

CHAPEAU

Common Harmonie and Aladin Package for Educational and other Academic Use

Daan Degrauwe, Piet Termonia
Royal Meteorological Institute, Belgium

ASM Utrecht – 15 May 2009

Context

Prerequisites

Current status

Further
development

Final remarks

- NWP code is strongly optimized to run on high-end computing infrastructure
- This aim for efficiency makes the code difficult to use and understand for 'outsiders'

Context

Prerequisites

Current status

Further
development

Final remarks

- NWP code is strongly optimized to run on high-end computing infrastructure
- This aim for efficiency makes the code difficult to use and understand for ‘outsiders’
- For some purposes, we need code that is accessible for universities, while efficiency is not of primary importance:
 - ◆ research at universities
 - ◆ education: students want to run models themselves
- On the other hand, it would be desirable that future developments at universities will find their way back into the IFS/Aladin/Hirlam model universe.

- NWP code is strongly optimized to run on high-end computing infrastructure
- This aim for efficiency makes the code difficult to use and understand for ‘outsiders’
- For some purposes, we need code that is accessible for universities, while efficiency is not of primary importance:
 - ◆ research at universities
 - ◆ education: students want to run models themselves
- On the other hand, it would be desirable that future developments at universities will find their way back into the IFS/Aladin/Hirlam model universe.
- Development of a Common Harmonie and Aladin Package for Educational and other Academic Use (CHAPEAU) by KNMI and RMI to address both demands in a way that does not compromise operational model maintenance and NWP research (resources and plans).

- CHAPEAU is a *trial* version:

Universities: please try, and if you are satisfied, contact your nearest NMS!

Context

Prerequisites

Current status

Further development

Final remarks

- Preliminary examples of how this could be used:
 - ◆ Master student making thesis on physics parameterization and 3MT
 - ◆ University that wants to perform a meteorological case study, comparing different NWP models
 - ◆ Some service outside NMS wants to make daily forecasts: CHAPEAU as trial version

Context

Prerequisites

Current status

Further
development

Final remarks

- As much as possible *stand-alone* package
- Should run on regular Linux PC (e.g. student's laptop)
- Preferably some sort of user interface
- Easy postprocessing

