_massdia.F90
tm5_calrates.F90
climate/updclie_compo.F90
control/cnt4.F90 cpicgfl.F90 gmassdiag.F90 gp_model.F90 qmfixer.F90
dia/sucddh.F90
module/model_mod.F90 yom_ygfl.F90 yomchem.F90 yommcc.F90 yomphyder.F90
yomppc.F90
namelist/namchem.nam.h namgfl.nam.h
phys_ec/aer_phy2.F90 aer_phy3.F90 aer_src.F90 aerini_layer.F90 callpar.F90
callparad.F90 callpart1.F90 chem_initflux.F90 chem_main_layer.F90
chemini_layer.F90 fireinj.F90 gems_init.F90 liftemis.F90 local_arrays_fin.F90
local_arrays_ini.F90 m7_emi_car.F90 m7_emi_so2.F90 phys_arrays_ini.F90
su_aerw.F90 turbulence_layer.F90 vdfmain.F90 vdfouter.F90
phys_radi/raddrv.F90 uvradi.F90
setup/su0yomb.F90 su_surf_flds.F90 sugfl1.F90 sugridug.F90 sumcclag.F90

Files modified(SCRIPTS):

build/Makefile.root.ifs arch/Makefile.in.XC30_cce

gen/chem_setup gems_ifsnam.pl gems_setup get_fire_emis get_gems_surface getenkf
getgrb getinigems ifsmin ifstraj logfiles model prep_flux prep_initcond
sms/fieldman.sms getfcdata.sms p4setup.sms

Files deleted(IFS):

phys_ec/aer2massdia_layer.F90
setup/sucpicgfl.F90

Files deleted(SCRIPTS):

sms/libmozart.sms

Richard Engelen, Alessio Bozzo - paab_CY43R1_UVIcams - BIT IDENTICAL

Changes to UVI processor (IFS-66)

- implement a switch to enable the use of O3 from the full chemistry in the UV processor (default is 'false')
- change to the cloud cover treatment in the UV radiative transfer
- extra diagnostics for the parameter 210055 (direct UV radiation at surface and top of atmosphere)

Files modified(IFS):

module/rrtmg_sw_spcvrt.F90 yoe_uvrad.F90
namelist/naerad.nam.h
phys_ec/callpar.F90
phys_radi/suecrad.F90 surdi15.F90 uvradi.F90 uvradi_layer.F90

Atmosphere - Dynamics

- Optimisations for Cray (IFS-34)

Deborah Salmond, Ilias Katsardis, John Hague, Ryad El Khatib - das_CY43R1_OPT_2 - BIT IDENTICAL

Optimisations for Cray (IFS-34)

Vectorisation and removal of unnecessary code.

Dr.Hook output from Tco1279 Forecast run on 350 Nodes:

Avg-% Avg.time Min.time Max.time St.dev Imbal-% # of calls : Name of the routine

orig/wall: 2.77% 66.085 64.406 68.394 0.487 5.83% 792068641 : CPG loca/wall: 2.27% 53.190 51.494 55.615
0.511 7.41% 792643020 : CPG

orig/wall: 1.03% 24.497 14.199 37.961 4.771 62.60% 792068641 : LOCAL_STATE_INI loca/wall: 0.18%
4.194 2.857 6.276 0.593 54.48% 792643020 : LOCAL_STATE_INI

orig/wall: 0.92% 21.917 21.157 23.053 0.359 8.22% 2647680 : WVXF2GB loca/wall: 0.02% 0.571 0.498
0.752 0.063 33.78% 2649600 : WVXF2GB

orig/wall: 1.54% 36.698 34.248 41.066 0.822 16.60% 20593784666 : LAITLI loca/wall: 1.49% 34.925 32.704
38.661 0.660 15.41% 20608718520 : LAITLI

orig/wall: 5.04% 120.057 72.715 141.301 9.648 48.54% 3960343205 : LASCAW las2/wall: 3.28% 76.757
44.900 101.450 11.204 55.74% 3963215100 : LASCAW

orig/wall: 0.33% 7.972 7.632 8.598 0.194 11.24% 8712755051 : STATE_INCREMENT loca/wall: 0.25%
5.794 5.309 6.731 0.238 21.13% 8719073220 : STATE_INCREMENT

orig/wall: 0.18% 4.306 4.208 5.120 0.102 17.81% 99369361 : CUANCAPE2 loca/wall: 0.15% 3.451 3.367
4.008 0.073 15.99% 99441420 : CUANCAPE2

Files modified(IFS):

adiab/cpg.F90

interpol/laitli.F90 lascaw.F90

phys_ec/callpar.F90 cuancape2.F90 local_state_ini.F90 state_increment.F90 wvxf2gb.F90

Atmosphere - Physics

- 43R3 convection mixed-phase revisions (IFS-30)
- 43r3 climate diagnostics - passive scripts corrections (IFS-68)
- Adding option to exclude clear-skies radiation contributions from SPPT perturbed tendencies (IFS-76)
- Fix minor error in the land-sea mask of the wave model, use of air density and free convective velocity scale in the stand alone version, WAM code clean-up (IFS-27)
- Include option to produce lightning diagnostics from the EPS (IFS-51)
- New radiation scheme (IFS-23)
- Small changes to SPPT code (IFS-70)
- Visibility diagnostic consistent with CAMS aerosol climatology (IFS-58)

Robin Hogan - parr_CY43R1_new_radiation_scheme3 - METEOROLOGICAL

New radiation scheme (IFS-23)

Modular radiation scheme enabling gas optics, aerosol optics, cloud optics and solver to be changed independently. In terms of performance, the new radiation scheme is around 34% faster (31% including interpolation to the radiation grid).

This branch has incorporated bit-reproducible parr_CY43R1_fix_ghg_interpolation, which fixes the greenhouse gas interpolation when pressure \leq 1100 hPa, something that has happened very occasionally on the radiation grid in seasonal runs. This leads to very negative gas optical depths and a blow-up in the radiation scheme. The change fixes this without changing behaviour at all if pressure $>$ 1100 hPa.

This branch could possibly go in passively.

Files created(IFS):

module/radiation_setup.F90

phys_radi/cloud_overlap_decorr_len.F90 ice_effective_radius.F90 liquid_effective_radius.F90 radiation_scheme.F90 rrtm_gas_optical_depth.F90 rrtm_prepare_gases.F90 srtm_gas_optical_depth.F90

Files created(RADIATION):

module/easy_netcdf.F90 radiation_adding_ica_lw.F90 radiation_adding_ica_sw.F90 radiation_aerosol.F90 radiation_aerosol_optics.F90 radiation_aerosol_optics_data.F90 radiation_cloud.F90 radiation_cloud_cover.F90 radiation_cloud_generator.F90 radiation_cloud_optics.F90 radiation_cloud_optics_data.F90 radiation_config.F90 radiation_constants.F90 radiation_delta_eddington.h radiation_dummy.F90 radiation_flux.F90 radiation_gas.F90 radiation_homogeneous_lw.F90 radiation_homogeneous_sw.F90 radiation_ice_optics_baran.F90 radiation_ice_optics_fu.F90 radiation_ifs_rrtm.F90 radiation_interface.F90 radiation_io.F90 radiation_liquid_optics_slingo.F90 radiation_liquid_optics_socrates.F90 radiation_lw_derivatives.F90 radiation_matrix.F90 radiation_mcica_lw.F90 radiation_mcica_sw.F90 radiation_monochromatic.F90 radiation_optical_depth_scaling.h radiation_overlap.F90

radiation_pdf_sampler.F90 radiation_save.F90 radiation_single_level.F90 radiation_spartacus_lw.F90 radiation_spartacus_sw.F90 radiation_thermodynamics.F90 radiation_tripletclouds_lw.F90 radiation_tripletclouds_sw.F90 radiation_two_stream.F90

Files created(SCRIPTS):

build/Makefile.root.radiation
sms/gen_interfaces.sms

Files modified(IFS):

module/yoerad.F90
namelist/naerad.nam.h
phys_ec/cldpp.F90
phys_radi/radghg.F90 radintg.F90 radlswr.F90 rrtm_rtrn1a_140gp_mcica.F90 srtm_reftra.F90
suecrad.F90 surdi15.F90

Files modified(SCRIPTS):

build/Makefile Makefile.root.ifs
def/gen.def inc_libs.py
gen/mkabs_an mkabs_enkf mkabs_fc mkabs_prepdata p4_mklib

Files deleted(RADIATION): dummy

Jean Bidlot, Kristian Mogensen - wab_CY43R1_for_CY43 - METEOROLOGICAL

Fix minor error in the land-sea mask of the wave model, use of air density and free convective velocity scale in the stand alone version, WAM code clean-up (IFS-27)

Correction to the wave model land-sea mask around Holland and Egypt.

Use of air density and free convective velocity scale fields as part of the forcing of the *stand alone * configuration (when coupled it is already done).

The physics used by the MeteoFrance wave model has been implemented but not activated.

Code change to allow for surface stress forcing of the wave model rather than 10m neutral winds (not active).

Code clean-up.

Peter Bechtold, Philippe Lopez - pae_CY43R1_convRHS_WETB_GLAC_TLAD_2 - METEOROLOGICAL

43R3 convection mixed-phase revisions (IFS-30)

-Revised glaciation in temperature interval [0 -38C] instead of [0 -23C] and do the rain freezing in the up-draught: flag LMFGLAC active -melting of rain at wet bulb temperature instead of temperature: flag LM-FWETB active -detrainment of rain and snow to cloud scheme: flag LMFDSNOW active -use model tendencies in rhs of implicit solver in convection: flag LMRHS inactive -cleaning of convection code including removal of N_VMASS flag and related code -change the mass flux resolution scaling cleanly as function of dx (instead of wavenumber) -according TL/AD version developed by Philippe Lopez

Testing:

4-year climate uncoupled: gjbc CTL=gjly 30-year climate coupled and monthly forecast: _____

Summer Analysis MJJ 2016 TCo639: CTL Gabor=gjwc GLAC new base glaciation=gjx8 file:///perm/rd/pae/iver/plots/summer_43r1_v0_TC639/index.html

Winter Analysis TCo399:

CTL Gabor TCo399=gkia GLAC=new base glaciation=gkig GLACAer=new base glaciation+Aerosols=gkik
file:///perm/rd/pae/Iver/plots/winter_43r1_v1_TC399/index.html

Winter Analysis TCo639:

CTL TCo639 Bechtold=gkih new base glaciation=gkij file:///perm/rd/pae/Iver/plots/winter_43r1_v1_TC639/index.html

Meteorological Impact:

Temperature (heating) and Z biases at melting level and in upper troposphere strongly improved, as well as all tropospheric winds in summer. Confirmed also by climate runs and monthly forecasts: improved subtropical jets. Some degradation (=cooling) in tropics 700-500 hPa layer. Lower stratosphere seems to be slightly worse.

Winter scores are essentially neutral.

Southern hemisphere SW radiation bias improved by 5 W/m² or 20%. Slightly increased inland penetration of convective showers, but impact small (generally \leq 3mm in precipitation)

Files modified(IFS):

```
module/yoecumf.F90 yoecumf2.F90
namelist/namcumf.nam.h namcumfs.nam.h
phys_ec/cloudsc.F90 cuadjtq.F90 cuascn.F90 cuascn2.F90 cuascn2ad.F90 cuascn2tl.F90
cubasen.F90 cubasmcn.F90 cucalln.F90 cucalln2.F90 cucalln2ad.F90 cucalln2tl.F90 cudtdqn.F90
cudtdqn2.F90 cudtdqn2ad.F90 cudtdqn2tl.F90 cududv.F90 cududv2.F90 cududv2ad.F90 cududv2tl.F90
cuf1x2.F90 cuf1x2ad.F90 cuf1x2tl.F90 cuf1xn.F90 cumastrn.F90 cumastrn2.F90 cumastrn2ad.F90
cumastrn2tl.F90 satur.F90 sucumf.F90 sucumf2.F90 vdfexcu.F90
```

Philippe Lopez - pah_CY43R1_lightning_eps_v2 - BIT IDENTICAL

Include option to produce lightning diagnostics from the EPS (IFS-51)

Modifications of IFS code and scripts to allow the processing of lightning diagnostic outputs in EPS runs (not activated in operations, until further notice).

Note: prepIFS should be updated using overlay: /home/rd/pah/overlay/lightning/43r1/eps_nemo/.

Experimentation:

- 50-member EPS run (TL639 L137) from 20160913 00Z with and without lightning outputs (exper: gl74 and gl8z, respectively), with 48h forecasts (bit identical).
- Two 4D-Var cycles (TCo399 L137) on 2016060 with 10-day forecasts, experiments:

- gl8x = default 43R1 (no branch).
- gl8j = new branch with lightning off.
- gl9y = new branch with lightning on.

All three experiments produce bit identical analyses and 10-day forecasts.

Files modified(IFS):

module/yomvareps.F90
 setup/su_vareps.F90

Files modified(SCRIPTS):

gen/modeleps modeleps_nemo

Robin Hogan, Alessio Bozzo, Richard Forbes - parr_CY43R1_merged_rad_aer_conv_lightning_vis - BIT IDENTICAL

Visibility diagnostic consistent with CAMS aerosol climatology (IFS-58)

The visibility diagnostic in the IFS currently uses the aerosols from the Tegen climatology. With the introduction to the new CAMS-based aerosol climatology, the visibility diagnostic needs to be updated to use these fields to calculate the background visibility. The new climatology has an relative humidity (RH) dependence of the optical properties which should better represent the RH dependence of the visibility (the Tegen climatology assumes a fixed RH for the optical properties).

This change makes the visibility diagnostic use the CAMS aerosols when turned on, including their relative humidity dependence. The visibility diagnostic was found to cost several percent of the total IFS run time, so an optimization made in this branch is to call it only every hour rather than every timestep (since the diagnostic is only output every timestep). For a timestep of 15 minutes, the original visibility diagnostic accounted for 3.4% of the run time of the entire IFS, but the new visibility diagnostic accounts for 1.5%. In future it would be good to optimize further by breaking up RADACA, which currently computes aerosols at all model levels even if only the surface is needed.

The figure below shows a snapshot of the visibility diagnostic using (top panel) the Tegen aerosol climatology, (middle panel) the new CAMS aerosol climatology, and (bottom panel) CAMS aerosol climatology but with relative humidity set to 0% to highlight the aerosol hydration effect.

This change is on top of the merged physics changes (new radiation scheme, CAMS aerosol climatology in radiation, mixed-phase convection scheme, lightning diagnostics).

Files created(IFS):

module/radiation_setup.F90
 phys_ec/su_aer_climatology.F90
 phys_radi/cloud_overlap_decorr_len.F90 ice_effective_radius.F90 liquid_effective_ radius.F90 radiation_scheme.F90 rrtm_gas_optical_depth.F90 rrtm_prepare_gases.F90 srtm_gas_optical_depth.F90

Files created(RADIATION):

module/easy_netcdf.F90 radiation_adding_ica_lw.F90 radiation_adding_ica_sw.F90 radiation_ aerosol.F90 radiation_aerosol_optics.F90 radiation_aerosol_optics_data.F90 radiation_ cloud.F90 radiation_cloud_cover.F90 radiation_cloud_generator.F90 radiation_cloud_

optics.F90 radiation_cloud_optics_data.F90 radiation_config.F90 radiation_constants.F90 radiation_delta_eddington.h radiation_dummy.F90 radiation_flux.F90 radiation_gas.F90 radiation_homogeneous_lw.F90 radiation_homogeneous_sw.F90 radiation_ice_optics_baran.F90 radiation_ice_optics_fu.F90 radiation_ifs_rrtm.F90 radiation_interface.F90 radiation_io.F90 radiation_liquid_optics_slingo.F90 radiation_liquid_optics_socrates.F90 radiation_lw_derivatives.F90 radiation_matrix.F90 radiation_mcica_lw.F90 radiation_mcica_sw.F90 radiation_monochromatic.F90 radiation_optical_depth_scaling.h radiation_overlap.F90 radiation_pdf_sampler.F90 radiation_save.F90 radiation_single_level.F90 radiation_spartacus_lw.F90 radiation_spartacus_sw.F90 radiation_thermodynamics.F90 radiation_tripletclouds_lw.F90 radiation_tripletclouds_sw.F90 radiation_two_stream.F90

Files created(SCRIPTS):

build/Makefile.root.radiation
sms/gen_interfaces.sms

Files modified(IFS):

module/yoeaeratm.F90 yoeaerc.F90 yoeaerop.F90 yoecumf.F90 yoecumf2.F90 yoerad.F90 yomvareps.F90
namelist/naerad.nam.h namcumf.nam.h namcumfs.nam.h
phys_ec/aer_bdgtmss.F90 aer_phy1.F90 aer_phy3.F90 aer_rrtm.F90 callpar.F90 cldpp.F90 climaer_layer.F90 cloudsc.F90 cuadjtq.F90 cuascn.F90 cuascn2.F90 cuascn2ad.F90 cuascn2tl.F90 cubasen.F90 cubasmcn.F90 cucalln.F90 cucalln2.F90 cucalln2ad.F90 cucalln2tl.F90 cudtdqn.F90 cudtdqn2.F90 cudtdqn2ad.F90 cudtdqn2tl.F90 cududv.F90 cududv2.F90 cududv2ad.F90 cududv2tl.F90 cuflx2.F90 cuflx2ad.F90 cuflx2tl.F90 cuflxn.F90 cumastrn.F90 cumastrn2.F90 cumastrn2ad.F90 cumastrn2tl.F90 satur.F90 su_aerop.F90 suaerv.F90 sucumf.F90 sucumf2.F90 vdfexcu.F90
phys_radi/radaca.F90 radact.F90 raddrv.F90 radflux_layer.F90 radghg.F90 radintg.F90 radlswr.F90 rrtm_ecrt_140gp_mcica.F90 rrtm_rtrnla_140gp_mcica.F90 srtm_reftra.F90 srtm_srtm_224gp_mcica.F90 suecrad.F90 surdi15.F90
setup/suvareps.F90
utility/updtim.F90

Files modified(SCRIPTS):

build/Makefile Makefile.root.ifs
def/gen.def inc_libs.py
gen/mkabs_an mkabs_enkf mkabs_fc mkabs_prepdata modeleps modeleps_nemo p4_mklib

Files deleted(IFS):

phys_ec/sumaccbc1.F90 sumaccbc2.F90 sumaccor1.F90 sumaccor2.F90 sumaccsd1.F90 sumaccsd2.F90 sumaccsd3.F90 sumaccss1.F90 sumaccss2.F90 sumaccss3.F90 sumaccsu1.F90

Files deleted(RADIATION):

dummy

Michael Sleight - pae_CY43R1_metview - BIT IDENTICAL

43r3 climate diagnostics - passive scripts corrections (IFS-68)

The scripts correct a bug in the diagnostic climate suite as used in the earth-system section experimental climate

integrations. The problem was that the observations were only read for a single year instead of the full multi-year period. The plot titles have also been updated accordingly

Files modified(SCRIPTS):

```
metview/climate_obs.met climplot_batch compvar_ens.met wind_maps_clim.met  
sms/climplot_save.sms mmeans_ml.sms
```

Filip Vana, Sarah-Jane Lock, Simon Lang - pafv_CY43R1_MPSTD0_clean - BIT IDENTICAL

Small changes to SPPT code (IFS-70)

Few small changes to SPPT code: i) to enable NOT perturbing some physics processes via the iSPPT option MPSTD(i)=0 ii) tidying some redundant comments

All changes are passive.

