

OOPS: ACTION CLEANING.

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Version V6: basis of study = CY39.

1 Introduction.

There are currently around 500 modules and 10000 variables in ARPEGE/IFS. It is desirable to reduce the number of modules and to gather variables into thematics (new derivated types structures).

This document tries to say how the different module variables will be shared into new mixed modules during the OOPS project (basis = CY39). Additionally, directory arp/module can be shared into different module directories (example module_adiab, module_var). Some parts have not been completely filled (need help of experienced people): physics, CANARI, observation processing and screening, variational aspects and cost functions.

What to be found in the new mixed modules:

- Type definition.
- Variable declaration.
- Set-up routine.
- Array allocation routine.
- Array deallocation routine.

2 List of thematics.

We define two levels of thematics:

- ADIAB: adiabatic aspects (advection, semi-implicit scheme, ICI scheme, horizontal diffusion).
 - DYNA (resp. EDYNA for LELAM): dynamics, level A (cf. current SUDYNA). Not geometry-dependent.
 - DYNB (resp. EDYNB for LELAM): dynamics, level B (cf. current SUDYN). Geometry-dependent.
 - INTDYN: internal model calculations (adiabatic part).
 - LSFORC: forcings in 1D model.
 - PC: iterative centered implicit schemes (still called predictor-corrector schemes).
 - PVCH: quantities controlling prognostic variables change (example: Eulerian treatment of orography in continuity and temperature equations).
 - RFRIC: Rayleigh friction.
 - RUBC: upper radiative condition (key LRUBC).
 - SHDI (resp. ESHDI for LELAM): spectral horizontal diffusion scheme.
 - SI (resp. ESI for LELAM): semi-implicite scheme, SI treatment of linear terms.
 - SLAG: semi-Lagrangian advection and interpolator (all what is not in topic EINT, including SL buffers).
 - SLHD: semi-Lagrangian horizontal diffusion (variables used in the grid-point discretisation, more precisely in the semi-Lagrangian interpolator to control diffusion).
 - SPNG: new sponge at the top of the model.
 - SPONGE: old (obsolescent) sponge at the top of the model.
 - VDISC: vertical discretisation.
- ASSIM: assimilation aspects (3D-VAR, 4D-VAR, Kalman filter, optimal interpolation), sensitivity, ensemble forecast.
 - 1DVAR: 1DVAR applications.
 - AVARC: AVARC correction.
 - CANARI: CANARI optimal interpolation.
 - ENKF: ensemble Kalman filter.
 - MODERR: model error in 4D-VAR.
 - SENS: sensitivity (cf. conf 801).
 - SKF: simplified Kalman filter.
 - VAR: 3D-VAR and 4D-VAR.
 - VARBC: variational bias correction.
 - VAREPS: variable resolution ensemble forecast.
- C9XX: 9xx configurations.
 - C923 (resp. CE923 for LELAM): configuration 923.
 - C931 (resp. CE931 for LELAM): configuration 931.
 - C932: configuration 932.
- CLIMATE: climate model aspects.
 - CLIMA: options for climate models.
 - NUD: nudging (can also go in COUPLING).

- OCOU: ocean coupling for climate models (via OASIS, PRISM, etc..).
- CONTROL: control levels.
 - CTL0: 0-level control.
 - CTL1: 1-level control.
 - CTLVEC: “control vector” structure.
 - CTL: other levels control.
- CORMAS: mass corrector.
 - CORMASF: accurate mass corrector.
 - CORMASS: simplified (cheap) mass corrector (used at ECMWF).
- COSTFUNC: cost functions.
 - EJK: cost function J_k in ALADIN.
 - JB (resp. EJB for LELAM): cost function J_b .
 - JC: cost function J_c .
 - JO: cost function J_o .
 - JQ: cost function J_q .
 - JR (resp. EJR for LELAM): cost function J_r .
- COUPLING: LAM forcing by another model (lateral boundary conditions, spectral nudging, pressure tendency coupling).
 - ELBC0A: variables computed under SU0YOMA. Not geometry-dependent.
 - ELBC0B: variables computed under SU0YOMB. Geometry-dependent.
 - ELBC3: variables computed under CNT3 and CNT4.
- DATAFLOW: dataflow.
 - GFL: GFL dataflow.
 - GMV: GMV and GMVS dataflow.
 - GOMS: GOMS dataflow (for example arrays containing model data interpolated at observation points).
 - GPBUF: grid-point buffers.
 - GPPTR: pointers arrays to locate data in grid-point space arrays.
 - MTRAJ: model trajectory, stored in the direct model, and used in the TL or AD model.
 - OROG: orography.
 - SPARR: spectral arrays.
 - SPPTR (ESPPTR for LAM models): pointers arrays to locate data in spectral space arrays.
 - SURF: surface fields dataflow.
- DIA: diagnostics.
 - ANGM: angular momentum diagnostic.
 - CFU: cumulated fluxes diagnostics.
 - CHET: CHET (physics) diagnostics.
 - CHK: CHKEVO diagnostics.
 - DDH: DDH diagnostics.
 - FPBUF: buffers used in FULL-POS.
 - FPOS (resp. EFPOS for LELAM): FULL-POS (aspects other than FPBUF, EINT, VINT).
 - MCFU: CUF diagnostics.
 - MLPP: model level diagnostics written on file (including ISP).
 - XFU: instantaneous fluxes diagnostics.
- DIM: dimensions.
 - DIM (resp. EDIM for LELAM): dimension variables (other than VDIM or HDIM ones).
 - DIMO: dimension variables for observations.
 - HDIM (resp. EHDIM for LELAM): horizontal dimension variables.
 - VDIM: vertical dimension variables.
- GEOM: horizontal geometry, vertical geometry.
 - CSGEOM: computational sphere or plane projection horizontal geometry.
 - EGEO: horizontal geometry: specific LAM model variables.
 - GSGEOM: horizontal geometry, and in particular geographic space geometry.

- SPGEOM: horizontal geometry for spectral space calculations.
- TEGEOM: time-evolving geometry (for example distance Earth-Sun).
- VGEOM: vertical geometry.
- INITI: initialisation.
 - INI: initialisation.
 - DFI: digital filter initialisation.
- INTERP: horizontal and vertical interpolators.
 - EINT: externalisable part of horizontal interpolators and halo management (interpolation routines, LASCAN, RDSCAN, FPSCAN, SUHOW., SLEXPOL, SLCOMM, SLCSET, SLRSET); externalisable part of 3D interpolators used in the semi-Lagrangian scheme.
 - VINT: externalisable part of vertical interpolators (those used in FULL-POS and in the observation interpolator: most of the pp_obs routines).
- IOFILE: read or write data on files.
 - FA: ARPEGE “FA” files.
 - FNA: file names.
 - GRB: GRIB codes, information for GRIB files.
 - INITC: initial conditions (idealised or real).
 - IOSERV: “IOSERV” software.
 - LFI: LFI files.
 - LOGUNIT: file logical units.
 - OPH: file handling parameters other than file names.
 - PPIO: IO done by PP.. routines (PPOPEN, PPCLOSE, PPFLUSH, PPSTAT).
 - RESTART: restart.
- LINALG: linear algebra, Lanczos algorithm, minimizations.
 - LCZ: Lanczos algorithm (calling LANDR or CONGRAD).
 - MINIM: minimisations (using MIQN3, N1CG1 or CONGRAD).
- OBSA: observation aspects, screening.
 - OBB: observation interpolator (all what is not in topic EINT).
 - OBS: observation processing, screening.
 - ODB: interface for ODB software (can also go in IOFILE).
 - SMOS: SMOS data.
- PARALLEL: parallelisation aspects, distributed memory.
 - DM (resp. EDM for LELAM): parallel (distributed memory) environment.
 - OMP: OpenMp control variables.
- PHYS: physics and physics-dynamics interface.
 - ECPHY: ECMWF physics.
 - ECSPHY: ECMWF simplified physics.
 - FMR15: frozen “cycle 15 version” of the ECMWF radiation scheme.
 - MFPHY: MF physics.
 - MFSPHY: MF simplified physics.
 - PHYDYN1: interface physics-dynamics level 1.
 - PHYDYN2: interface physics-dynamics level 2.
 - RADTC: transmission coefficients for simplified radiation scheme (storage in grid-point space or in Fourier space).
- TRANSF: spectral transforms.
 - TFL (resp. TAL): variables for interface with the TFL (resp. TAL) library.
 - TFOU: variables used in slow Fourier transforms.
- MISC: miscellaneous (generally set-up).
 - AFN: ARPEGE/IFS fields descriptors.
 - ARG: arguments of command line.
 - ACST: astronomical constants (like Earth radius).
 - UCST: universal constants and thermodynamical constants (like π).

- FRCTL: control of frequencies for output on files, diagnostics, mass corrector.
- MIXBC: code under LSMIXBC.
- OPTIM: control of optimisations.
- SPLAPL (ESPLAPL for LAM models): Laplacian operator in spectral space.
- STA: standard atmosphere.
- TIME: time variables (for example initial instant of the model).

Remarks:

- CFU and XFU can be merged into one thema “FLUX”, with one mixed module flux_mod.F90. This new mixed module can contain the former content of type_fluxes.F90.
- Topic DM: an additional subdivision can be done to separate spectral space DM environment, grid-point DM environment, and other DM environment variables (those used in Fourier space or spectral transforms for example).
- Topic EINT: an additional subdivision can be done to separate interpolations (scientific part) and halo management (technical part).
- FPOS and FPBUF: for the time being the different steps of FULL-POS set-up have not been mentioned in the new module. Splitting into a reasonable number of different topics may be discussed but the current set-up is too spread and a more compact set-up is desirable.
- Topic GEOM: contains geometric quantities seen in a restrictive sense; it does not include some dimensions which depend on the mesh-size, on the vertical repartition of levels or on the domain size which have been put in the main topic DIM.
- Geometry object: this notion is something wider than topic GEOM. It includes all geometry-dependent variables, in particular variables referenced in topic GEOM, but also some geometry-dependent dimensions referenced in topic DIM.
- YOMCT0: about variables controlling frequencies of outputs (NFR., NPOSTS to NDHPTS), it is also possible to put them in the topic they refer instead of gathering them in a topic FRCTL.
- Dynamics: for historical reasons, variables controlling dynamics are currently spread among YOMCT0, YOMDYNA and YOMDYN. In the future repartition variables must be spread among topics DYNA (new module DYNA_MOD replacing YOMDYNA/NAMDYNA/SUDYNA) and DYNB (new module DYNB_MOD replacing YOMDYN/NAMDYN/SUDYN). Most of the scalar variables currently in YOMDYN/NAMDYN/SUDYN must be moved in topic DYNA (that will be necessary for reorganisation of other parts of the set-up). There will remain in topic DYNB mostly arrays (the allocation of them will require dimensions computed after the call of SUDYNA), and some quantities depending on horizontal or vertical geometry.
- Physics: there are several possible topics about the level of use of the current variable. For the time being we have distinguished between 3 levels (PHYDYN1, PHYDYN2, and the different EC(S)PHY and MF(S)PHY), but more levels could be considered:
 - level 1: the purely physics-dynamics interface variables. Variables must answer the following questions:
 - * Is there any physics activated? (diabatic or adiabatic run?)
 and, in case of diabatic run:
 - * What set of physics is switched on?
 - * Is physics done at $t + dt$, t or $t - dt$ or split among $t + dt$ and $t - dt$?
 - * For physics done at $t + dt$, how to couple it with the adiabatic model if a PC scheme is switched on?
 - * Is all physics done at the same resolution than dynamics?
 - * Is physics reproducible (results unchanged when NPROC or NPROMA changes)?
 - * Is there a diabatic contribution in continuity equation?
 - * Is there a diabatic contribution in pressure departure variable equation (NH model)?
 The following variables can be considered as “level 1” ones:
 - * YOEPHY: LEPHY, LAGPHY, NEPHY_PCFULL.
 - * YOMARPHY: LMPA, LMSE.
 - * YOMCOAPHY: NPHYINT, NPHYRES.
 - * YOMPHY: LMPHY, NDPSFI, NPHYREP, and maybe also LREASUR.
 - * YOM_PHYS_GRID: environment defining the grid used in physics, if different from the one used in dynamics.
 - * YOMSIMPHL: LSIMPH, and maybe also LTRAJPS, LTRAJPST, LPROCLDTL.
 - * YOMSLPHY: LSLPHY.
 - * YOPHLC: LSPHLC (Buizza physics).
 - * Maybe also LRCOEF in YOMRCOEF.
 - level 2: variables controlling call of one particular physical parameterisation, once a set of physical parameterisations has been choosen. Variables must answer the following questions:
 - * What diabatic processes are switched on?
 - * For activated processes, what parameterisation is chosen?
 - level 3: all the other variables (for example tunable variables used in parameterisations).
- Splitting into topics will also depend on the work currently done about convergence of physics.
- Command line variables: a discussion is still in progress to know how to deal with them. A proposal is to put them in a new namelist NAMARG, but they will remain in their origin module (excepted for TSTEP which must be moved in YOMCT0). List of variables is NCONF, NSTOP, LECMWF, LSLAG, LELAM, CNMEXP (currently in YOMCT0) and TSTEP (YOMDYN). A new variable must be added in NAMARG saying if date and geometry must be read on file frame or namelist.

3 Thematics found in each module.

A new future d.t. (derivated type) variable name is proposed when a lot of individual variables are worth to be gathered in a new structure.

