

## README\_Rocotlib\_V3p2 file - P. Robert, October 5, 2020

The Rocotlib pack includes 4 distributions, corresponding to the Rocotlib software in 4 languages:

```
Rocotlib_V3p2_f77
Rocotlib_V3p2_f90
Rocotlib_V3p2_C
Rocotlib_V3p2_IDL
```

The F77 version is the native development code. Conversion in C has been done with **f2c** software (makefile use f2c.lib). Conversion in F90 has been done with hands, as such as IDL version.

### 1) F77, F90 and C distribution

Each package is on the model:

```
Rocotlib_V3p2_f77
  |__bin
  |__doc
  |__in
  |__obj
  |__out
  |__out_GNU_Linux_x86_64_gfortran_f
  |__out_GNU_Linux_x86_64_gfortran_f_corr
  |__out_Msys_i686_gfortran_f
  |__out_Msys_i686_gfortran_f_corr
  |__sh
  |__src
```

The user has to copy on his machine the desired distribution.

**src** directory includes source of the library (as rocotlib\_V3p2.f), and sources of many test and example programs, in particular rocot\_example.f and rocot\_check.f.

**obj** directory contains the .o or .obj files created after compilation by the makefile

**bin** contains the .exe files

**in** contains the input parameters required by the .exe file, while **out** contains the result of execution.

**sh** directory contains the shell launching the exe files, such as .exe < .in > .out

**doc** contains documentation, in particular the user manual doc\_ROCOTLIB\_V3p2.pdf

Other out directories are used to comparisons between the 4 distributions (see hereafter).

*Note that the user can use only the library rocotlib\_V3p2.f*, nevertheless it is recommended to copy all the package, compile and run at least the example and test program:

```
make clean
make all
sh/rocot_example.sh
sh/rocot_check.sh
or sh/RUN_ALL.sh to run all the tests
```

Please note that the makefile is configured to use gfortran for f77 and f90 version, and gcc for C version. User can change it as he wants.

### 2) IDL distribution

The IDL package is as below:

```
Rocotlib_V3p2_IDL
  |__doc
  |__in
  |__out
  |__out_GNU_Linux_x86_64_IDL
  |__out_GNU_Linux_x86_64_IDL_corr
  |__out_Msys_i686_IDL
  |__out_Msys_i686_IDL_corr
  |__pro
  |__sh
```

**pro** directory contains the source of the library and test programs, in IDL language. Other directories are as previous. All tests are run by `sh/RUN_ALL.sh`, available with IDL demo mode (free).

### 3) Tests between results according distributions

The user can also download the test directory:

`Rocotlib_test_compare_f77-f90-C-IDL`

In this directory, comparison between distribution has been done by using the Linux “diff” command on all the .out result files. As written format can be different (for instance `-0.123e+4` and `-1.23E+3`) the out files are corrected by the shell `save_and_correct_out.sh` present in each distribution.

Test has been done on two platform/system: GNU\_Linux\_x86\_64 and Msys\_i686 Windows.  
Results can be read on the following files:

```
resu_compare_out_GNU_Linux_C_IDL.txt
resu_compare_out_GNU_Linux_f90_C.txt
resu_compare_out_GNU_Linux_f90_IDL.txt
resu_compare_out_GNU_Linux_f_C.txt
resu_compare_out_GNU_Linux_f_IDL.txt
resu_compare_out_GNU_Linux_f_f90.txt

resu_compare_out_Msys_C_IDL.txt
resu_compare_out_Msys_f90_C.txt
resu_compare_out_Msys_f90_IDL.txt
resu_compare_out_Msys_f_C.txt
resu_compare_out_Msys_f_IDL.txt
resu_compare_out_Msys_f_f90.txt
```

User can rebuild these tests by downloading the 4 distributions and `Rocotlib_test_compare_f77-f90-C-IDL` directory and then run successively the 4 shells:

```
A-make_distrib_f77_f90_C.sh
B-run_all_tests_f77_f90_C_IDL.sh
C-save_and_correct_all_out.sh
D-compare_all_tests_results.sh
```

Shell A does the compilation of each distribution, B runs all the tests, C corrects the output files, and D runs successively:

```
run_compare_f77_f90.sh
run_compare_f77_C.sh
run_compare_f90_C.sh

run_compare_f77_IDL.sh
run_compare_f90_IDL.sh
run_compare_C_IDL.sh
```

All files `resu_compare_out` will be re-created on the machine/system of the user.

For any problem or suggestion:

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