New Software Developments @ECMWF

Generation change in core libraries

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… everyone wants change, but no one wants changes …

Unknown developer, FOSS4G 2013
Is the GIS community right to rely on Proj4?  YES!
ECMWF is full of exciting projects …

Scalability Programme

New Web services

Embracing Python

Next Generation Data Services

Copernicus Services

Cloud services
For all this we need a new generation of core software …

MAGICS 6 → Magics++

GRIBEX → GRIB-API → ecCodes

BUFRDC → ecCodes

Emoslib/interpolation → MIR
ecCodes

• After a series of beta versions we are now using ecCodes in place of GRIB_API
  – IFS, Product Generation, web services, software packages, …
  – All new developments will only happen in ecCodes

• For the usage of GRIB the migration is straight forward
  – API calls (e.g. `grib_set()`) , environment variables and tool names (e.g. `grib_ls`) will continue to be available!
  – For more details see: [https://software.ecmwf.int/wiki/display/ECC/GRIB-API+migration](https://software.ecmwf.int/wiki/display/ECC/GRIB-API+migration)

• Migration of BUFR handling from BUFRDC will require more work
  – New API and tools are similar to GRIB specific ones
  – Metview’s high-level BUFR interfaces will be backwards compatible

• Work on a graphical user interface to examine GRIB and BUFR has started
  – In Qt5; based on the data examiners in Metview
  – Can be used standalone and within Metview

• Documentation and training material is growing
  – We just running extended training courses on GRIB and BUFR handling
MIR: the new interpolation package

- Review of default interpolation methods together with Research Department
  - Bilinear is not always the best method – as we saw already with the new octahedral grid
  - We want interpolation methods to be applied consistently

- Current status
  - MIR & Atlas (library of numerical methods) are almost feature-complete with Emoslib
  - Full comparison report of interpolation results is starting to be compiled
  - We want and need (!) to finish this year
So how can we guarantee good core libraries in future?
How can you (the community) help?

• Migrate to new software
  – If you use GRIBEX/GRIB-API try ecCodes asap

• Contribute tests

• Contribute code
  – With tests & documentation

• Contribute documentation!

• File constructive JIRA reports
  – Good titles & examples we can use to reproduce problems
Any questions?

https://software.ecmwf.int/developersblog