3.1 Modules par.. and per..

```
* parcma.F90      : cf. yomcma.F90
* par_cou.F90     : cf. yom_cpl.F90, yom_inpc.F90.
* pardim.F90      : JPNULNAM: not very interesting variable, why not using NULNAM?
                   other ones: cf. yomdim.F90
* pardimo.F90     : cf. yomdimo.F90
* parerr.F90      : cf. yomoerr.F90
* parersca.F90    : cf. yomersca.F90; some of them are useless.
* parfpos.F90     : JPOSDOM, JPOSLEN, JPOSDIR: cf. yomfpc.F90
                   JPOSCFU, JPOSXFU: cf. yomfpc.F90
                   JPOS3P, JPOS3H, JPOS3TH, JPOS3PV, JPOS3S, JPOS3I: cf. yomfpc.F90
                   JPOSLE, JPOSGL: cf. yomfpg.F90
                   JPOSERA40, JPOSNOGW, JPOSSCVA, JPOSGHG, JPOSGHGFLX, JPOSTRAC, JPOSTRACFLX,
                   JPOSGRG, JPOSGRGFLX, JPOSAERO..., JPOSUVP, JPOSVX2, JPOSFSU, JPOSSGP,
                   JPOSPHY, JPOS3DF, JPOS2DF, JPOSDYN: cf. yomafn.F90
* parmcf.F90      : cf. yommcuf.F90
* parmwave.F90    : cf. yommwave.F90
* paronedvar.F90  : cf. yomonedvar.F90
* par_rdlr.F90    : must go in intdyn_mod.F90
* parrrtm.F90     : cf. yoerrt... modules (ECMWF radiation).
* par_sipc.F90    : ocean coupler. See also par_cou.F90
* parsmos.F90     : cf. yomsmos.F90
* parsrtm.F90     : cf. yoerrt... and yoersrt... modules (ECMWF radiation).
```

3.2 Modules ptr..

Current module	Variable	Current namelist	Current setup	future d.t. variable	future OOPS module	Main topic	Sub topic
ptrfp4.F90	YRQGFP	/ /	internal	YRQGFP	fpos_mod.F90	DIA	FPOS
ptrfpb2.F90	all	/ /	arp/fullpos/sufptr2.F90	YRFPB2	fpos_mod.F90	DIA	FPOS
ptrgfu.F90	all	/ /	arp/setup/sucfu.F90	YRPTRCFU	cfu_mod.F90	DIA	CFU
ptrxfu.F90	all	/ /	arp/setup/suxfu.F90	YRPTRXFU	xfu_mod.F90	DIA	XFU
ptrgppc.F90	all	/ /	arp/setup/suptrgppc.F90	YRPTRGPPC	gppc_mod.F90 (*)	ADIAB	PC
ptrslb15.F90	RPARSL15	/ /	arp/setup/suslb.F90	RPARSL15	slb_mod.F90	ADIAB	SLAG
	other	/ /	arp/setup/suslb.F90	YSLB15	slb_mod.F90	ADIAB	SLAG
ptrslb1.F90	RPARSL1	/ /	arp/setup/suslb.F90	RPARSL1	slb_mod.F90	ADIAB	SLAG
	other	/ /	arp/setup/suslb.F90	YSLB1	slb_mod.F90	ADIAB	SLAG
ptrslb2.F90	all	/ /	arp/setup/suslb.F90	YSLB2	slb_mod.F90	ADIAB	SLAG
ptrspor.F90	spec var	/ /	internal use in cf 923 only	YSPOR923	externalised in UTI?	C9XX	C923
	gp var	/ /	internal use in cf 923 only	YGPOR923	externalised in UTI?	C9XX	C923

Remarks:

- ptrgppc.F90: pointers stand for quantities which must later be spread among GFL and GMV; this operation can be done during the OOPS project.
- ptrspor.F90: it is desirable to externalise configuration 923 in UTI; in this case all quantities of ptrspor.F90 will be moved from ARP/IFS to UTI.

3.3 Modules type..

```
* type_fads.F90      : cf. yomfa.F90.
* type_fluxes.F90    : cf. ptrgfu.F90, ptrxfu.F90, yomcfu.F90, yomgfub.F90, yomxfu.F90, yomxfub.F90.
* type_fpdspphys.F90 : cf. yomafn.F90 (for post-processing purpose).
* type_fprqdyns.F90  : cf. yomvpos.F90.
* type_fprqphys.F90  : cf. ptrfp4.F90.
* type_gems_profiles.F90 : cf. yomgems.F90.
* type_gflflds.F90    : cf. gfl_subs_mod.F90, yomgfl.F90, yom_ygfl.F90.
* type_gfls.F90      : cf. gfl_subs_mod.F90, yomgfl.F90, yom_ygfl.F90.
* type_gmvns.F90     : cf. gmv_subs_mod.F90, yomgmvs.F90.
```

3.4 Modules yem.. (Limited area models) and isolated pure ALADIN yom.. .

Current module	Variable	Current namelist	Current setup	future d.t. variable	future OOPS module	Main topic	Sub topic
yemcli.F90	all	/	ald/c9xx/egeo923.F90	YNLCLI	externalised in UTI?	C9XX C9XX	CE923 CE931
yemcosjr.F90	all	/	arp/var/sujr.F90		ejr_mod.F90	COSTFUNC	EJR
yemct0.F90	LEQLIMSAT LSMIXBC ERESBC VEXPLSMIX	NEMCTO NEMCTO NEMCTO NEMCTO	ald/setup/suect0.F90 ald/setup/suect0.F90 ald/setup/suect0.F90 ald/setup/suect0.F90		edyna_mod.F90 mixbc_mod.F90 mixbc_mod.F90 mixbc_mod.F90	ADIAB MISC MISC MISC	EDYNA MIXBC MIXBC MIXBC
yemdim.F90	NSECPLG NBZON.. NISMAL NISNAX NEDOM	/	ald/setup/suedim.F90 ald/setup/suedim.F90 ald/setup/suedim.F90 ald/setup/suedim.F90 ald/setup/suedim.F90		ehdim_mod.F90 ehdim_mod.F90 ehdim_mod.F90 ehdim_mod.F90 edim_mod.F90	DIM DIM DIM DIM DIM	EHDIM EHDIM EHDIM EHDIM EHDIM
yemdyn.F90	RDI..E RDS..E LESIDG TCDIS XMALD	/	ald/setup/suehdf.F90 ald/setup/suehdf.F90 arp/setup/sudyn.F90 internal	YSHDI_RDIE YSHDI_RDSE	edynb_mod.F90 edynb_mod.F90 edynb_mod.F90 useless cormasf_mod.F90	ADIAB ADIAB ADIAB	ESHDI ESHDI ESI CORMASF
yemfpg.F90	all	/	ald/fullpos/suefpg3.F90		efpos_mod.F90	DIA	EFPOS
yemgeo.F90	naml ones other	NEMGEO /	ald/setup/suegem_naml.F90 ald/setup/suegem_naml.F90	YEGEO_NAML YEGEO	egeo_mod.F90 egeo_mod.F90	GEOG GEOG	EGEO EGEO
yemgsl.F90	all	/	ald/setup/suegem_naml.F90	YEGSL	egeo_mod.F90	GEOG	EGEO+SLAG
yemjk.F90	naml ones ZALPHAK FJKNORM.. VAJKGRA.. SPJKIN..	NEMJK /	ald/var/suejk.F90 ald/var/suejk.F90 ald/var/suejknorm.F90 internal internal	YEMJK_NAML	ejk_mod.F90 ejk_mod.F90 ejk_mod.F90 ejk_mod.F90 ejk_mod.F90	COSTFUNC COSTFUNC COSTFUNC COSTFUNC COSTFUNC	EJK EJK EJK EJK EJK
yemlap.F90	RLEP.. NCPL.. other	/	ald/setup/suelap.F90 ald/setup/suelap.F90 ald/setup/suelap.F90	YRLEP YNCPL	esplapl_mod.F90 espptr_mod.F90 espptr_mod.F90	MISC DATAFLOW DATAFLOW	ESPLAPL ESPPTR ESPPTR
yemmp.F90	all	/	ald/setup/suempvar.F90		edm_mod.F90	PARALLEL	EDM
yemvargp.F90	naml ones GVARGP	NEMVAR /	ald/var/suevargp.F90 ald/var/suevargp.F90	YVARGP_NAML	ejb_mod.F90 ejb_mod.F90	COSTFUNC COSTFUNC	EJB EJB
yemwavelet.F90	does only type definition				ejb_mod.F90	COSTFUNC	EJB

Remarks:

- YEMGSL: its content is used only in the ELARCHE.. routines.
- YEMWAVELET: does type definition; used by YOMJG. There are still variables in NEMWAVELET set-up by ald/wavelet/suejwalloc.F90 and copied in some structures defined in YEMWAVELET.

3.5 Modules qa.. and yom.. for CANARI OI assimilation (main topic ASSIM, sub-topic CANARI).

Current module	Variable	Current namelist	Current setup	future OOPS module	Main topic	Sub topic
qaboit.F90	all	/	internal	???	ASSIM	CANARI
qaclim.F90	LCLIM	/	arp/setup/sugrclicia.F90	???	ASSIM	CANARI
qacobs.F90	all	NACOBS	arp/canari/canali.F90	???.mod.F90	ASSIM	CANARI
qapabo.F90	all	partly in NACOBS	arp/canari/canali.F90	???.mod.F90	ASSIM	CANARI
qacoss.F90	all	/	arp/canari/cabane.F90	???.mod.F90	ASSIM	CANARI
qacost.F90	all	/	arp/canari/cainsu.F90	???.mod.F90	ASSIM	CANARI
qactan.F90	all	partly in NACTAN	arp/canari/canali.F90	???.mod.F90	ASSIM	CANARI
qactex.F90	all	partly in NACTEX	arp/canari/canali.F90 smt. also in caclsst.F90	???.mod.F90	ASSIM	CANARI
qacveg.F90	VG.. NLISSEW other	/ / partly in NACVEG	internal internal arp/canari/cavegi.F90	??? ??? ???.mod.F90	ASSIM ASSIM ASSIM	CANARI CANARI CANARI
qadiag.F90	all	/	internal	???	ASSIM	CANARI
qadock.F90	all	NADOCK	arp/canari/canali.F90	???.mod.F90	ASSIM	CANARI
qadore.F90	all	/	arp/canari/caratk.F90	???.mod.F90	ASSIM	CANARI
qaeteo.F90	all	/	arp/canari/cabiyo.F90	???.mod.F90	ASSIM	CANARI
qagpsf.F90	all	/	internal	???	ASSIM	CANARI
qaimpo.F90	all	NAIMPO	arp/canari/canali.F90	???.mod.F90	ASSIM	CANARI
qakeki.F90	all	/	arp/canari/casino.F90	???.mod.F90	ASSIM	CANARI
qalbar.F90	all	/	arp/canari/canari.F90	???.mod.F90	ASSIM	CANARI
qalola.F90	all	/	arp/canari/casino.F90	???.mod.F90	ASSIM	CANARI
qalori.F90	QCA.. other	/ partly in NALORI	internal arp/canari/canali.F90	??? ???.mod.F90	ASSIM ASSIM	CANARI CANARI
qamcok.F90	RCOEFK RC..	/ NAMCOK	arp/canari/canali.F90 arp/canari/canali.F90	???.mod.F90 ???.mod.F90	ASSIM ASSIM	CANARI CANARI
qanada.F90	all	/	internal	???	ASSIM	CANARI
qapabl.F90	only contains	PARAMETER		parcan.F90 ?	ASSIM	CANARI
qapass.F90	only contains	PARAMETER		parcan.F90 ?	ASSIM	CANARI
qapavu.F90	only contains	PARAMETER		parcan.F90 ?	ASSIM	CANARI
qapcad.F90	only contains	PARAMETER		parcan.F90 ?	ASSIM	CANARI
qapdgu.F90	all	/	internal	???	ASSIM	CANARI
qaprex.F90	NPREA NBPREA other	/ / /	internal internal arp/canari/canami.F90	??? ??? ???.mod.F90	ASSIM ASSIM ASSIM	CANARI CANARI CANARI
qaref.F90	all	NAM_CANAPE	arp/canari/canape.F90	???.mod.F90	ASSIM	CANARI
qavara.F90	NVXINV NVMXINV	/ /	arp/canari/canami.F90 arp/canari/casino.F90	??? ???	ASSIM ASSIM	CANARI CANARI
yomdag.F90	all	/	arp/canari/can1.F90	???.mod.F90	ASSIM	CANARI

Remarks:

- NAMCOK: the RC.. variables are currently declared in NAMCOK and not in QAMCOK (but the right place of these declarations must be QAMCOK).
- Some pieces of code may become obsolete and good candidates for pruning (optimal interpolation on upper air fields).