Files modified(IFS):

```
climate/updclie.F90  
module/yomphyder.F90 yomspstd.F90  
phys_ec/callpar.F90 ec_phys_drv.F90 local_state_ini.F90 phys_dim_ini.F90  
sppten.F90 spptgfix.F90 stochpert_layer.F90  
setup/suspsdt.F90
```

Sarah-Jane Lock - nes1_CY43R1_SPPTminusRADCLRfor43R3 - BIT IDENTICAL

Adding option to exclude clear-skies radiation contributions from SPPT perturbed tendencies (IFS-76)

Adds an option for SPPT (under switch LRADCLR_SDT): to exclude clear-skies contributions to radiation tendencies from the net tendencies perturbed by SPPT.

This branch is built on a clean 43r1 branch.

This is a passive contribution for ENS: by default, the new option will be inactive.

Files affected (total 7): ifs/module/yomspstd.F90 ifs/namelist/namspstd.nam.h ifs/phys_ec/callpar.F90 ifs/phys_ec/sppten.F90 ifs/phys_ec/stochpert_layer.F90 ifs/setup/suspsdt.F90 scripts/gen/modeleps_nemo

Files modified(IFS):

```
module/yomspstd.F90  
namelist/namspstd.nam.h  
phys_ec/callpar.F90 sppten.F90 stochpert_layer.F90  
setup/suspsdt.F90
```

Files modified(SCRIPTS):

```
gen/modeleps_nemo
```

Land Surface

- 43R3 surface dev (IFS-40)
- Bug fix in the first soil layer temperature analysis (IFS-31)
- surface multi-layer snow (IFS-33)

Patricia de Rosnay, Joaquin Munoz Sabater - dap_CY43R1_soilincfix - NON-METEOROLOGICAL

Bug fix in the first soil layer temperature analysis (IFS-31)

Bug fix in the first soil layer temperature analysis. The bug has been here since 1999 when the soil temperature analysis was implemented. It is a fortran bug in soilinc.F90, which leads to accumulate the soil temperature increments when the DA window has several time slots. It mainly affected ERA5 which has twelve time slot per window (hourly analysis). It does not effect the early delivery and it has a neutral effect in LWDA which has two time slots per window.

Files created(IFS):

module/yom_atlas_ifs.F90

Files created(SCRIPTS):

gen/groupid=58.tables

sms_an/odb2odb1_mwhts2.sms odb2odb1_mwhts2.sms odb2odb1_saphir.sms

sms_nemo/npertgen_cpl.sms

Files modified(IFS):

adiab/cpedia.F90 gp_derivatives.F90

control/reresf.F90

module/varbc_pred.F90 yomios.F90

mwave/mwave_emis.F90 mwave_get_t1.F90 mwave_obsop_traj.F90

namelist/namios.nam.h

op_obs/departure_jo.F90 hop.F90 hretr_rad.F90 obshorad.F90

phys_ec/phys_arrays_ini.F90 surftstp_layer.F90

phys_radi/radghg.F90 uvradi.F90

pp_obs/pos.F90

setup/suafn1.F90 suatlas_mesh.F90 suct0.F90 suios.F90

utility/wrresf.F90

var/evcost.F90 subj.F90

Files modified(NEMO):

NEMOGCM/NEMO/LIM_SRC_2/limrst_2.F90 NEMO/OPA_SRC/DIA/diawri.F90

NEMO/OPA_SRC/DOM/domain.F90 NEMO/OPA_SRC/IOM/in_out_manager.F90

NEMO/OPA_SRC/IOM/iom.F90 NEMO/OPA_SRC/IOM/iom_nf90.F90

NEMO/OPA_SRC/IOM/restart.F90 NEMO/OPA_SRC/LBC/lib_mpp.F90

NEMO/OPA_SRC/OBS/diaobs.F90 NEMO/OPA_SRC/SBC/geo2ocean.F90

coupled/src/nemointerface/nemogcmcoup_init.F90

testscripts/namelists/namelist.nemo.ORCA025_Z75 namelists/namelist.nemo.ORCA1_Z42

namelists/namelist.nemo.ORCA1_Z46 namelists/namelist.nemo.ORCA1_Z75

Files modified(PREPDATA):

mc_tools/decode_track.F90
programs/soilinc.F90

Files modified(SCRIPTS):

def/aeolus.py fc.def longrange.def
gen/L1B_GT2odb2 add_cams_climerr aeolus_l2b_prepare archive_satim_new
coldstart_lakes ens_cal ens_cal_rad ens_errors fetch_GRND_TRACK
fetch_L2BP_inputs fetchobs get_fire_emis get_gems_surface get_linco_initcond
getenkf getgrb getini getmars ifstraj inter_fp l2b_bufnr_to_odb l2b_ee_to_bufnr
mkabs_an mkabs_b2otools mkabs_fc mkabs_odbtools mkabs_ssa mkabs_wam mkidta_ocean
mknam_fp model modeleps_nemo odb2odb1 premwimg prep_flux prep_initcond
restart_999 run_parallel sstana transfer_auxmet
nemo/namelist.nemo.ORCA025_Z75 namelist.nemo.ORCA1_Z42 namelist.nemo.ORCA1_Z46
namelist.nemo.ORCA1_Z75 namelist_ice.nemo.ORCA025 nemo.h prep_nemoIFS
oce/chunk.h em_create_veps model_nemoIFS
osm/extract_forcing.ksh
sens/J1.sms sfml.sms sfpl.sms sfsfc.sms
sms/climplot_save.sms createfws.sms get_aeolus.sms getae.sms getfcdata.sms
hl.sms ifs.sms inidata.sms ml.sms nemo_tools.sms p4setup.sms prep_tcyd.sms
pt.sms pv.sms rmfdb.sms
sms_an/4dvar.sms anwave.sms b2otools.sms black.sms bufr2odb.sms cleanodb.sms
convert_obsdroup.sms ens_cal.sms ens_errors.sms ens_fetch_fields.sms
ens_stats_gather.sms ens_stats_mem.sms fetch_jb_fields_mem.sms fetcherr.sms
fetchmars.sms mergebufnr.sms obstat_archive.sms odb2odb1.sms
prelcrad_iasi_split.sms pregeos.sms preobs.sms prereo3.sms slwet.sms
update_psbias.sms update_rstrhbias.sms
sms_nemo/narcobs.sms ncheckfluxweights.sms nchecksicweights.sms
nchecksstweights.sms nchecksstweightscpl.sms ncheckwamweights.sms
nemoatmintsst.sms nemoini.sms nemoqc.sms nemoreshape.sms nfdbk2odb_monthly.sms
nfluxinter.sms nfluxinteraccum.sms nfluxintercldcov.sms nfluxinterqt10.sms
nfluxinteruv10.sms ngetsstcpl.sms ninner.sms ninner_ice.sms nomona.sms
nscripgridssic.sms nsstinter.sms nwaminter.sms nwaminter_nomask.sms
obsmonthly.sms obsstats.sms prepicenemo.sms
sms_oc/cpmodel_nemo.sms extra_arc.sms iniatmos.sms sc_tools.sms wmem_archive.sms
sms_osm/surf.sms
wav/wam_input wave_getrst wave_setup_an

Files modified(SSA):

util/setcomssa.F90

Files modified(WAM):

Wam_oper/getspec.F getstress.F mpuserin.F outwspec.F readfl.F readstress.F
savspec.F savstress.F wamodel.F writefl.F writestress.F
module/yowcout.F yowgribhd.F yowtext.F

**Emanuel Dutra, Gianpaolo Balsamo, Joaquin Munoz Sabater - need_CY43R1_surf_ML_single
- BIT IDENTICAL**

surface multi-layer snow (IFS-33)

Snow and soil multi-layer support in surface only experiments and updated interfaces from IFS. Inclusion of ERA-5 support, ensemble and regular grids configurations in surface only experiments. Single precision fixes in the surface. Further details and documentation can be found at: <https://software.ecmwf.int/wiki/pages/viewpage.action?pageId=>

Files created(SCRIPTS):

osm/surface_gen_vars.ksh
sms_osm/archive_sml.sms archive_snowml.sms prepare_sml.sms prepare_snowml.sms

Files created(SURF):

external/surfsebs.F90 surfsebsad.F90 surfsebstl.F90
function/fcsurf.h
interface/surfsebs.h surfsebsad.h surfsebstl.h
make/cfg/cce-optS.cfg cfg/gnu-nooptS.cfg cfg/gnu-optP.cfg cfg/gnu-optS.cfg
module/srfsn_regrid_mod.F90 surfsebs_ctl_mod.F90 surfsebsad_ctl_mod.F90 surfsebstl_ -
ctl_mod.F90 vlamsk_mod.F90

Files modified(IFS):

phys_ec/suphec.F90 turbulence_layer.F90 vdfdifh.F90 vdfdifhs.F90 vdfdifhsad.F90 vdfdifhstl.F90
vdfmain.F90 vdfouter.F90

Files modified(SCRIPTS):

def/surface.def
osm/archive_gen.ksh compute_forc_adjust.py compute_lapse_rate.py convNc2Grb.py
create_forcing.ksh create_forcing_LL.ksh create_init_clim.ksh
create_init_clim_LL.ksh extract_forcing.ksh init_clim.py pp_osm_LL.ksh
prepare_gen.ksh surface_clean.ksh surface_model.ksh
sms_osm/archive_an.sms archive_fc.sms archive_flx.sms create_forcing.sms create_ -
init_clim.sms pp_osm.sms prepare_an.sms prepare_fc.sms prepare_flx.sms surf.sms surface_ -
clean.sms surface_model.sms

Files modified(SURF):

external/surfexcdriver.F90 surfseb.F90 surftstp.F90 susurf.F90
interface/surfexcdriver.h surfseb.h susurf.h
make/cfg/cce-noopt.cfg cfg/cce-opt.cfg
module/cotwo_mod.F90 cotwoestress_mod.F90 flake_driver_mod.F90 flakeene_mod.F90
flakerad_mod.F90 srfcotwo_mod.F90 srfsn_asn_mod.F90 srfsn_driver_mod.F90
srfsn_lwimp_mod.F90 srfsn_rsn_mod.F90 srfsn_vgrid_mod.F90 srfsn_webal_mod.F90
srft_mod.F90 srfwexc_vg_mod.F90 srfwl_mod.F90 surfbc_ctl_mod.F90
surfexcdriver_ctl_mod.F90 surfseb_ctl_mod.F90 surftstp_ctl_mod.F90
susoil_mod.F90 susurf_ctl_mod.F90 vupdz0_mod.F90 yos_dim.F90 yos_flake.F90
yos_soil.F90
offline/driver/callparls.F90 driver/cnt4ls.F90 driver/cpgls.F90 driver/dattim.F90
driver/dtforc.F90 driver/minmax.F90 driver/netcdf_utils.F90 driver/rdclim.F90 driver/rdsupr.F90
driver/stepols.F90 driver/su0phy1s.F90 driver/sucdh1s.F90 driver/sucst.F90 driver/suct01s.F90
driver/sudcdf.F90 driver/sudim1s.F90 driver/sufcdf.F90 driver/sugdils.F90 driver/sulun1s.F90
driver/supcdf.F90 driver/suphec.F90 driver/upddiag.F90 driver/updtim1s.F90 driver/vdfdifh1s.F90
driver/vdfmain1s.F90 driver/wrtcdf.F90 driver/wrtpcdf.F90 driver/wrtres.F90 driver/yoephy.F90
driver/yomgdils.F90 driver/yomlun1s.F90 master1s.F90 namelist/namdim1s.h namelist/namphy1s.h

Files deleted(SURF):

```
external/surfsebad.F90 surfsebt1.F90
interface/surfsebad.h surfsebt1.h
module/surfsebad_ctl_mod.F90 surfsebt1_ctl_mod.F90
offline/driver/cpedials.F90
```

Gianpaolo Balsamo - pad_CY43R3_surf - METEOROLOGICAL

43R3 surface dev (IFS-40)

Surface developments

Observations

- Activate GMI 183 GHz channels (IFS-11)
- Activate SAPHIR (IFS-9)
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- Tighten first guess quality control for GPS-RO (IFS-50)

Alan Geer, Philippe Chambon - N/A - METEOROLOGICAL

Activate SAPHIR (IFS-9)

Activate all-sky assimilation of SAPHIR, a microwave humidity sounder in an inclined orbit that gives frequent tropical coverage (equivalent to four MHS instruments in the tropics).

This change takes the form of new error files and a new blacklist:

```
/perm/rd/stg/saphir/final_43r1/mwwave_error_meghatr_1_saphir.dat ec:/stg/blacklists/43r1/black_ds2016061500_-saphir
```

Tested in experiments gk05 and gkbi against winter and summer controls gkia and gk2l:

```
file:///perm/rd/stg/iver/plots/saphir_43r1_combined/index.html file:///perm/rd/stg/iver/plots/saphir_43r1_combined_-1/index.html file:///perm/rd/stg/iver/plots/saphir_43r1_combined_2/index.html
```

Alan Geer - N/A - METEOROLOGICAL

Revised MHS observation error over land (IFS-10)

Reduce MHS observation errors over land surfaces, where they have previously been too cautious. In clear-skies, observation errors typically reduce from 3.0K to 2.0K giving approximately twice as much weight in the analysis. The new errors are now consistent with O-B statistics and with similar channels on ATMS. Based on the remarkably high forecast sensitivity to similar ATMS channels over land surfaces (e.g. N. America and Siberia) reducing errors on four MHS satellites should give positive impact on scores.

This takes the form of new observation error files: /perm/rd/stg/for_43r3/mhs/mwave_error_metop_1_mhs.dat /perm/rd/stg/for_43r3/mhs/mwave_error_metop_2_mhs.dat /perm/rd/stg/for_43r3/mhs/mwave_error_noaa_18_mhs.dat /perm/rd/stg/for_43r3/mhs/mwave_error_noaa_19_mhs.dat

Tested in experiments gkqw and gkqx against standard controls: file:///perm/rd/stg/iver/plots/mhs_43r1_combined/index.html

Alan Geer - N/A - METEOROLOGICAL

Activate GMI 183 GHz channels (IFS-11)

The 183 GHz humidity channels have until now been affected by a BUFR pre-processing bug that mixes up their channel ordering, so it has not been possible to assimilate them. With the bug understood, it is possible to assimilate these channels, which are expected to have benefits to dynamical analyses and forecasts like those obtained from similar channels from MHS and SSMIS. This is a blacklist change and a new error file:

ec:/stg/blacklists/43r1/black_ds2016061500_gmi183 /perm/rd/stg/for_43r3/gmi/mwave_error_gpm_1_gmi.dat

The bug is probably in the operational BUFR acquisition (DAPP-343). Instead of channels 10-13 being 166v, 166h, 183/3, 183/7, the observations “left rotated” by one, so for example channel 10 incorrectly contains 166h observations and channel 13 gets the 166v observations. For testing purpose we have “unrotated” channels in an IFS branch (stg_CY43R1_gmi_rotate) but the aim is to make a fix to the operational BUFR acquisition.

Testing is in experiments gkq7 and gkq5 against standard winter and summer controls: file:///perm/rd/stg/iver/plots/gmi_43r1_combined/index.html

Michael Rennie - da7_CY43R1_aeol_Aug8 - BIT IDENTICAL

Aeolus L2BC processing and L2Met PF scripting changes (IFS-20)

Updates to the Aeolus L2B/C processing. Since Aeolus is currently passive it should not affect the normal running of IFS (the changes are shown to be bit-reproducible when Aeolus is switched “off”). The results will not be bit-reproducible if Aeolus is switched “on” assuming Aeolus L2B data is available for assimilation. I am submitting changes to only the aeolus and scripts projects. This branch has NOT been merged with dag_CY43R1_esuite.

