Yet another trial to brilliantly review cycles and objects
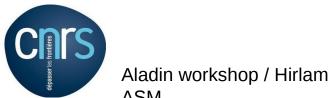
C. Fischer

- Cycling activities
- News from OOPS
- Miscellaneous

Cycling at present

- **CY38T1:**
  - Declared: Aug 9, 2012; bf v2 on Nov 29 => imported by Hirlam & Aladin/Morocco
  - Imported version presently based on CY38T1_bf.02. Problems reported:
    - Fix for using FA format in Surfex
    - Initialization of some fields w/r to COVER type (bug in V7.2)
    - (…)
  - MF's E-suite based on a CY38T1_op1 (# from bf.02)
- **CY39: declared on Nov 29, 2012**
  - OOPS/Fortran: new GOM structures
  - Full-POS2: *see Ryad's talk*
- **CY39T1:**
  - Declared March 26, 2013
  - Various features for observations
  - FA files: 64 bit data (all Fortran types); F90 free format
  - Surfex V7.2.1
  - Alaro: upgrades for TOUCANS
  - Hirlam contribution
  - But … a bug fix version will certainly be necessary !

METEO FRANCE
Toujours un temps d'avance

Cycling in near future

- **CY40: in preparation right now; expected mid-June**
  - OOPS/Fortran: start of the re-organization of global variables for geometry & grids
- **CY40T1: start pre-phasing by Nov 2013 ?**
- **CY41: March to June 2014**
  - More OOPS/Fortran features inside, as this is an important milestone cycle for OOPS in IFS: re-organization of global variables continued; break up of STEPO & CNT4; adapt Trajectory code to OOPS

Miscellaneous technical stuff & outlook

- Upstream coordination:
  - ECMWF: about one meeting every 2 months (mostly video-conf)
  - Hirlam: about 2 teleconfs one-to-two months ahead of a new "T-cycle"
- Other (scientific) changes expected in future cycles (from partners):
  - Spectral coupling in link with E' zone & GP model only over C+I
  - Z-based vertical coordinate dynamics
  - New physics/dynamics interface
- Information:
  - OOPS re-factoring assumes using F90 derived types and pointer handlers => either pass variables per list of arguments (== the final target of OOPS) or use the so-called Tomas' trick (set & save global pointers == provisional by-pass). *A prototype toy code + note is now available, that explains the Tomas' trick to anybody interested !*
  - Minutes of coordination and technical meetings with ECMWF: at disposal on the Aladin website (http://www.cnrm.meteo.fr/aladin/spip.php?rubrique14)
- And more … (the list above is of course not comprehensive !)

Part 2

news from OOPS

Events in 2012 / 2013

- OOPS Steering Committee meetings: May 3 & Nov 23, 2012; next on May 21, 2013

- Scientific review: June to Sept 2012; meeting on Nov 22, 2012

- Technical (video-conf) discussions: Sept 19, Oct 30, Dec 5, Jan 17 / involve ECMWF, MF and usually at least one participant of Aladin and/or Hirlam

- Progress: reported on next slides …

IFS Fortran re-factoring

- **assimilation:** Jb, Control Vector and Obs Operators codes have now been significantly re-factored. Those efforts will now diminish.

- **more flexible horizontal interpolators:** discussion to be resumed between MF and ECMWF (new proposals by Karim)

- **new structure for model variables:** an initial proposal by ECMWF, checked & commented by MF. Discussion will continue in 2013.

- **break-up of Setup towards OOPS constructors/destructors:** continuous effort; needs to be monitored w/r to impacts on Arpège and LAM codes

    - define Geometry object

    - disentangle Geometry/Domain/MPI aspects from the rest of Setup

    - concrete work started and first impact seen in CY40

- **continuous pruning of code; new coding norms enforced**

- **progressive removal of CDCONF & command line options**

METEO FRANCE
Toujours un temps d'avance

Object-oriented C++ layer & LAM

- **Outcome of scientific review:**
  - Adapt classes to Ensemble DA algorithms (4D-En-VAR, LETKF, etc.)
  - Clean up naming of variables & objects in C++ code & simplify code when possible
  - Scientific documentation sometimes mandatory to understand the code
  - UML-type of documentation desired for parts of OOPS

- **OOPS/LAM:**
  - LAM version of OOPS QG model and VAR (Hirlam/Nils G.)
  - adaptation of Fieldsets to LAM (Aladin/Daan D.)
  - simple C++ code to test multiple State instantiation (MF/Alexandre M.)

- **Port OOPS/IFS 3D-VAR prototype on MF's new HPC** (MF/Etienne A.)

- **A (first) solution of 4D-En-VAR coded in OOPS** for L96 & QG models (MF/Etienne A. & Gérald D.)

Part 3

miscellaneous about dev activities within Aladin (non exhaustive !)

Some of the major code/software dev's

- Full-POS:
  - Full-POS2: well in progress (see talk by REK)
  - E'-zone in transforms (for GP model in C+I only): in CY38T1 (Daan)
  - Extend FP towards Interoperability adapters: prototype exists but dev on hold now (Daan)
- PREP/Surfex optimization: effort has started, initiative by Aladin with Hirlam & MF support (Piet, Daan, Tayfun, Trygve, Ryad)
- Development of an IO server (Philippe M.)
- Various optimizations for MPI/Open-MP & porting to scalar MPP at MF (Philippe & REK)

- þakka ykkur fyrir athyglina