3.6 Modules yoe.. and yom.. for ECMWF physics (main topic PHYS).

```

* yoeadbuffer.F90      :
* yoeaeradm.F90       : ECMWF radiation scheme (aerosols).
* yoeaerc.F90         : ECMWF radiation scheme (aerosols).
* yoeaerd.F90         : ECMWF radiation scheme (aerosols).
* yoeaerlid.F90       : ECMWF radiation scheme (aerosols).
* yoeaermap.F90       : ECMWF radiation scheme (aerosols).
* yoeaerop.F90        : ECMWF radiation scheme (aerosols).
* yoeaersnk.F90       : ECMWF radiation scheme (aerosols).
* yoeaersrc.F90       : ECMWF radiation scheme (aerosols).
* yoeaerst1.F90       : ECMWF radiation scheme (aerosols).
* yoe_aervole.F90     : ECMWF radiation scheme (erupting volcano).
* yoeaervol.F90       : ECMWF radiation scheme (aerosols).
* yoeclld.F90         : ECMWF cloud scheme.
* yoecldp.F90         : ECMWF cloud scheme.
* yoecldpv.F90        : ECMWF cloud scheme.
* yoeclp550.F90       : ECMWF cloud scheme.
* yoeclp5.F90         :
* yoeclnd.F90         :
* yoe_cuconvca.F90    : ECMWF convection scheme. Namelist NAMCA.
* yoeclm2.F90         : ECMWF cumulus scheme.
* yoeclm.F90          : ECMWF cumulus scheme.
* yoeclmbug.F90       : debugging key for aerosols.
* yoeclmwd.F90        : ECMWF GWD scheme. Namelist NAMGWD.
* yoeclmws.F90        : ECMWF GWD simplified scheme.
* yoeclmwwms.F90     : ECMWF GWD scheme. Namelist NAMGWWMS.
* yoeclwconst.F90    : ECMWF radiation scheme (long-wave).
* yoeclw.F90          : ECMWF radiation scheme (long-wave).
* yoeclwrad.F90       : ECMWF radiation scheme (long-wave).
* yoe_mcica.F90       : ECMWF cloud scheme?
* yoeclmeth.F90       : ECMWF chemistry.
* yoeclneur.F90       : ECMWF radiation scheme (long-wave).
* yoeclvp.F90         : ECMWF radiation scheme.
* yoeclzoc.F90        : ECMWF radiation scheme (ozone).
* yoeclphi.F90        : ECMWF linearised physics.
* yoeclphy.F90        : ECMWF physics (top level keys).
                          Variables LEPHYS, LAGPHY and NEPHYS_PCFULL can go in the topic PHYDYN1.
* yoeclrad.F90        : ECMWF radiation scheme.
* yoeclradghg.F90    : ECMWF radiation scheme.
* yoeclrdi.F90        : ECMWF radiation scheme.
* yoeclrdu.F90        : ECMWF radiation scheme.
* yoeclrip.F90        : ECMWF radiation scheme.

* yoeclrtm.F90        : ECMWF radiation scheme (RRTM long-wave).
* yoeclrtal.F90 to yoeclrta16.F90 : ECMWF radiation scheme (RRTM long-wave).
* yoeclrtab.F90       : ECMWF radiation scheme (RRTM long-wave).
* yoeclrtbg2.F90     : ECMWF radiation scheme (RRTM long-wave).
* yoeclrtftr.F90     : ECMWF radiation scheme (RRTM long-wave).
* yoeclrtol.F90 to yoeclrto16.F90 : ECMWF radiation scheme (RRTM long-wave).
* yoeclrtfr.F90      : ECMWF radiation scheme (RRTM long-wave).
* yoeclrtwv.F90      : ECMWF radiation scheme (RRTM long-wave).
* yoeclrtwn.F90      : ECMWF radiation scheme (RRTM long-wave).
* yoeclrta16.F90 to yoeclrta29.F90 : ECMWF radiation scheme (RRTM short-wave).
* yoeclrtab.F90      : ECMWF radiation scheme (RRTM short-wave).
* yoeclrtaer.F90     : ECMWF radiation scheme (RRTM short-wave).
* yoeclrtcop.F90    : ECMWF radiation scheme (RRTM short-wave).
* yoeclrtm.F90      : ECMWF radiation scheme (RRTM short-wave).
* yoeclrtop.F90     : ECMWF radiation scheme (RRTM short-wave).
* yoeclrtwn.F90     : ECMWF radiation scheme (RRTM short-wave).
* yoeclsw.F90        : ECMWF radiation scheme (RRTM short-wave).

* yoeclthf.F90        : ECMWF radiation scheme (thermodynamics).
* yoecl_tile_prop.F90 : ECMWF physics (tile scheme).
* yoecl_uvrad.F90     : ECMWF radiation scheme (UV).
* yoecl_aero_m7.F90   : ECMWF radiation scheme (M7 aerosol scheme). Namelist NAEAEM7.
* yoecl_aero_trac.F90 : ECMWF radiation scheme (M7 aerosol scheme).
* yoeclvdf.F90        : ECMWF physics (vertical diffusion).
* yoeclvdfs.F90       : ECMWF physics (vertical diffusion).
* yoeclwcou.F90       : coupling with wave model.
* yoeclclim.F90       : ECMWF radiation scheme.
* yoeclcoaphy.F90    : coarse ECMWF physics.
                          Variables NPHYINT and NPHYRES can go in topic PHYDYN1.
* yoeclcumfs.F90     : ECMWF physics (simplified convection scheme).
* yoeclmcl.F90       : ECMWF physics (simplified cloud scheme).
* yoeclprad.F90      : ECMWF radiation scheme + radiation interpolator.
* yoeclradf.F90      : ECMWF radiation scheme.
* yoeclsekf.F90      : ECMWF physics (simplified EKF soil moisture analysis).
* yoeclspstdt.F90    : ECMWF stochastic physics.
* yoeclsrftlad.F90   : ECMWF simplified physics.

```

and:

Current module	Variable	Current namelist	Current setup	future OOPS module	Main topic	Sub topic
yophlc.F90	LSPHLC	NAPHLC	arp/setup/suOphy.F90	???	PHYS	PHYDYN1
	other	NAPHLC	arp/setup/suOphy.F90	???	PHYS	ECSPHY
yophnc.F90	LH2OCO2	/	arp/setup/suphli.F90	???	PHYS	ECSPHY+MTRAJ
	LW_OPT	/	arp/setup/suphli.F90	???	PHYS	ECSPHY+MTRAJ
	other	some in NAMTRAJP	arp/setup/suOphy.F90	???	PHYS	ECSPHY+MTRAJ

3.7 Modules yhl.. for HIRLAM physics (main topic PHYS).

Current module	Variable	Current namelist	Current setup	future OOPS module	Main topic	Sub topic
yhlconst.F90	all	/	arp/setup/suhlconst.F90	???	PHYS	MFPHY
yhlrad.F90	all	/	arp/setup/suhlrad.F90	???	PHYS	MFPHY

3.8 Modules yom.. for MF physics (main topic PHYS).

```

* yomarphy.F90 : AROME physics.
                 Variables LMSE and LMPA can go in topic PHYDYN1.
* yomcvmnh.F90 : MF convection scheme.
* yomgppb.F90  : buffers for AROME physics.
* yomiop.F90  : trajectory for TL and AD of MF simplified physics.
* yommse.F90  : Variables for surface physics of project MSE.
* yomparar.F90 : AROME physics.
* yomphy.F90  : MF physics (control variables).
                 Variables LMPHY, NDPSFI, NPHYREP, and maybe also LREASUR can go in topic PHYDYN1.
* yomphy0.F90 : MF physics (tunable variables for upper-air).
* yomphy1.F90 : MF physics (tunable variables for soil, vegetation, snow).
* yomphy2.F90 : MF physics.(timestep, vertical discretisation, etc..)
                 Variable TSPHY can go in topic TIME.
* yomphy3.F90 : MF physics (tunable variables for radiation).
* yomphyds.F90 : linked with topic SURF, must go in surface_fields_mix.F90.
* yomqns.F90  : mixing length for TKE scheme.
* yomscm.F90  : extraction of Single Column Model profiles from 3D model.
* yomsimpl.F90 : MF simplified physics.
                 Variables LSIMPH, and maybe also LTRAJPS, LTRAJPST, LPROCLDTL can go in topic PHYDYN1.
* yomtoph.F90 : mesospheric drag.
* yomtpy.F90  : trajectory for TL and AD of MF simplified physics.
* yomvdoz.F90 : for ozone vertical diffusion.

```

and also the FMR15 radiation scheme:

Current module	Variable	Current namelist	Current setup	future OOPS module	Main topic	Sub topic
yomaer15.F90	all	/	arp/phys_dmn/suaer15.F90	radiation FMR15	PHYS	FMR15
yomaerd15.F90	all	/	arp/phys_dmn/suaerv15.F90	radiation FMR15	PHYS	FMR15
yomclop15.F90	all	/	arp/phys_dmn/suclop15.F90	radiation FMR15	PHYS	FMR15
yomlw15.F90	all	/	arp/phys_dmn/sulw15.F90	radiation FMR15	PHYS	FMR15
yomrad15.F90	all	some in NAMRAD15	arp/phys_dmn/suecrad15.F90	radiation FMR15	PHYS	FMR15
yomrdi15.F90	all	/	arp/phys_dmn/surdi15.F90	radiation FMR15	PHYS	FMR15
yomrdu15.F90	all	/	arp/phys_dmn/suecrad15.F90	radiation FMR15	PHYS	FMR15
yomrip15.F90	all	/	internal	radiation FMR15	PHYS	FMR15
yomsw15.F90	all	/	arp/phys_dmn/susw15.F90	radiation FMR15	PHYS	FMR15

3.9 Modules yom.. for observation pre-processing, screening (main topic OBSA).

Current module	Variable	Current namelist	Current setup	future OOPS module	Main topic	Sub topic
yom_amv_oberror.F90	all	/	arp/var/amv_read_oberror.F90	amv_mod.F90	OBSA	OBS
yom_amv_reassign.F90	all	/	arp/var/suamv.F90	amv_mod.F90	OBSA	OBS
yomana.F90	all	/	internal?		OBSA	OBS
yomancs.F90	all?	/	arp/obs_preproc/suanct.F90		OBSA	OBS
yomaneb.F90	ANEBUF all	/	internal arp/setup/susc2b.F90		OBSA?	OBS?
yomascatsm.F90	all	/	arp/obs_preproc/ ascatsm_cdfpar.F90		OBSA	OBS
yomblinit.F90	all	/	arp/obs_preproc/blinit.F90		OBSA	OBS
yomchev.F90	all	/	arp/setup/su_events.F90		OBSA	OBS
yomclldet.F90	?????????				OBSA	OBS
yomclmicst.F90	all	/	arp/setup/suclmicst.F90		OBSA	OBS
yomcma.F90	?????????				OBSA	OBS
yomcmbdy.F90	?????????				OBSA	OBS
yomcmddr.F90	?????????				OBSA	OBS
yomcmhdr.F90	?????????				OBSA	OBS
yomcoctp.F90	all?		included SUCOCTP		OBSA	OBS
yomectab.F90	?????????				OBSA	OBS
yomemis.F90	?????????				OBSA	OBS
yomerr.F90	?????????				OBSA	OBS
yomersca.F90	?????????				OBSA	OBS
yomfger.F90	?????????				OBSA	OBS
yomfglim.F90	?????????				OBSA	OBS
yomgbrad.F90	?????????				OBSA	OBS
yomglobs.F90	YGLOB	/	?????		OBSA	OBS
yominstp.F90	?????????				OBSA	OBS
yomlevse.F90	?????????				OBSA	OBS
yomlimb.F90	?????????				OBSA	OBS
yomlim.F90	?????????				OBSA	OBS
yomlvly.F90	?????????				OBSA	OBS
yommcod.F90	?????????				OBSA	OBS
yommnev.F90	?????????				OBSA	OBS
yomoba.F90	?????????				OBSA	OBS
yomobset.F90	?????????				OBSA	OBS
yomobset_thsafe.F90	?????????				OBSA	OBS
yomobs.F90	?????????				OBSA	OBS
yomoerr.F90	?????????				OBSA	OBS
yomperr.F90	?????????				OBSA	OBS
yom_reo3_bcor.F90	?????????				OBSA	OBS
yom_reo3_thin.F90	?????????				OBSA	OBS
yomrplim.F90	?????????	/	arp/obs_preproc/sufglim.F90		OBSA	OBS
yomrstbias.F90	?????????				OBSA	OBS
yomstrrbias.F90	?????????				OBSA	OBS
yomsats.F90	?????????				OBSA	OBS
yomsc.F90	?????????				OBSA	OBS
yomscree.F90	?????????				OBSA	OBS
yom_ssmi.F90	?????????				OBSA	OBS
yomstre.F90	?????????				OBSA	OBS
yomthlim.F90	?????????				OBSA	OBS
yomts.F90	?????????				OBSA	OBS
yomvnm.F90	?????????				OBSA	OBS

