

Common activities : codes and system collaboration

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Outline

- Cycles : updates of the common codes (IFS/ARPEGE/LAM, MF/ALADIN/HIRLAM)
- Specific examples of recent code developments
- Code architect activities
- ACNA system coordination

IFS/ARPEGE/LAM and MF/ALADIN/HIRLAM cycles

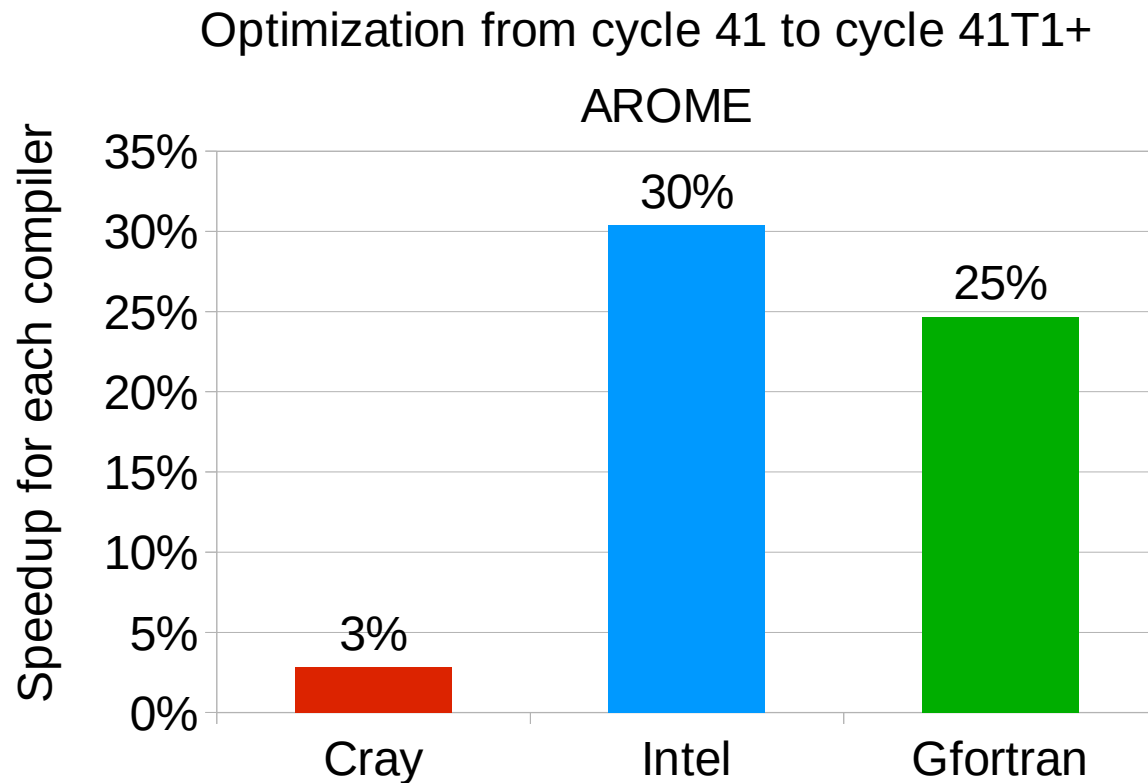
- CY43 : 25 February 2016 ; 3300 files touched ; 315000 code changes
- CY43T1 : 30 June 2016 ; 2600 files touched ; 630000 code changes
- CY43T2 : 14 November 2016
- CY44 : November 2016 – February 2017
- CY45 : March – April 2017
- Collaboration :
 - we share since about 4 cycles common sanity check tools and data between MF/ALADIN and HIRLAM,
 - We work hard for making the necessary efforts of upstream code coordination when building the common cycles,
 - Coordination meetings :
 - HMG/CSSI for MF/ALADIN/HIRLAM,
 - ALADIN and HIRLAM participants at the IFS/ARPEGE coordination meetings
 - Code contributions by HIRLAM to the shared system are increasing over the last cycles

Code developments : a few highlights (*not exhaustive*)

- SURFEX in ARPEGE : SURFEX is running in the ARPEGE e-suite, and should become operational by March 2017.
 - Many ALADIN partners still use the old ISBA scheme => switch to SURFEX in the mid-term => requires to adapt the interface for all CMCs (ALARO)
 - A solution proposed by R. Hamdi (RMI) will be implemented by the ALADIN Code Architect (D. Degrauwe)
- Optimization :
 - Compiler-tailored optimization (R. El Khatib, MF)
 - « Bulk » code adaptations for running ARPEGE or AROME with single precision (Ph. Marguinaud, MF)
- OOPS re-factoring of the « old » IFS codes : quite totally overhauled observation operators interfaces (ECMWF, MF, HIRLAM)
- Note : these slides *certainly* are not paying tribute to all the components of OOPS, ESCAPE nor to COPE, ODB

Impact of optimizations (courtesy by R. El Khatib, MF)

