PP CARMA

Common Area with Rfdbk/MEC Application

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PP CARMA – STATUS

Task 1. First Level Support Implementation and Training Start 12.2018 – End 06.2019 – DONE

1.1 Documentation review (MEC-Rfdbk), analysis of resources required – **done**
1.2 Documentation preparation (MEC-Rfdbk) – **done**
1.3 Preparation of a complete example set of data (one season, one model) to be used – **done**
1.4 Training provided by DWD experts for first level support to the PST – **done**
1.5 Implementation of the MEC-Rfdbk system @NMA and @HNMS* – **done**
1.6 Adaptation of scripts for the production of the CP requirements – **done**

1.7 Setup of web interface with the use of Shiny R routines on COSMO server
Start 05.2019 – End 06.2019 **done**
- it was decided to use the existing shiny platform also used for the NWP Test Suite

Task 2. Second Level Implementation and support Start 05.2019 – End 10.2019 ON-GOING

2.1 Remote training PST for users from each center. Dissemination of instructions, mailing list creation for problems solving, videoconferences, etc. - **ON-GOING**

2.2 Implementation of MEC-Rfdbk system in each participating center with support of PST - **ON-GOING**

Documentation

- **Uploaded to the WG5 Repository:** http://cosmo-model.org/view/repository/wg5/PP-CARMA/Task1

How to install: Task-1.2_Install_notes_CARMA_v1.2.pdf

How to use (example based on NWP Test Suite @ECMWF): NWPTest-Suite_Doc4CARMA.docx

About RFDBK: FFverificationsuite[at]DWD.docx

About feedback files: cosmoFeedbackFileDefinition.pdf

- **Data available on the FTP server**

Observations in netcdf format

Template for running MEC / Template for running Rfdbk

- **Data available on GITHUB**

Source code for DACE / Sources for Rfdbk

Scripts to run verification using Rfdbk

ISSUES (PAST)

1. obtaining the code for some participants – **OK**

2. **processing of cumulated parameters in MEC (mainly precipitation)** – **solved**

HOW: switch in the MEC namelist **Thanks @DWD**

3. **missing gust data from observations** – **solved**

HOW:

- using a new set of observations (VERSUS uses separate observations for gust)
- new observations cover more than CA, so it can be used for individual verification purposes
- should cover (almost) all COSMO countries

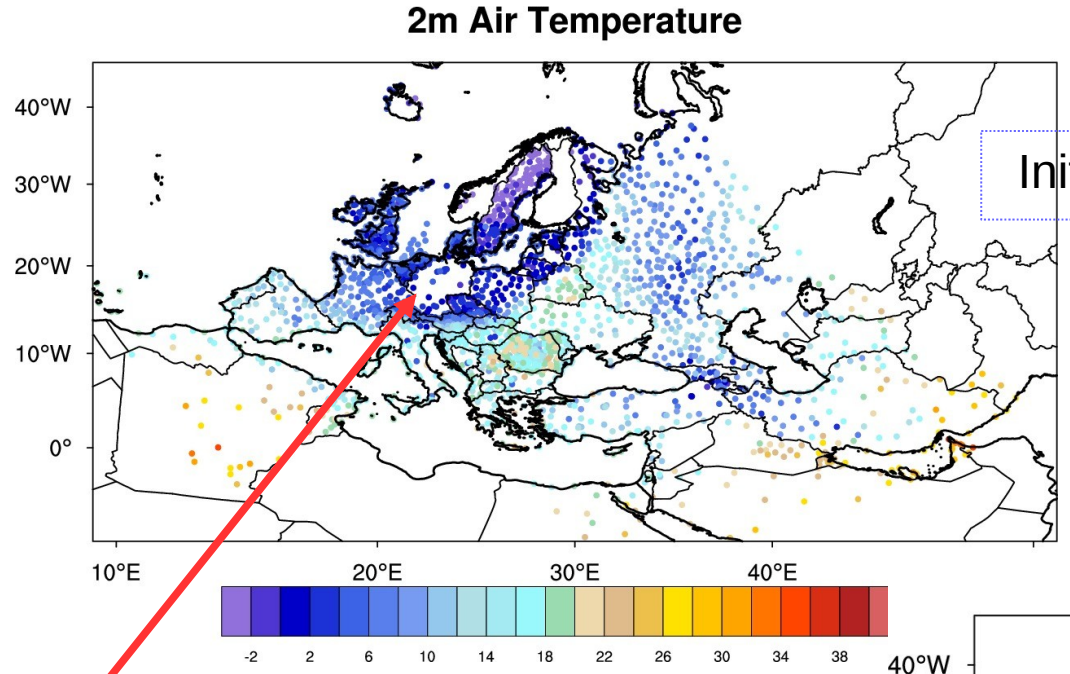
Consequence: **when comparing results to VERSUS, scores might differ!**