3.10 Modules yom.. for adiabatic processes (main topic ADIAB).

Current module	Variable	Current namelist	Current setup	future d.t. variable	future OOPS module	Main topic	Sub topic
yomdyn.F90	===== DYNA quantities =====						
	NCOMP_CVGQ	NAMDYN	arp/setup/sudyn.F90		dyna_mod.F90	ADIAB	DYNA
	horizontally diffusive processes						
	REPS..	NAMDYN	arp/setup/sudyn.F90	YREPS	dyna_mod.F90	ADIAB	DYNA
	HDIR...	NAMDYN	arp/setup/sudyn.F90	YSHDI_HDIR	dynb_mod.F90	ADIAB	SHDI
	HRDIR...	/	arp/setup/sudyn.F90	YSHDI_HRDIR	dynb_mod.F90	ADIAB	SHDI
	RRDXTAU	NAMDYN	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	SHDI
	RDAMP...	NAMDYN	arp/setup/sudyn.F90	YSHDI_RDAMP	dynb_mod.F90	ADIAB	SHDI
	LNEWHD	NAMDYN	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	SHDI
	REXPDH	NAMDYN	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	SHDI
	FRANDH	NAMDYN	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	SHDI
	SLEVDH...	NAMDYN	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	SHDI
	NSREFDH	NAMDYN	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	SHDI
	RDI...	/	arp/setup/sudyn.F90	YSHDI_RDI	dynb_mod.F90	ADIAB	SHDI
	RDHI	/	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	SHDI
	LSTRHD	/	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	SHDI
	HDTIME_STRHD	/	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	SHDI
	NPROFILEHD	NAMDYN	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	SHDI
	LRDISPE_EC	NAMDYN	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	SHDI
	RPROFHD..	NAMDYN	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	SHDI
	HDSR...	/	arp/setup/sudyn.F90	YSHDI_HDSR	dynb_mod.F90	ADIAB	SHDI
	HRDSR...	/	arp/setup/sudyn.F90	YSHDI_HRDSR	dynb_mod.F90	ADIAB	SHDI
	RDAMP...S	NAMDYN	arp/setup/sudyn.F90	YSHDI_RDAMPS	dynb_mod.F90	ADIAB	SHDI
	REXPDHS	NAMDYN	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	SHDI
	RDS...	/	arp/setup/sudyn.F90	YSHDI_RDS	dynb_mod.F90	ADIAB	SHDI
	RDHS	/	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	SHDI
	SLEVDSH..	NAMDYN	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	SHDI
	SDRED	NAMDYN	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	SHDI
	naml SLHD..	NAMDYN	arp/setup/sudyn.F90	YSLHD_NAML	dynb_mod.F90	ADIAB	SLHD
	other SLHD..	/	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	SLHD
	RKRF	/	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	RFRIC
	NMAXLEVRF	/	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	RFRIC
	RRFZ1	NAMDYN	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	RFRIC
	RRFPML	NAMDYN	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	RFRIC
	RRFTAU	NAMDYN	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	RFRIC
	===== Semi-implicit and PC schemes =====						
	NSITER	NAMDYN	arp/setup/sudyn.F90		dyna_mod.F90	ADIAB	PC
	LRHDI_LASTITERPC	NAMDYN	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	PC
	NCURRENT_ITER	/	internal		dynb_mod.F90	ADIAB	PC
	LSIDG	/	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	SI
	BETADT	NAMDYN	arp/setup/sudyn.F90		dyn(a or b)_mod.F90	ADIAB	SI
	RBT,RBTS2		arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	SI
	scalar SI...	some in NAMDYN	arp/setup/sudyn.F90	YSI_REF_NAML	dyn(a or b)_mod.F90	ADIAB	SI
	REFGEO	NAMDYN	arp/setup/sudyn.F90	in YSI_REF_NAML	dyn(a or b)_mod.F90	ADIAB	SI
	SIALPH to SIDPHI	/	arp/setup/sudyn.F90	YSI_XYB	dynb_mod.F90	ADIAB	SI
	SIB,SIM0,SIMI,SIVP	/	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	SI
	SIHEG...	/	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	SI
	SIFAC...	/	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	SI
	VNORM	NAMDYN	arp/setup/sudyn.F90		dyn(a or b)_mod.F90	ADIAB	SI
	LIMPF	NAMDYN	arp/setup/sudyn.F90		dyn(a or b)_mod.F90	ADIAB	SI
	NITERHELM	NAMDYN	arp/setup/sudyn.F90		dyn(a or b)_mod.F90	ADIAB	SI
	===== Other quantities =====						
	LSLINL...	/	arp/setup/sudyn.F90		dyna_mod.F90	ADIAB	SLAG
	TSTEP, TDT	NAMDYN	arp/setup/sudyn.F90		time_mod.F90	MISC	TIME
	RCMSLPO	NAMDYN	arp/setup/sudyn.F90		dyna_mod.F90	ADIAB	DYNA+PVCH
	LADV, LADVFW	NAMDYN	arp/setup/sudyn.F90		dyna_mod.F90	ADIAB	DYNA+PVCH
	RCORDI..	/	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	DYNA+PVCH
	RCORFD..	/	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	DYNA+PVCH
	LQM[X]	NAMDYN	arp/setup/sudyn.F90	YLA_LQM	dyna_mod.F90	ADIAB	SLAG
	LQMH[X]	NAMDYN	arp/setup/sudyn.F90	YLA_LQMH	dyna_mod.F90	ADIAB	SLAG
	VMAX1, VMAX2	NAMDYN	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	SLAG
	N[X]LAG	NAMDYN	arp/setup/sudyn.F90	YLA_NLAG	dyna_mod.F90	ADIAB	SLAG
	.. SPLTHOI..	NAMDYN	arp/setup/sudyn.F90		dyna_mod.F90	ADIAB	SLAG
	.. SLDIMK..	/	arp/setup/sudyn.F90		dyna_mod.F90	ADIAB	SLAG
	NITMP	NAMDYN	arp/setup/sudyn.F90		dyna_mod.F90	ADIAB	SLAG
	VETAON, VETAOX	NAMDYN	arp/setup/sudyn.F90		dyna_mod.F90	ADIAB	SLAG
	LSETTLS(T)	NAMDYN	arp/setup/sudyn.F90		dyna_mod.F90	ADIAB	SLAG
	LELTRA	NAMDYN	arp/setup/sudyn.F90		dyna_mod.F90	ADIAB	SLAG
	RWZTLFF	NAMDYN	arp/setup/sudyn.F90		dyna_mod.F90	ADIAB	SLAG
	L2TLFF	/	arp/setup/sudyn.F90		dyna_mod.F90	ADIAB	SLAG
	VESL, XIDT	NAMDYN	arp/setup/sudyn.F90		dyna_mod.F90	ADIAB	SLAG
	RPRES_SVTSM	NAMDYN	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	SLAG
	LSVTSM	NAMDYN	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	SLAG
	RTEMRB	NAMDYN	arp/setup/sudyn.F90		useless like XKCOEF	ADIAB	RUBC
	NRUBC	/	arp/setup/sudyn.F90		dyna_mod.F90	ADIAB	RUBC
	SI[X]RUB	/	arp/setup/sudyn.F90		useless	ADIAB	RUBC
	VC...	NAMDYN	arp/setup/sudyn.F90		dyna_mod.F90	ADIAB	DYNA
	LDRY_ECMWF	NAMDYN	arp/setup/sudyn.F90		dyna_mod.F90	ADIAB	DYNA

Current module	Variable	Current namelist	Current setup	future d.t. variable	future OOPS module	Main topic	Sub topic
yomcver.F90	LRNHCI	NAMCVER	sucver.F90		dyna_mod.F90	ADIAB	DYNA
	LVFE...	NAMCVER	sucver.F90		dyna_mod.F90	ADIAB	DYNA
	LVERTFE,NVSCH	NAMCVER	sucver.F90		dyna_mod.F90	ADIAB	DYNA
yomdyna.F90	NGWADVSI	NAMDYNA	arp/setup/sudyna.F90		dyna_mod.F90	ADIAB	SI
	LSLHD..	some in NAMDYNA	arp/setup/sudyna.F90	YLSLHD	dyna_mod.F90	ADIAB	SLHD
	SLHD..	some in NAMDYNA	arp/setup/sudyna.F90	YASLHD	dyna_mod.F90	ADIAB	SLHD
	LRFRICISOTR	NAMDYNA	arp/setup/sudyna.F90		dyna_mod.F90	ADIAB	RFRIC
	NPDVAR	NAMDYNA	arp/setup/sudyna.F90		dyna_mod.F90	ADIAB	DYNA+PVCH
	NVDVAR	NAMDYNA	arp/setup/sudyna.F90		dyna_mod.F90	ADIAB	DYNA+PVCH
	LNH_PVDV	/	arp/setup/sudyna.F90		dyna_mod.F90	ADIAB	DYNA+PVCH
	LNH_GEOGW	/	arp/setup/sudyna.F90		dyna_mod.F90	ADIAB	DYNA+PVCH
	RC_PD1	NAMDYNA	arp/setup/sudyna.F90		dyna_mod.F90	ADIAB	DYNA+PVCH
	LSLDIA	NAMDYNA	arp/setup/sudyna.F90		dyna_mod.F90	ADIAB	SLAG
	LRPRSLTRJ	NAMDYNA	arp/setup/sudyna.F90		dyna_mod.F90	ADIAB	SLAG
LRALTVDISP	NAMDYNA	arp/setup/sudyna.F90		dyna_mod.F90	ADIAB	SLAG	
all other	some in NAMDYNA	arp/setup/sudyna.F90		dyna_mod.F90	ADIAB	DYNA	
yomdyndiff.F90	LGRADSP	NAMDYNA	arp/setup/sudyna.F90		dyna_mod.F90	ADIAB	DYNA
	all other	/	arp/setup/sudyn.F90		dynb_mod.F90	ADIAB	DYNB
yomlsforc.F90	naml ones	NAMLSFORC	arp/setup/sulsforc.F90	??????	lsforc_mod.F90	ADIAB	LSFORC
	other	/	arp/setup/sulsforc.F90	??????	lsforc_mod.F90	ADIAB	LSFORC
yompong.F90	NSPONGE	NAMPONG	arp/setup/supong.F90		obsolescent	ADIAB	SPONGE
	scal. REPON..	NAMPONG	arp/setup/supong.F90		obsolescent	ADIAB	SPONGE
	array REPONG.	/	arp/setup/supong.F90		obsolescent	ADIAB	SPONGE
	R...SPNG	/	arp/setup/supong.F90		obsolescent	ADIAB	SPONGE
yomvertfe.F90	RINTE	/	under arp/setup/suvertfe.F90		vertfe_mod.F90	ADIAB	VDISC
	R.DER.	/	under arp/setup/suvertfe.F90		vertfe_mod.F90	ADIAB	VDISC

Remarks:

- yomlsforc.F90: sub-topic LSFORC; must be set-up at the same level as DYNB (i.e SUDYN in CY39). Specific structures must be defined.
- yompong.F90: sub-topic SPONGE; is obsolescent.
- LPC_FULL and NSITER: it is desirable to gather these two variables in the same module (future module dyna_mod.F90).
- LGRADSP must go in yomdyna.F90.

3.11 Modules yom.. involved in assimilation, other than CANARI (main topic ASSIM).

Current module	Variable	Current namelist	Current setup	future OOPS module	Main topic	Sub topic
yomhcp.F90	all	some in NAMHCP	arp/setup/suhcp.F90	avarc_mod.F90	ASSIM	AVARC
yomoderr.F90	??????????				ASSIM	MODERR
yomedvar.F90	??????????				ASSIM	1DVAR
yom_ptr_ssmi.F90	??????????				ASSIM?	1DVAR?
yomrain_lb.F90	??????????				ASSIM?	1DVAR
yomrinc.F90	QNL... SPA..I	NAMRINC /	arp/var/surinc.F90 internal	dynb_mod.F90	ADIAB ASSIM	DYMB VAR
yomsens.F90	all	NAMSENS	arp/var/suvar.F90	sens_mod.F90	ASSIM	SENS
yomvarbc.F90	??????????				ASSIM	VARBC
yomvareps.F90	??????????				ASSIM	VAREPS
yomvrtl.F90	??????????				ASSIM	VAR+CTL

3.12 Modules yom.. involved in C9xx configurations (main topic C9XX).

Current module	Variable	Current namelist	Current setup	future OOPS module	Main topic	Sub topic
yomcla.F90	all	some in NAMCLA	arp/c9xx/incli0.F90	part 1 of C923 extern. in UTI?	C9XX	C923-1
yomcli.F90	L.. NTP.. other N.. E.. R.. SVEG SFCZO other S..	NAMCLI / NAMCLI some in NAMCLI some in NAMCLI NAMCLI NAMCLI /	arp/c9xx/incli0.F90 arp/c9xx/val923.F90 arp/c9xx/incli0.F90 arp/c9xx/incli0.F90 arp/c9xx/incli0.F90 arp/c9xx/incli0.F90 arp/c9xx/incli0.F90 arp/c9xx/val923.F90	C923: extern in UTI? " " " " " " "	C9XX C9XX C9XX C9XX C9XX C9XX C9XX C9XX	C923 C923 C923 C923 C923 C923 C923 C923
yomdil.F90	all	/	arp/c9xx/geo923.F90	C923: extern in UTI?	C9XX	C923
yomcltc.F90	all	NAMCLTC	arp/c9xx/inclitc.F90	C931: extern in UTI?	C9XX	C931
yomice.F90	all	/	cseaiice.F90 or intice.F90	extern in UTI?	C9XX	C932

3.13 Modules yom.. involved in climate applications (main topic CLIMATE).

Current module	Variable	Current namelist	Current setup	future OOPS module	Main topic	Sub topic
yom_cpl.F90	all	/	internal	ocean coupling (MF)	CLIMATE	OCOU
yomcpl.F90	all	/	internal	ocean coupling (MF)	CLIMATE	OCOU
yomcom.F90	all	/	internal	ocean coupling (MF)	CLIMATE	OCOU
yomcou.F90	all	/	internal	ocean coupling (MF)	CLIMATE	OCOU
yom_inpc.F90	all	/	internal	ocean coupling (MF)	CLIMATE	OCOU
yomgco.F90	all	/	internal	ocean coupling (MF)	CLIMATE	OCOU
yomcouple4.F90	all	/	internal	ocean coupl (PRISM)	CLIMATE	OCOU
yom_oas.F90	??????????			ocean coupl (OASIS)	CLIMATE	OCOU
yomnemo.F90	??????????			ocean coupl (NEMO)	CLIMATE	OCOU
yomnud.F90	XVU.. other	/ NAMNUD	internal arp/setup/sunud.F90	nud_mod.F90 nud_mod.F90	CLIMATE	NUD
yomsnu.F90	all	/	internal	nud_mod.F90	CLIMATE	NUD
yommcc.F90	??????????				CLIMATE	CLIMA