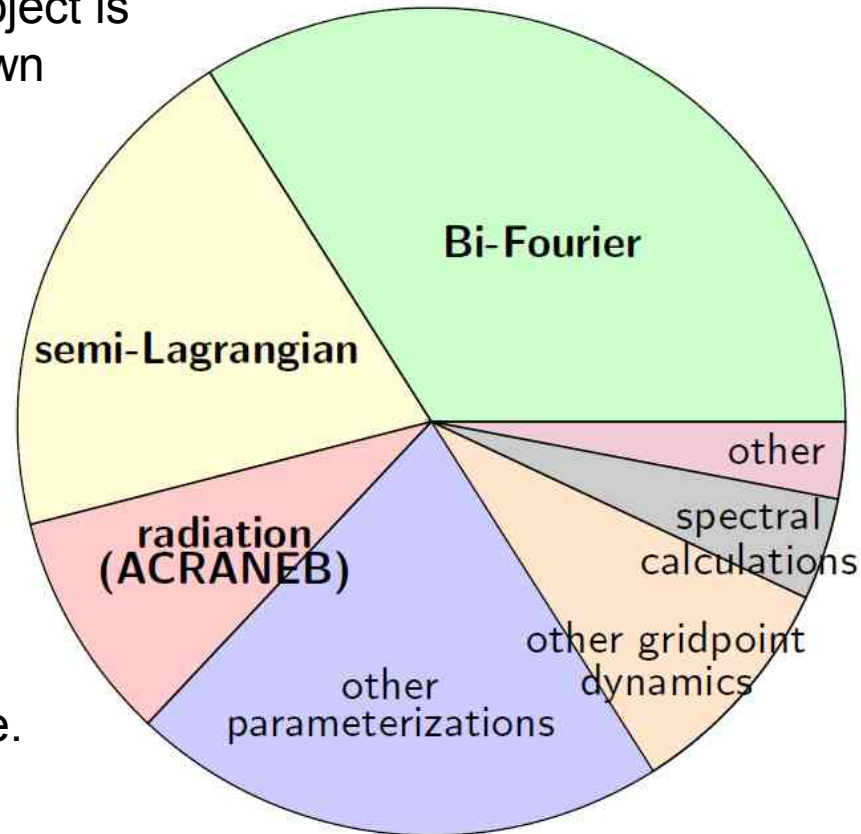
Performance of cycle 41T1+(*) against cycle 41 for each compiler :



(*) Cycle 41T1 + supplementary optimizations

ALADIN Code Architect tasks: involvement in the ESCAPE project (*D. Degrauwe, CA*)

- The idea of the ESCAPE project is to break the NWP model down into “dwarfs”.
- The scalability of these dwarfs then can be tested and optimized.
- For ALADIN, 3 dwarfs already account for more than 60% of the total runtime.
- An important part of ESCAPE is also to develop a framework for grid creation and parallel computing: ATLAS. The ALADIN CA is working on introducing LAM features in ATLAS.



ACNA system coordination

- We had an export version of the ALADIN NWP system (based on CY40T1) available within all LAM partners for installation and testing. Tasks of ACNA (M. Derkova, SHMU) were to:
 - Inquire about progress of installation (LTMs)
 - List problems, suggested fixes
 - Implement in MF's code repository a branch containing the agreed fixes
 - Coordinate further installation and testing
 - Last two items involved system experts from ALADIN (O. Spaniel, LACE/ASC)
- ARPEGE will soon run operationally with SURFEX => prepare coordinated testing of ARPEGE coupling files by partners
- Plans for 2017:
 - Start preparing an export version based on CY43; collaboration with HIRLAM System group
 - ALADIN/HIRLAM system working week to be discussed
 - Inquiry about changes of ARPEGE coupling data (with ALADIN LTMs)
- Chairing LTM meetings (2/year)
- Specific coordination Webex's (ACNA, PM, MF)

Overview status of porting the export version in ALADIN countries (*courtesy by M. Derkova, ACNA*)

countries		Oct2015	Apr2016	Oct2016
Algeria	ALADIN	no	ported	ported
Austria	ALARO	ported	e-suite	operational
	AROME			
Belgium	ALARO	ported	ported	e-suite
Bulgaria	ALADIN	ported	ported	e-suite CY41
Croatia	ALARO	no (but CY41)		
Czech R.	ALARO	not planned (HPC upgrade 2017)		
France	AROME	operational	operational	operational
Hungary	ALARO	no	ported	ported
	AROME			
Morocco	ALADIN	ported	ported	ported
	AROME			
Poland	ALARO	operational	operational	operational
	AROME			
Portugal	ALADIN	not planned (HPC upgrade 2017)		
	AROME			
Romania	ALARO	ported	operational	operational
Slovakia	ALARO	ported	ported	operational
Slovenia	ALARO	no	no	ported
Tunisia	ALADIN	no	ported	ported
Turkey	ALARO	ported	ported	operational
	AROME	not planned (HPC upgrade 2017)		
ported/operational		10/2	13/3	14/6

Danke für Ihre Aufmerksamkeit !