An update of the aeolus project code i.e. Aeolus L2B/C processing software, to a version 2.30+ release. A number of modifications to ecflo suite definitions regarding the Aeolus processing chain.

Testing:

A bit-reproducibility test was passed with Aeolus switched “off”. 2 cycles 2016/05/02 (00 and 12): Control: da7/gl2r, TcO399, LWDA, CY43R1 using standard CY43R1 code base Experiment: da7/gl2t, TcO399, LWDA, CY43R1 using da7_CY43R1_aeol_Aug8

Have also successfully tested Aeolus switched “on” i.e. the L2B/C processing and Aeolus assimilation works (using a L1B test dataset provided by ESA) in various experiments.

Are the results bit-reproducible with CY43R1? Yes.

Categorise the contribution: 'Active', 'Passive', 'Technical', 'Optimisation', 'Cleaning', 'Bug-Fix' etc.?

Passive and Technical.

Does the branch contain source or scripts or both? Both.

Are there any references to files/directories in your home directory or ecfs in your modified scripts?

Yes, to ECFS. At the moment, testing of Aeolus L2B/C processing requires retrieving and archiving files on ECFS (but this kept out of main family).

Files created(AEOLUS):

AUX_MRC_file_handling/Makefile.aeolus Objects.txt Test_Read_AUX_MRC.F90
read_aux_mrc.F90
DataStructures/Test_AUX_MRC_DataStructure.F90 Test_AUX_MRC_SPH.F90
aux_mrc_datastructure.F90 aux_mrc_sph.F90
Scripts/TestMakefiles.py filter_build_L2BP_stderrlog.py
Test/AUX_MRC_filehandling/Makefile.aeolus Scripts2/Make_Targets_Python.available Scripts2/Ma
Targets_Python.dummy Scripts2/Makefile.aeolus

Files modified(AEOLUS):

AMD_file_handling/ConvertKnmiAscToAMD.F90
Application_Client_Example/Makefile.aeolus application_client_example.F90
AuxCal_file_handling/writeauxcaldata.F90
AuxClim_file_handling/TestReadAuxClimData.F90
BUFR_install/make.bufr.lib.sc
Classification/classification.F90
DataStructures/Makefile.aeolus Objects.txt Test_L2B_AuxPar_DataStructure.F90
amd_geoloc_ads.F90 amd_met_mds.F90 auxcal_sph.F90 auxclim_datastructure.F90
datasetdescriptor.F90 ee_cfi_datatypes.F90 fixedheader.F90
joborder_datastructure.F90 l1b_gwd_ads.F90 l2b_auxpar_datastructure.F90
l2b_auxpar_sph.F90 l2b_grouping_ads.F90 l2b_meas_pcd_ads.F90
l2b_proc_settings.F90 l2b_rayleigh_mds.F90 l2b_rayleigh_wind_pcd_ads.F90
l2bc_datastructure.F90 l2bc_sph.F90 rbc_sph.F90 working_datastructure.F90
HLOS_retrieval/Makefile.aeolus
InputScreening/Makefile.aeolus Test_Screening_AMD_Data.F90
screening_amd_data.F90
L1B_BRC_Grouping/Makefile.aeolus
L1B_geolocation_extraction/Makefile.aeolus
L2BC_file_handling/readl2bcdata.F90
L2B_AuxPar_file_handling/Makefile.aeolus
L2C_construction/L2C_Processor.F90
Makefile.aeolus
Match_AMD/Makefile.aeolus Test_Match_AMD_Module.F90 match_amd_module.F90
OpticalProperties/Makefile.aeolus opticalproperties.F90
RBC_FileHandling/TestReadRBCdata.F90
Scripts/GenerateWhoCallsWhoList.py L2B_ReportGenerator.py Set_Systemsettings.sc
binary_datapack_listing.txt.expected do_linecount.py install_L2BP.sc
install_binary_datapack.sc install_installtest.sc
installtest_listing.txt.expected run_feedback_agent.py
Test/Application_Client_Example/JobOrder.AeolusL2BP.xml
Application_Client_Example/Makefile.aeolus AuxCal_file_handling/Makefile.aeolus
BUFR_file_handling/JobOrder.regex_test_l2b_ee2bufr.xml

BUFR_file_handling/JobOrder.test_l2b_ee2bufr.xml
 BUFR_file_handling/Makefile.aeolus DataStructures/Makefile.aeolus
 L1B_file_handling/Makefile.aeolus L2C_construction/Makefile.aeolus
 Makefile.aeolus Match_AMD/Makefile.aeolus RBC_FileHandling/Makefile.aeolus
 Scripts/Make_Targets_Python.available Scripts/Makefile.aeolus
 main/JobOrder.test201.xml main/JobOrder.test401.xml main/Makefile.aeolus
 main/run_one_main_test.sc
 ThinLayer/JobOrder.5.xml JobOrder.90001.xml
 Processor_Configuration_IPF2B_L1B_L2B.xml TaskTable.AE_L1B_L2B_WIND.xml
 WorkstationConfigurationFile.xml order.5.xml
 configure
 ee_cfi_wrapper_module/xml_module.F90
 external/Makefile.aeolus
 main/L2B_processor.F90 Makefile.aeolus l2bp_module.F90
 schemas/AUX_CLM_HDR.xml AUX_CLM_HDR.xsd AUX_RBC_HDR.xml AUX_RBC_HDR.xsd
 AUX_RBC_HDR_invalid.xml AUX_RBC_SpecificProductHeader.xml
 AUX_RBC_SpecificProductHeader.xsd EE_DataTypes.xsd L2B_AUX_PAR.xml
 L2B_AUX_PAR.xsd L2B_HDR.xml L2B_HDR.xsd L2C_HDR.xml L2C_HDR.xsd TestValidate.py
 Validate_whole_L2BP_tree.py
 simple_xml/xml_module.F90
 support/TestStringTools.F90 aeolusconstants.F90 profileinterpolate.F90
 stringtools.F90
 templates/JobOrder.template_l2b_processor_and_l2b_ee2bufr_and_repgen.xml JobOrder.template_
 l2b_processor_and_repgen.xml JobOrder.template_l2b_processor_only.xml

Files modified(SCRIPTS):

def/aeolus.py
 gen/L1B_GT2odb2 L1B_gtt2odb2 aeolus_l2b_prepare fetch_L2BP_inputs
 get_external_l2b_odb l2b_bufr_to_odb l2b_ee_to_bufr
 sms/get_aeolus.sms

Files deleted(AEOLUS):

Test/main/JobOrder.test107q.xml

Reima Eresmaa - ste_CY43R1_hcn - METEOROLOGICAL

Reject trace-gas-contaminated IR radiances (IFS-22)

Detect infrared radiances that are contaminated by trace gas absorption. Initially only contamination by hydrogen cyanide (HCN) is identified, but the implementation is made flexible to allow specifying other contaminating trace gases by modifying a namelist file. Contaminated data is flagged cloudy and consequently rejected from the assimilation.

Files modified(IFS):

module/yomclddet.F90
 namelist/namclddet.nam.h
 obs_preproc/cloud_detect_setup.F90
 op_obs/cloud_detect.F90

Peter Lean, Iain Miller, Per Dahlgren - dipl_CY43R1_bitrepro_for_43r3 - BIT IDENTICAL

Package of bit-identical upgrades to observation processing in IFS ODB (IFS-26)

OOPS: pass ODB dbase object by argument throughout IFS.

ifsobs: database abstraction layer

- continue rollout in IFS to ecset and reprod_seqno
- use class(dbase) instead of type(odbl_dbase) to hide underlying database from IFS
- optimisation: introducing caching of column meta data to reduce overhead
- introduce consistent usage for all ODB array columns within IFS
- new python scripts to auto-generate schema-dependent files used by IFS.

Optimisations:

- only run create_odb.x on the first cycle (speeding up first trajectory task by approx 5%).

Misc upgrades and fixes:

- use a much smaller, simpler IOASSIGN file and reduce associated complexity in the create_ioassign script
- upgrade bufr2odb for compatibility with new format odb_code_mappings.dat configuration file (as provided by new ODB Governance web server)
- modified ODB/SQL functions involving great circle distance calculations,

changes provided by [syim] to avoid potential floating point exceptions using Cray compilers (8.4) on Broadwell

- avoid potential integer overflow (discovered by [erpd] running 24 hour window 4D-Var with small number of pools).

Testing:

- gkxm (test)
- gkiq (control)

Bit-identical results + around 20% speedup of observation operator associated with ifsobs optimisations.

Files created(ODB):

scripts/generate_compat_files.py generate_varno_module.py

Files modified(IFS):

canari/cadavr.F90 can1.F90 canari.F90 carcfo.F90

control/adjotest.F90 cfcens2obs.F90 cnt0.F90 cnt1.F90 cnt2.F90 cnt3.F90
cnt3ad.F90 cnt3t1.F90 cnt4.F90 cnt4ad.F90 cnt4t1.F90 cva1.F90 cva2.F90
forecast_error.F90 sim4d.F90 stepo.F90
dfi/dfi3.F90
module/obsop_sets.F90
obs_preproc/obadat.F90 pertobs.F90 readoba.F90 screen.F90 screen_timeslot.F90
sudimo.F90 suobs.F90
oops/allobs_error_mod.F90 allobs_oper_mod.F90 obs_space_mod.F90 obsvec_mod.F90
op_obs/departure_jo.F90 departure_joad.F90 departure_jotl.F90 hdepart.F90
hop.F90 hradp_ml.F90 hretr_aeolus.F90 hretr_rad.F90 inv_refl1dstat.F90
obsop_rad.F90 obsv.F90 obsvad.F90 obsvtl.F90
programs/hop_driver.F90
setup/su0yomb.F90
sinvect/cun3.F90
var/congrad.F90 ecset.F90 sacmac1.F90 taskob.F90 taskob_thread.F90 taskobad.F90 taskobad_
thread.F90 taskobtl.F90 taskobtl_thread.F90 writeoba.F90

Files modified(ODB):

cma2odb/ctxinitdb.F90 reprod_seqno.F90 shuffle.F90 shuffle_odb.F90
update_obsdb.F90
include/compat_fill_mdb_col_array_members.h compat_fill_mdb_members.h
compat_fill_mdb_table_array_members.h compat_mdb_col_array_members.h
compat_mdb_members.h compat_mdb_table_array_members.h funcs.h
interface/reprod_seqno.h shuffle_odb.h update_obsdb.h
lib/msgpass_loaddata.F90 msgpass_loadobs.F90 msgpass_storedata.F90
msgpass_storeobs.F90
module/dbase_kinds_mod.F90 dbase_mod.F90 dbase_view_mod.F90
dbase_view_tree_mod.F90 hash_map_mod.F90 ll_mod.F90 odb1_dbase_mod.F90
odbio_msgpass.F90 odbmap_reportype.F90
tools/Odbtools.F90

Files modified(SCRIPTS):

gen/create_ioassign ifstraj

Heather Lawrence - sthl_CY43R1_mwri - BIT IDENTICAL

Improved processing and new observation errors for MWRI satellite instrument (IFS-36)

Small code changes to improve processing of the MWRI data, including:

- thinning different satellite instruments separately (one-line change)
- pick up satellite zenith and azimuth angle from the bufr

New all-sky observation error file with non-default observation errors for FY-3C MWRI (calculated from back-ground departures).

The change is bit-identical as no MWRI bufr data is received from EUMETSAT yet.

Files modified(ODB):

bufr2odb/b2o_convert_mwri_1d.F90

Files modified(SCRIPTS):

gen/premwimg

Peter Lean - dipl_CY43R1_activate_opts - NON-METEOROLOGICAL

Activation of observation processing optimisations in IFS (IFS-41)

Activation of optimisations introduced in 43r1:

1. Turn off load balancing of active observations in 4D-Var.
2. Use new seqno@hdr assignment method (designed to minimise communications).

These optimisations are not bit-identical as the order of observations is changed, however the meteorological impact is expected to be neutral.

Need to change default ODB_REPRODUCIBLE_SEQNO=-1 in prepIFS (“ODB configuration” panel)

Time savings and improved scalability:

- 4% reduction in overall cost of 4D-Var in RD experiments (average saving over 2-month cycling experiment).
- similar or potentially greater savings in operational configuration (timings are highly variable and we don't yet have reliable statistics).

Testing:

- Control: gkj6 copy of Gabor's 43r1 summer control (gk21)
- Test: gkj6 dipl_CY43R1_activate_opts (+change REPROD_SEQNO=-1 in prepIFS)

file:///perm/rd/dipl/iver/plots/ACT_OPT/index.html

Forecast impact: neutral Observation fits: neutral

Files modified(SCRIPTS):

gen/bufr2odb ifstraj mergeodb odbshuffle

Reima Eresmaa - ste_CY43R1_obs_based_cloud_detect - BIT IDENTICAL

Observation-based IR cloud detection (IFS-47)

For infrared satellite radiances over land, do the cloud detection using observed brightness temperature data as the primary source of information. The change includes necessary modifications to control structures in the source code, but does not switch the observation-based scheme on by default. Therefore the code changes

introduced are bit-identical. Suitable parameter values can later be provided using a namelist file, i.e. without the need to re-compile the code.

Files created(IFS):

op_obs/obs_based_cloud_detect.F90

Files modified(IFS):

module/yomclddet.F90

namelist/namclddet.nam.h

obs_preproc/cloud_detect_setup.F90

op_obs/hretr_rad.F90

Sean Healy, Sean Healy - sti_CY43R1_for_sat_merge - [NO IMPACT GIVEN]

Tighten first guess quality control for GPS-RO (IFS-50)

Tighten the first guess check for GPS-RO by assuming the background error is $0.75 * ob_error$. It is currently set to $2.0 * ob_error$, but this is not consistent (o-b) departure statistics.

Files modified(IFS):

obs_preproc/fgchk.F90

Kristian Mogensen, Axel Bonet, Kristian Mogensen, Magdalena Alonso Balmaseda, Marcin Chrust, Steffen Tietsche - ne1_CY43R1_nemo_for_CY43R3_sml - BIT IDENTICAL

Real-Time implementation of OCEAN5 system + Ocean DA system updates (IFS-54)

Extensive efforts have been put into the development and implementation of OCEAN5 system (Ocean analysis system for both Behind-Real-Time and Real-Time). The OCEAN5 system includes a real-time stream, which brings the ocean analysis up-to-date on a daily basis, and a Behind-Real-Time stream with 7-days delay and updated every 5 days that provide initial conditions for the Real-Time system. See below for the list of updates regarding to ocean analysis and ocean DA system.

- Development and implementation of the OCEAN5 Real-Time/Behind-Real-Time suite in RD and operationally in FD.
- Switch to operational NWP focusing for NEMO model
- Activate use of observations (in-situ buoys, satellite altimeter SLA, operational OSTIA SST/SIC) in real-time stream from SAPP.
- Update in output streams for 3D and 2D ocean fields, with improved archiving strategy for output fields and restart files.
- Updates in utilization of observation operator in NEMOVAR inner loop, now become dependent on assimilation window length and reduced the inner loop cost significantly.
- Updates in NEMO/NEMOVAR codes for use of satellite altimeter data from new missions (Cryosat-2, Saral/AltiKa, HY-2A, Jason-3 and coming Jason-2 New Orbit missions).