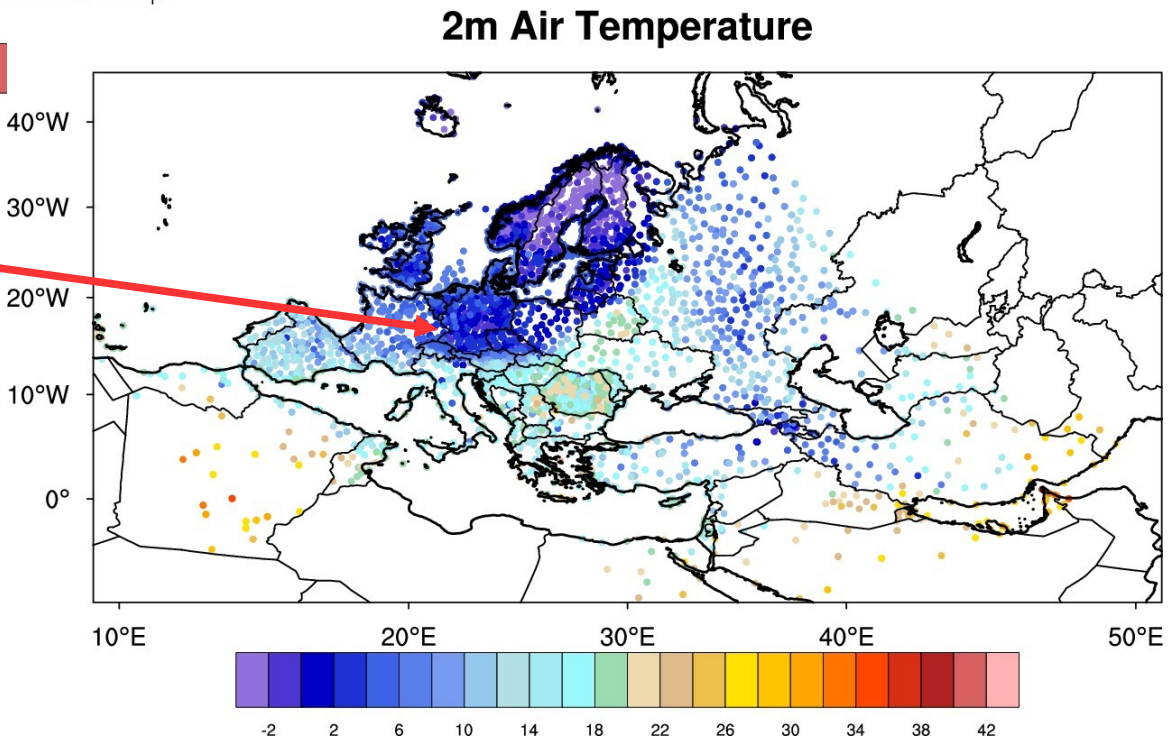
4. defining verification area in Rfdbk – **tackled before distributing the template**, **OK**

PP CARMA - RESULTS

12 May 2020, 00UTC

Initial dataset





ON-GOING & Next

Task 3. Cross-validation of implementation Start 03.2020 – End 08.2020 - delayed

3.1 Performance of a complete seasonal test with all the necessary output for the CP reports.
Start 03.2020 – End 08.2020

3.2 Transfer of statistical output to COSMO web server and visualization of results.
Start 03.2020 – End 08.2020

3.3 Optional comparison of test output with VERSUS system or any other “home” verification system.
Start 04.2020 – End 08.2020

Task 4. Elaboration of guidelines for CARMA (MEC-Rfdbk) system use

Start 08.2020 – End 09.2020

- *delayed, dependant on previous tasks*

NEW ISSUES / REQUESTS / QUESTIONS to be tackled

- **Some centers are unable to verify COSMO bc.**
  - MEC model data requirements
  - storage resources / not all required model data are archived
- **Migration from COSMO to ICON** – use MEC+Rfdbk for ICON
  - People are interested in applying to ICON instead of COSMO
- **ICON-global** is usually included in the CP graphs - working on this
- **Shiny server** on the COSMO web site is used
  - OK for CP needs, but **not for other verification** needs by each center

These were not foreseen in the initial PP request!