Context

Prerequisites

Current status

Further
development

Final remarks

Context

Prerequisites

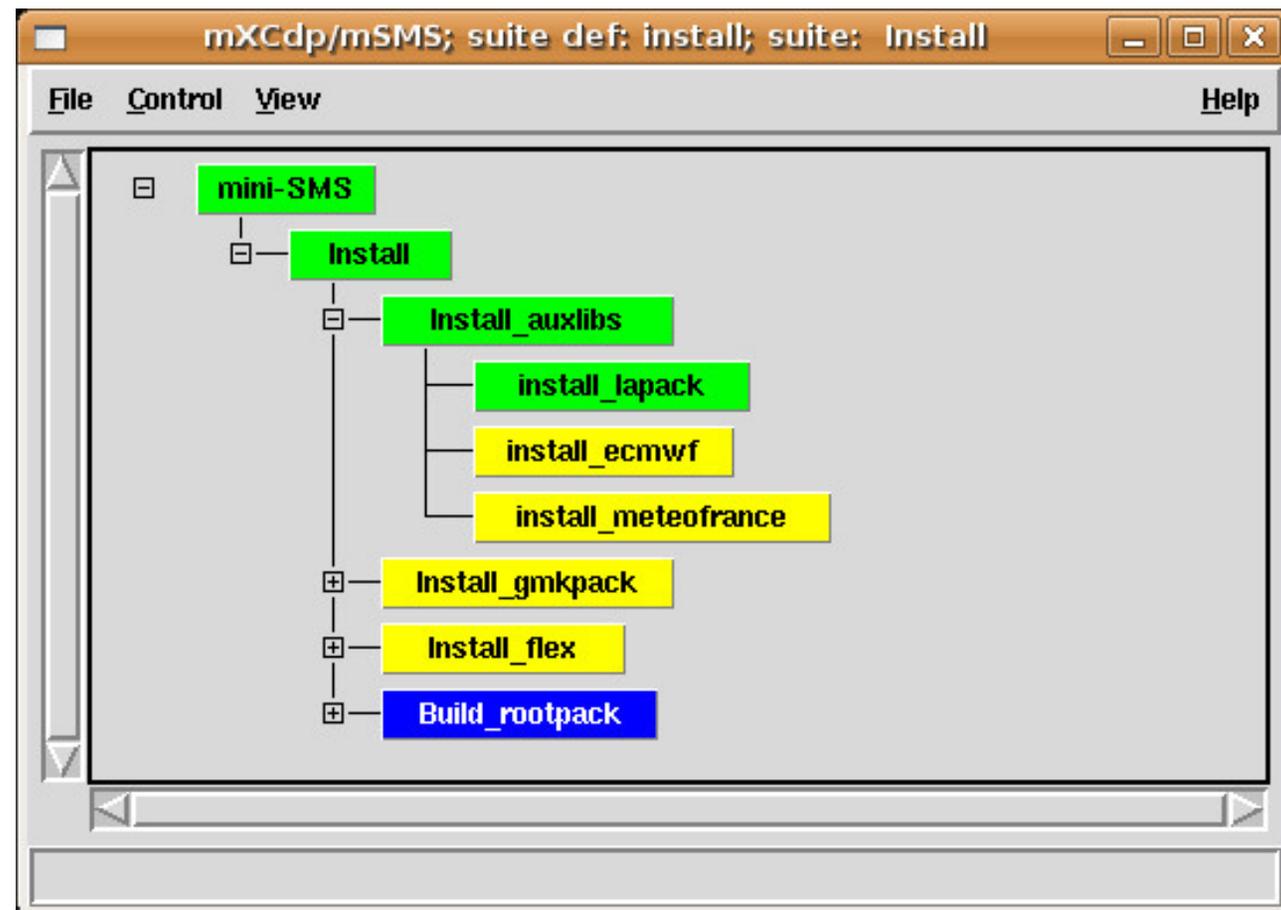
Current status

Further
development

Final remarks

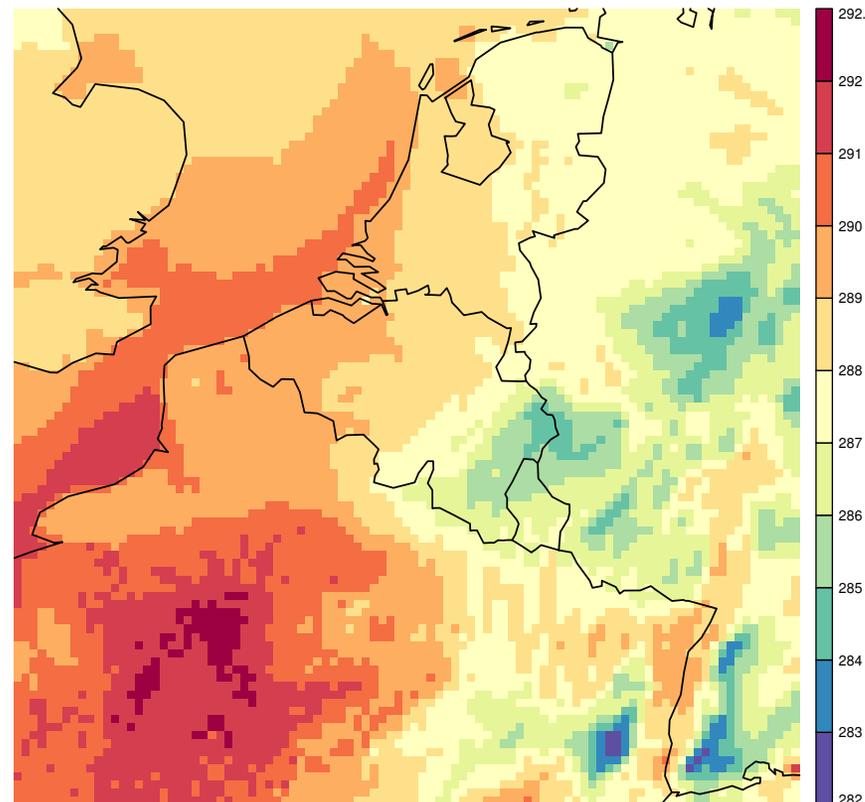
- Stand-alone package containing:
 - ◆ mini-SMS
 - ◆ Aladin cycle 33
 - ◆ Auxiliary libraries from ECMWF and Météo-France
 - ◆ Gmckpack
 - ◆ Lapack and BLAS
- Note: no parallelization!

- Automatic installation/compilation on standard Ubuntu system:
 - ◆ gcc/gfortran (4.2) compiler
 - ◆ (Minimal) dependency on some Linux libraries
- Visual tracking of mSMS with mini-XCdp:



- Postprocessing with Rfa toolbox by Alex Deckmyn:
 - ◆ Toolbox to read and write Aladin files in open-source numerical package R
 - ◆ Direct statistical processing of results
 - ◆ Visualization of fields on maps:

CLSTEMPERATURE
2008/7/9 z0:0 +24h



NOTE:

108 × 108 grid
7 km

- Distribution (e.g. through website) – legal aspects?
RMI will not become a helpdesk!
- Provide data for limited number of showcases
- Add/test other functionality (e.g. Harmonie, DA, climate)
- Algorithmic simplification (?)

Context

Prerequisites

Current status

Further
development

Final remarks

- CHAPEAU is still in an embryonic stage
- A limited number of beta-testers is needed
- Planning should be transferred from local initiative (KNMI + RMI + few universities) to consortium level
- Scope of CHAPEAU can be extended if adopted by community

Context

Prerequisites

Current status

Further
development

Final remarks

Context

Prerequisites

Current status

Further
development

Final remarks

Thank you!