- Add diagnostics of sea ice verification against SMOS data.
- Add support for use ESA CCI products (SST) in Ocean DA system.
- Updates in climatological diagnostics
- Some bug fixes in the scripts level and add support for smslabel output in ecflow

Files created(NEMO):

NEMOGCM_V36/CONFIG/GYRE_XIOS/EXP00/file_def.xml
 EXTERNAL/AGRIF/AGRIF_FILES/modarrays.F90 EXTERNAL/AGRIF/AGRIF_FILES/moddbc.F90
 EXTERNAL/AGRIF/AGRIF_FILES/moddbcfunction.F90
 EXTERNAL/AGRIF/AGRIF_FILES/modcluster.F90
 EXTERNAL/AGRIF/AGRIF_FILES/modcurgridfunctions.F90
 EXTERNAL/AGRIF/AGRIF_FILES/modgrids.F90 EXTERNAL/AGRIF/AGRIF_FILES/modinit.F90
 EXTERNAL/AGRIF/AGRIF_FILES/modinitvars.F90
 EXTERNAL/AGRIF/AGRIF_FILES/modinterp.F90
 EXTERNAL/AGRIF/AGRIF_FILES/modinterpbasic.F90
 EXTERNAL/AGRIF/AGRIF_FILES/modlinktomodel.F90
 EXTERNAL/AGRIF/AGRIF_FILES/modmask.F90 EXTERNAL/AGRIF/AGRIF_FILES/modmpp.F90
 EXTERNAL/AGRIF/AGRIF_FILES/modprocs.F90 EXTERNAL/AGRIF/AGRIF_FILES/modsauv.F90
 EXTERNAL/AGRIF/AGRIF_FILES/modseq.F90 EXTERNAL/AGRIF/AGRIF_FILES/modtypes.F90
 EXTERNAL/AGRIF/AGRIF_FILES/modupdate.F90
 EXTERNAL/AGRIF/AGRIF_FILES/modupdatebasic.F90
 EXTERNAL/AGRIF/AGRIF_FILES/modutil.F90
 EXTERNAL/AGRIF/AGRIF_FILES/modvariables.F90 EXTERNAL/AGRIF/LEX/Makefile.lex
 EXTERNAL/AGRIF/LEX/convert.lex EXTERNAL/AGRIF/LEX/convert.y
 EXTERNAL/AGRIF/LEX/decl.h EXTERNAL/AGRIF/LEX/fortran.lex
 EXTERNAL/AGRIF/LEX/fortran.y EXTERNAL/AGRIF/nemo_mpi.h
 NEMO/OPA_SRC/LBC/lib_mpp_def.F90 SETTE/BATCH_TEMPLATE/batch-ifort_athena
 SETTE/BATCH_TEMPLATE/batch-ifort_athena_xios
 SETTE/BATCH_TEMPLATE/batch-openmpi_NAVITI_MERCATOR SETTE/sette_rpt.sh
 TOOLS/REBUILD_NEMO/icb_combrest.py TOOLS/SIREN/Doxyfile
 TOOLS/SIREN/cfg/dummy.cfg TOOLS/SIREN/src/create_boundary.F90
 TOOLS/SIREN/src/docsrc/2_quickstart.md TOOLS/SIREN/src/docsrc/3_support_bug.md
 TOOLS/SIREN/src/docsrc/4_codingRules.md TOOLS/SIREN/src/docsrc/5_changeLog.md
 TOOLS/SIREN/src/docsrc/6_perio.md
 TOOLS/SIREN/src/docsrc/Image/grid_glob_band_20.png
 TOOLS/SIREN/src/docsrc/Image/grid_glob_band_30.png
 TOOLS/SIREN/src/docsrc/Image/grid_glob_over_20.png
 TOOLS/SIREN/src/docsrc/Image/grid_glob_over_30.png
 TOOLS/SIREN/src/docsrc/Image/grid_zoom_60.png
 TOOLS/SIREN/src/docsrc/Image/perio0_20.png
 TOOLS/SIREN/src/docsrc/Image/perio1_20.png
 TOOLS/SIREN/src/docsrc/Image/perio2_20.png
 TOOLS/SIREN/src/docsrc/Image/perio3_20.png
 TOOLS/SIREN/src/docsrc/Image/perio4_20.png
 TOOLS/SIREN/src/docsrc/Image/perio5_20.png
 TOOLS/SIREN/src/docsrc/Image/perio6_20.png
 build/fcmemake.ksh
 fcmconfig/bld/cray/eccodes.cfg bld/cray_03/eccodes.cfg
 bld/cray_03_zero/eccodes.cfg bld/cray_ddt/eccodes.cfg bld/cray_debug/eccodes.cfg
 bld/cray_ftn/eccodes.cfg bld/cray_map/eccodes.cfg bld/cray_noomp/eccodes.cfg
 bld/cray_noopt/eccodes.cfg bld/cray_perf/eccodes.cfg bld/cray_perf/ioserver.cfg

bld/cray_perf/nemo.cfg bld/cray_range/eccodes.cfg bld/cray_zero/eccodes.cfg
 bld/opensuse131/eccodes.cfg bld/opensuse131_debug/eccodes.cfg
 bld/opensuse131_fltrap/eccodes.cfg bld/opensuse131_mpi_omp/eccodes.cfg
 bld/opensuse131_omp/eccodes.cfg bld/opensuse131_par/eccodes.cfg
 bld/opensuse131_par_debug/eccodes.cfg nemo/nemoeccodes.cfg src/eccodes.cfg
 testscripts_V36/namelist/domain_def_xios2.xml namelist/field_def_xios2.xml
 namelist/iodef_default_xios2.xml
 tools/ecoceanbufr/Makefile ecoceanbufr/config/config.macports
 ecoceanbufr/config/config.opensuse131 ecoceanbufr/convmerge.F90
 ecoceanbufr/ctl_stop.h90 ecoceanbufr/datatoymdhms.h90
 ecoceanbufr/ecatmosbufr2fb.F90 ecoceanbufr/ecatmosbufrdata.F90
 ecoceanbufr/ecbufr2fb.F90 ecoceanbufr/ecbufrdata.F90
 ecoceanbufr/ecsstbufr2fb.F90 ecoceanbufr/ecsstbufrdata.F90
 ecoceanbufr/ecstormbufr2fb.F90 ecoceanbufr/ecstormbufrdata.F90
 ecoceanbufr/fbpotem.h90 ecoceanbufr/greg2jul.h90
 ecoceanbufr/obs_conv_functions.h90 ecoceanbufr/obs_fbm.F90
 ecoceanbufr/obs_utils.F90 ecoceanbufr/toolspar_kind.F90 griboffinter/Makefile
 griboffinter/config/config.cray griboffinter/config/config.crayomp
 griboffinter/config/config.macports griboffinter/config/config.opensuse131
 griboffinter/config/config.opensuse131omp griboffinter/geninput.F90
 griboffinter/gpgeo.F90 griboffinter/gphpre.F90 griboffinter/grd_field.F90
 griboffinter/great_circle.F90 griboffinter/grib2sec.F90
 griboffinter/gribintersec.F90 griboffinter/height_conv.F90
 griboffinter/nctools.F90 griboffinter/toolspar_kind.F90
 griboffinter/xsecncio.F90 griboffinter/xsectrack.F90
 obstools/drifter1hrcurr2fb.F90 obstools/itop2fb.F90
 obstools/obs_drifter_1hr_curr_io.F90 obstools/read_drifter_1hr_curr.h90
 offinter/config/config.cray offinter/config/config.opensuse131omp
 offinter/xsectrack.F90 xsec2time/Makefile xsec2time/config xsec2time/nctools.F90
 xsec2time/toolspar_kind.F90 xsec2time/xsec2time.F90 xsec2time/xsecncio.F90
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src/transformation/Functions/extract.hpp src/transformation/Functions/max.cpp src/transformation/Functions/min.cpp src/transformation/Functions/min.hpp src/transformation/Functions/reduction.hpp src/transformation/Functions/reduction_types.hpp src/transformation/Functions/sum.cpp src/transformation/Functions/sum.hpp src/transformation/algo_types.hpp src/transformation/axis_algorithm_extract_domain.cpp src/transformation/axis_algorithm_extract_domain.hpp src/transformation/axis_algorithm_interpolate.cpp src/transformation/axis_algorithm_interpolate.hpp src/transformation/axis_algorithm_inverse.cpp src/transformation/axis_algorithm_inverse.hpp src/transformation/axis_algorithm_reduce_domain.cpp src/transformation/axis_algorithm_reduce_domain.hpp src/transformation/axis_algorithm_transformation.cpp src/transformation/axis_algorithm_transformation.hpp src/transformation/axis_algorithm_zoom.cpp src/transformation/axis_algorithm_zoom.hpp src/transformation/domain_algorithm_generate_rectilinear.cpp src/transformation/domain_algorithm_generate_rectilinear.hpp src/transformation/domain_algorithm_interpolate.cpp src/transformation/domain_algorithm_interpolate.hpp src/transformation/domain_algorithm_transformation.cpp src/transformation/domain_algorithm_transformation.hpp src/transformation/domain_algorithm_zoom.cpp src/transformation/domain_algorithm_zoom.hpp src/transformation/generic_algorithm_transformation.cpp src/transformation/generic_algorithm_transformation.hpp src/transformation/grid_generate.cpp src/transformation/grid_generate.hpp src/transformation/grid_transformation.cpp src/transformation/grid_transformation.hpp src/transformation/grid_transformation_selector.cpp src/transformation/grid_transformation_selector.hpp src/transformation/scalar_algorithm_reduce_axis.cpp src/transformation/scalar_algorithm_reduce_axis.hpp src/transformation/scalar_algorithm_transformation.cpp src/transformation/scalar_algorithm_transformation.hpp src/type/base_type.hpp src/type/enum.hpp src/type/enum_impl.hpp src/type/enum_ref_impl.hpp src/type/message.cpp src/type/message.hpp src/type/type.hpp src/type/type_decl.cpp src/type/type_impl.hpp src/type/type_ref_impl.hpp src/type/type_specialisation.hpp src/type/type_util.hpp src/utils.hpp src/virtual_node.hpp src/wait.f90 src/xios.hpp src/xios_server.f90 src/xios_spl.hpp src/xml_node.cpp src/xml_node.hpp src/xml_parser.cpp src/xml_parser.hpp src/xml_parser_decl.cpp src/xml_parser_impl.hpp tools/FCM/COPYRIGHT.txt tools/FCM/LICENSE.html tools/FCM/README tools/FCM/bin/fcm tools/FCM/bin/fcm_graphic_diff tools/FCM/bin/fcm_graphic_merge tools/FCM/bin/fcm_gui tools/FCM/bin/fcm_internal tools/FCM/bin/fcm_setup_konqueror tools/FCM/bin/fcm_update_version_dir.pl tools/FCM/doc/collaboration/fcm.js tools/FCM/doc/collaboration/feeding-back-patch.png tools/FCM/doc/collaboration/index.html tools/FCM/doc/collaboration/logo.png tools/FCM/doc/collaboration/merging-patch-multi.png tools/FCM/doc/collaboration/merging-patch.png tools/FCM/doc/collaboration/mirroring-trunk.png tools/FCM/doc/collaboration/style.css tools/FCM/doc/collaboration/style.html2ps.css tools/FCM/doc/collaboration/updating-branch.png tools/FCM/doc/collaboration/updating-shared-branch.png tools/FCM/doc/collaboration/working-as-usual.png tools/FCM/doc/etc/fcm.js tools/FCM/doc/etc/logo.png tools/FCM/doc/etc/style.css tools/FCM/doc/release_notes/1-1.html tools/FCM/doc/release_notes/1-2.html tools/FCM/doc/release_notes/1-3.html tools/FCM/doc/release_notes/1-4.html tools/FCM/doc/release_notes/1-5.html tools/FCM/doc/release_notes/index.html tools/FCM/doc/release_notes/style.css tools/FCM/doc/standards/fcm-perl-standard.pdf tools/FCM/doc/standards/fcm.js tools/FCM/doc/standards/html2ps.css tools/FCM/doc/standards/logo.png tools/FCM/doc/standards/perl_standard.html tools/FCM/doc/standards/style.css tools/FCM/doc/standards/style.html2ps.css tools/FCM/doc/user_guide/annex_bld_cfg.html tools/FCM/doc/user_guide/annex_ext_cfg.html tools/FCM/doc/user_guide/annex_fcm_cfg.html tools/FCM/doc/user_guide/annex_quick_ref.html tools/FCM/doc/user_guide/build.html tools/FCM/doc/user_guide/changeset.png tools/FCM/doc/user_guide/code_management.html tools/FCM/doc/user_guide/command_ref.html tools/FCM/doc/user_guide/create_

branch.png tools/FCM/doc/user_guide/extract.html tools/FCM/doc/user_guide/fcm-user-guide.pdf
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tools/FCM/examples/sbin/fcm-backup-trac-env tools/FCM/examples/sbin/fcm-commit-update
tools/FCM/examples/sbin/fcm-create-release tools/FCM/examples/sbin/fcm-daily-update
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tools/FCM/lib/Fcm/Util.pm tools/FCM/lib/Fcm/Util/ClassLoader.pm tools/FCM/man/man1/fcm.1
tools/FCM/t/Fcm/Build/Fortran-extract-interface-result.f90 tools/FCM/t/Fcm/Build/Fortran-ext

pp_empty_subroutine_inherit_force.cfg tools/FCM/test/repos/trunk/cfg/fcml_revmatch_
false.cfg tools/FCM/test/repos/trunk/cfg/fcml_revmatch_true.cfg tools/FCM/test/repos/trunk/cf
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c.c tools/FCM/test/repos/trunk/subroutine/hello_sub.F90 tools/FCM/test/repos/trunk/subroutine
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tools/FCM/test/test_scripts/test_fcml_add_directory_expsrc tools/FCM/test/test_scripts/test_
fcml_add_file tools/FCM/test/test_scripts/test_fcml_add_file_inherit tools/FCM/test/test_
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false tools/FCM/test/test_scripts/test_fcml_revmatch_true tools/FCM/test/test_scripts/test_
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Files created(SCRIPTS):

nemo/nemoarc_nrt ngetccissmi ngetccisst ngetmars_blkcldcov_nrt
ngetmars_blkfc_nrt ngetmars_blkqtml_nrt ngetmars_blkuv10m_nrt noobsop_smosice
nsstinter_nrt
sms_nemo/nemo_window.sms ngetobs_diags.sms noobsop.sms

Files modified(IFS):

adiab/cpedia.F90 postphy.F90
control/cnt4.F90 reresf.F90
module/yoephy.F90 yomios.F90 yomppc.F90
namelist/namios.nam.h namppc.nam.h
phys_ec/ec_phys.F90 postphy_layer.F90
pp_obs/ppreq.F90
setup/suios.F90 supp.F90
utility/wrresf.F90

Files modified(NEMO):

NEMOASSIM/VAR_SRC/nemovar.F90 VAR_SRC/nemovar_inner_drivers.F90
VAR_SRC/ran_diamat.F90
NEMOGCM/NEMO/LIM_SRC_2/limrst_2.F90 NEMO/OPA_SRC/DIA/diawri.F90
NEMO/OPA_SRC/DOM/domain.F90 NEMO/OPA_SRC/IOM/in_out_manager.F90
NEMO/OPA_SRC/IOM/iom.F90 NEMO/OPA_SRC/IOM/iom_nf90.F90
NEMO/OPA_SRC/IOM/restart.F90 NEMO/OPA_SRC/LBC/lib_mpp.F90
NEMO/OPA_SRC/OBS/diaobs.F90 NEMO/OPA_SRC/OBS/obs_types.F90
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NEMO/OPA_SRC/nemogcm.F90 NEMO/OPA_SRC/step.F90
NEMOGCM_V36/ARCH/CMCC/arch-gfortran_athena_xios.fcm
ARCH/CMCC/arch-ifort_athena.fcm ARCH/CMCC/arch-ifort_athena_debug.fcm
ARCH/CMCC/arch-ifort_athena_tools.fcm ARCH/CMCC/arch-ifort_athena_xios.fcm
ARCH/INGV/arch-IBM_EKMAN_INGV.fcm ARCH/arch-ALTIX_NAUTILUS_MPT.fcm
ARCH/arch-PW7_C2A_XIO.fcm ARCH/arch-PW7_METO.fcm ARCH/arch-PW7_MONSOON.fcm
ARCH/arch-X64_ADA.fcm ARCH/arch-X64_ADA_O0.fcm ARCH/arch-X64_CURIE.fcm
ARCH/arch-X64_MOBILIS.fcm ARCH/arch-X64_VAYU.fcm ARCH/arch-X64_YELLOWSTONE.fcm
ARCH/arch-XC40_METO.fcm ARCH/arch-XC_ARCHER.fcm ARCH/arch-XC_ARCHER_INTEL.fcm
ARCH/arch-macport_osx.fcm ARCH/arch-openmpi_NAVITI_MERCATOR.fcm
CONFIG/AMM12/EXP00/namelist_cfg CONFIG/C1D_PAPA/EXP00/namelist_cfg
CONFIG/GYRE/EXP00/namelist_cfg CONFIG/GYRE_BFM/EXP00/namelist_cfg
CONFIG/GYRE_XIOS/EXP00/iodef.xml CONFIG/GYRE_XIOS/EXP00/namelist_cfg
CONFIG/GYRE_XIOS/cpp_GYRE_XIOS.fcm CONFIG/ORCA2_LIM/EXP00/1_namelist_cfg
CONFIG/ORCA2_LIM/EXP00/iodef.xml CONFIG/ORCA2_LIM/EXP00/namelist_cfg
CONFIG/ORCA2_LIM3/EXP00/iodef.xml CONFIG/ORCA2_LIM3/EXP00/namelist_cfg

CONFIG/ORCA2_LIM_CFC_C14b/EXP00/1_namelist_cfg
 CONFIG/ORCA2_LIM_CFC_C14b/EXP00/namelist_cfg
 CONFIG/ORCA2_LIM_PISCES/EXP00/namelist_cfg CONFIG/SHARED/field_def.xml
 CONFIG/SHARED/namelist_ice_lim3_ref CONFIG/SHARED/namelist_ref
 CONFIG/SHARED/namelist_top_ref CONFIG/cfg.txt EXTERNAL/AGRIF/LIB/DiversListe.c
 EXTERNAL/AGRIF/LIB/Makefile EXTERNAL/AGRIF/LIB/SubLoopCreation.c
 EXTERNAL/AGRIF/LIB/UtilAgrif.c EXTERNAL/AGRIF/LIB/UtilCharacter.c
 EXTERNAL/AGRIF/LIB/UtilFile.c EXTERNAL/AGRIF/LIB/UtilFortran.c
 EXTERNAL/AGRIF/LIB/UtilListe.c EXTERNAL/AGRIF/LIB/UtilNotGridDep.c
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 EXTERNAL/AGRIF/LIB/WorkWithlistofmodulebysubroutine.c
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 EXTERNAL/AGRIF/LIB/toamr.c NEMO/LIM_SRC_2/limrhg_2.F90
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 NEMO/NST_SRC/agrif_lim2_update.F90 NEMO/NST_SRC/agrif_oce.F90
 NEMO/NST_SRC/agrif_opa_interp.F90 NEMO/NST_SRC/agrif_opa_sponge.F90
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 NEMO/NST_SRC/agrif_user.F90 NEMO/OFF_SRC/dtadyn.F90 NEMO/OPA_SRC/ASM/asmbkg.F90
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 NEMO/OPA_SRC/DIA/dianam.F90 NEMO/OPA_SRC/DIA/diawri.F90
 NEMO/OPA_SRC/DOM/domain.F90 NEMO/OPA_SRC/DOM/domhgr.F90
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 NEMO/OPA_SRC/DYN/divcur.F90 NEMO/OPA_SRC/DYN/dynspg_ts.F90
 NEMO/OPA_SRC/DYN/dynzdf_imp.F90 NEMO/OPA_SRC/DYN/sshwzv.F90
 NEMO/OPA_SRC/ICB/icbini.F90 NEMO/OPA_SRC/IOM/in_out_manager.F90
 NEMO/OPA_SRC/IOM/iom.F90 NEMO/OPA_SRC/IOM/iom_nf90.F90
 NEMO/OPA_SRC/IOM/restart.F90 NEMO/OPA_SRC/LBC/lbclnk.F90
 NEMO/OPA_SRC/LBC/lib_mpp.F90 NEMO/OPA_SRC/LBC/mppini.F90
 NEMO/OPA_SRC/LBC/mppini_2.h90 NEMO/OPA_SRC/LDF/ldfeiv.F90
 NEMO/OPA_SRC/LDF/ldfslp.F90 NEMO/OPA_SRC/LDF/ldftra_oce.F90
 NEMO/OPA_SRC/LDF/ldftra_substitute.h90 NEMO/OPA_SRC/OBS/diaobs.F90
 NEMO/OPA_SRC/OBS/obs_oper.F90 NEMO/OPA_SRC/OBS/obs_types.F90
 NEMO/OPA_SRC/OBS/obssla_io.h90 NEMO/OPA_SRC/OBS/obssla_types.h90

