

I. Identified bugs :

- **packing LON/LAT** : pack_isba_patch_get_sizen.F90, pack_isba_patchn.F90 (error of key for the packing of variables LON LAT)
- **pack_isba_patchn.F90**: pb dimension

- **SSO** :
 - default_sso.F90, read_isba_confn.F90, sso_z0_frictionn.F90, init_surf_atmn.F90, subscale_z0eff.F90, subscale_z0eff_1d.F90 (default = Z01D for continuity with previous version, if ROUGH if defined in SURF_ATM, forced to NONE in ISBA ; Z0VEG is not limited to 0,001 any longer in surf_atm ; simplification of the writing in subscale_z0eff).
 - **z0rel_1d.F90**: initialization
 - **sso_z0_frictionn.F90**: a line in double

- **compute_isba_parameters.F90**: test on XPATCH
- **AGS** : carbon_evol.F90, ini_data_param.F90 (calculations effected for the patches of vegetation only), read_prep_isba_carbon.F90 (initialization of RESPSL)

- **Lakes database** : average2_ldb.F90 (error of index in the calculation of ZFRAC), pgd_flake.F90 (status map given in the namelist), treat_global_laie_depth.F90 (default values for the lakes depth, error on a variable)

- **Seaflux** : modd_seafluxn.F90, prep_sst_init.F90 (JSX put in a module to suppress the SAVE declaration in the run)

- **urban_drag.F90**: bug CD
- **averaged_tsrاد_teb.F90**: bug correction (1-BLD) => ROAD

- **Desallocation of the memory** : pgd_isba_par.F90, pgd_teb_par.F90, dealloc_isban.F90, dealloc_tebn.F90
- **read_pgd_isba_parn.F90**: allocations only if data exist

- **declarations** : green_from_lai.F90, veg_from_lai.F90
- **modd_type_date_surf.F90**: pb initialization
- **write_diag_seb_surf_atmn.F90**: not to write the 10m fields when they are not calculated (first level of the model < 10m)

- **ch_aer_dep.F90**: temporary variables and hardenings
- **ch_bvocemn.F90**: simplification of the writing
- **prep_ver_teb_garden.F90**: simplification of the writing
- **prep_ver_isba.F90**: same
- **allocate_gr_snow.F90**: same

- **mode_read_cdf.F90**: change of the name of handle_err not to detect this file in the script to add the USE MODI.
- **mode_read_netcdf_mercator.F90**: idem
- Update of the **writesurf_...conf** functions of the read_...conf:
- **writesurf_isba_confn.F90**: writes NAM_TREEDRAG
- **writesurf_seaflux_confn.F90**: writes NAM_DIAG_OCEAN
- **writesurf_teb_confn.F90**: writes NAM_TEBn*
- **writesurf_flake_confn.F90**: writes NAM_FLAKEn
- **writesurf_atm_confn.F90**: writes NAM_SSO_n, NAM_DIAG_SURF_ATM_n, NAM_WRITE_DIAG_SURF_n

GARDEN:

- **goto_wrapper_teb**: 2 modules missing
- **read_namelists_gardenn.F90**: adds default_ch_dep, default_ch_bio_flux
- **modn_teb_gardenn.F90**: change of namelists isba => garden
- **read_default_teb_gardenn.F90**: modifications of the namelists GARDEN
- **read_teb_garden_confn.F90**: change of namelists GARDEN
- **pgd_teb_par.F90**: tests of consistency BLD / GARDEN
- **default_data_cover.F90**: adds gardens in ECOV2
- **convert_cover_isba.F90, convert_patch_isba.F90, convert_patch_teb.F90, init_teb_garden.F90** : calculation of GARDEN in TEB and not in GARDEN/ISBA ; XGARDEN was calculated only in the case ECOCLIMAP
- **default_prep_teb_garden.F90** (default values for WGI)
- **flag_diag_update.F90, flag_update.F90, garden_soil_depth.F90** : new files called in garden
- **modd_teb_gardenn.F90**: LECOCLIMAP => LPAR_GARDEN
- **pgd_teb_garden.F90**: the call of pgd_teb_garden_par doesn't depend on ECOCLIMAP any more
- **pgd_teb_garden_par.F90**: définition of LPAR_GARDEN
- **init_teb_gardenn.F90**: LPAR_GARDEN, DEFAULT_CH_DEP, DEFAULT_CH_BIO_FLUX
- **read_pgd_teb_gardenn.F90**: reading of LPAR_GARDEN, replacement of LECOCLIMAP by LPAR_GARDEN
- **writesurf_pgd_teb_parn.F90**: writes LPAR_GARDEN
- **mode_read_extern.F90** : name of variable PAR_GARDEN
- **read_pgd_teb_garden_parn.F90**: correction DICE
- **prep_teb_garden_extern.F90**: initialisation of the variables prognostics of the garden (not taken into isba any more)

