Verification activities in ALADIN

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Outline

- (Really short) general view on current activities
- Tasks
  - User oriented verification
  - Verification toolbox (tools for development – local)
  - Common monitoring
- Summary

General view on current activities

- Each institute has own verification tools designed for specific tasks
  - Different software is used, tools are developed inside local computing environment.
  - Mainly oriented towards point-verification and classical scores (BIAS, RMSE, …)
  - Few (pre- / semi-) operational tools for spatial verification (SAL, ?)

General view on current activities

- Common verification database located at Ljubljana:
  - „most“ Aladin countries send model data interpolated to station location (about 4-5 stations / country)
  - Tools are currently only working locally, from outside to slow.
  - Currently limited resources
    - Persons working on development?
    - IT-resources?

Definition of tasks

Need to show the improvement / development of forecasts

to ourselves – model community (research & development)
to our directors (controlling / funding)
to our customers (internal / external / public)

user-oriented

development

monitoring

user-oriented

What does it mean for our end-user?

Problems:

- Institutes have different types of customers in a number of sectors.
- What decisions are taken upon the forecast by the customer

> “impossible” task?

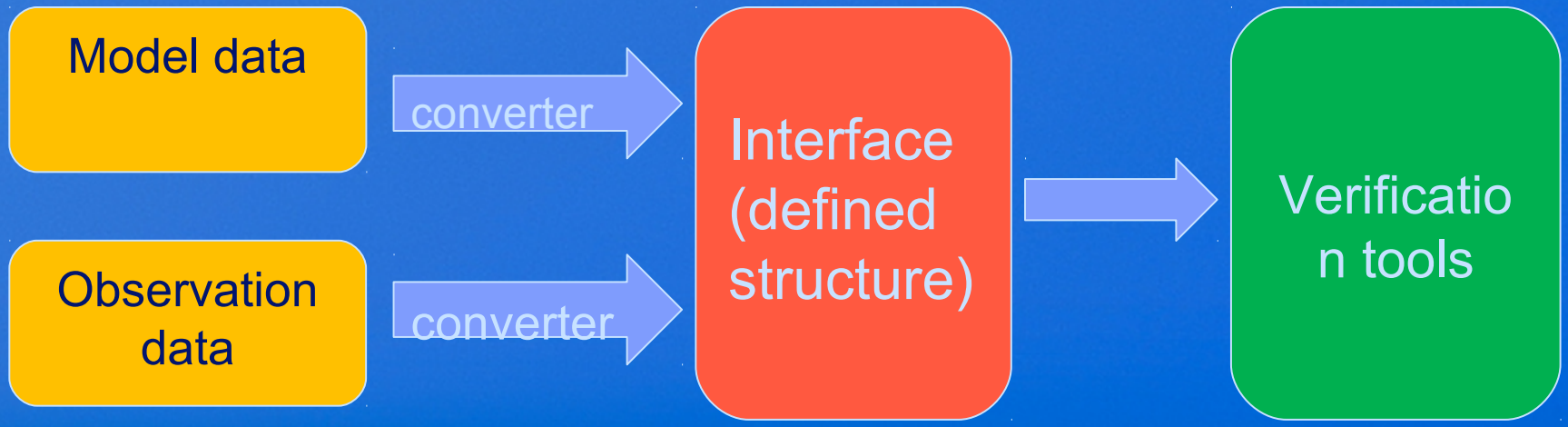
Need for definition of exemplary end-user

- Questionnaire was sent to LTMs
- Elaborate exemplary customers and products per sector
- Start thinking about what scores are most representative

development

General decision: We will not touch running systems – new tools will be developed in a common framework.

- New tools to be developed in R.
- Interface from local archives (model / observation data) to plug data into R-tools.
- Tools should be running locally



development

Verification Task Force provides:

- the framework for common verification tools:
  - common data structure of interface
  - co-ordination of the development of tools
  - data organization inside the verification tools
  - guidelines and documentation, working examples
  - support, version control, stable software packages

Not provided by the Task force itself:

- tools needed for specific tasks (well, some of them)
- verification scores

development

Goal:

To get a verification framework that is

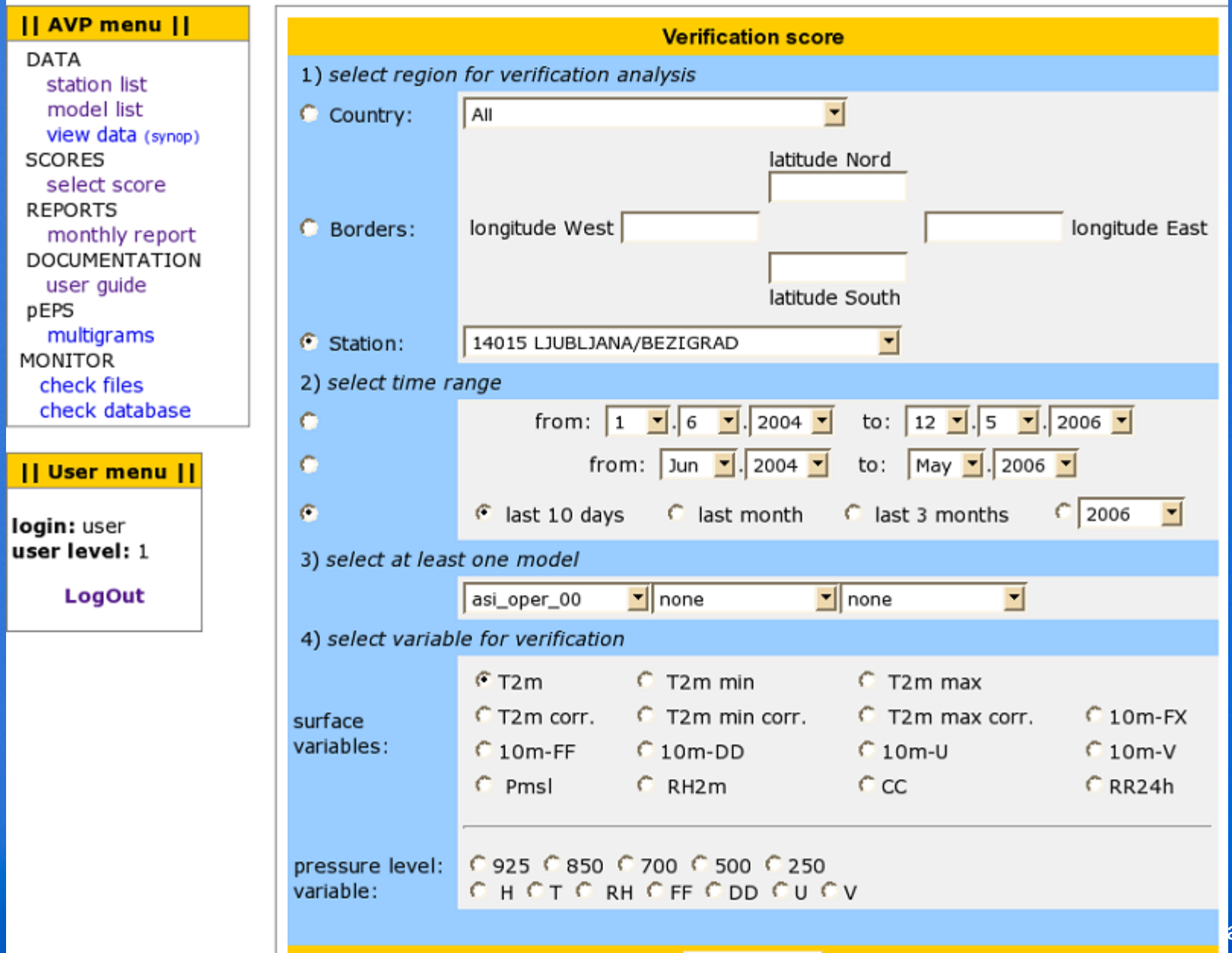
- Modular
- Extendable in any direction (EPS verification, spatial, end-user oriented - but lets first do the urgent things)
- Portable to different environments
- Easy to use - intuitive
- Flexible to adopted to individual needs
- If possible adopt same data structure with the monitoring tool and with Hirlam verification tools