NEMO/OPA_SRC/SBC/albedo.F90 NEMO/OPA_SRC/SBC/fldread.F90
 NEMO/OPA_SRC/SBC/geo2ocean.F90 NEMO/OPA_SRC/SBC/sbc_ice.F90
 NEMO/OPA_SRC/SBC/sbcbklc_core.F90 NEMO/OPA_SRC/SBC/sbcbklc_core.F90
 NEMO/OPA_SRC/SBC/sbccpl.F90 NEMO/OPA_SRC/SBC/sbcice_lim.F90
 NEMO/OPA_SRC/SBC/sbcice_lim_2.F90 NEMO/OPA_SRC/SBC/sbcisf.F90
 NEMO/OPA_SRC/SBC/sbcmmod.F90 NEMO/OPA_SRC/SBC/sbcfnf.F90
 NEMO/OPA_SRC/SBC/sbcsglcp1.F90 NEMO/OPA_SRC/SBC/updtide.F90
 NEMO/OPA_SRC/TRA/eosbn2.F90 NEMO/OPA_SRC/TRA/traadv_eiv.F90
 NEMO/OPA_SRC/TRA/traadv_tvd.F90 NEMO/OPA_SRC/TRA/traldf.F90
 NEMO/OPA_SRC/TRA/tranxt.F90 NEMO/OPA_SRC/TRA/traqsr.F90
 NEMO/OPA_SRC/TRA/trasbc.F90 NEMO/OPA_SRC/TRD/trdken.F90
 NEMO/OPA_SRC/TRD/trdmx1.F90 NEMO/OPA_SRC/TRD/trdmx1_oce.F90
 NEMO/OPA_SRC/TRD/trdpen.F90 NEMO/OPA_SRC/ZDF/zdf_oce.F90
 NEMO/OPA_SRC/ZDF/zdfddm.F90 NEMO/OPA_SRC/ZDF/zdfgls.F90
 NEMO/OPA_SRC/ZDF/zdfmx1.F90 NEMO/OPA_SRC/ZDF/zdf_tke.F90
 NEMO/OPA_SRC/ZDF/zdf_tmx.F90 NEMO/OPA_SRC/nemogcm.F90 NEMO/OPA_SRC/step.F90
 NEMO/OPA_SRC/step_oce.F90 NEMO/OPA_SRC/stpctl.F90 NEMO/SAS_SRC/nemogcm.F90
 NEMO/TOP_SRC/PISCES/P2Z/p2zbio.F90 NEMO/TOP_SRC/PISCES/P2Z/p2zsms.F90
 NEMO/TOP_SRC/PISCES/P4Z/p4zbio.F90 NEMO/TOP_SRC/PISCES/P4Z/p4zche.F90
 NEMO/TOP_SRC/PISCES/P4Z/p4zflx.F90 NEMO/TOP_SRC/PISCES/P4Z/p4zint.F90
 NEMO/TOP_SRC/PISCES/P4Z/p4zlim.F90 NEMO/TOP_SRC/PISCES/P4Z/p4zlys.F90
 NEMO/TOP_SRC/PISCES/P4Z/p4zmeso.F90 NEMO/TOP_SRC/PISCES/P4Z/p4zmicro.F90
 NEMO/TOP_SRC/PISCES/P4Z/p4zmort.F90 NEMO/TOP_SRC/PISCES/P4Z/p4zopt.F90
 NEMO/TOP_SRC/PISCES/P4Z/p4zprod.F90 NEMO/TOP_SRC/PISCES/P4Z/p4zsbcs.F90
 NEMO/TOP_SRC/PISCES/P4Z/p4zsed.F90 NEMO/TOP_SRC/PISCES/P4Z/p4zsink.F90
 NEMO/TOP_SRC/PISCES/P4Z/p4zsms.F90 NEMO/TOP_SRC/PISCES/sms_pisces.F90
 NEMO/TOP_SRC/PISCES/trcice_pisces.F90 NEMO/TOP_SRC/PISCES/trcini_pisces.F90
 NEMO/TOP_SRC/TRP/trcdmp.F90 NEMO/TOP_SRC/TRP/trcldf.F90
 NEMO/TOP_SRC/TRP/trcnam_trp.F90 NEMO/TOP_SRC/TRP/trcnxt.F90
 NEMO/TOP_SRC/TRP/trcsbc.F90 NEMO/TOP_SRC/TRP/trctrp.F90 NEMO/TOP_SRC/oce_trc.F90
 NEMO/TOP_SRC/trcdta.F90 NEMO/TOP_SRC/trcini.F90 NEMO/TOP_SRC/trcnam.F90
 NEMO/TOP_SRC/trcsms.F90 NEMO/TOP_SRC/trcstp.F90 SETTE/all_functions.sh
 SETTE/prepare_exe_dir.sh SETTE/prepare_job.sh SETTE/sette.sh
 TOOLS/COMPILE/Fmake_config.sh TOOLS/COMPILE/Fprep_agrif.sh
 TOOLS/COMPILE/agrifpp.sh TOOLS/COMPILE/bld.cfg TOOLS/COMPILE/bld_preproagr.cfg
 TOOLS/COMPILE/conv.cfg TOOLS/DMP_TOOLS/src/zoom.F90
 TOOLS/MISCELLANEOUS/icb_pp.py TOOLS/MPP_PREP/src/mpp_optimiz_zoom_nc.f90
 TOOLS/MPP_PREP/src/mppopt_showproc_nc.f90 TOOLS/NESTING/agulhas
 TOOLS/NESTING/src/agrif_connect_topo.f90
 TOOLS/NESTING/src/agrif_partial_steps.f90 TOOLS/NESTING/src/agrif_types.f90
 TOOLS/REBUILD_NEMO/src/rebuild_nemo.f90 TOOLS/SIREN/README
 TOOLS/SIREN/cfg/variable.cfg TOOLS/SIREN/src/attribute.f90
 TOOLS/SIREN/src/boundary.f90 TOOLS/SIREN/src/create_bathy.f90
 TOOLS/SIREN/src/create_coord.f90 TOOLS/SIREN/src/create_restart.f90
 TOOLS/SIREN/src/dimension.f90 TOOLS/SIREN/src/docsrc/1_install.md
 TOOLS/SIREN/src/docsrc/main.dox TOOLS/SIREN/src/domain.f90
 TOOLS/SIREN/src/file.f90 TOOLS/SIREN/src/function.f90 TOOLS/SIREN/src/global.f90
 TOOLS/SIREN/src/grid.f90 TOOLS/SIREN/src/interp_linear.f90
 TOOLS/SIREN/src/iom_cdf.f90 TOOLS/SIREN/src/iom_dom.f90
 TOOLS/SIREN/src/iom_mpp.f90 TOOLS/SIREN/src/iom_rstdimg.f90
 TOOLS/SIREN/src/logger.f90 TOOLS/SIREN/src/math.f90
 TOOLS/SIREN/src/merge_bathy.f90 TOOLS/SIREN/src/mpp.f90
 TOOLS/SIREN/src/multi.f90 TOOLS/SIREN/src/phycst.f90
 TOOLS/SIREN/src/variable.f90 TOOLS/SIREN/src/vgrid.f90

```

TOOLS/SIREN/templates/create_bathy.nam TOOLS/SIREN/templates/create_boundary.nam
TOOLS/SIREN/templates/create_coord.nam TOOLS/SIREN/templates/create_restart.nam
TOOLS/SIREN/templates/merge_bathy.nam
build/fcmnmake.ksh fcmxiosmake.ksh
coupled/src/nemointerface/nemogcmcoup_init.F90
src/nemointerface/nemogcmcoup_lim2_get.F90
src/nemointerface/nemogcmcoup_lim2_update.F90
src/nemointerface/nemogcmcoup_step.F90
fcmconfig/src/tools.cfg
testscripts/cray_inner.ksh cray_outer.ksh namelists/namelist.nemo.ORCA025_Z75
namelists/namelist.nemo.ORCA1_Z42 namelists/namelist.nemo.ORCA1_Z46
namelists/namelist.nemo.ORCA1_Z75 setup_namelist_inner_ORCA025_Z75_exp
setup_namelist_inner_ORCA025_Z75_imp
setup_namelist_inner_ORCA025_Z75_imp_metoffice
setup_namelist_inner_ORCA1_Z42_exp setup_namelist_inner_ORCA1_Z42_imp
setup_namelist_inner_ORCA1_Z42_imp_LUT setup_namelist_inner_ORCA1_Z42_imp_sinobs
setup_namelist_inner_ORCA1_Z46_exp setup_namelist_inner_ORCA1_Z46_imp
setup_namelist_inner_ORCA1_Z75_exp setup_namelist_inner_ORCA1_Z75_imp
setup_namelist_outer_ORCA025_Z75 setup_namelist_outer_ORCA1_Z42
setup_namelist_outer_ORCA1_Z46 setup_namelist_outer_ORCA1_Z75
testscripts_V36/cray_outer.ksh namelists/field_def.xml
namelists/iodef_default.xml namelists/namelist_cfg.ORCA025_Z75
namelists/namelist_cfg.ORCA1_Z42 namelists/namelist_ice_cfg.ORCA025
namelists/namelist_ice_cfg.ORCA1 namelists/namelist_ice_cfg_lim3.ORCA025
namelists/namelist_ice_cfg_lim3.ORCA1 namelists/namelist_ice_ref_lim3
namelists/namelist_ref omp_i_outer.ksh setup_namelist_xios
tools/CDFTTOOLS/cdficediags.f90 grid2fb/geninput.F90 grid2fb/grd_field.F90 interpolate/getsst
interpolate/remapsst.F90 interpolate/remapsstgauss.F90 interpolate/scripsst.F90 nemogcm/obs_
grd_lookup.h90 nemogcm/obssla_io.h90 nemogcm/obssla_types.h90 nemomagics/config/config.macports
nemomagics/nemomagics.F90 nemomagics/plotgeneric.F90 nemomagics/plotgrib nemomagics/plotgrib
nemomagics/plotgribmagics.F90 nemomagics/plotmagics.F90 nemomagics/plotobs nemomagics/plotpoi
nemomagics/regfields.F90 nemomagics/secmagics.F90 nemoprofile/config/config.macports
nemostat/config/config.macports obsfb2kml/config/config.macports obsfbinter/obsfbinter.F90
obsplottools/config/config.macports obstools/Makefile obstools/read_avisocf.h90 obstools/read
smosice.h90 obstools/smosice2fb.F90 obstools/sstbufr2fb.F90 obstools/sstbufrdata.F90
offinter/Makefile offinter/o2sinter.F90 offinter/odestag.F90 offinter/orca2sec.F90
offinter/orcadestag.F90 offinter/xsecncio.F90 tcohc/tcohc.F90

```

Files modified(SCRIPTS):

```

def/eps_nemo.def fc.def opa.def
gen/getgrb logfiles model modeleps_nemo
nemo/check_expr namelist.nemo.ORCA025_Z75 namelist.nemo.ORCA1_Z42
namelist.nemo.ORCA1_Z46 namelist.nemo.ORCA1_Z75 namelist.nemovar.ORCA025_Z75
namelist.nemovar.ORCA1_Z42 namelist.nemovar.ORCA1_Z46 namelist.nemovar.ORCA1_Z75
narcres_date ndiags.h nemo.h nemo_clim.ksh nemo_gauss_orca_parameters
nemo_oper_model nemo_sst_model nemo_sst_orca_parameters nemo_wam_model
nemostats.ksh nfluxinter nfluxinter_blkcldcov nfluxinter_blkfc
nfluxinter_blkqtml nfluxinter_blkuvl10m ngetbufr ngetmars_blkqtml ngetsmosice
ngetsstbufr ninitialres nintsst nmaininter_loop nplots_saxo_var.ksh
nprepinter_loop nsshglobal_monthly nsstinter nsstinteratm nsstsettings
nsstsettings_scrip nwaminter nwaminter_nomask prep_nemoIFS set_dirs
oce/chunk.h

```

sms/nemo_tools.sms p4setup.sms
sms_nemo/getexe.sms narcana.sms narcforcing.sms narcobs.sms narcres.sms
ncatforcing.sms nclean_an.sms nclean_forcing.sms nclean_obs.sms nclean_pert.sms
ncomb_gzip_restart.sms nconst.sms nderive.sms nemoarc.sms nemoatmintsst.sms
nemogetini.sms nemomake.sms nemomppcomb.sms nfluxinter.sms nfluxinteraccum.sms
nfluxintercldcov.sms nfluxinterqt10.sms nfluxinteruv10.sms ngetinitrestart.sms
ngetmars.sms ngetmarswam.sms ngetobs.sms ngetsst.sms ninner.sms ninner_ice.sms
nomona.sms nouterpp.sms nplotsvar.sms nshow_dates.sms nsstinter.sms
nvarstats.sms nwaminter.sms nwaminter_nomask.sms outer.sms show_dates.sms
wav/wam_input

Files modified(WAM):

Wam_oper/getspec.F getstress.F mpuserin.F outwspec.F readfl.F readstress.F
savspec.F savstress.F wamodel.F writefl.F writestress.F
module/yowcout.F yowtext.F

Files deleted(NEMO):

NEMOGCM_V36/TOOLS/SIREN/src/Doxyfile

Tomas Kral - [No branch provided] - NON-METEOROLOGICAL

Revise radiosonde thinning algorithm (IFS-75)

[No description provided]

System / Technical

- Changes to trans for MIR (IFS-72)
- Compatibility with Atlas 0.8.0 (ifs-support CY43R3) (IFS-71)
- Enable full build in single precision (IFS-69)
- Improved definition of typedef Bool in privpub (IFS-59)
- Move YROROG into GEOMETRY type (IFS-61)
- Reading of longer file paths (IFS-73)
- Remove unnecessary file opens in FDB (IFS-7)
- removal of global spectral variable SPA3 (IFS-17)

Tomas Wilhelmsson - nat_CY43R1_prepfdb - BIT IDENTICAL

Remove unnecessary file opens in FDB (IFS-7)

Remove unnecessary FDB calls on non-IO processors

Files modified(IFS):

```
dia/wrmlppg.F90 wrmlpplg.F90
fullpos/wrmlfp.F90 wrplfp.F90
io_serv/io_serv_writefld_ec.F90
module/fdb_utils_mod.F90 iostream_mix.F90
setup/sufdb.F90
```

Files deleted(IFS):

```
dia/prepfdb.F90
```

Olivier Marsden - daom_CY43R1_pre43r3/daom_CY43_OOPS_V2plus - BIT IDENTICAL

removal of global spectral variable SPA3 (IFS-17)

YOMSP had a global variable, SPA3, of type SPECTRAL_FIELD, used to pass information between routines; this branch removes it. It is replaced either by an additional explicit spectral_field argument, or by the spectral_-field component in the fields argument. It also attempts to fix the online tangent linear test which has been broken for a few cycles.

Also includes changes from Yannick's day_CY43R1_3dfgat branch, and changes from Mats' nar_CY43R1_-gfl5_optional_spectr branch.