3.14 Modules yomct..

Current module	Variable	Current namelist	Current setup	future OOPS module	Main topic	Sub topic	
yomct0.F90	JPNPST	/		ct0_mod.F90	CONTROL	CTL0	
	NCONF	NAMCTO	arp/setup/suct0.F90	ct0_mod.F90	CONTROL	CTL0	
	NTASKS	/	arp/setup/suct0.F90	ct0_mod.F90 only)	ASSIM?	CANARI?	
	LFDBOP	NAMCTO	arp/setup/suct0.F90	ct0_mod.F90	CONTROL	CTL0	
	LGRBOP	NAMCTO	arp/setup/suct0.F90	ct0_mod.F90	CONTROL	CTL0	
	LARPEGEF..	NAMCTO	arp/setup/suct0.F90	ct0_mod.F90	CONTROL	CTL0	
	CNDISPP	/	arp/setup/suct0.F90	ct0_mod.F90	CONTROL	CTL0	
	LNF	NAMCTO	arp/setup/suct0.F90	ct0_mod.F90	? CONTROL	CTL0	
	LSMSSIG	NAMCTO	arp/setup/suct0.F90	ct0_mod.F90	? CONTROL	CTL0	
	LOPDIS	/	arp/setup/suct0.F90	ct0_mod.F90	? CONTROL	CTL0	
	NCYCLE	/	arp/setup/suct0.F90	ct0_mod.F90	CONTROL	CTL0	
	CNMEXP	NAMCTO	arp/setup/suct0.F90	ct0_mod.F90	CONTROL	CTL0	
	CFCLASS	NAMCTO	arp/setup/suct0.F90	ct0_mod.F90	? CONTROL	CTL0	
	CTYPE	NAMCTO	arp/setup/suct0.F90	ct0_mod.F90	? CONTROL	CTL0	
	LBACKG	NAMCTO	arp/setup/suct0.F90	ct0_mod.F90	? CONTROL	CTL0	
	LSPBSBAL	NAMCTO	arp/setup/suct0.F90	ct0_mod.F90	? CONTROL	CTL0	
	LMINIM		arp/setup/suct0.F90	ct0_mod.F90	CONTROL	CTL0	
	NSTART		arp/setup/suct0.F90	ct0_mod.F90	CONTROL	CTL0	
	NSTOP	NAMCTO	arp/setup/suct0.F90	ct0_mod.F90	CONTROL	CTL0	
	NQUAD		arp/setup/suct0.F90	ct0_mod.F90	CONTROL	CTL0	
	N..DINI	NAMCTO	arp/setup/suct0.F90	ct0_mod.F90	CONTROL	CTL0 or INITC)	
	LSPRT	NAMCTO	arp/setup/suct0.F90	ct0_mod.F90 or initc_mod.F90	CONTROL	CTL0	
	LELAM	NAMCTO	arp/setup/suct0.F90	ct0_mod.F90	CONTROL	CTL0	
	LRPLANE	NAMCTO	arp/setup/suct0.F90	ct0_mod.F90	CONTROL	CTL0	
	LAROME	NAMCTO	arp/setup/suct0.F90	ct0_mod.F90	CONTROL	CTL0	
	LCALLSFX	NAMCTO	arp/setup/suct0.F90	ct0_mod.F90	CONTROL	CTL0	
	LSFXLSM	NAMCTO	arp/setup/suct0.F90	ct0_mod.F90	CONTROL	CTL0	
	LREFOUT	NAMCTO	arp/setup/suct0.F90	ct0_mod.F90	CONTROL	CTL0	
	LREFGEN	NAMCTO	arp/setup/suct0.F90	ct0_mod.F90	CONTROL	CTL0	
	LR3D_LR2D		arp/setup/suct0.F90	ct0_mod.F90	CONTROL	CTL0	
	LRSHW_LRVEQ		arp/setup/suct0.F90	ct0_mod.F90	CONTROL	CTL0	
	LALLOPR	NAMCTO	arp/setup/suct0.F90	ct0_mod.F90 or ??? (printings ctl)	CONTROL	CTL0	
	NPRINTLEV	NAMCTO	arp/setup/suct0.F90	ct0_mod.F90 or ??? (printings ctl)	CONTROL	CTL0	
	NSPPR	NAMCTO	arp/setup/suct0.F90	ct0_mod.F90 or ??? (printings ctl)	CONTROL	CTL0	
	NFR..	NAMCTO	arp/setup/suct0.F90	frctl_mod.F90	MISC	FRCTL (*)	
	NPOSTS to NDHPTS	NAMCTO	arp/setup/suct0.F90	frctl_mod.F90	MISC	FRCTL (*)	
	LNOBGON to NINTERPINCR LINFL..	NAMCTO	arp/setup/suct0.F90	??? (various: assim, obs interpol)			
	LSCMEC to REXTZOH	part. in NAMCTO	arp/setup/suct0.F90	??? (EC 1D model)	PHYS	ECPHY?	
	NFPOS	NAMCTO	arp/setup/suct0.F90	ct0_mod.F90 or (FULL-POS)?	CONTROL	CTL0	
	LFPART2	/	FPOS-927, internal	??? (FULL-POS)	DIA	FPOS	
	LECFPOS	/	arp/setup/suct0.F90	??? (FULL-POS)	DIA	FPOS	
	CFPNCF	NAMCTO	arp/setup/suct0.F90	??? (FULL-POS)	DIA	FPOS	
	CFDIRLST	NAMCTO	arp/setup/suct0.F90	??? (FULL-POS)	DIA	FPOS	
	CNPPATH	NAMCTO	arp/setup/suct0.F90	??? (FULL-POS)	DIA	FPOS	
	LRETCFDU	NAMCTO	arp/setup/suct0.F90	radtc_mod.F90	PHYS	RADTC	
	LWRTCFDU	NAMCTO	arp/setup/suct0.F90	radtc_mod.F90	PHYS	RADTC	
	L..TCNORM	NAMCTO	arp/setup/suct0.F90	radtc_mod.F90	PHYS	RADTC	
	LSLAG	NAMCTO	arp/setup/suct0.F90	dyna_mod.F90	ADIAB	DYNA	
	LTWOTL	NAMCTO	arp/setup/suct0.F90	dyna_mod.F90	ADIAB	DYNA	
	LRFRIC	NAMCTO	arp/setup/suct0.F90	dyna_mod.F90	ADIAB	RFRIC	
	LRUBC	NAMCTO	arp/setup/suct0.F90	dyna_mod.F90	ADIAB	RUBC	
	LVERCOR	NAMCTO	arp/setup/suct0.F90	dyna_mod.F90	ADIAB	DYNA	
	LNHDYN	NAMCTO	arp/setup/suct0.F90	dyna_mod.F90	ADIAB	DYNA	
	LPC....	NAMCTO	arp/setup/suct0.F90	dyna_mod.F90	ADIAB	PC	
	LSFORC...	NAMCTO	arp/setup/suct0.F90	dyna_mod.F90	ADIAB	LSFORC	
	LREGETA	NAMCTO	arp/setup/suct0.F90	vertc_mod.F90	GEDM	VGEDM	
	LVFE_REGETA	NAMCTO	arp/setup/suct0.F90	vertc_mod.F90	GEDM	VGEDM	
	LMPOFF	NAMPARO	arp/setup/sumpini.F90	dm_mod.F90	PARALLEL	DM	
	NPROC	NAMPARO	arp/setup/sumpini.F90	dm_mod.F90	PARALLEL	DM	
	N_REGIONS...	/	via TFL, TAL	dm_mod.F90	PARALLEL	DM	
	NPRGP..	NAMPARO	arp/setup/sumpini.F90	dm_mod.F90	PARALLEL	DM	
	NPRTR..	NAMPARO	arp/setup/sumpini.F90	dm_mod.F90	PARALLEL	DM	
	NSPECRESMIN	NAMPARO	arp/setup/sumpini.F90	dm_mod.F90	PARALLEL	DM	
	NOUTPUT	NAMPARO	arp/setup/sumpini.F90	dm_mod.F90	PARALLEL	DM	
	LOUTPUT		arp/setup/sumpini.F90	dm_mod.F90	PARALLEL	DM	
	LMPDIAG	NAMPARO	arp/setup/sumpini.F90	dm_mod.F90	PARALLEL	DM	
	LCOUPLO4.	NAMPARO	arp/setup/sumpini.F90	dm_mod.F90 or ocean coupling	PARALLEL	DM	
	LIIOLEVG	NAMCTO	arp/setup/suct0.F90		DIM	VDIM	
	LECMWF	NAMCTO	arp/setup/suct0.F90	ct0_mod.F90	CONTROL	CTL0	
	yomct1.F90	all	NAMCT1	arp/setup/suct1.F90	???	CONTROL	CTL1
	yomct2.F90	all	/	arp/setup/su2yom.F90	???	CONTROL	CTL
	yomct3.F90	all	/	arp/setup/su3yom.F90	???	CONTROL	CTL

3.15 Modules yom.. with main topic DATAFLOW.

Current module	Variable	Current namelist	Current setup	future OOPS module	Main topic	Sub topic
yomgfl.F90	all	/	internal	gfl_mod.F90	DATAFLOW	GFL
yom_ygfl.F90	all	???	???	gfl_mod.F90	DATAFLOW	GFL
yomnsv.F90	all	/	sudefo_gfl_attr.F90	gfl_mod.F90	DATAFLOW	GFL
yomozo.F90	?????????	/	???	gfl_mod.F90	DATAFLOW	GFL
yomgfl5.F90	all	/	internal	gfl5_mod.F90	DATAFLOW	GFL + MTRAJ
yomgmv.F90	all	/		gmv_mod.F90	DATAFLOW	GMV
yomgmv5.F90	all	/		gmv5_mod.F90	DATAFLOW	GMV + MTRAJ
yomgppcb.F90	GPPCBUF	/	internal	gmv_mod.F90 gfl_mod.F90	DATAFLOW	GMV + GFL
yomiophn.F90	LTRAJNH NG3NH95	NAMCTO /	arp/setup/suct0.F90 arp/setup/sutrajp.F90	modeltraj_mod.F90 modeltraj_mod.F90	DATAFLOW	MTRAJ MTRAJ
yomtnh.F90	all	/	internal	modeltraj_mod.F90	DATAFLOW	MTRAJ
yomlap.F90	R.DI,R.IN MYMS N..	/	arp/setup/sulap.F90 sulap.F90 or suwavedi.F90 sulap.F90 or suwavedi.F90	splapl_mod.F90 spptr_mod.F90 spptr_mod.F90	MISC DATAFLOW	SPLAPL SPPTR SPPTR
yomsp.F90	all	/	internal		DATAFLOW	SPARR
yomsp5.F90	all	/	internal		DATAFLOW	SPARR+MTRAJ
yomspjb.F90	all	/	internal		DATAFLOW	SPARR+JB
yomspnrm.F90	all	/	internal		DATAFLOW	SPARR
yomsp7.F90	all	/	internal		DATAFLOW	SPARR
yomsp_ptr.F90	all	/	arp/setup/sualspa.F90	spptr_mod.F90	DATAFLOW	SPPTR
yomsurf.F90	all	/			DATAFLOW	SURF
yomtraj.F90	LTRAJHR... LTRAJCP LREADGPTRAJ LTRAJSAVE LTRAJSLAG LTRAJPHYS LTRAJCST LTRAJALLOC LPRTTRAJ LTRAJRESET	NAMVAR NAMVAR NAMVAR / / / / / / / / /	arp/var/suvar.F90 arp/var/suvar.F90 arp/var/suvar.F90 internal internal internal internal internal internal internal internal	mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90	DATAFLOW	MTRAJ MTRAJ MTRAJ MTRAJ MTRAJ MTRAJ MTRAJ MTRAJ MTRAJ MTRAJ MTRAJ
	TSTEP_TRAJ NSMAX_TRAJ NSMAX_BACKGR..	NAMDYN NAMDYN NAMDYN	arp/setup/sudyn.F90 arp/setup/sudyn.F90 arp/setup/sudyn.F90	time_mod.F90	MISC DATAFLOW	TIME MTRAJ or HDIM MTRAJ or HDIM
	NSPTRAJ NGPTRAJ NTRAJP NGP5 NTRAJ_CST NSTEPTRAJ MSTART NTRAJSL... MSTEPTRAJ MIOTRAJ... MKINDTRAJ	/	internal internal internal arp/setup/su_surf_flds.F90 arp/setup/su_surf_flds.F90 internal internal internal internal internal internal local to yomtraj.F90	mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90	DATAFLOW	MTRAJ MTRAJ MTRAJ MTRAJ MTRAJ MTRAJ MTRAJ MTRAJ MTRAJ MTRAJ MTRAJ
	TRAJ_BUF TRAJ_SPEC TRAJ_SPEC_TMP0 TRAJ_SRFC TRAJ_CST TRAJ_SLAG TRAJ_PHYS TRAJ_ZERO TRAJ_GMV TRAJ_GMVS TRAJ_GFL	/	internal internal internal internal internal internal internal internal internal internal internal	mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90	DATAFLOW	MTRAJ MTRAJ MTRAJ MTRAJ MTRAJ MTRAJ MTRAJ MTRAJ MTRAJ MTRAJ MTRAJ
	BCKG_SPEC BCKG_GMV BCKG_GMVS BCKG_GFL	/	internal internal internal internal	mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90	DATAFLOW	MTRAJ MTRAJ MTRAJ MTRAJ
	TRAJ_GRIB MAIN_GRIB BACKGR_GRIB MTYPE_...TRAJ	/	internal internal internal internal	mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90	DATAFLOW	MTRAJ MTRAJ MTRAJ MTRAJ
yomvwrk.F90	NTRSLTYPE NPCKSLTRAJ NLENGTSLB TRAJSL	NAMVWRK NAMVWRK / /	arp/var/suvwrk.F90 arp/var/suvwrk.F90 arp/setup/susc2b.F90 internal	mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90 mtraj_mod.F90	DATAFLOW	MTRAJ MTRAJ MTRAJ MTRAJ
yom_ygfl.F90					DATAFLOW	GFL

3.16 Modules yom.. involved in diagnostics (main topic DIA).

Current module	Variable	Current namelist	Current setup	future OOPS module	Main topic	Sub topic
yomafpb.F90	NLENAFPBL NSTAAFPB AFPBUF	/	arp/fullpos/sufpsc2b.F90 arp/fullpos/sufpsc2b.F90 internal	fbbuf_mod.F90 fbbuf_mod.F90 fbbuf_mod.F90	DIA DIA DIA	FPBUF FPBUF FPBUF
yomdfpb.F90	NLENHFPPB NSTAHFPPB HFPBUF	/	arp/fullpos/sufpsc2b.F90 internal internal	fbbuf_mod.F90 fbbuf_mod.F90 fbbuf_mod.F90	DIA DIA DIA	FPBUF FPBUF FPBUF
yomfpfb.F90	NLENGFPPB NSTAGFPPB GFPBUF	/	arp/fullpos/sufpsc2b.F90 internal internal	fbbuf_mod.F90 fbbuf_mod.F90 fbbuf_mod.F90	DIA DIA DIA	FPBUF FPBUF FPBUF
yomrfpb.F90	NLENRFPPB NSTARFPPB RFPBUF	/	arp/fullpos/sufpsc2b.F90 internal internal	fbbuf_mod.F90 fbbuf_mod.F90 fbbuf_mod.F90	DIA DIA DIA	FPBUF FPBUF FPBUF
yomompdist.F90	GPP	/	internal	fbbuf_mod.F90	DIA	FPBUF
yomgpsk.F90	all	/	internal in PREGPFPOS	local variable	DIA	FPBUF
yomangm.F90	RX.. X..	/	arp/setup/supp.F90	angm_mod.F90 angm_mod.F90	DIA DIA	ANGM ANGM
yomcddh.F90	all	/	arp/dia/sucddh.F90	ddh_mod.F90	DIA	DDH
yomgpddh.F90	all	/	internal	ddh_mod.F90	DIA	DDH
yomlddh.F90	all	NAMDDH	arp/dia/sunddh.F90	ddh_mod.F90	DIA	DDH
yommddh.F90	all	some in NAMDDH	sunddh.F90 or smt. sumddh.F90	ddh_mod.F90	DIA	DDH
yompaddh.F90	NGLALIST NGPUMASK	/	arp/parallel/dladdh.F90 arp/parallel/dmaddh.F90	ddh_mod.F90 ddh_mod.F90	DIA DIA	DDH DDH
yomphft.F90	NDDHFT NAPHFT YAPFT APFT	/	arp/dia/iniapft_bp002.F90 nowhere? arp/dia/addft.F90 internal?	ddh_mod.F90 ddh_mod.F90 ddh_mod.F90 ddh_mod.F90	DIA DIA DIA DIA	DDH DDH DDH DDH
yomsddh.F90	all	/	arp/dia/sunddh.F90	ddh_mod.F90	DIA	DDH
yomspddh.F90	all	/	internal	ddh_mod.F90	DIA	DDH
yomtddh.F90	all	/	internal	ddh_mod.F90	DIA	DDH
yomngo.F90	?????????			used in POSDDH	DIA	DDH?
yomngom.F90	?????????				DIA	DDH?
yomcfu.F90	L.. N.. TYPE_CFU	NAMCFU some in NAMCFU /	arp/setup/sucfu.F90 arp/setup/sucfu.F90 arp/setup/sucfu.F90	cfu_mod.F90 cfu_mod.F90 cfu_mod.F90	DIA DIA DIA	CFU CFU CFU
yomgfub.F90	GFUBUF	/	internal	cfu_mod.F90	DIA	CFU
yomxfu.F90	LRESET L.. N.. TYPE_XFU RMWINDCALC	/ NAMXFU some in NAMXFU /	arp/setup/suxfu.F90 arp/setup/suxfu.F90 arp/setup/suxfu.F90 arp/setup/suxfu.F90	xfu_mod.F90 xfu_mod.F90 xfu_mod.F90 xfu_mod.F90	DIA DIA DIA DIA	XFU XFU XFU XFU
yomxfub.F90	XFUBUF	/	internal	xfu_mod.F90	DIA	XFU
yomchet.F90	all	some in NAMCHET	arp/phys_dmn/suchet.F90 + int	chet_mod.F90	DIA	CHET
yomchk.F90	N.. L.. TENDCHK	some in NAMCHK some in NAMCHK /	arp/dia/suechk.F90 arp/dia/suechk.F90 internal	chk_mod.F90 chk_mod.F90 chk_mod.F90	DIA DIA DIA	CHK CHK CHK
yomcape.F90	all	NAMCAPE	arp/setup/sucape.F90	fpos_mod.F90	DIA	FPOS