PP CARMA – STATUS

Status: DELAY in the COMPLETION of some TASKS / need for Additional ones

Extension for 1 year required, under revision from SMC / STC.

Task 3. Cross-validation of implementation

NEW TASKS : Deadline August 2021

3.4 Set-up and testing of MEC+Rfdbk capabilities for ICON-LAM

3.5 (optional) Set-up of individual shiny server for visualization

Resource distribution and timeline for extended tasks

Task	0	1	2		3					4
			2.1	2.2	3.1	3.2.	3.3	3.4	3.5	
Remaining to be done	0.16	0	0.165	0.15	0	0.08	0	1.41	0.4	0.08
Additional (New)	0.1	-	0.2	-	-	-	-	0.33	0.4	-
Redistribute res. (to other task)	-	0.025 (2.1)	-	-	0.9 (3.4)	-	0.18 (3.4)	-	-	-

PP CARMA – STATUS

Summary

	Implementation		Run		VERSUS comp	CP
	MEC	Rfdbk	MEC	Rfdbk		
NMA	y	y	y	y	y	y
HNMS	y	y	x			
DWD	-	-	y	y	-	y
MCH	-	-				
IMGW	y	y	y	y	y	y
COMET	y	y	p	y		
RHM	y	(y)				
IMS	y	y				
ARPAE	y					
ARPA-PT						

PP CARMA – STATUS

NMA:

- ✓ production of FF files (MAM2020)
- ✓ verification (MAM2020)
- ✓ VERSUS comparison

DWD:

- ✓ production of FF files (MAM2020)
- ✓ verification (MAM2020)

IMGW:

- ✓ production of FF files (MAM2020)
- ✓ verification (MAM2020)
- ✓ VERSUS comparison

Comparative results for CA1 and CA2 produced with Rfdbk (next slides)

COMET:

- ➢ production of FF files (test period 01.03 – 03.03)
- ➢ verification (test period 01.03 – 03.03)

ΕΘΝΙΚΗ ΜΕΤΕΩΡΟΛΟΓΙΚΗ ΥΠΗΡΕΣΙΑ
HELLENIC NATIONAL METEOROLOGICAL SERVICE

HNMS - CARMA

1. Successful run of test cases MEC @ECMWF (cca)

2. Installation of Rbdfk @ECMWF (ecgate)

3. Problems for continuing the Task work

➔ **No upper-air fields available** for COSMO-GR4 for CA
Only surface data available for CA / complete set over Greece

➔ Only option to skip COSMO CP verification and **continue with ICON-GR**

➔ Adaptation of running routines and necessary data archiving need to be done.

➔ ***HNMS management decision for continuation of running COSMO-GR4 will influence the timeline of the ICON-GR CP verification.***