- **mode_read_extern.F90**: for garden
 - **read_pgd_teb_parn.F90**: modification to be called in zoom_pgd_teb.F90
 - **read_pgd_tebn.F90**: call of read_pgd_teb_parn
 - **zoom_pgd_teb.F90** : rewritten
 - **zoom_pgd_town.F90**: call of zoom_pgd_teb
 - **zoom_pgd_cover.F90 + zoom_pgd_surf_atm.F90 + zoom_pgd_teb.F90** : harmonization
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- pgd_cover.F90 (case of imposed tiles fractions improved)
 - pgd_field.F90 (hardening PDEF)
 - pgd_isba.F90 (arithmetic average)
 - average1_orography.F90 (comments)
 - get_mesh_index_conf_proj.F90 (indexes)
 - grid_from_file (argument HPROGRAM)
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- read_prep_garden_snow.F90 + read_prep_isba_snow.F90 + read_prep_teb_snow.F90 (name of namelist snow variables)
 - prep_flake_extern.F90 + prep_watflux_extern.F90 (verification of water presence)
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- coupling_dstn.F90 (location ENDIF)
 - coupling_sltn.F90 (crash IFORT)
 - modd_ch_emis_fieldn.F90 (initialization TSEMISS)
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- prep_ctrl_isba.F90 (add of the argument LPATCH_BUDGET)
 - init_isban.F90 (tests of consistency AGS)
 - coupling_isban.F90 (argument RHOA diag_misc_isban)
 - diag_misc_isban (optimization)
 - isba_flood_properties (use unuseful)
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- coupling_tebn.F90 (ZFORC_T=0.)
 - sm10.F90 (Q0 not taken into account)
 - writesurf_teb_canopyn.F90 (writing Q).
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- detect_field.F90 (test LFI)
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- mode_read_grib.F90 (allocations and consistency and compilation IFORT)
 - modd_grid_grib.F90 + mode_read_grib.F90 + prep_grib_grid.F90 (compilation of grib_api in integer 8)
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- read_default_idealn.F90 (calculation of IMI)
 - read_surf_atm_confn.F90 (reading of NAM_CH_SURFN)
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- tsz0.F90 (ACOS instead of COS)
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- mode_write_surf_lfi.F90 (indexes)
 - mode_write_surf_ol.F90 (indexes)
 - offline.F90, oi_main.F90, prep.F90 (arguments of read_all_namelists)

- ol_find_file_read.F90 (abort if the variable is not found)
- open_filein_ol.F90 (tests if the file exists, if not crashes on tori)
- sxpost.F90 (various errors).
- modd_write_bin.F90 + modd_write_txt.F90 + ol_read_atm_ascii.F90 +

USE_MODI:

- **init_io_surf_fan.F90:** pb dimension local variable
- **offline.F90, prep.F90, oi_main.F90:** read_all_namelists called with FALSE
- All the missing *USE MODI_...* have been added. Numerous files have been consequently modified.
- All the too many *USE MODI_...* are suppressed. Numerous files have still been modified.

Reading of forcing files and unit numbers :

- **modd_write_bin.F90, modd_write_txt.F90, ol_read_atm_ascii.F90, ol_read_atm_binary.F90, ol_read_atm_conf_ascii.F90, open_close_bin_asc_forc.F90**

II. Simplification of the writing of the covers :

- LCOVER is written in COVER_LIST
- XCOVER is written in COVER_FIELDS
- New subroutines of writing / reading : write_surfx2cov, read_surfx2cov : test on LCOVER inside these subroutines and writing the lines of present covers one following the other.
- The ascendant compatibility is verified (old / new names) with the routine old_name.F90.
- mode_read_extern.F90, prep_teb_extern.F90, read_covern.F90, read_pgd_flaken.F90, read_pgd_isban.F90, read_pgd_seafluxn.F90, read_pgd_tebn.F90, read_pgd_watfluxn.F90, zoom_pgd_cover.F90 : adapted reading of the covers
- writesurf_pgd_flaken.F90, writesurf_pgd_isban.F90, writesurf_pgd_seafluxn.F90, writesurf_pgd_tebn.F90, writesurf_pgd_watfluxn.F90 : adapted writing of the covers

III. Reading of the covers in files .bin / in fortran subroutines :

- Add of the namelist NAM_READ_DATA_COVER/LREAD_DATA_COVER, reading in .bin files if TRUE : modd_data_cover.F90
- ini_data_cover.F90, cover301_573.F90 : switch on LREAD_DATA_COVER and call of the routines default_... .
- read_all_namelists.F90, pgd_surf_atm.F90, zoom_pgd_surf_atm.F90 : reading of the namelist
- init_flaken.F90, init_seafluxn.F90, init_tebn.F90, init_watfluxn.F90, init_isban.F90 : suppression of the call of ini_data_cover

IV. Drag orographique (Pierre Aumont) :

read_isba_conf.F90, zov_from_lai.F90

V. Modifications from GMAP on F77 :

- mode_gridtype_gauss.F90, open_file_asc.F90, open_file_fa.F90, read_ascllv.F90, read_binllv.F90, readhead.F90
- ncpost.F90, open_file_lfi.F90, open_file_ol.F90