Verification expt : gkvu Control expt : gkia (dag)

Files created(IFS):

```
module/datetime_tmp_mod.F90
```

Files modified(IFS):

diab/cpeuldyn1.F90 spnh_conv_nhvar.F90 spnh_conv_prhs.F90
 ald_inc/interface/etransdir_nhconv.intfb.h
 interface/etransdir_nhconvprhs.intfb.h interface/etransinv_nhconv.intfb.h
 interface/etransinv_nhconvprhs.intfb.h
 canari/cadavr.F90 canari.F90
 control/cdsta.F90 cfcsens2obs.F90 cgr1.F90 cnt3.F90 cnt3ad.F90 cnt3tl.F90
 cnt4.F90 cnt4ad.F90 cnt4tl.F90 cprep3.F90 csta.F90 cval.F90 cva2.F90
 forecast_error.F90 iopack.F90 reresf.F90 restart_cnt3.F90 sim4d.F90 stepo.F90
 stepo_oops.F90 stepoad.F90 stepotl.F90 tesadj.F90 testli.F90 testlievol.F90
 dfi/dfi2.F90 dfi3.F90
 fullpos/predynfpos.F90 spaconvert.F90
 module/fields_mod.F90 geometry_setup_mod.F90 iospeca_mod.F90 model_mod.F90
 supergom_class.F90 variables_mod.F90 yomectab.F90
 obs_preproc/obscor_lanczos.F90 suobsb.F90 suobscor.F90 updobs.F90
 oops/error_covariance_3d_mod.F90 fields_interp_mod.F90 fields_io_mod.F90
 ifs_init.F90 locations_mod.F90 obs_space_mod.F90
 op_obs/cobsall.F90 cobsallad.F90 cobsalltl.F90 obsv.F90 obsvtl.F90
 parallel/read_spec_fromfa.F90
 phys_ec/vdfouter.F90
 setup/su0yomb.F90 sulyom.F90 sufpinif.F90 suiauinif.F90 suinif.F90 susc2c.F90
 suspe0.F90
 sinvect/balanced_reduction.F90 chnorm.F90 chsymeig.F90 cun2.F90 cun3.F90
 eof_matrix.F90 lcnorad.F90 lcnortl.F90 nalan1.F90 nalan2.F90 opak.F90 opm.F90
 suforce.F90 wrtsv.F90
 transform/transdir_nhconv.F90 transdir_nhconvprhs.F90 transinv_nhconv.F90
 transinv_nhconvprhs.F90
 utility/add3to5.F90 add5to3.F90 addbgs.F90 addfgs.F90 gpnorm_gfl.F90
 gpnorm_gmv.F90 modeltojb.F90 modeltojbad.F90 save_merr_tend.F90 sbs5to3.F90
 sbsfgs.F90 specimzero.F90 state2spec.F90 state2specad.F90 swap53.F90 wrresf.F90
 var/add_moderr_ad.F90 add_moderr_tl.F90 adtest.F90 bgevecs.F90 bgvecs.F90 cain.F90
 cainad.F90 cainin.F90 caininad.F90 chavar.F90 chavarad.F90 chavarin.F90 chavarinad.F90
 chkobtim.F90 coptra.F90 cosens.F90 cosjc.F90 cosjl.F90 cosjr.F90 cvar2in.F90 cvar2inad.F90
 cvar3in.F90 grtest.F90 inflation_pert.F90 jbtomodel.F90 littest.F90 preppcm.F90 rd801.F90
 rdfpinc.F90 readvec.F90 suecgcs.F90 subjtest.F90 subjwavgen.F90 subjwavgen_hybraw.F90
 suscal.F90 suspqlim_part1.F90 suspqlim_part2.F90 suvazx.F90 symtransin.F90 tlprop.F90
 tltest.F90 upspec.F90 xformeiv.F90

Files modified(SCRIPTS):

gen/ifsmin
 sms/ifs_support.sms oopsbuild.sms

Files created(ECFFTW):

module/fftw3.f03.h tpm_fftw.F90

Files created(IFS): supergom_class.F90 yomhop_results.F90

obs_preproc/screen_final.F90 screen_timeslot.F90
 oops/obs_space_mod.F90
 var/taskob_thread.F90 taskobad_thread.F90 taskobtl_thread.F90

Files created(IFSAUX):

include/rien.h

utilities/rien.F90

Files created(SCRIPTS):

sms/oopsifstests.sms oopstests.sms

Files modified(ALGOR):

external/linalg/tridia.F90

interface/tridia.h

Files modified(IFS):

adiab/call_sl.F90 call_sl_ad.F90 call_sl_heap.F90 call_sl_stack.F90
call_sl_tl.F90 cp_forcing.F90 cpedia.F90 cpeuldyn.F90 cpeuldynad.F90
cpeuldyn_tl.F90 cpq.F90 cpq2.F90 cpq25.F90 cpq2ad.F90 cpq2lag.F90 cpq2lagad.F90
cpq2lag_tl.F90 cpq2tl.F90 cpq5.F90 cpq5_gp.F90 cpq_dia.F90 cpq_drv.F90
cpq_drv_ad.F90 cpq_drv_tl.F90 cpq_dyn.F90 cpq_dyn_ad.F90 cpq_dyn_tl.F90
cpq_end.F90 cpq_end_ad.F90 cpq_end_tl.F90 cpq_gp.F90 cpq_gp_ad.F90 cpq_gp_tl.F90
cpq_gpb_nhgeogw.F90 cpq_pt.F90 cpq_pt_ulp.F90 cpq_zero_ad.F90 cpqad.F90
cpqlag.F90 cpqlagad.F90 cpqlag_tl.F90 cpqtl.F90 cpmvtps.F90 cppfttcdir.F90
cppfttcinv.F90 cpphinp.F90 cpphinpad.F90 cpphinptl.F90 cppsolan.F90 cpqsol.F90
cputqy.F90 cputqy_arome.F90 cputqys.F90 cputqysad.F90 cputqystl.F90 ctvtot.F90
ctvtot5.F90 ctvtotad.F90 ctvtot_tl.F90 fspglh.F90 gnh_conv_nhvar.F90
gnh_conv_nhvar_geogw.F90 gnh_conv_prhs.F90 gnh_tndlagadiab_gw.F90
gnh_tndlagadiab_spd.F90 gnh_tndlagadiab_svd.F90 gnhdlr.F90 gnhdlra.F90
gnhdlra_sta.F90 gnhdlrb.F90 gnhgrdlr.F90 gnhgrgw.F90 gnhgrpre.F90 gnhgw2svd.F90
gnhgw2svdarome.F90 gnhpre.F90 gnhpreh.F90 gnhsvd2gw.F90 gnhx.F90 gp_kappa.F90
gp_kappat.F90 gp_kappatad.F90 gp_kappattl.F90 gp_spv.F90 gp_spvad.F90
gp_spvtl.F90 gp_tndlagadiab_uv.F90 gp_tndlagadiab_uv_ad.F90
gp_tndlagadiab_uv_geogw.F90 gp_tndlagadiab_uv_tl.F90 gpaddslphy.F90 gpcty.F90
gpcty_forc.F90 gpctyad.F90 gpctytl.F90 gpgeo.F90 gpgeoad.F90 gpgeotl.F90
gpgrgeo.F90 gpgrgeoad.F90 gpgrgeotl.F90 gpgrp.F90 gpgw.F90 gphluv.F90
gphluvad.F90 gphluvatl.F90 gphlwi.F90 gphlwiad.F90 gphlwitl.F90 gpinislb.F90
gpinislbad.F90 gpino3ch.F90 gpinozst.F90 gpmasscor.F90 gpmktend.F90
gpmktendad.F90 gppvo.F90 gppwcvfe.F90 gprcpad.F90 gprcptl.F90 gpstress.F90
gptfl.F90 gptflad.F90 gptflpc.F90 gptf2.F90 gptf2ad.F90 gptf2pc.F90 gpxx.F90
lacydyn.F90 lacydynad.F90 lacydynshw.F90 lacydynshwad.F90 lacydynshwtl.F90
lacyntl.F90 ladad.F90 ladine.F90 ladinead.F90 ladinetl.F90 lainor2.F90
lainor2ad.F90 lainor2tl.F90 laitre_gfl.F90 lanhsi.F90 lanhsi_geogw.F90
lanhsib.F90 lapinea.F90 lapinea5.F90 lapineaad.F90 lapineatl.F90 lapineb.F90
lapinebad.F90 lapinebtl.F90 larcin2.F90 larcin2ad.F90 larcin2tl.F90 larcina.F90
larcinaad.F90 larcinatl.F90 larcinb.F90 larcinb5.F90 larcinbad.F90 larcinbtl.F90
larcinha.F90 larcinhb.F90 larmes.F90 larmes2.F90 larmes25.F90 larmes2ad.F90
larmes2tl.F90 larmes5.F90 larmesad.F90 larmestl.F90 lassie.F90 lassiead.F90
lassietl.F90 lasure.F90 latte_bbc.F90 latte_kappa.F90 latte_kappaad.F90
latte_kappatl.F90 latte_stddis.F90 lattes.F90 lattesad.F90 lattestl.F90
lattex.F90 lattex_dnt.F90 lattex_dnt_ad.F90 lattex_tnt.F90 lattexad.F90
lattextl.F90 lavabo.F90 lavabotl.F90 lavent.F90 laventad.F90 laventtl.F90
postphy.F90 pre_sladrep.F90 si_cccor.F90 sidd.F90 siddad.F90 sigam.F90
sigamad.F90 siptp.F90 siptpad.F90 siseve.F90 sisevead.F90 sitnu.F90 sitnuad.F90
sivderi.F90 spc2.F90 spc2ad.F90 spchor.F90 spchorad.F90 spcimpfinit.F90
spcimpfinitad.F90 spcimpfpost.F90 spcimpfpostad.F90 spcimpfsolve.F90
spcimpfsolvead.F90 spcsi.F90 spcsiad.F90 specrt.F90 spfilt.F90
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jgcorad.F90 jgcori.F90 jgcoriad.F90 jghcor.F90 jghcori.F90 jgnr.F90 jgnrad.F90 jgnri.F90
jgnriad.F90 jgnrs.F90 jgnrsi.F90 jgvcor.F90 jqhcor.F90 jqhcorin.F90 jqvcor.F90 litest.F90
objtrunc.F90 pregprh.F90 preppcm.F90 rd801.F90 rdfpinc.F90 rdnhtrajm.F90 rdphtrajm.F90
rdphtrajtm.F90 rdphtrajtm_nl.F90 read_surfgrid_traj.F90 readtmp.F90 readvec.F90 sacmac1.F90
savhess.F90 savmini.F90 savmini2.F90 scaleae.F90 scalederae.F90 scalefe.F90 scaljgg.F90
scaljgs.F90 sqrtb.F90 sqrtbad.F90 sqrtbin.F90 sqrtbinad.F90 sqrtfe.F90 sqrtq.F90 sqrtqad.F90
sqrtqin.F90 sqrtqinad.F90 sualcos.F90 sualctv.F90 sualges.F90 suallr.F90 suallt.F90
suallt7.F90 suanebuf.F90 sucos.F90 suecges.F90 suhess.F90 suinfce.F90 subj.F90 subjbal.F90
subjchvar.F90 subjcor.F90 subjcosu.F90 subjcov.F90 subjcovnoise.F90 subjcovsignal.F90
subjdat.F90 subjgptomat.F90 subjstd.F90 subjstest.F90 subjvarens.F90 subjvcoord.F90
subjwavalls_wavgen.F90 subjwavelet.F90 subjwavelet0.F90 subjwavelet_stdevs.F90 subjwavgen.F90
subjwavgen_hybraw.F90 subjwavstats.F90 subjwavtrans.F90 subjwavvc.F90 subjwavwri.F90
sujq.F90 sujqcor.F90 sujqstd.F90 sujr.F90 sumdfce.F90 sumoderr.F90 supert.F90 suprecov.F90
suprepjcdfi.F90 suprffce.F90 suqnorm.F90 suscal.F90 suscal_jb.F90 suscalmerr.F90 susepfce.F90
sushfce.F90 suspqlim_part1.F90 suspqlim_part2.F90 suvazx.F90 symtransin.F90 taskob.F90
taskobad.F90 taskobtl.F90 tlprop.F90 tltest.F90 upspec.F90 vec2dergp.F90 vec2gp.F90
vec2gpfe.F90 wavxform.F90 writelct.F90 writeoba.F90 writesd.F90 writestd.F90 writetmp.F90
wrnhtrajm.F90 wrphtrajm.F90 wrphtrajtm.F90 wrphtrajtm_nl.F90 xformev.F90

Files modified(IFSAUX):

include/chien.h
utilities/chien.F90

Files modified(ODB):

cma2odb/getdb.F90

Files modified(PREPDATA):

programs/unbal_eda.F90

Files modified(SATRAD):

rttov/ifs/phrtsetup.F90

Files modified(SCRIPTS):

build/arch/Makefile.in.XC30_cce arch/Makefile.in.cray_XC30_cce
def/inc_fam.py
gen/ifsmin
sms/oopsbuild.sms

Files deleted(IFS):

module/gom4oops_mod.F90 yomobset_thsafe.F90
obs_preproc/mkglobstab.F90 mkglobstab_obs.F90 sufger.F90
oops/obstraj_mod.F90 odb_setup.F90 ostats_mod.F90


```
utility/dealctv.F90
var/ecset_thsafe.F90
```

Glenn Carver, Kim Serradell - nagc_CY43R1_oifs_privpub_fix - BIT IDENTICAL

Improved definition of typedef Bool in privpub (IFS-59)

OpenIFS received the following report from Barcelona who are using OpenIFS 40r1 with their performance tools. it's a one-line change fixed in the supplied code branch. — Hello Glenn These lasts weeks, I've been working with OmpSs developers to build OpenIFS.

We had a few issues with the code, mainly related with the internal Mercurium compiler that produces the code with OmpSs runtime. We found one, that could be solved in the code and I've been suggested by the developers to tell you.

When compiling `src/ifsaux/support/swapbytes_ifsaux.c` we get this error:

```
[FAIL] imcc -oo/swapbytes_ifsaux.o -c -DBLAS -DLITTLE -DLINUX -DINTEGER_IS_INT -D_ABI64 -I./include
-g -O -instrument -I/gpfs/projects/bsc32/bsc32353/models/ifs/grib_api_1.16.0/include /.statelite/tmpfs/gpfs/projects/bsc32/bsc3
20160812/src/ifsaux/support/swapbytes_ifsaux.c # rc=1 [FAIL] ./include/privpub.h:257:20: error: syntax error,
unexpected octal-integer-literal, expecting identifier [FAIL] Compilation failed for file '/.statelite/tmpfs/gpfs/projects/bsc32/bsc3
20160812/src/ifsaux/support/swapbytes_ifsaux.c'
```

This error is related with the header `src/ifsaux/include/privpub.h`. In this file, we have:

```
#ifdef __cplusplus typedef bool Bool; #else typedef enum false=0, true=1 Bool; #endif
```

We preprocessing this code, mercurium creates this code:

```
#ifdef __cplusplus typedef bool Bool; #else typedef enum 0=0, 1=1 Bool; #endif
```

which is incorrect and not compile.

The issue that can be easily fixed performing some minor changes in the application (related to your definition of the Bool type in C). It's true that C doesn't support the "bool" type by default (it supports the `_Bool` type instead), but it offers a standard header (named `stdbool.h`) that defines this type and its two possible values (true and false) via macros.

This standard header provide us a convenient way to define headers that are shared between C and C: instead of defining a new typedef and the values of false and true using an enum, we only have to include this header. It doesn't change anything if you are including it in a C file but if you include it from a C file it will introduce the following macros:

```
#define bool _Bool #define true 1 #define false 0
```

Note that applying these minor changes you will be able to use the 'bool' type from a C application. If you don't want to replace every use of 'Bool' by 'bool', what you can do is including the `stdbool.h` header and defining the following typedef:

```
typedef bool Bool;
```

And that will be enough to make everything work.

The issue that we have with your definition of Bool is related to the runtime headers that our compiler has to

include in order to be able to transform your pragmas into calls to our runtime library. One of these runtime headers includes the `stdbool.h` header, which combined with your current definition of `Bool` generates an invalid code once everything is preprocessed:

```
#ifndef __cplusplus typedef bool Bool; #else typedef enum 0=0, 1=1 Bool; #endif
```

I'm attaching the resulting `privpub.h` file.

Tell me what you think,

KiM

Files modified(IFS AUX):

```
include/privpub.h
```

Tomas Wilhelmsson - nat_CY43R1_orog - BIT IDENTICAL

Move YROROG into GEOMETRY type (IFS-61)

OOPS cleanup by moving YROROG from YOMOROG to GEOMETRY type.

Bit-reproducible if `lattice.F90` is compiled without optimization due to some issue with the Cray Fortran compiler.