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HELLENIC NATIONAL METEOROLOGICAL SERVICE

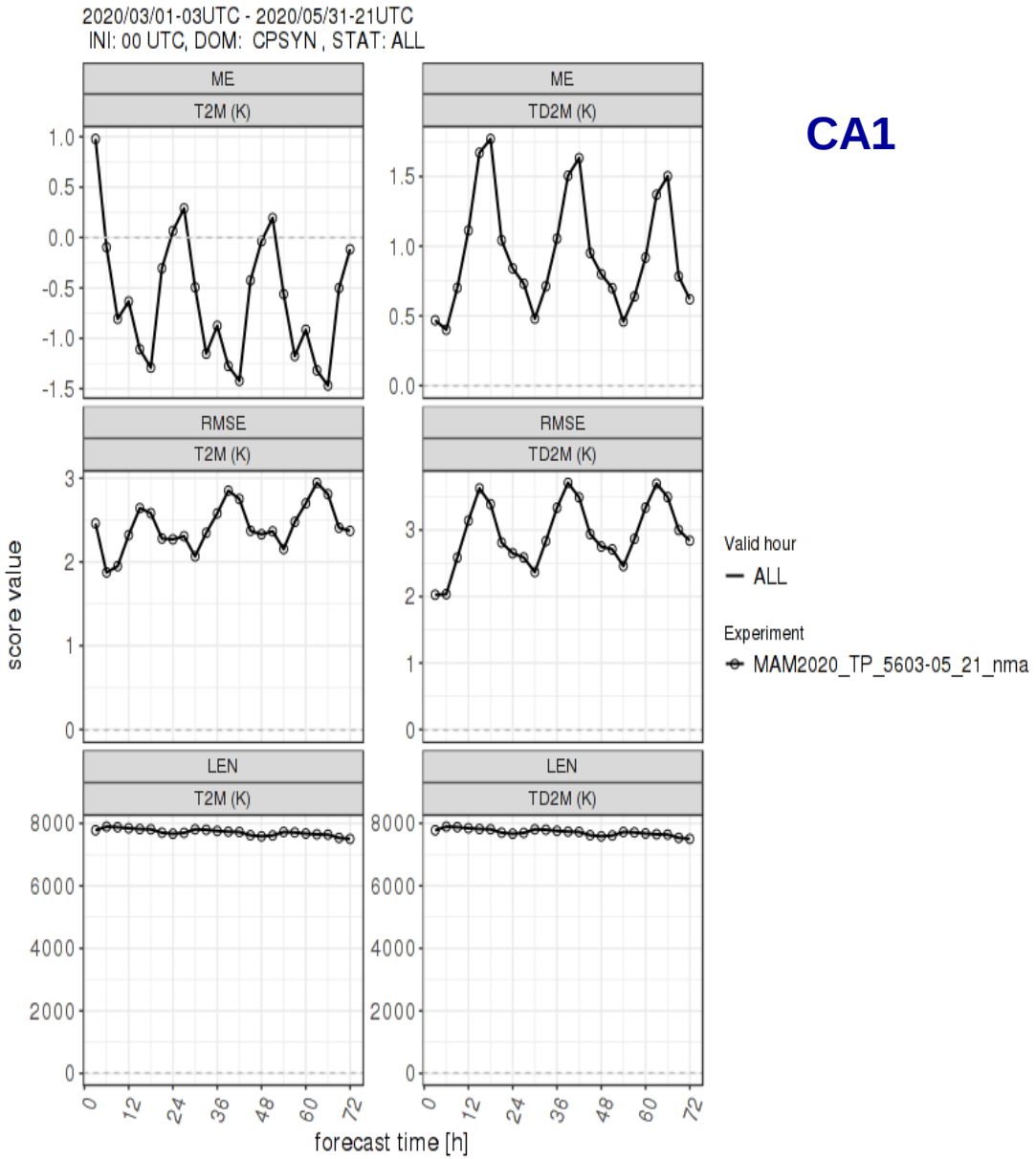
HNMS - CARMA

Additional issues that CARMA PST could help if project extended to ICON

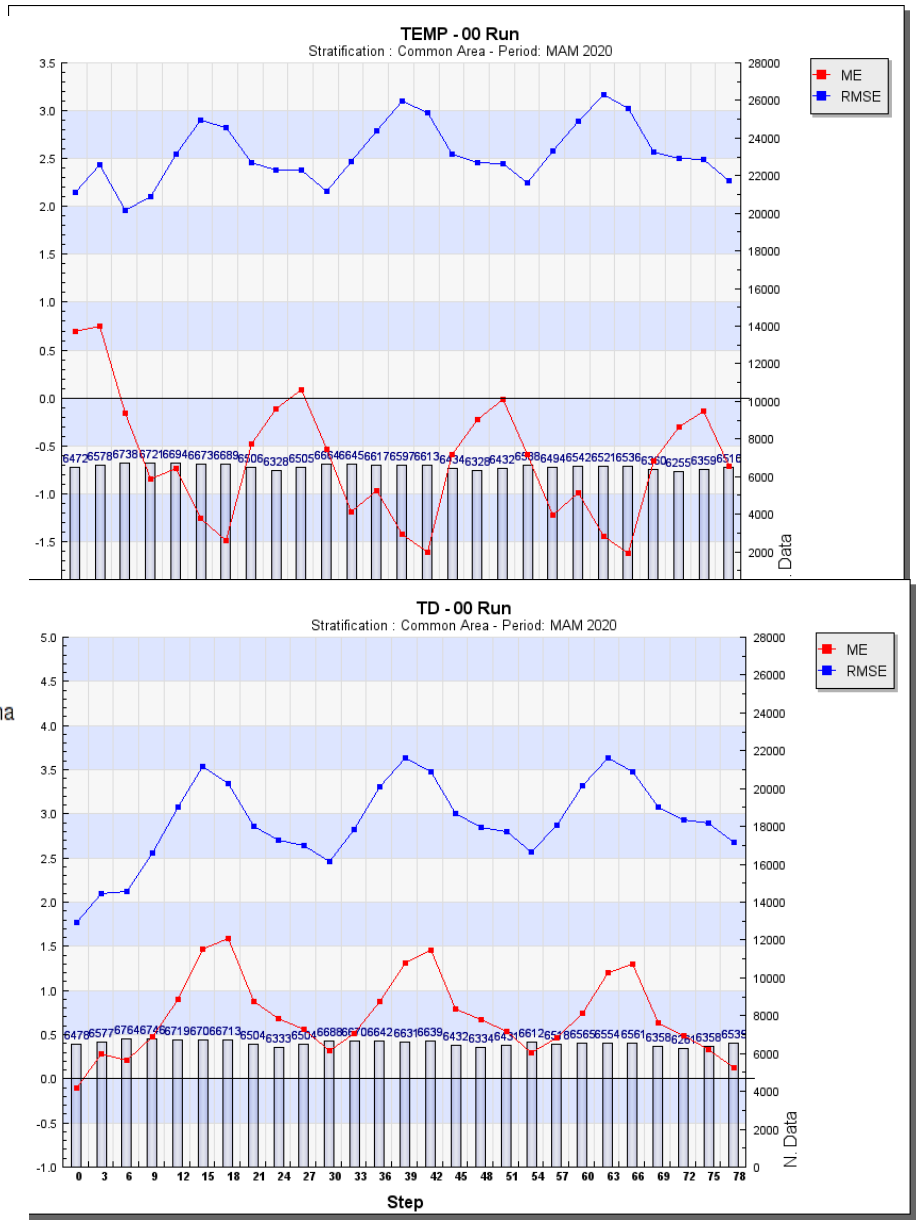
- **ICON-GR output in netcdf format** – has to be converted in grib2 (**iconremap tools**)
- Some variables not properly converted.
- **Currently testing** to exclude these variables and run MEC with the remaining ones
- **More time needs to be dedicated for these procedures (fall-winter 2020?)**
- ICON-GR output is being verified for now with VERSUS for CP.