VI. Compilation on IBM :

- modifications error_read_surf_asc.F90, error_read_surf_fa.F90, error_write_surf_asc.F90, error_write_surf_fa.F90, mode_dstmbl_mb.F90, mode_dstmblutl.F90
- modifications error_read_surf_lfi.F90, error_read_surf_ol.F90, error_write_surf_bin.F90, error_write_surf_txt.F90
- ELSEWHERE : average2_cti.F90, garden.F90, hydro_snow.F90, nitro_carbon_decline.F90, prep_ver_isba.F90, prep_ver_teb_garden.F90, z0rel_1d.F90

VII. PGD parallele :

- add of the module **MODD_DATA_COVERn** that contains XDATA_TOWN, XDATA_NATURE, XDATA_GARDEN, XDATA_BLD, XDATA_WALL_O_HOR, LGARDEN (vary with the sub-surface).
 - Leads to a call in goto_wrapper_surfatm.F90
 - Leads to changes of USE in : av_pgd.F90, convert_cover_frac.F90, convert_cover_teb.F90, convert_cover_isba.F90, convert_patch_isba.F90
 - update_data_fracn : to fill these variables in the sub-surface + calculations functions of LGARDEN
- Suppression of the **orography filter** of pgd_orography : moved in pgd.F90 after the call of pgd_surf_atm.F90 => suppression of NZSFILTER de NAM_ZS => modifications in read_nam_pgd_gauss_index.F90, read_nam_pgd_orography.F90
- **Gestion of the interpolation :**
 - interpol_field.F90 :
 - suppression of the tests on KCODE because the number on a sub-surface is not representative of the whole domain
 - interpolation always by interpol_3pts
 - if not interpolated points remain at the end, the program stops
 - interpol_3pts.F90 :
 - calculation of the number of points to scan functions of the number of points in the HALO : leads to modifications in get_near_meshes_conf_proj.F90, get_near_meshes_cartesian.F90, get_near_meshes_lonlat_reg.F90, get_near_meshes_lonlatval.F90, get_near_meshes_gauss.F90, get_near_meshes_ign.F90, get_near_meshes.F90
 - the sizes of arrays are reduced to the effective points to interpolate
- interpol_3pts => interpol_npts : interpol_npts.F90 is a new file that combines interpol_3pts.F90 and interpol_nearest_pt.F90

- leads to changes of arguments in : compute_isba_parameters.F90, extrapol_fields.F90, pgd_bathyfield.F90, pgd_orography.F90, pgd_topo_index.F90
- **size of grids :**
 - NDIM is suppressed from modd_surf_atm_gridn (redundant with NDIM_FULL).
 - NDIM_FULL contains the size of the full domain.

Filling of NDIM_FULL in pgd_grid (and no more in pgd_cover or pgd_frac).

- ini_var_from_vegtype_data.F90 : NSIZE_FULL is used and not NDIM (size of the sub-surface).
- get_size_fulln.F90 : hardening of NSIZE_FULL
- get_grid_coord.F90 : gets NSIZE_FULL and not NDIM
- **Other things:**
- **pgd_topo_index.F90:** replacement of interpol_nearest_pt by interpol_field
 - pgd_cover.F90, pgd_frac.F90 : adaptations to calculated the full dimensions
 - latlonmask_conf_proj.F90 : corrections to take into account the corners of the domain and not the centers of the side points
 - mode_gridtype_conf_proj.F90 : modification of the sharing out of informations in XGRID_PAR
 - read_gridtype.F90, read_gridtype_conf_proj.F90, read_gridtype_cartesian.F90, write_grid.F90, write_gridtype_cartesian.F90, write_gridtype_conf_proj.F90 : add of HDIR in the arguments ; HDIR=A to specify the field to be read and written for the full domain and not only for the dimension of the current processor.
 - pgd_surf_atm.F90, pgd.F90 : changes to call pgd_grid.F90 dans pgd.F90.

VIII. New files :

init_read_data_cover.F90
 default_data_cover.F90, default_lai_eco1.F90, default_lai_eco2.F90
 modd_data_covern.F90
 old_name.F90
 update_data_fracn.F90
 modd_treedrag.F90
 modn_treedrag.F90
 z0rel_1d.F90
 interpol_npts.F90

get_interp_halo.F90, get_interp_halo_ol.F90 : to define the number of points to scan in interpol_npts.F90
 sum_on_all_procs.F90, sum_on_all_procs_ol.F90 : sum on all processors (in offline, nothing to do)
 pgd_orography_filter.F90, read_nam_pgd_orography_filter.F90 : to call orography_filter.F90 at the level of pgd.F90 and not pgd_orography.F90 any more
 pgd_grid_surf_atm.F90 : calls pgd_grid.F90 and pgd_grid_io_init.F90
 put_pgd_grid.F90 : to put the informations of grid of the processor
 split_grid.F90, split_grid_cartesian.F90, split_grid_conf_proj.F90 : to share out the grid among the

processors

mode_split_grid_parameter.F90, mode_split_grid_parameter_ol.F90 : idem