System WG summary
Ulf Andræ & Ryad El Katib

• Presentations
  • OOPS
  • Scalability of model and bator
  • 36h1.3 evaluation
TOY OOPS

• The toy model reflects the solution in IFS. This is where we can be proactive and try out LAM concepts

• Available from ECMWF on request (contact Deborah)

• Very few (~5) have worked with the toy model

• Idea to add e.g. a shallow water model, hard to get started. ECMWF asked to add a “IFS” type model state example.

• Comments on the level of objectification.
IFS OOPS

- CY38 will be the first OOPSified cycle. Also available in CY37r3.
- OOPSification of IFS is yet still very much cleaning, reorganizing and preparation.
- The rewriting has made the code cleaner (ECMWF statement)
- Very much will remain the same (e.g. how to add new GFL variables) as long as the time step is not reorganized.
- C++ or fortran2003 still debatable.
IFS OOPS

Concerns/questions

- Will the C++ layer remain thin?
- What does encapsulation mean?
- Handling of geometries

- Training asked for but not planned. ECMWF expects feedback (and contributions).
- HIRLAM should join the MF-ECMWF discussions.

- In general no big worries expressed (lack of knowledge?)
Scalability

- Scalability of AROME (SURFEX) main issue
- Why does AROME scale worse than ALADIN/ALARO?
- SURFEX OpenMP solution not yet settled.
- Issues with solutions for vector vs scalar machines. Example: radiation in ALARO on scalar machines.
- Investigate the impact of no calculations in the extension zone and generalize it for different kinds of input.
Scalability GPGPU

• No general/portable GPGPU methods available.

• RTTOV coded for GPGPU in Canada.

• ICHEC (Ireland) has a HARMONIE GPGPU project. Asked to keep ALADIN/HIRLAM updated.

• ECMWF has not started with any GPGPU related work.
Scalability I/O

• Idea's to write SURFEX files in FA format. To be introduced in surfex v7.x

• The new (prototype) IO server presented by Ryad will be available in cy37t1. Distribute document.

• (not discussed) HIRLAM aim for GRIB I/O. Problem with divergence?
Scalability

- Lack of staff...
- Profiling on all platforms.
  - Monitor the performance in cy37t1. Create easy to use environment in HARMONIE.
- Maintain the RAPS benchmark. Make clear where to find data.
- (not discussed) bator vs bufr2odb