Current module	Variable	Current namelist	Current setup	future OOPS module	Main topic	Sub topic	
yom4fpos.F90	N.PHYFP	/	arp/fullpos/sufpphy.F90	fpos_mod.F90	DIA	FPOS	
	NFPOSPHY	/	arp/fullpos/sufpphy.F90	fpos_mod.F90	DIA	FPOS	
	other	/	arp/fullpos/sufpdyn.F90	fpos_mod.F90	DIA	FPOS	
yomfp41.F90	all	/	arp/fullpos/sufvpos1.F90	fpos_mod.F90	DIA	FPOS	
yomfpc.F90	C..	some in NAMFPC	arp/fullpos/sufpc.F90	fpos_mod.F90	DIA	FPOS	
	MFP..	some in NAMFPC	arp/fullpos/sufpc.F90	fpos_mod.F90	DIA	FPOS	
	RFP3..	some in NAMFPC	arp/fullpos/sufpc.F90	fpos_mod.F90	DIA	FPOS	
	NRFP3S	NAMFPC	arp/fullpos/sufpc.F90	fpos_mod.F90	DIA	FPOS	
	NFP..	some in NAMFPC	arp/fullpos/sufpc.F90	fpos_mod.F90	DIA	FPOS	
	W.XI.W.XO	/	internal and sometimes redefined elsew	fpos_mod.F90	DIA	FPOS	
	FPBL	/	arp/fullpos/sufpc.F90	fpos_mod.F90	DIA	FPOS	
	RFP...	NAMFPC	arp/fullpos/sufpc.F90	fpos_mod.F90	DIA	FPOS	
	RENTRA	NAMFPC	arp/fullpos/sufpc.F90	fpos_mod.F90	DIA	FPOS	
	FPRH...	/	arp/fullpos/sufpc.F90	fpos_mod.F90	DIA	FPOS	
L....	some in NAMFPC	arp/fullpos/sufpc.F90	fpos_mod.F90	DIA	FPOS		
yomfpc0.F90	NFPCTO	/	internal	fpos_mod.F90 (cf. LFPOS, LFPART2)	DIA	FPOS	
	FPINCR	/	internal	fpos_mod.F90 (cf. NFPINCR)	DIA	FPOS	
yomfpcd.F90	NLON,NLAT	NAMFPD	arp/fullpos/sufpd.F90	fpos_mod.F90	DIA	FPOS	
	RLATC,RLONC	NAMFPD	arp/fullpos/sufpd.F90	fpos_mod.F90	DIA	FPOS	
	RLAT.,RLON.	/	sufpd.F90 + sufpg2.F90	fpos_mod.F90	DIA	FPOS	
	NFPSIZE.	/	arp/fullpos/sufpg.F90	fpos_mod.F90	DIA	FPOS	
	NFP.UX	NAMFPD	arp/fullpos/sufpd.F90	fpos_mod.F90	DIA	FPOS	
	RDEL.	NAMFPD	arp/fullpos/sufpd.F90	fpos_mod.F90	DIA	FPOS	
	RFPMS	/	arp/fullpos/sufpd.F90	fpos_mod.F90	DIA	FPOS	
	NFPNOEXTZ..	NAMFPD	arp/fullpos/sufpd.F90	fpos_mod.F90	DIA	FPOS	
	RFPBSCAL	NAMFPD	arp/fullpos/sufpd.F90	fpos_mod.F90	DIA	FPOS	
	NFPB..	NAMFPD	arp/fullpos/sufpd.F90	fpos_mod.F90	DIA	FPOS	
yomfpdim.F90	all	/	??? (where is it written?)	fpos_mod.F90	DIA	FPOS	
yomfpezo.F90	all	some in NEMFPEZO	ald/fullpos/sufpezo.F90	fpos_mod.F90	DIA	FPOS	
yomfpe.F90	all	some in NAMFPE	arp/fullpos/sufpe.F90	fpos_mod.F90	DIA	FPOS	
yomfpg.F90	RFPLA	/	arp/fullpos/sumfpos.F90	fpos_mod.F90	DIA	FPOS	
	RFPLO	/	arp/fullpos/sumfpos.F90	fpos_mod.F90	DIA	FPOS	
	RFPLA_DEP	/	arp/fullpos/sumfpos_dep.F90	fpos_mod.F90	DIA	FPOS	
	RFPLO_DEP	/	arp/fullpos/sumfpos_dep.F90	fpos_mod.F90	DIA	FPOS	
	RFPMS_DEP	/	arp/fullpos/sumfpos_dep.F90	fpos_mod.F90	DIA	FPOS	
	RFPMU	/	arp/fullpos/sumfpos.F90	fpos_mod.F90	DIA	FPOS	
	RFPGM	/	arp/fullpos/sumfpos.F90	fpos_mod.F90	DIA	FPOS	
	RFPNOR.	/	arp/fullpos/sumfpos.F90	fpos_mod.F90	DIA	FPOS	
	NFPMEN	/	arp/fullpos/sufpoph.F90	fpos_mod.F90	DIA	FPOS	
	NFPLEV	NAMFPG	arp/fullpos/sufpg.F90	fpos_mod.F90	DIA	FPOS	
	NFPRGFG	/	arp/fullpos/sufpg.F90	fpos_mod.F90	DIA	FPOS	
	NFPRGPL	/	arp/fullpos/sumfpos.F90	fpos_mod.F90	DIA	FPOS	
	NFPRGPLX	/	arp/fullpos/sumfpos.F90	fpos_mod.F90	DIA	FPOS	
	NFPRGPL_DEP	/	arp/fullpos/sumfpos_dep.F90	fpos_mod.F90	DIA	FPOS	
	NFPRGPLX_DEP	/	arp/fullpos/sumfpos_dep.F90	fpos_mod.F90	DIA	FPOS	
	NFPHTYP	NAMFPG	arp/fullpos/sufpg.F90	fpos_mod.F90	DIA	FPOS	
	NFPTYP	NAMFPG	arp/fullpos/sufpg.F90	fpos_mod.F90	DIA	FPOS	
	NMFPMAX	NAMFPG	arp/fullpos/sufpg.F90	fpos_mod.F90	DIA	FPOS	
	FP..	some in NAMFPG	arp/fullpos/sufpg.F90	fpos_mod.F90	DIA	FPOS	
	LFPOSHOR	/	arp/fullpos/sufpg2.F90	fpos_mod.F90	DIA	FPOS	
	LFPOSBUF	/	arp/fullpos/sufpg.F90	fpos_mod.F90	DIA	FPOS	
	LFDISTRIB	NAMFPG	arp/fullpos/sufpg.F90	fpos_mod.F90	DIA	FPOS	
	other LFP.	some in NAMFPG	arp/fullpos/sufpg.F90	fpos_mod.F90	DIA	FPOS	
	NFPNUM_DEP	/	arp/fullpos/sumfpos_dep.F90	fpos_mod.F90	DIA	FPOS	
	yomfpgind.F90	NFPRGPNUM	/	arp/fullpos/sumfpos.F90	fpos_mod.F90	DIA	FPOS
		NFPRGPNIND	/	arp/fullpos/sumfpos.F90	fpos_mod.F90	DIA	FPOS
NFPRGPNUM_DEP		/	arp/fullpos/sumfpos_dep.F90	fpos_mod.F90	DIA	FPOS	
NFPRGPNIND_DEP		/	arp/fullpos/sumfpos_dep.F90	fpos_mod.F90	DIA	FPOS	
yomfpios.F90	all	NAMFPIOS	arp/fullpos/sufpios.F90	fpos_mod.F90	DIA	FPOS	
yomfpop.F90	CFPFN	/	arp/fullpos/sufpoph.F90	fpos_mod.F90	?	FPOS or FNA	
	CFPCA	/	??? (where is it written?)	fpos_mod.F90	?	FPOS or FNA	
	CFPFNBG	/	arp/fullpos/sufpoph.F90	fpos_mod.F90	?	FPOS or FNA	
	CFPCABG	/	??? (where is it written?)	fpos_mod.F90	?	FPOS or FNA	
yomfpsc2.F90	NFPROMA_DEP	NAMFPSC2_DEP	arp/fullpos/sufpsc2_dep.F90	fpos_mod.F90	DIA	FPOS	
	other .DEP	/	arp/fullpos/sufpsc2_dep.F90	fpos_mod.F90	DIA	FPOS	
	NFPROMA	NAMFPSC2	arp/fullpos/sufpsc2.F90	fpos_mod.F90	DIA	FPOS	
	other	/	subpos.F90 + sufpsc2.F90	fpos_mod.F90	DIA	FPOS	
yomfpp.F90	all	/	internal	fpos_mod.F90	DIA	FPOS	
yomfpps.F90	all	/	internal	fpos_mod.F90	DIA	FPOS	
yomvpos.F90	NXPLEV	/	arp/fullpos/sufvpos.F90	fpos_mod.F90	DIA	FPOS	
	XPLEV	/	arp/fullpos/sufvpos.F90	fpos_mod.F90	DIA	FPOS	
	other	/	arp/fullpos/sufvpos.F90	fpos_mod.F90	DIA	FPOS	
yomwfpb.F90	YRMWFPB	/	arp/interpol/suhow1.F90	eint_mod.F90	?	INTERP	
	WSTD..	/	arp/interpol/suhow2.F90	eint_mod.F90	?	INTERP	
	WLAN...WSEA..	/	arp/interpol/suhow1sm.F90	eint_mod.F90	?	INTERP	
	MWIC..	/	arp/fullpos/sufpcip.F90	fpos_mod.F90	?	FPOS?	
yomwfpds.F90	all	/	arp/fullpos/sufwfpds.F90	fpos_mod.F90	?	FPOS	
yommcf.F90	RMCF.P	/	internal	mcuf_mod.F90	DIA	MCUF	
	other	NAMMCUF	arp/setup/sumcuf.F90	mcuf_mod.F90	DIA	MCUF	
yomppc.F90	all	some in NAMPPC	arp/setup/supp.F90	mlpp_mod.F90	DIA	MLPP	
yomwm.F90	FTHSOR	/	internal	mlpp_mod.F90	DIA	MLPP	