Files modified(IFS):

```
adiab/call_sl.F90 cpeuldyn.F90 cpg.F90 cpg2.F90 cpg25.F90 cpg2ad.F90 cpg2lag.F90
cpg2lagad.F90 cpg2lagtl.F90 cpg2tl.F90 cpg5_gp.F90 cpg_dia.F90 cpg_drv.F90
cpg_drv_ad.F90 cpg_drv_tl.F90 cpg_dyn.F90 cpg_dyn_ad.F90 cpg_dyn_tl.F90
cpg_gp.F90 cpgad.F90 cpglag.F90 cpgtl.F90 gnh_conv_nhvar.F90
gnh_conv_nhvar_geogw.F90 gnh_conv_prhs.F90 lacdyn.F90 lacdynad.F90 lacdynshw.F90
lacdynshwad.F90 lacdynshwtl.F90 lacdyntl.F90 lapineb.F90 lattex.F90
lattexad.F90 lattextl.F90
control/gp_model.F90 gp_model_ad.F90 gp_model_tl.F90 scan2m.F90 scan2mad.F90
scan2mtl.F90
dia/wrmlppg.F90
fullpos/cpclimi.F90 hpos.F90 scan2m_hpos.F90 scan2m_mpos.F90 scan2m_vpos.F90
vpos.F90
module/geometry_mod.F90 yomorog.F90
op_obs/cobs.F90 cobsad.F90 cobsall.F90 cobsallad.F90 cobsalltl.F90
phys_dmn/mf_phys.F90 mf_phys_prep.F90 mf_physad.F90 mf_phystl.F90
phys_ec/callparad.F90 callpartl.F90 ec_phys_ad.F90 ec_phys_drv.F90
ec_phys_drv_ad.F90 ec_phys_drv_tl.F90 ec_phys_tl.F90
phys_radi/raddrv.F90
setup/suorog.F90 suslad3.F90 suspecb.F90 suspecg2.F90
```

Files deleted(IFS):

```
module/yomgeomad.F90
```

Tomas Wilhelmsson - nat_CY43R1_single - BIT IDENTICAL

Enable full build in single precision (IFS-69)

USE kind JPRD in ODB to enable a full build of IFS where kind JPRB is single precision

Files modified(ENKF):

module/enkf_utils.F03
programs/master_enkf.F03

Files modified(IFS):

canari/cacova.F90 caifcl.F90 camelo.F90 canaco.F90 cancer.F90 cantik.F90
caraco.F90 carcfo.F90 caredo.F90 castor.F90 catrma.F90 caviso.F90 cavodk.F90
common/yomdb_vars.h
function/fcobs.func.h
gbrad/gbrad_get.F90 gbrad_get_ad.F90 gbrad_get_tl.F90 gbrad_put.F90
gbrad_put_tl.F90
module/varbc_airep.F90 varbc_allsky.F90 varbc_gbrad.F90 varbc_rad.F90
varbc_rsonde.F90 varbc_setup.F90 varbc_sfcobs.F90 varbc_tcvv.F90 varbc_to3.F90
yomdb.F90 yomlocs.F90
mwave/mwave_put.F90 mwave_put_tl.F90
nemo/nemoaddflds.F90
obs_preproc/addoer.F90 airep_flight_phase.F90 ascatin.F90 ascatsm_cdfmatch.F90
black.F90 blackhat.F90 btemdup.F90 btemthn.F90 checkairpos.F90 comtc.F90
conventional_ob.F90 decis.F90 dupli.F90 dupli_no_sq.F90 errstat.F90 ersin.F90
fgchk.F90 fgwnd.F90 first.F90 flgdco.F90 flgdmx.F90 flgdse.F90 flgtst.F90
gefger.F90 geosrin.F90 gersta_v.F90 getsete.F90 kscatin.F90 levelcgeos_ob.F90
movpl.F90 movpl_no_sq.F90 new_thinn.F90 new_thinn_rad_reflec.F90
new_thinn_radar.F90 new_thinner.F90 new_thinner_no_sq.F90 nflgdse.F90
ngedeve.F90 ngedeve2.F90 ngedsta.F90 ngenada.F90 ngereve.F90 ngereve2.F90
ngersta.F90 nscatin.F90 obatabs.F90 obinssp.F90 oscatin.F90 ozone_ob.F90
p_4_sort.F90 pertobs_interchan_corr.F90 pertobs_satob_corr.F90
pertobs_uncorr.F90 post_prsta.F90 post_thinner.F90 ppvaf1.F90 pre_prsta.F90
pre_thinn_rad_reflec.F90 pre_thinn_radar.F90 pre_thinner.F90 prech.F90
prlmchk.F90 prsta.F90 qscatin.F90 radlcin.F90 rd_obs_boxes.F90 rdbflr.F90
readoba.F90 redgl.F90 redgl_no_sq.F90 redgps.F90 redml.F90 redml_no_sq.F90
redmo.F90 redor.F90 redprof.F90 redrp.F90 redrp1.F90 redrp1_no_sq.F90
redrp_no_sq.F90 redsl.F90 redsm.F90 redsm_no_sq.F90 redtp.F90 redts.F90
redun.F90 reini.F90 rejmv.F90 reo3sin.F90 repra.F90 satamin.F90 satemis.F90
satob_ob.F90 satobin.F90 scaqc.F90 scat_ob.F90 screen.F90 screen_final.F90
screen_timeslot.F90 sekf_prep_ascat.F90 sekf_prep_smos.F90 selec.F90 settc.F90
setup_tovscv.F90 sortscatidx.F90 stord.F90 suobarea.F90 suobsaddr.F90
suobscor.F90 tempinmf.F90 thiair.F90 thibox.F90 thin_red_presort.F90
tovshris.F90 tovslris.F90 updobs.F90 upecma.F90 verco.F90
oops/obsvec_mod.F90
op_obs/amv_oberr.F90 ch4bcor.F90 departure_jo.F90 departure_joad.F90
departure_jotl.F90 exheiz2p.F90 exheiz2p_lidar.F90 hinth.F90 hjo.F90 hop.F90
hqscatt.F90 hradp_ml.F90 hradp_ml_ad.F90 hretr_aeolus.F90 hretr_conv.F90
hretr_rad.F90 mw_clearsky_screen.F90 mw_clearsky_screen_ecdecis.F90
mw_clearsky_screen_mfdecis.F90 obsop_composition.F90 obsop_rad.F90 radlcemis.F90
radlcobe.F90 reo3bcor.F90 rtl_screen.F90 sat_avg_stdev_filter.F90
raingg/raingg_get.F90 raingg_get_ad.F90 raingg_get_tl.F90 raingg_put.F90
raingg_put_tl.F90
smos/smos_process.F90 smos_update.F90
var/ecset.F90 gp_nearest.F90 gp_ssmi.F90 gp_ssmi_inv.F90 monitoring_summary.F90 setqccma.F90
suamv.F90 sulimb.F90 surad.F90 sureo3.F90

Files modified(IFSAUX):

module/bytes_io_mod.F90 eggangles.F90 eggpack.F90 local_trafos.F90 strhandler_mod.F90 yomhook.F90

Files modified(OBSTAT):

src/iniodb.F90

Files modified(ODB):

aux/cma_flperr.F90 cma_prt_stat.F90 codb2netcdf.F90 f_odb_layer.F90
bufr2odb/b2o_convert_cris.F90 b2o_convert_gch1.F90 b2o_convert_gch2.F90
b2o_convert_gch3.F90 b2o_convert_gch4.F90 b2o_convert_gch5.F90
b2o_convert_iasi.F90 b2o_convert_rain_gauges.F90 b2o_convert_rain_rates.F90
fy3_corrections.F90 geosangl.F90 get_templateidx.F90 get_varindex.F90
satobfreq.F90 satobfreq_bynam.F90
cma2odb/abortdb.F90 addpoolsdb.F90 addviewdb.F90 allocate_msg.F90
array_bounds_db.F90 bool_setparam_obsort.F90 buoctmap.F90
check_duplicates_odb.F90 check_linksdb.F90 check_namelist.F90 closedb.F90
copie_radsta.F90 crack_bufhr_hdr.F90 create_averaged_values.F90
create_averaged_values_over_angles.F90 ctxgetdb.F90 ctxinitdb.F90 ctxprint.F90
ctxputdb.F90 distribtype_ssmi_rain.F90 distribute_odb.F90 distributedb.F90
dotransf.F90 dump_namelist.F90 finish_obsort.F90 freemem_obsort.F90
gather4poolmask.F90 gen_timeslot_data.F90 get_new_rs_trh_bias.F90
get_rs_t_bias.F90 getactivedb.F90 getatdb.F90 getdb.F90 getpoolsdb.F90
globe_split_odb.F90 grid_nearest.F90 include_file.F90 init_common.F90
init_odb_tables.F90 init_odbtools.F90 initmdb.F90 int_setparam_obsort.F90
intarr_setparam_obsort.F90 intcolddb.F90 isopendb.F90 loaddb.F90 makedesc.F90
maketimeslot_index.F90 mapdb.F90 mapvardb.F90 matchupdb.F90 memory_usage.F90
merge_clusters_odb.F90 mypoolsdb.F90 o2e_initlong.F90 obs_sort_odb.F90
obsproc_init.F90 opendb.F90 posnam3.F90 print_obs_odb.F90 print_split_odb.F90
print_wtfuncs.F90 prtarraydb.F90 putatdb.F90 putdb.F90 read_namelist.F90
ref_time.F90 reprod_seqno.F90 revmatchupdb.F90 setactivedb.F90 setbaire.F90
setblans.F90 setblshi.F90 setblsno.F90 setbpaob.F90 setbsato.F90 setbsats.F90
setbscat.F90 setbseas.F90 setbsshi.F90 setbssht.F90 setbsslt.F90 setbssme.F90
setbssmi.F90 setbsspa.F90 setbsspw.F90 setbssro3.F90 setbufhr.F90 setbufhrd.F90
setbufhrf.F90 setbuppa.F90 setcombu.F90 setcomcm.F90 setpoolmaskdb.F90
setup_obsort.F90 shuffle.F90 shuffle_odb.F90 shuffle_rest.F90 shuffledb.F90
sort_prepare_odb.F90 srgevent.F90 store_enda.F90 storedb.F90
string_setparam_obsort.F90 subuocp.F90 suinout.F90 sunumc1.F90 swapoutdb.F90
syncdb.F90 tslotdb.F90 tslotindex.F90 unmapdb.F90 unsetpoolmaskdb.F90
update_ddd_odb.F90 update_desc.F90 update_obsdb.F90 updcal2.F90 wtfunc.F90
wtfunc_obsort.F90 xchangedatadb.F90 xchangedatadistdb.F90
include/fodb.h fodbmp.h fodbmp1.h fodbmp2.h fodbutil.h odb_it_members.h
stmfun.func.h timerdefs.func.h
interface/abortdb.h addpoolsdb.h allocate_msg.h apply_poolmasking.h
bool_setparam_obsort.h bsslzr_odb.h check_duplicates_odb.h check_namelist.h
ckeysort.h closedb.h cmdb_reg.h cmdb_vecreg.h crack_bufhr_hdr.h create_iomap.h
create_statid.h ctxgetdb.h ctxinitdb.h ctxputdb.h distribtype_ssmi_rain.h
distribute_odb.h distributedb.h dump_namelist.h finish_obsort.h freemem_obsort.h
fwrite_iomap.h gauaw_odb.h gen_timeslot_data.h getatdb.h getdb.h
globe_split_odb.h include_file.h init_common.h initmdb.h int_collect.h
int_setparam_obsort.h intarr_setparam_obsort.h intcolddb.h iolockdb.h lnkdb.h
lnkdb2.h loaddb.h map_reporttype.h map_ssmi_rain.h mapdb.h mapvardb.h
memory_usage.h merge_clusters_odb.h msgpass_loaddata.h msgpass_loadobs.h
msgpass_storedata.h msgpass_storeobs.h obs_sort_odb.h opendb.h posnam3.h

print_obs_odb.h print_split_odb.h print_wtfuncs.h putatdb.h putdb.h
 read_namelist.h ref_time.h rlnkdb.h rlnkdb2.h setactivedb.h setup_obsort.h
 shuffle_odb.h shuffle_rest.h shuffledb.h sort_prepare_odb.h storedb.h
 string_setparam_obsort.h swapoutdb.h uniquenumdb.h update_obsdb.h updcals.h
 wtfunc.h wtfunc_obsort.h xchangedatadb.h xchangedatadistdb.h
 lib/Ctxprint.F90 append_num.F90 apply_poolmasking.F90 bsslzr_odb.F90
 ckeysort.F90 codb_distribute.F90 create_iomap.F90 create_statid.F90
 datastream.F90 fodb_checkviewreg.F90 fodb_propagate_env.F90 fwrite_iomap.F90
 gauaw_odb.F90 iolockdb.F90 lnkdb.F90 lnkdb2.F90 msgpass_loaddata.F90
 msgpass_loadobs.F90 msgpass_storedata.F90 msgpass_storeobs.F90
 odb_array_dump.F90 odb_wrapper.F90 rlnkdb.F90 rlnkdb2.F90 uniquenumdb.F90
 module/b2o_common.F90 bufr_module.F90 combufr.F90 combufrc.F90 combufrn.F90
 comkey.F90 comsec0.F90 comsec1.F90 comsec2.F90 comsec3.F90 comsec4.F90
 comsup.F90 context.F90 dbase_kinds_mod.F90 dbase_view_mod.F90 getval_module.F90
 init_module.F90 iodist.F90 no_var_module.F90 odb.F90 odb_module.F90
 odb_module8.F90 odbaccess_module.F90 odbgetput.F90 odbi.F90 odbio_msgpass.F90
 odbiomap.F90 odbmp.F90 odbnetcdf.F90 odbprint.F90 odbshared.F90 odbsort.F90
 odbstat.F90 odbutil.F90 parbufr.F90 parconst.F90 pariod.F90 parnumc.F90
 stackdb.F90 str.F90 yomboctp.F90 yomciod.F90 yomiod.F90 yomkeys.F90 yommpp.F90
 yomnumc.F90 yomobsmap.F90 yomparallel.F90 yomper.F90 yomseqno.F90 yomsizeof.F90
 yomsort.F90 yomstdin.F90 yomvirt.F90 yomwt.F90
 pandor/extrtovs/extr_init_1c.F90 extrtovs/extr_lecdata_1c.F90
 fcq/fcqodb_init.F90 fcq/fcqodb_pilot.F90 fcq/fcqodb_pilotverif.F90
 fcq/fcqodb_solomm.F90 fcq/fcqodb_solverif.F90 fcq/fcqodb_synop.F90
 fcq/fcqodb_temp.F90 fcq/fcqodb_tempverif.F90 fcq/man_fcq_bdm_fus.F90
 fcq/man_orders.F90 mandalay/manda_util.F90 module/bator_datetime_mod.F90
 module/bator_decodbufr_mod.F90 module/bator_decodgrib_mod.F90
 module/bator_decodnetcdf_mod.F90 module/bator_ecritures_mod.F90
 module/bator_impr_mod.F90 module/bator_init_mod.F90
 module/bator_lectures_mod.F90 module/bator_module.F90
 module/bator_pool_balance_mod.F90 module/bator_rad_postproc_mod.F90
 module/bator_saisies_mod.F90 module/bator_util_mod.F90 module/extr_module_1c.F90
 module/fcqodb_module.F90
 tools/Adjust_distribid.F90 Adjust_seqnos.F90 Bator.F90 Bufr2odb.F90 Controldb.F90 Create_
 enkf.F90 Create_fcdiag.F90 Create_index.F90 Create_odb.F90 Ecma2ecmascr_copy.F90 Fbdecode.F90
 Fc_sens_obs.F90 Fcqodb.F90 Fodbcalc.F90 Fodbsql.F90 Fscheduler.F90 Kind.F90 Mandalay.F90
 Odb2_to_Odb1_ralt.F90 Odb2netcdf.F90 Odbcompress.F90 Odbdiff.F90 Odbgnuplot.F90 Odbless.F90
 Odbtools.F90 Pertcma.F90 Plotobs.F90 Ps_bias_compress.F90 Revert_seqnos.F90 Simulobs2odb.F90
 Split_bufr_data.F90 Split_bufr_per_subtype.F90 Split_timeslot_bufr_data.F90 Viewer.F90

Files modified(SATRAD):

interface/calc_azimuth.h distance_between.h obs_az_ang_cal_conic.h satmidpoint.h
 module/bufr_grid_screen_keep.F90
 pre_screen/calc_azimuth.F90 distance_between.F90
 programs/bufr_grid_screen.F90 bufr_screen_1c_allsky.F90 bufr_screen_amsr2_1d.F90 bufr_
 screen_amsre_1d.F90 bufr_screen_cris.F90 bufr_screen_gmi_1d.F90 bufr_screen_iasi.F90
 bufr_screen_mwri_1d.F90 bufr_screen_nexrad.F90 bufr_screen_opera.F90 bufr_screen_
 smos.F90 bufr_screen_ssmi_1d.F90 bufr_screen_ssmis_1d.F90 bufr_screen_synop_rain_
 gauges.F90 bufr_screen_tmi_1d.F90 bufr_screen_windsat_1d.F90 geos_prescreen.F90 obs_
 az_ang_cal_conic.F90 reo3_prescreen.F90 satmidpoint.F90 screen_1c.F90

Files modified(SCRIPTS):

build/arch/Makefile.in.XC30_cce arch/Makefile.in.cray_XC30_cce

Files modified(SSA):

common/stmfunc.func.h
plot/print_summary.F90
sub/biasrms.F90 feedback_odb.F90 fg2obs.F90 init_surfbbody_feedback.F90
initial_rejection.F90 land_obs.F90 oiinc.F90 oiupd.F90 redundant_obs.F90
scan_cma_odb.F90
util/calc_distance.F90

Files modified(TRANS):

module/suleg_mod.F90 tpm_fields.F90

Files modified(WAM):

Wam_oper/grfield.F90 rfl4wam.F90 wam2odb.F90

Willem Deconinck - nawd_CY43R1_develop - BIT IDENTICAL

Compatibility with Atlas 0.8.0 (ifs-support CY43R3) (IFS-71)

As part of ifs-support CY43R3, Atlas will be upgraded to version 0.8.0 . One file needs changing in IFS:
code:none ifs/su0yoma.F90 code This file is changed in code:none Perforce changelist 353400 code available
in branch code:none nawd_CY43R1_develop code

Files created(IFS):

module/yom_atlas_ifs.F90

Files created(SCRIPTS):

gen/groupid=58.tables
sms_an/odb2odb1_mwhs2.sms odb2odb1_mwts2.sms odb2odb1_saphir.sms
sms_nemo/npertgen_cpl.sms