monitoring

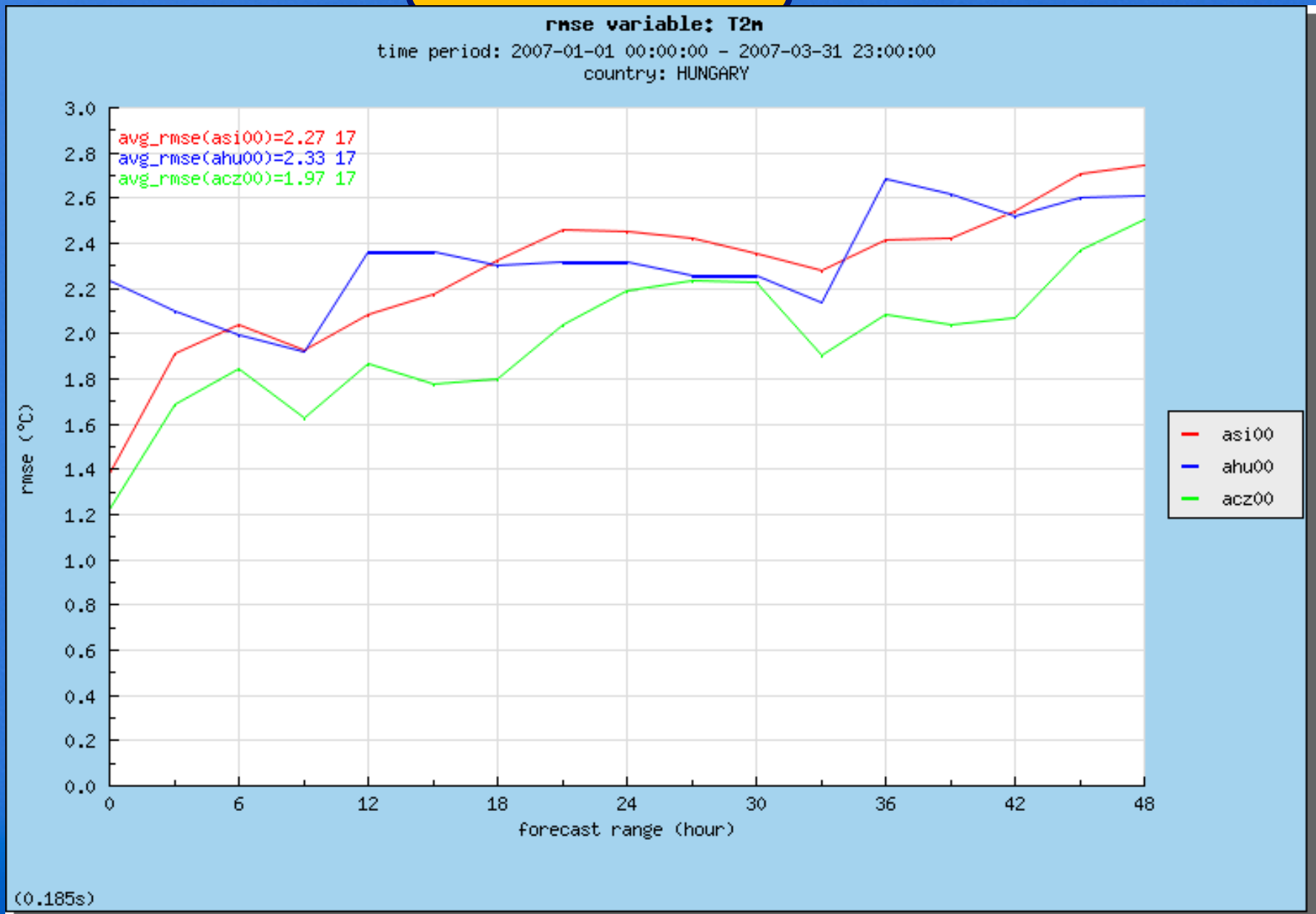
ALADIN quality monitoring tool (AVP)

a powerful tool to verify and compare models of Aladin partners.

- scores for single models but also for a free choice of models
- stationwise
- regionwise
- free choice of time-frame
- EPS-verification?
- monthly report
- …


|| AVP menu ||
DATA
station list
model list
view data (synop)
SCORES
select score
REPORTS
monthly report
DOCUMENTATION
user guide
pEPS
multigrams
MONITOR
check files
check database
|| User menu ||
login: user
user level: 1
LogOut
Verification score
1) select region for verification analysis
Country:
All
Borders:
latitude Nord
longitude West
longitude East
latitude South
Station:
14015 LJUBLJANA/BEZIGRAD
2) select time range
from: 1 . 6 . 2004 to: 12 . 5 . 2006
from: Jun . 2004 to: May . 2006
last 10 days
last month
last 3 months
2006
3) select at least one model
asi_oper_00
none
none
4) select variable for verification
surface variables:
T2m
T2m min
T2m max
T2m corr.
T2m min corr.
T2m max corr.
10m-FX
10m-FF
10m-DD
10m-U
10m-V
Pmsl
RH2m
CC
RR24h
pressure level:
925 850 700 500 250
variable:
H T RH FF DD U V

monitoring


rmse variable: T2m
time period: 2007-01-01 00:00:00 - 2007-03-31 23:00:00
country: HUNGARY
avg_rmse(asi00)=2.27 17
avg_rmse(ahu00)=2.33 17
avg_rmse(acz00)=1.97 17
rmse (°C)
forecast range (hour)
asi00
ahu00
acz00
(0.185s)

Tasks

monitoring

|| AVP menu ||

- DATA
  - station list
  - model list
  - view data (synop)
- SCORES
  - select score
- REPORTS
  - monthly report
- DOCUMENTATION
  - user guide
- pEPS
  - multigrams
- MONITOR
  - check files
  - check database

|| User menu ||

login: user
user level: 1

LogOut

Monthly station report

Select your data.

Report 1	Report 2	Report 3
year: 2006	year: 2006	year: 2006
month: 4	month: 4	month: 4
model: aat_oper_00	model: aat_oper_00	model: aat_oper_00
STATION: LJUBLJANA/BEZIGRAD	STATION: LJUBLJANA/BEZIGRAD	STATION: LJUBLJANA/BEZIGRAD
		
Include ☑ and ADD CLEAR	Include ☐ and ADD CLEAR	Include ☐ and ADD CLEAR

Compare up to 3 reports.