3.17 Modules yom.. with main topic GEOM.

Current module	Variable	Current namelist	Current setup	future OOPS module	Main topic	Sub topic	
yomgc.F90	YROROG	/	read on file + su(e)orog.F90	orog_mod.F90	DATAFLOW	OROG	
	YRCSGEOM	/	su(e)gem2.F90	gsgeom_mod.F90	GEOM	CSGEOM	
	YRCSGEOM_NB	/	cf. YRCSGEOM	gsgeom_mod.F90	GEOM	CSGEOM	
	YRCSGEOMAD	/	suslad3.F90 + suslad2.F90	gsgeom_mod.F90	GEOM	CSGEOM	
	YRCSGEOMAD_NB	/	cf. YRCSGEOMAD	gsgeom_mod.F90	GEOM	CSGEOM	
	SLHDP	/	su(e)gem2.F90	gsgeom_mod.F90	GEOM	CSGEOM	
yomgem.F90	REFL...	NAMGEM	su(e)gem_nam1.F90	csgeom_mod.F90	GEOM	CSGEOM	
	RMUCEN	NAMGEM	su(e)gem_nam1.F90	csgeom_mod.F90	GEOM	CSGEOM	
	RLOCEN	NAMGEM	su(e)gem_nam1.F90	csgeom_mod.F90	GEOM	CSGEOM	
	RSTRET	NAMGEM	su(e)gem_nam1.F90	csgeom_mod.F90	GEOM	CSGEOM	
	NSTTYP	NAMGEM	su(e)gem_nam1.F90	csgeom_mod.F90	GEOM	CSGEOM	
	NHTYP	NAMGEM	su(e)gem_nam1.F90	csgeom_mod.F90	GEOM	CSGEOM	
	RNLGINC	NAMGEM	su(e)gem_nam1.F90	csgeom_mod.F90	GEOM	CSGEOM	
	NLOENG	/	su(e)gem_nam1.F90	csgeom_mod.F90	GEOM	CSGEOM	
	NMENG	/	su(e)gem1a.F90	csgeom_mod.F90	GEOM	CSGEOM	
	NDGLU	/	su(e)gem1a.F90	csgeom_mod.F90	GEOM	CSGEOM	
	R4JP	/	su(e)gem1b.F90	csgeom_mod.F90	GEOM	CSGEOM	
	RC2P1,RC2M1	/	su(e)gem1b.F90	csgeom_mod.F90	GEOM	CSGEOM	
	RCOR..	/	su(e)gem1b.F90	csgeom_mod.F90	GEOM	CSGEOM	
	NLOEN	/	su(e)gem1b.F90	csgeom_mod.F90	GEOM	CSGEOM	
	NMEN,NMENTC	/	su(e)gem1b.F90	csgeom_mod.F90	GEOM	CSGEOM	
	NSTAGP	/	su(e)gem1b.F90	csgeom_mod.F90	GEOM	CSGEOM	
	NTSTAGP	/	(ALD:suegem1b.F90)	csgeom_mod.F90	GEOM	CSGEOM	
	TEQ..	/	su(e)gem1b.F90	csgeom_mod.F90	GEOM	CSGEOM	
	YRCSGEOM	/	su(e)gem2.F90	csgeom_mod.F90	GEOM	CSGEOM	
	YRCSGEOM_NB	/	cf. YRCSGEOM	csgeom_mod.F90	GEOM	CSGEOM	
	YRCSGEOMAD	/	suslad3.F90 + suslad2.F90	csgeom_mod.F90	GEOM	CSGEOM	
	YRCSGEOMAD_NB	/	cf. YRCSGEOMAD	csgeom_mod.F90	GEOM	CSGEOM	
	NGPTOT..	/	???	hdim_mod.F90	DIM	HDIM	
	YRVAB,YRVETA	/	suvert.F90	vertc_mod.F90	GEOM	VGEO	
	yomvv1.F90	VVP00	NAMVV1	suvv1.F90	vv1_mod.F90	GEOM	VGEO
		DVALH,DVBH	NAMVV1	suvv1.F90	vv1_mod.F90	GEOM	VGEO
	yomleg.F90	YRCSGLEG	/	su(e)lega.F90	csgeom_mod.F90	GEOM	CSGEOM
	yomrgri.F90	NRGRI	NAMRGRI	surgri.F90	csgeom_mod.F90	GEOM	CSGEOM

3.18 Modules yom.. with main topic PARALLEL.

Current module	Variable	Current namelist	Current setup	future OOPS module	Main topic	Sub topic
yommp.F90	LSPLIT	NAMPAR1	arp/setup/sump0.F90	dm_mod.F90	PARALLEL	DM
	LEQ_REGIONS	NAMPAR1	arp/setup/sump0.F90	dm_mod.F90	PARALLEL	DM
	LSPLITOUT	NAMPAR1	arp/setup/sump0.F90	dm_mod.F90	PARALLEL	DM
	LSYNC...	NAMPAR1	arp/setup/sump0.F90	dm_mod.F90	PARALLEL	DM
	LSPLITLAT	/	???	dm_mod.F90	PARALLEL	DM
	NDISTIO	NAMPAR1	arp/setup/sump0.F90	dm_mod.F90	PARALLEL	DM
	LUSEWRGRIDALL	NAMPAR1	arp/setup/sump0.F90	dm_mod.F90	PARALLEL	DM
	LWRGRID...	NAMPAR1	arp/setup/sump0.F90	dm_mod.F90	PARALLEL	DM
	MP_TYPE	NAMPARO	arp/setup/suct0.F90	dm_mod.F90	PARALLEL	DM
	MBX_SIZE	NAMPARO	arp/setup/sumpini.F90	dm_mod.F90	PARALLEL	DM
	MYPROC	/	???	dm_mod.F90	PARALLEL	DM
	MYSET...	/	???	dm_mod.F90	PARALLEL	DM
	MY_REGION...	/	???	dm_mod.F90	PARALLEL	DM
	MYLEVS	/	arp/setup/sump.F90	dm_mod.F90	PARALLEL	DM
	MYLATS	/	arp/setup/sump.F90	dm_mod.F90	PARALLEL	DM
	MYFRSTACTLAT	/	arp/setup/sump.F90	dm_mod.F90	PARALLEL	DM
	MYLSTACTLAT	/	arp/setup/sump.F90	dm_mod.F90	PARALLEL	DM
	NPRCIDS	/	arp/setup/su0dminit.F90	dm_mod.F90	PARALLEL	DM
	NGPSET2PE	/	arp/setup/sump.F90	dm_mod.F90	PARALLEL	DM
	NSTRIN	NAMPAR1	arp/setup/sump0.F90	dm_mod.F90	PARALLEL	DM
	NSTRROUT	NAMPAR1	arp/setup/sump0.F90+supp.F90	dm_mod.F90	PARALLEL	DM
	NOUUTYPE	NAMPAR1	internal	dm_mod.F90	PARALLEL	DM
	NWRTOUT	NAMPAR1	arp/setup/sump0.F90	dm_mod.F90	PARALLEL	DM
	NCOMBFLEN	NAMPAR1	arp/setup/sump0.F90	dm_mod.F90	PARALLEL	DM
	NUMPP	/	under arp/setup/sump.F90?	dm_mod.F90	PARALLEL	DM
	NUMXPP	/	under arp/setup/sump.F90	dm_mod.F90	PARALLEL	DM
	NPROCM	/	???	dm_mod.F90	PARALLEL	DM
	NALLMS	/	???	dm_mod.F90	PARALLEL	DM
	NPTRMS	/	under arp/setup/sump.F90	dm_mod.F90	PARALLEL	DM
	NPTRLS	/	under arp/setup/sump.F90	dm_mod.F90	PARALLEL	DM
	NPTRSV	/	under arp/setup/sump.F90	dm_mod.F90	PARALLEL	DM
	NPTRCV	/	under arp/setup/sump.F90	dm_mod.F90	PARALLEL	DM
	NPTRTV	/	under arp/setup/sump.F90	dm_mod.F90	PARALLEL	DM
	NPTRSVF	/	under arp/setup/sump.F90	dm_mod.F90	PARALLEL	DM
	NPTRMF	/	under arp/setup/sump.F90	dm_mod.F90	PARALLEL	DM
	NSPSTAF	/	under arp/setup/sump.F90	dm_mod.F90	PARALLEL	DM
	NUMLL	/	under arp/setup/sudim2.F90	dm_mod.F90	PARALLEL	DM
	NSPSTAF	/	under arp/setup/sump.F90	dm_mod.F90	PARALLEL	DM
	NPTRLL	/	under arp/setup/sump.F90	dm_mod.F90	PARALLEL	DM
	NPSURF_NPSP	/	under arp/setup/sudim2.F90	dm_mod.F90	PARALLEL	DM
	NSTA	/	???	dm_mod.F90	PARALLEL	DM
	NONL	/	???	dm_mod.F90	PARALLEL	DM
	NPTRFRSTLAT	/	???	dm_mod.F90	PARALLEL	DM
	NPTRLSTLAT	/	???	dm_mod.F90	PARALLEL	DM
	NPTRLAT	/	???	dm_mod.F90	PARALLEL	DM
	NFRSTLAT	/	???	dm_mod.F90	PARALLEL	DM
	NFRSTLOFF	/	???	dm_mod.F90	PARALLEL	DM
	NLSTLAT	/	???	dm_mod.F90	PARALLEL	DM
	NBSETLEV	/	???	dm_mod.F90	PARALLEL	DM
	NGLOBALINDEX	/	under arp/setup/sump.F90	dm_mod.F90	PARALLEL	DM
	NGLOBALPROC	/	under arp/setup/sump.F90	dm_mod.F90	PARALLEL	DM
	NLOCALINDEX	/	under arp/setup/sump.F90	dm_mod.F90	PARALLEL	DM
	NUMXP	/	under arp/setup/sump.F90	dm_mod.F90	PARALLEL	DM
	N_PEC2V	/	under arp/setup/sump.F90	dm_mod.F90	PARALLEL	DM
	NSPEC2VF	/	under arp/setup/sump.F90	dm_mod.F90	PARALLEL	DM
	NBSETSP	/	under arp/setup/sump.F90	dm_mod.F90	PARALLEL	DM
	NPTRFLOFF	/	???	dm_mod.F90	PARALLEL	DM
NUMPROCFP	/	arp/fullpos/sumpfp0.F90	dm_mod.F90	??	PARALLEL	DM+FP0S
NUMPROCFP_DEP	/	arp/fullpos/sumpfp0_dep.F90	dm_mod.F90	??	PARALLEL	DM+FP0S
NSLPAD	NAMPAR1	arp/setup/sump0.F90	eint_mod.F90	INTERP	EINT	
yommpextra.F90	all	/	sumpextra.F90	dm_mod.F90	PARALLEL	DM
yommpg.F90	all	/	su(e)mp.F90 via TFL or TAL	cf. yommp.F90?	PARALLEL	DM?
yomtag.F90	all	/	inside yomtag.F90	dm_mod.F90	PARALLEL	DM

3.19 Universal and astronomical constants (current yomcst.F90).

Current module	Variable	Current namelist	Current setup	future OOPS module	Main topic	Sub topic
yomcst.F90	RIO	NAMSCEN	arp/setup/sucst.F90	acst_mod.F90	MISC	ACST
	RA,R1SA	via NAMDYNCORE	arp/setup/sucst.F90	acst_mod.F90	MISC	ACST
	RDAY	via NAMDYNCORE	arp/setup/sucst.F90	acst_mod.F90	MISC	ACST
	REPSM	via NAMDYNCORE	arp/setup/sucst.F90	acst_mod.F90	MISC	ACST
	RG	via NAMDYNCORE	arp/setup/sucst.F90	acst_mod.F90	MISC	ACST
	REA		arp/setup/sucst.F90	acst_mod.F90	MISC	ACST
	REPSM		arp/setup/sucst.F90	acst_mod.F90	MISC	ACST
	RSIYEA,RSIDAY		arp/setup/sucst.F90	acst_mod.F90	MISC	ACST
	ROMEGA		arp/setup/sucst.F90	acst_mod.F90	MISC	ACST
	RTIMST,RTIMTR		arp/setup/sucst.F90	acst_mod.F90	MISC	ACST
	RPI	/	arp/setup/sucst.F90	ucst_mod.F90	MISC	UCST
	Other ones	/	arp/setup/sucst.F90	ucst_mod.F90	MISC	UCST

Remarks about yomcst.F90:

- UCST: universal and thermodynamical constants are never modifiable in a namelist, and they do not change in simulations done in another planet.
- ACST: some astronomical constants may be in a namelist, and may change in simulations done in another planet (example: solar constant, planet radius).
- It is better to put new modules in XRD/IFSAUX because they may be used by nearly all projects (avoid forbidden dependencies, and avoid to redefine such constants in the different projects). It is easier to put first UCST variables in XRD/IFSAUX. ACST variables require more work because some variables may be modified according to NAMSCEN or NAMDYNCORE variables.