Files modified(IFS):

adiab/cpedia.F90 gp_derivatives.F90
control/reresf.F90
module/varbc_pred.F90 yomios.F90
mwave/mwave_emis.F90 mwave_get_tl.F90 mwave_obsop_traj.F90
namelist/namios.nam.h
op_obs/departure_jo.F90 hop.F90 hretr_rad.F90 obshorad.F90
phys_ec/surftstp_layer.F90
phys_radi/rrtm_kgb1.F90 srtm_kgb16.F90 su_c11clim.F90 su_c12clim.F90
su_c22clim.F90 su_ccl4clim.F90 su_ch4clim.F90 su_co2clim.F90 su_gch4clim.F90
su_gco2clim.F90 su_gozoclim.F90 su_mch4clim.F90 su_mcica.F90 su_mco2clim.F90
su_mozoclim.F90 su_n2oclim.F90 su_no2clim.F90 su_ozoclim.F90 suecozc.F90
pp_obs/pos.F90
setup/su0yoma.F90 suafn1.F90 suatlas_mesh.F90 suct0.F90 suios.F90
utility/wrresf.F90
var/evcost.F90 sujb.F90

Files modified(IFSAUX):

utilities/gentrbk.F90

Files modified(NEMO):

NEMOGCM/NEMO/LIM_SRC_2/limrst_2.F90 NEMO/OPA_SRC/DIA/diawri.F90
NEMO/OPA_SRC/DOM/domain.F90 NEMO/OPA_SRC/IOM/in_out_manager.F90
NEMO/OPA_SRC/IOM/iom.F90 NEMO/OPA_SRC/IOM/iom_nf90.F90
NEMO/OPA_SRC/IOM/restart.F90 NEMO/OPA_SRC/LBC/lib_mpp.F90
NEMO/OPA_SRC/OBS/diaobs.F90
coupled/src/nemointerface/nemogcmcoup_init.F90
testscripts/namelist/namelist.nemo.ORCA025_Z75 namelist/namelist.nemo.ORCA1_Z42
namelist/namelist.nemo.ORCA1_Z46 namelist/namelist.nemo.ORCA1_Z75

Files modified(SCRIPTS):

def/aeolus.py fc.def longrange.def
gen/L1B_GT2odb2 add_cams_climerr aeolus_l2b_prepare coldstart_lakes ens_cal
ens_cal_rad ens_errors fetch_GRND_TRACK fetch_L2BP_inputs get_linco_initcond
getenkf getini getmars ifstraj inter_fp l2b_bufnr_to_odb l2b_ee_to_bufnr
mkabs_odbtools mkidta_ocean mknam_fp model modeleps_nemo odb2odb1 premwimg
prep_flux prep_initcond restart_999 run_parallel sstana transfer_auxmet
nemo/namelist.nemo.ORCA025_Z75 namelist.nemo.ORCA1_Z42 namelist.nemo.ORCA1_Z46
namelist.nemo.ORCA1_Z75 namelist_ice.nemo.ORCA025 nemo.h prep_nemoIFS
oce/chunk.h em_create_veps model_nemoIFS
osm/extract_forcing.ksh
sens/J1.sms sfml.sms sfpl.sms sfsfc.sms
sms/climplot_save.sms createfws.sms get_aeolus.sms getae.sms hl.sms ifs.sms
inidata.sms ml.sms nemo_tools.sms p4setup.sms prep_tcyd.sms pt.sms pv.sms
rmfdb.sms
sms_an/4dvar.sms anwave.sms b2otools.sms black.sms bufr2odb.sms cleanodb.sms
convert_obsgrp.sms ens_cal.sms ens_errors.sms ens_fetch_fields.sms
ens_stats_gather.sms ens_stats_mem.sms fetch_jb_fields_mem.sms fetcherr.sms
fetchmars.sms mergebufnr.sms obstat_archive.sms odb2odb1.sms
prelcrad_iasi_split.sms pregeos.sms preobs.sms prereo3.sms slwet.sms
update_psbias.sms update_rstrhbias.sms
sms_nemo/narcobs.sms ncheckfluxweights.sms nchecksicweights.sms
nchecksstweights.sms nchecksstweightscpl.sms ncheckwamweights.sms
nemoatmintsst.sms nemoini.sms nemoqc.sms nemoreshape.sms nfdbk2odb_monthly.sms
nfluxinter.sms nfluxinteraccum.sms nfluxintercldcov.sms nfluxinterqt10.sms
nfluxinteruv10.sms ngetsstcpl.sms ninner.sms ninner_ice.sms nomona.sms
nscripgridssic.sms nsstinter.sms nwaminter.sms nwaminter_nomask.sms
obsmonthly.sms obsstats.sms prepicenemo.sms
sms_oc/cpmodel_nemo.sms extra_arc.sms iniatmos.sms sc_tools.sms wmem_archive.sms
sms_osm/surf.sms
wav/wam_input wave_getrst wave_setup_an

Files modified(SSA):

util/setcomssa.F90

Files modified(TRANS):

external/trans_end.F90 vordiv_to_uv.F90

Files modified(WAM):

Wam_oper/getspec.F getstress.F mpuserin.F outwspec.F readfl.F readstress.F
savspec.F savstress.F wamodel.F writefl.F writestress.F
module/yowcout.F yowgribhd.F yowtext.F

Willem Deconinck - nawd_CY43R1_develop - BIT IDENTICAL

Changes to trans for MIR (IFS-72)

MIR requires a few changes to trans in order to compile and run in configurations not tested by IFS. Files changed are: code ifsaux/utilities/gentrbk.F90 trans/external/trans_end.F90 trans/external/vordiv_to_uv.F90 code These changes can be found in code Perforce changelist 353484 code in Perforce branch code nawd_CY43R1_develop code

Files created(IFS):

module/yom_atlas_ifs.F90

Files created(SCRIPTS):

gen/groupid=58.tables

sms_an/odb2odb1_mwhs2.sms odb2odb1_mwts2.sms odb2odb1_saphir.sms

sms_nemo/npertgen_cpl.sms

Files modified(IFS):

adiab/cpedia.F90 gp_derivatives.F90

control/reresf.F90

module/varbc_pred.F90 yomios.F90

mwave/mwave_emis.F90 mwave_get_tl.F90 mwave_obsop_traj.F90

namelist/namios.nam.h

op_obs/departure_jo.F90 hop.F90 hretr_rad.F90 obshorad.F90

phys_ec/surftstp_layer.F90

phys_radi/rrtm_kgb1.F90 srtm_kgb16.F90 su_c11clim.F90 su_c12clim.F90

su_c22clim.F90 su_ccl4clim.F90 su_ch4clim.F90 su_co2clim.F90 su_gch4clim.F90

su_gco2clim.F90 su_gozoclim.F90 su_mch4clim.F90 su_mcica.F90 su_mco2clim.F90

su_mozoclim.F90 su_n2oclim.F90 su_no2clim.F90 su_ozoclim.F90 suecozc.F90

pp_obs/pos.F90

setup/su0yoma.F90 suafn1.F90 suatlas_mesh.F90 suct0.F90 suios.F90

utility/wrresf.F90

var/evcost.F90 sujb.F90

Files modified(IFS AUX):

utilities/gentrbk.F90

Files modified(NEMO):

NEMOGCM/NEMO/LIM_SRC_2/limrst_2.F90 NEMO/OPA_SRC/DIA/diawri.F90

NEMO/OPA_SRC/DOM/domain.F90 NEMO/OPA_SRC/IOM/in_out_manager.F90

NEMO/OPA_SRC/IOM/iom.F90 NEMO/OPA_SRC/IOM/iom_nf90.F90

NEMO/OPA_SRC/IOM/restart.F90 NEMO/OPA_SRC/LBC/lib_mpp.F90

NEMO/OPA_SRC/OBS/diaobs.F90

coupled/src/nemointerface/nemogcmcoup_init.F90

testscripts/namelists/namelist.nemo.ORCA025_Z75 namelists/namelist.nemo.ORCA1_Z42

namelists/namelist.nemo.ORCA1_Z46 namelists/namelist.nemo.ORCA1_Z75

Files modified(SCRIPTS):

def/aeolus.py fc.def longrange.def
gen/L1B_GT2odb2 add_cams_climerr aeolus_l2b_prepare coldstart_lakes ens_cal
ens_cal_rad ens_errors fetch_GRND_TRACK fetch_L2BP_inputs get_linco_initcond
getenkf getini getmars ifstraj inter_fp l2b_buftr_to_odb l2b_ee_to_buftr
mkabs_odbtools mkidta_ocean mknam_fp model modeleps_nemo odb2odb1 premwimg
prep_flux prep_initcond restart_999 run_parallel sstana transfer_auxmet
nemo/namelist.nemo.ORCA025_Z75 namelist.nemo.ORCA1_Z42 namelist.nemo.ORCA1_Z46
namelist.nemo.ORCA1_Z75 namelist_ice.nemo.ORCA025 nemo.h prep_nemoIFS
oce/chunk.h em_create_veps model_nemoIFS
osm/extract_forcing.ksh
sens/J1.sms sfml.sms sfpl.sms sfsfc.sms
sms/climplot_save.sms createfws.sms get_aeolus.sms getae.sms hl.sms ifs.sms
inidata.sms ml.sms nemo_tools.sms p4setup.sms prep_tcyc.sms pt.sms pv.sms
rmfdb.sms
sms_an/4dvar.sms anwave.sms b2otools.sms black.sms bufr2odb.sms cleanodb.sms
convert_obsgrout.sms ens_cal.sms ens_errors.sms ens_fetch_fields.sms
ens_stats_gather.sms ens_stats_mem.sms fetch_jb_fields_mem.sms fetcherr.sms
fetchmars.sms mergebufr.sms obstat_archive.sms odb2odb1.sms
prelcrad_iasi_split.sms pregeos.sms preobs.sms prereo3.sms slwet.sms
update_psbias.sms update_rstrhbias.sms
sms_nemo/narcobs.sms ncheckfluxweights.sms nchecksicweights.sms
nchecksstweights.sms nchecksstweightscpl.sms ncheckwamweights.sms
nemoatmintsst.sms nemoini.sms nemoqc.sms nemoreshape.sms nfdbk2odb_monthly.sms
nfluxinter.sms nfluxinteraccum.sms nfluxintercldcov.sms nfluxinterqt10.sms
nfluxinteruv10.sms ngetsstcpl.sms ninner.sms ninner_ice.sms nomona.sms
nscripgridssic.sms nsstinter.sms nwaminter.sms nwaminter_nomask.sms
obsmonthly.sms obsstats.sms prepicenemo.sms
sms_oc/cpmodel_nemo.sms extra_arc.sms iniatmos.sms sc_tools.sms wmem_archive.sms
sms_osm/surf.sms
wav/wam_input wave_getrst wave_setup_an

Files modified(SSA):

util/setcomssa.F90

Files modified(TRANS):

external/trans_end.F90 vordiv_to_uv.F90

Files modified(WAM):

Wam_oper/getspec.F getstress.F mpuserin.F outwspec.F readfl.F readstress.F
savspec.F savstress.F wamodel.F writefl.F writestress.F
module/yowcout.F yowgribhd.F yowtext.F

Willem Deconinck - nawd_CY43R1_develop - BIT IDENTICAL

Reading of longer file paths (IFS-73)

In some files, external data is read, but the string defining the file paths are only 80 characters long. I propose to increase length to 256. Files that are required to change are: code ifs/phys_radi/rrtm_kgb1.F90 ifs/phys_radi/srtm_kgb16.F90 ifs/phys_radi/su_c11clim.F90 ifs/phys_radi/su_c12clim.F90 ifs/phys_radi/su_c22clim.F90

ifs/phys_radi/su_ccl4clim.F90 ifs/phys_radi/su_ch4clim.F90 ifs/phys_radi/su_co2clim.F90 ifs/phys_radi/su_gch4clim.F90
ifs/phys_radi/su_gco2clim.F90 ifs/phys_radi/su_gozoclim.F90 ifs/phys_radi/su_mch4clim.F90 ifs/phys_radi/su_-
mcica.F90 ifs/phys_radi/su_mco2clim.F90 ifs/phys_radi/su_mozoclim.F90 ifs/phys_radi/su_n2oclim.F90 ifs/phys_-
radi/su_no2clim.F90 ifs/phys_radi/su_ozoclim.F90 ifs/phys_radi/suecozc.F90 code The changes can be found in
code Perforce changelist 351099 code in branch code nawd_CY43R1_develop code

Files created(IFS):

module/yom_atlas_ifs.F90

Files created(SCRIPTS):

gen/groupid=58.tables
sms_an/odb2odb1_mwhts2.sms odb2odb1_mwhts2.sms odb2odb1_saphir.sms
sms_nemo/npertgen_cpl.sms

Files modified(IFS):

adiab/cpedia.F90 gp_derivatives.F90
control/reresf.F90
module/varbc_pred.F90 yomios.F90
mwave/mwave_emis.F90 mwave_get_tl.F90 mwave_obsop_traj.F90
namelist/namios.nam.h
op_obs/departure_jo.F90 hop.F90 hretr_rad.F90 obshorad.F90
phys_ec/surftstp_layer.F90
phys_radi/rrtm_kgb1.F90 srtm_kgb16.F90 su_c11clim.F90 su_c12clim.F90
su_c22clim.F90 su_ccl4clim.F90 su_ch4clim.F90 su_co2clim.F90 su_gch4clim.F90
su_gco2clim.F90 su_gozoclim.F90 su_mch4clim.F90 su_mcica.F90 su_mco2clim.F90
su_mozoclim.F90 su_n2oclim.F90 su_no2clim.F90 su_ozoclim.F90 suecozc.F90
pp_obs/pos.F90
setup/su0yoma.F90 suafn1.F90 suatlas_mesh.F90 suct0.F90 suios.F90
utility/wrresf.F90
var/evcost.F90 sujb.F90

Files modified(IFS AUX):

utilities/gentrbk.F90

Files modified(NEMO):

NEMOGCM/NEMO/LIM_SRC_2/limrst_2.F90 NEMO/OPA_SRC/DIA/diawri.F90
NEMO/OPA_SRC/DOM/domain.F90 NEMO/OPA_SRC/IOM/in_out_manager.F90
NEMO/OPA_SRC/IOM/iom.F90 NEMO/OPA_SRC/IOM/iom_nf90.F90
NEMO/OPA_SRC/IOM/restart.F90 NEMO/OPA_SRC/LBC/lib_mpp.F90
NEMO/OPA_SRC/OBS/diaobs.F90
coupled/src/nemointerface/nemogcmcoup_init.F90
testscripts/namelists/namelist.nemo.ORCA025_Z75 namelists/namelist.nemo.ORCA1_Z42
namelists/namelist.nemo.ORCA1_Z46 namelists/namelist.nemo.ORCA1_Z75

Files modified(SCRIPTS):

def/aeolus.py fc.def longrange.def
gen/L1B_GT2odb2 add_cams_climerr aeolus_l2b_prepare coldstart_lakes ens_cal
ens_cal_rad ens_errors fetch_GRND_TRACK fetch_L2BP_inputs get_linco_initcond
getenkf getini getmars ifstraj inter_fp l2b_buftr_to_odb l2b_ee_to_buftr
mkabs_odbtools mkidta_ocean mknam_fp model modeleps_nemo odb2odb1 premwimg
prep_flux prep_initcond restart_999 run_parallel sstana transfer_auxmet

nemo/namelist.nemo.ORCA025_Z75 namelist.nemo.ORCA1_Z42 namelist.nemo.ORCA1_Z46
namelist.nemo.ORCA1_Z75 namelist_ice.nemo.ORCA025 nemo.h prep_nemoIFS
oce/chunk.h em_create_veps model_nemoIFS
osm/extract_forcing.ksh
sens/J1.sms sfml.sms sfpl.sms sfsfc.sms
sms/climplot_save.sms createfws.sms get_aeolus.sms getae.sms hl.sms ifs.sms
inidata.sms ml.sms nemo_tools.sms p4setup.sms prep_tcyd.sms pt.sms pv.sms
rmfdb.sms
sms_an/4dvar.sms anwave.sms b2otools.sms black.sms bufr2odb.sms cleanodb.sms
convert_obsgroup.sms ens_cal.sms ens_errors.sms ens_fetch_fields.sms
ens_stats_gather.sms ens_stats_mem.sms fetch_jb_fields_mem.sms fetcherr.sms
fetchmars.sms mergebufr.sms obstat_archive.sms odb2odb1.sms
prelcrad_ias_i_split.sms pregeos.sms preobs.sms prereo3.sms slwet.sms
update_psbias.sms update_rstrhbias.sms
sms_nemo/narcobs.sms ncheckfluxweights.sms nchecksicweights.sms
nchecksstweights.sms nchecksstweightscpl.sms ncheckwamweights.sms
nemoatmintsst.sms nemoini.sms nemoqc.sms nemoreshape.sms nfdbk2odb_monthly.sms
nfluxinter.sms nfluxinteraccum.sms nfluxintercldcov.sms nfluxinterqt10.sms
nfluxinteruv10.sms ngetsstcpl.sms ninner.sms ninner_ice.sms nomona.sms
nscripgridssic.sms nsstinter.sms nwaminter.sms nwaminter_nomask.sms
obsmonthly.sms obsstats.sms prepicenemo.sms
sms_oc/cpmodel_nemo.sms extra_arc.sms iniatmos.sms sc_tools.sms wmem_archive.sms
sms_osm/surf.sms
wav/wam_input wave_getrst wave_setup_an

Files modified(SSA):

util/setcomssa.F90

Files modified(TRANS):

external/trans_end.F90 vordiv_to_uv.F90

Files modified(WAM):

Wam_oper/getspec.F getstress.F mpuserin.F outwspec.F readfl.F readstress.F
savspec.F savstress.F wamodel.F writefl.F writestress.F
module/yowcout.F yowgribhd.F yowtext.F