Reports in process:

VIEW

ALL IN ONE

monitoring

|| AVP menu ||

DATA
- station list
- model list

view data (synop)

SCORES
- select score

REPORTS
- monthly report

DOCUMENTATION
- user guide

pEPS
- multigrams

MONITOR
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|| User menu ||

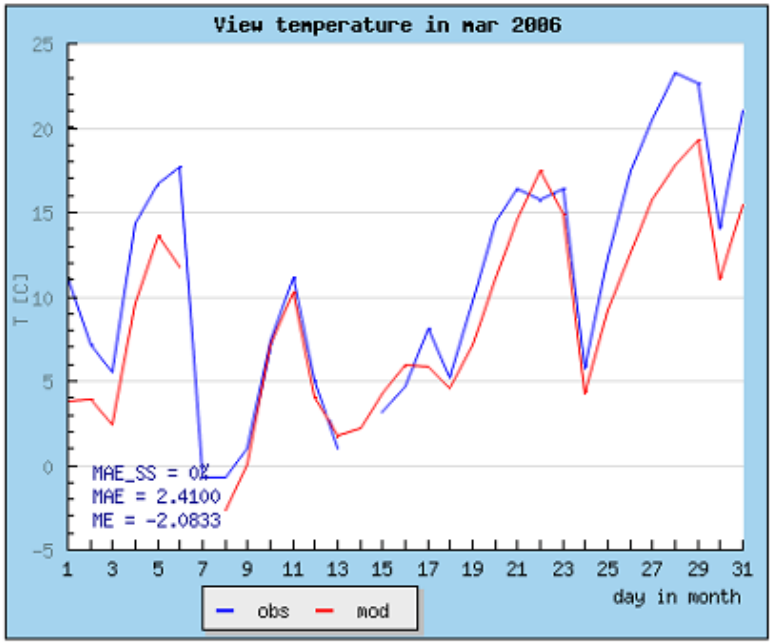
login: user
user level: 1

LogOut

Monthly REPORT 1		
	Station: 15614 **Model:** asi00	**Date:** mar 2006

A.) TEMPERATURE

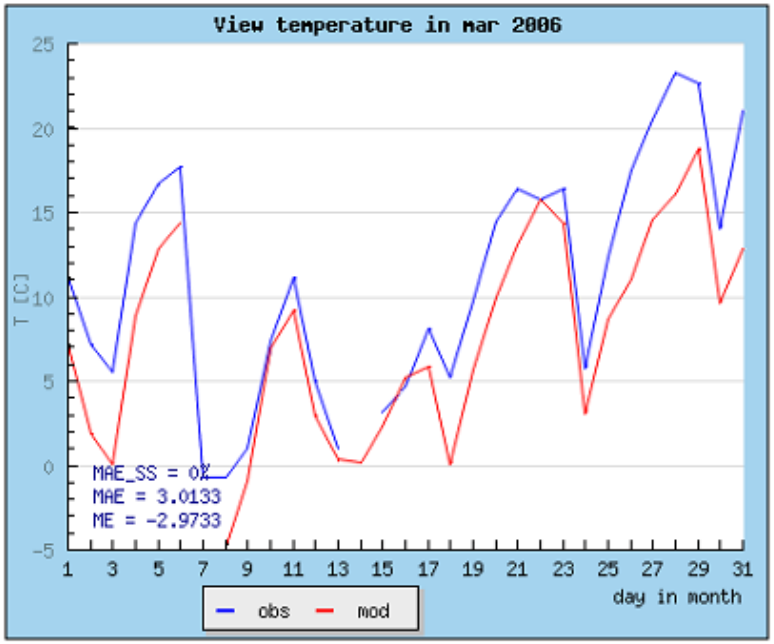
I. Maximal temperature on 2m



Monthly REPORT 2		
	Station: 15614 **Model:** ahu00	**Date:** mar 2006

A.) TEMPERATURE

I. Maximal temperature on 2m



monitoring

Some reorganization of the monitoring tool needs to be done

- update of the extraction software (extract4verif > ?) and data transfer (logistics)
- replacement / update of tools by R-functions
- review of the station list
- production of maps
- sql code optimization and data structure re-organization

A very powerful tool exists but we do have to get it running!

Summary

- Nothing that exists and works is going to be replaced
- 3 major tasks:
  - user oriented
    - Questionnaire to the LTMs
  - Local needs / development
    - Task force will provide the framework (data structure, documentation, …) that is open to add new stuff
    - Development of new tools in R locally by the institutes
  - Common monitoring tool
    - Need of reorganization

Summary

Thank you!