3.20 Other modules yom..

Current module	Variable	Current namelist	Current setup	future OOPS module	Main topic	Sub topic
yomafn.F90	TFP_DYND5 GFP_PHYD5 other	/ / NAMAFN	arp/setup/suafn2.F90 arp/setup/suafn2.F90 arp/setup/suafn1.F90	afn_mod.F90 afn_mod.F90 afn_mod.F90	MISC MISC MISC	AFN AFN AFN
yomarg.F90	all	/	arp/setup/suarg.F90	arg_mod.F90	MISC	ARG
yomcosjb.F90	all	NAMJG	arp/var/sujb.F90	???	COSTFUNC	JB
yomcosjc.F90	all		arp/var/sujc.F90	???	COSTFUNC	JC
yomcosjo.F90	all	some in NAMCOSJO	some in defrun.F90	???	COSTFUNC	JO
yomcosjr.F90	all	/	arp/var/sujr.F90	???	COSTFUNC	JR
yomjbsibi_mod.F90	SIBI				COSTFUNC	JB
yomjbcivar.F90	type def only	/		???	COSTFUNC	JB
yomjcdfi.F90	?????????				COSTFUNC	JC+DFI
yomjg.F90	?????????				COSTFUNC	JB
yomjq.F90	?????????				COSTFUNC	JQ
yomjr.F90	?????????				COSTFUNC	JR+AVARC
yomwavelet.F90	type def only				COSTFUNC	JB
yomjfh.F90	N_VMASS	NAMJFH	arp/setup/sujfh.F90	optim_mod.F90	MISC	OPTIM
yompldsw.F90	LOPT_SCALAR	NAMCTO	arp/setup/suct0.F90	optim_mod.F90	MISC	OPTIM
yomsep.F90	LOPT_RS6K	NAMCTO	arp/setup/suct0.F90	optim_mod.F90	MISC	OPTIM
	NVSEP..	NAMDYN	arp/setup/sudyn.F90	optim_mod.F90	MISC	OPTIM
yomslrep.F90	LFINDVSEP	/	internal	optim_mod.F90	MISC	OPTIM
	LVECADIN	NAMCTO	arp/setup/suct0.F90	optim_mod.F90	MISC	OPTIM
	LSLADREP	NAMCTO	arp/setup/suct0.F90	optim_mod.F90	MISC	OPTIM
	NGPTOTAD	/	arp/setup/suslad1.F90 + arp/setup/suslad3.F90	optim_mod.F90	MISC	OPTIM
	NADCORE	/	arp/setup/suslad1.F90 + arp/setup/suslad3.F90	optim_mod.F90	MISC	OPTIM
yomcvb.F90	RSASIGN	/	arp/interpol/slcset.F90	eint_mod.F90	INTERP	EINT
	NADMAM	/	arp/interpol/slcset.F90	eint_mod.F90	INTERP	EINT
yomdb.F90	N..	/	arp/var/sujb.F90	???	CONTROL	CTLVEC
	Y..	/	sometimes sualctv.F90 internal	???	???	
yomdb.F90	?????????				OBSA	ODB
yommkodb.F90	?????????				OBSA	ODB
yomdfi.F90	HW...	/	arp/dfi/sufw.F90	dfi_mod.F90	INITI	DFI
	other	NAMDFI	arp/dfi/sudfi.F90	dfi_mod.F90	INITI	DFI
yomdim.F90	LOPTPROMA	/	arp/setup/sudim1.F90	optim_mod.F90	MISC	OPTIM
	NDG..	some in NAMDIM	arp/setup/sudim1.F90	hdim_mod.F90	DIM	HDIM
	NDL..	some in NAMDIM	arp/setup/sudim1.F90	hdim_mod.F90	DIM	HDIM
	NPRM..	some in NAMDIM	arp/setup/sudim1.F90	hdim_mod.F90	DIM	HDIM
	NGPBLKS	some in NAMDIM	arp/setup/sudim1.F90	hdim_mod.F90	DIM	HDIM
	N.MAX,N.MIN	some in NAMDIM	arp/setup/sudim1.F90	hdim_mod.F90	DIM	HDIM
	NSEFRE	/	arp/setup/sudim2.F90	hdim_mod.F90	DIM	HDIM
	N.PEC2,N.PEC2G	/	some in arp/setup/sudim2.F90	hdim_mod.F90	DIM	HDIM
	N.MP	/	arp/setup/sump.F90	hdim_mod.F90	? DIM	HDIM+DM
	NFL..	some in NAMDIM	arp/setup/sudim1.F90	vdim_mod.F90	DIM	VDIM
	NIOLEVG	NAMDIM	arp/setup/sudim1.F90	vdim_mod.F90	? DIM	VDIM
	NRLEVX	/	arp/setup/sudim1.F90	vdim_mod.F90	? DIM	VDIM+VGEOM
	LVOR to LSPT	/	arp/setup/sudim1.F90	dim_mod.F90	? DIM	DIM
	other	some in NAMDIM	arp/setup/sudim1.F90	dim_mod.F90	DIM	DIM
	yomdphy.F90	all nb levels	some in NAMDPHY	arp/setup/sudim1.F90	vdim_mod.F90	DIM
all other		some in NAMDPHY	arp/setup/sudim1.F90	dim_mod.F90	DIM	DIM
yomdimo.F90	all	some in NAMDIMO	arp/setup/sudimo.F90	dimo_mod.F90	DIM	DIMO
yomdyncore.F90	all	some in NAMDYNCORE	arp/setup/sudyncore.F90	initc_mod.F90	IOFILE	INITC
yomsw.F90	all	NAMSWE	arp/setup/suspecb.F90	initc_mod.F90	IOFILE	INITC
yomvodcst.F90	all	/	arp/setup/suspecb.F90	initc_mod.F90	IOFILE	INITC
yommass.F90	LMASCOR	NAMDYN	arp/setup/sudyn.F90	cormass_mod.F90	CORMAS	CORMASS
	LMASDRY	NAMDYN	arp/setup/sudyn.F90	cormass_mod.F90	CORMAS	CORMASS
	GMASSI	NAMRCF	internal	cormass_mod.F90	CORMAS	CORMASS
	GMASSO	NAMRCF	internal	cormass_mod.F90	CORMAS	CORMASS
	GMASSINC	/	internal	cormass_mod.F90	CORMAS	CORMASS
yomfa.F90	all	some in NAMFA	arp/setup/sufa.F90	fa_mod.F90	IOFILE	FA
yomlfi.F90	all	/	arp/setup/sulfi.F90	lfi_mod.F90	IOFILE	LFI
yomffttc.F90	all	/	arp/setup/surcoftc.F90	tfou_mod.F90	TRANSF	TFOU
yomfouc.F90	all	/	arp/setup/suspectcfou.F90	radtc_mod.F90	PHYS	RADTC
	LRCOEF	NAMRCOEF	arp/setup/su0phy.F90	radtc_mod.F90?	PHYS	RADTC,PHYDYN1
	other L...	NAMRCOEF	arp/setup/su0phy.F90	radtc_mod.F90	PHYS	RADTC
	NLENG...		arp/setup/susc2b.F90	radtc_mod.F90	PHYS	RADTC
	other N...		arp/setup/sudim2.F90	radtc_mod.F90	PHYS	RADTC
yomrcoef.F90	arrays		internal	radtc_mod.F90	PHYS	RADTC

Current module	Variable	Current namelist	Current setup	future OOPS module	Main topic	Sub topic
yomgetmini.F90	all		internal	minim_mod.F90	LINALG	MINIM
yomiomi.F90	LWARM.. CFVATRA NMUPD	NAMIOMI NAMIOMI NAMIOMI	arp/var/suiomi.F90 arp/var/suiomi.F90 arp/var/suiomi.F90	minim_mod.F90 minim_mod.F90 minim_mod.F90	LINALG LINALG LINALG	MINIM MINIM MINIM
	LREADSP	NAMIOMI	arp/var/suiomi.F90	???	?????	?????
yomgrib.F90	all NGRB... other		in yomgrib.F90 itself	grib_codes_mod.F90 ???	IOFILE IOFILE	GRB GRB
yom_grib_codes.F90	all NGRB... other		in yom_grib_codes.F90 itself	grib_codes_mod.F90	IOFILE	GRB
yom_grid_biconserv.F90	?????????					???
yomini.F90	all	some in NAMINI	arp/dfi/suini.F90	ini_mod.F90	INITI	INI
yomio.F90	scal. NPP. LPPTSF other	NAMPARI NAMPARI /	sump0.F90 + supp.F90 arp/setup/sump0.F90 arp/setup/supp.F90	??? ??? ???	IOFILE IOFILE IOFILE	PPIO PPIO PPIO
yomios.F90	C...F NPCKFGP NPCKFCF NPCKKXF NPCKFGX NPCKFGN	NAMIOS / / / / /	arp/setup/suios.F90 arp/setup/suios.F90 arp/setup/suios.F90 arp/setup/suios.F90 arp/setup/suios.F90 arp/setup/suios.F90	restart_mod.F90 cf. GPABUF in YOMGPPB cfu_mod.F90 like CFUBUF xfu_mod.F90 like XFUBUF fpbuf_mod.F90 like GAUXBUF gmv_mod.F90 + gfl_mod.F90 like GPPCBUF	IOFILE PHYS DIA DIA DIA DATAFLOW	RESTART MPHY CFU XFU FPBUF GMV+GFL
yomlcz.F90	LFORCE LFORCEWR YSPFORCE GPFORCE..	NAMLCZ NAMLCZ / /	arp/sinvect/sulcz.F90 arp/sinvect/sulcz.F90 internal internal	??? ?? (cf. LFORCE) ?? (cf. LFORCE) ?? (cf. LFORCE)	??? ??? ??? ???	
	YVAZXO, YVAZGO RLANBU... RLRAIN RITZVALS MEMBFGS GREDBFGS KAPA XMIN_RITZ ALON..., ALAT.. COE...TERM TSTEP_STATE_4D YSTATE_VECTOR_4D YV_SUBSPACE	/ / / / NAMLCZ NAMLCZ NAMLCZ NAMLCZ NAMLCZ NAMLCZ NAMLCZ /	internal internal internal internal arp/sinvect/sulcz.F90 arp/sinvect/sulcz.F90 arp/sinvect/sulcz.F90 arp/sinvect/sulcz.F90 arp/sinvect/sulcz.F90 arp/sinvect/sulcz.F90 arp/sinvect/sulcz.F90 arp/sinvect/sulcz.F90 internal internal	lcz_mod.F90 lcz_mod.F90 lcz_mod.F90 lcz_mod.F90 lcz_mod.F90 lcz_mod.F90 lcz_mod.F90 lcz_mod.F90 lcz_mod.F90 lcz_mod.F90 lcz_mod.F90 lcz_mod.F90 lcz_mod.F90 lcz_mod.F90 lcz_mod.F90	LINALG LINALG LINALG LINALG LINALG LINALG LINALG LINALG LINALG LINALG LINALG LINALG LINALG LINALG LINALG	LCZ LCZ LCZ LCZ LCZ LCZ LCZ LCZ LCZ LCZ LCZ LCZ LCZ LCZ LCZ
	NITERL_OBSCOR NOPMSTOP NRITZ... NSTEP_S...STATE NINNER NJDSTOP other N...	/ / / / NAMLCZ NAMLCZ NAMLCZ	internal internal internal arp/sinvect/sulcz.F90 ??? ??? arp/sinvect/sulcz.F90	lcz_mod.F90 lcz_mod.F90 lcz_mod.F90 lcz_mod.F90 lcz_mod.F90 lcz_mod.F90 lcz_mod.F90	LINALG LINALG LINALG LINALG LINALG LINALG LINALG	LCZ LCZ LCZ LCZ LCZ LCZ LCZ
	other L...	NAMLCZ	arp/sinvect/sulcz.F90	lcz_mod.F90	LINALG	LCZ
yomlun.F90	all	some in NAMLUN	PARAMETER in yomlun.F90	logunit_mod.F90	IOFILE	LOGUNIT
yommask.F90	NFIXSFLD MFIELD..		internal arp/setup/suslb.F90	eint_mod.F90 eint_mod.F90	INTERP INTERP	EINT EINT
yommsc.F90	?????????				???	???
yommts.F90	LMTS, LMTSCL other	/ NAMMTS	arp/fullpos/suffpqh.F90 arp/setup/sumts.F90		DIA ???	FPOS ???
yommwave.F90	?????????				???	???
yomoph.F90	CFN.., CFN.. CNMCA.. CFANS..	some in NAMOPH / / /	arp/setup/suoph.F90 arp/setup/suoph.F90 arp/setup/suoph.F90	filename_mod.F90 filename_mod.F90 filename_mod.F90	IOFILE IOFILE IOFILE	FNA FNA FNA
	CFPATH NLPATH CETSTAMP LINC LBCINC NFDBREF LTIMEPO NCADFORM	NAMCTO / / NAMOPH NAMOPH / / NAMOPH	arp/setup/suct0.F90 arp/setup/suoph.F90 arp/setup/suoph.F90 arp/setup/suoph.F90 arp/setup/suoph.F90 arp/setup/suoph.F90 arp/setup/suoph.F90 arp/setup/suoph.F90	oph_mod.F90 oph_mod.F90 oph_mod.F90 oph_mod.F90 oph_mod.F90 oph_mod.F90 oph_mod.F90 oph_mod.F90	IOFILE IOFILE IOFILE IOFILE IOFILE IOFILE IOFILE IOFILE	OPH OPH OPH OPH OPH OPH OPH OPH
	MAGDIO MAXFIELD	/ /	arp/setup/suarpio.F90 arp/setup/suoph.F90	dm_mod.F90 (cf. NSTRIN) cf. NSURFL?	PARALLEL	DM
	NBGOUT VALHIO, VBHIO	/ /	internal arp/setup/suoph.F90	can be local in WRMLPPA oph_mod.F90		
					IOFILE+GEOM	OPH+VGEOM

3.21 Mixed modules.

Current module	Main topic	Sub-topic	Remarks
aeolus_getamd_mod.F90	OBSA	OBS	
aeolus_processing_mod.F90	OBSA	OBS	
control_vectors_comm_mod.F90	CONTROL	CTLVEC	
coupl04_mix.F90	CLIMATE	OCOU	
chem_mix.F90	DATAFLOW?	GFL?	namelist NAMCHEM; set-up in SUCFL1
eint_mod.F90	INTERP	EINT	set-up currently in arp/interp/slcset.F90 + slrset.F90 some set-up in SUHSLMER, SUVSLETA, SUVSLIP
elbc0a_mod.F90	COUPLING	ELBC0A	
elbc0b_mod.F90	COUPLING	ELBC0B	
elbc3_mod.F90	COUPLING	ELBC3	
enkf_mix.F90	ASSIM	ENKF	
fullpos_mix.F90	MISC	AFN	
get_lwpcoeff_mix.F90	OBSA	OBS	microwave imagers and sounders
gfl_subs_mod.F90	DATAFLOW	GFL	
gmw_subs_mod.F90	DATAFLOW	GMV	
goms_mix.F90	DATAFLOW	GOMS	
grg_photolysis_mix.F90	OBSA	OBS	
grib_header_mix.F90	IOFILE	GRB	
gridpoint_buffers_mix.F90	DATAFLOW	GPBUF	
gridpoint_fields_mix.F90	DATAFLOW	GPBUF	
indexfind_mod.F90			
intdyn_mod.F90	ADIAB	INTDYN	
iostream_mix.F90	IOFILE		
obshor_cache_mix.F90	OBSA	maybe OBB	
reglatlon_field_mix.F90	GEOM?	?????	defines a regular LAT-LON grid geometry
rt6svalues.F90	OBSA	OBS	
sats_mix.F90	OBSA	OBS	
spng_mod.F90	ADIAB	SPNG	
spectral_columns_mix.F90			
spgeom_mod.F90	GEOM	SPGEOM	
stoph_mix.F90	PHYS	ECPHY	ECMWF stochastic physics
surface_fields_mix.F90	DATAFLOW	SURF	may also contain SU_SURF_FLDS (encapsulated setup), NAM_SURF_FLDS (namelist, former NAMPHYDS)
testvar_mix.F90	ASSIM	VAR?	
tm5_chem_module.F90	????	????	
tm5_photolysis_mix.F90	????	????	
trajectory_mod.F90	DATAFLOW	MTRAJ	
traj_main_mod.F90	DATAFLOW	MTRAJ	
traj_physics_mod.F90	DATAFLOW	MTRAJ	
traj_semlag_mod.F90	DATAFLOW	MTRAJ	
traj_surface_mod.F90	DATAFLOW	MTRAJ	
all varbc_*.F90 modules	ASSIM	VARBC	
watch_arrays_mod.F90			
wav_lifting_mod.F90	COSTFUNC	maybe JB?	like yemwavelet.F90?
wrfu_mod.F90	IOFILE	FA	also CFU
wrgrida_mod.F90	IOFILE	FA	
wrgridua_mod.F90	IOFILE	FA	
wrxfu_mod.F90	IOFILE	FA	also XFU
yomico_serv_*.F90 modules	IOFILE	IOSERV	

4 References.

- Yessad, K., 2012: Proposal of cleanings in ARPEGE/IFS in 2012-2013 (version V8a). Internal note.
- (IDKEYW) Yessad, K., 2012: Keywords in the cycle 38T1 of ARPEGE/IFS. Internal note.