PP CARMA - RESULTS

Results – NMA / Rfdbk vs. VERSUS

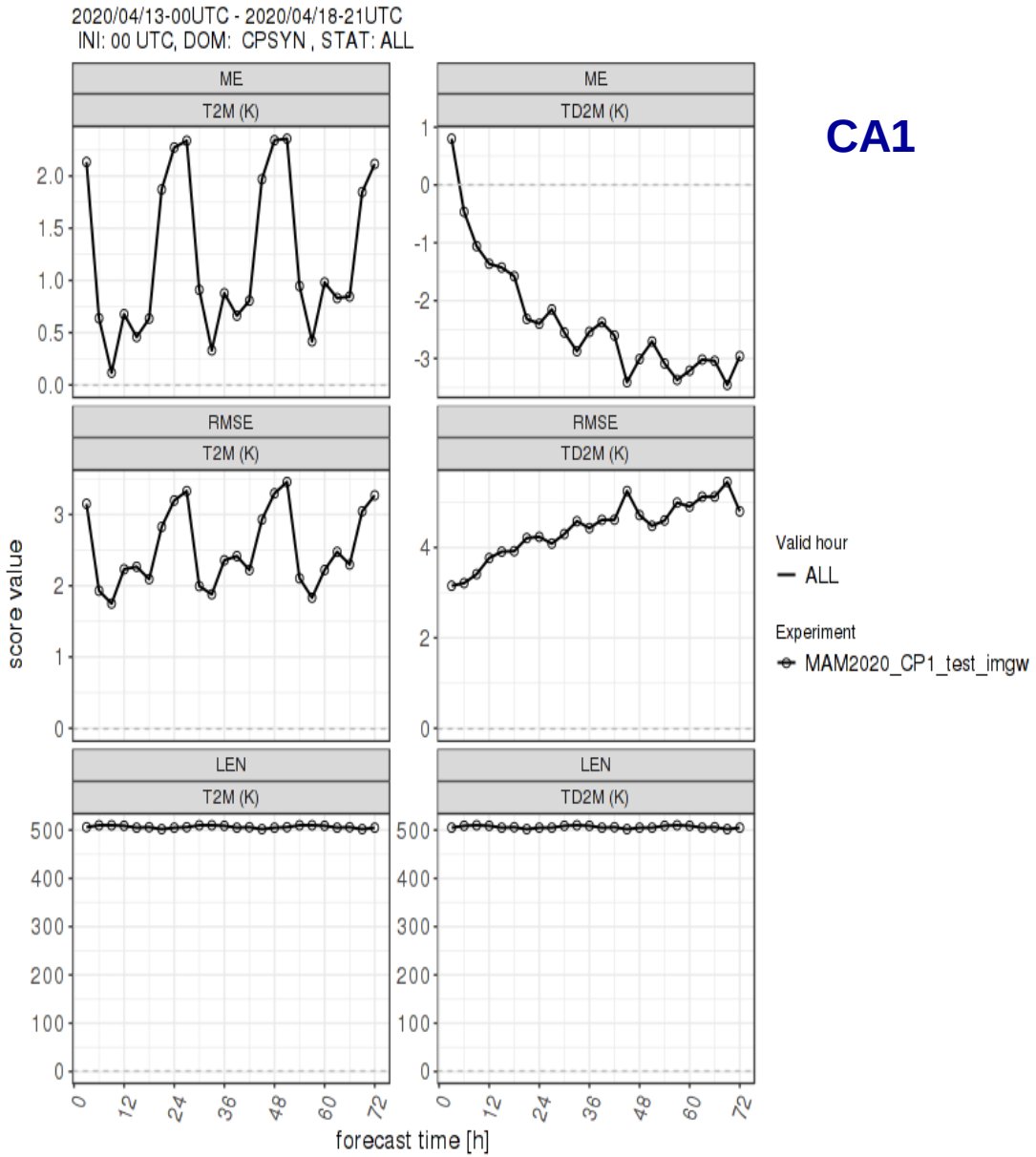


CA1

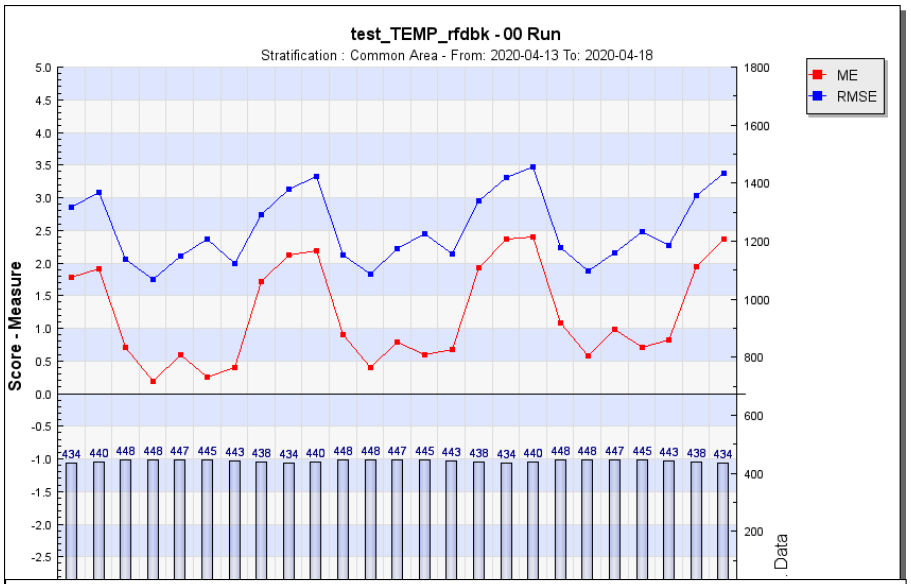


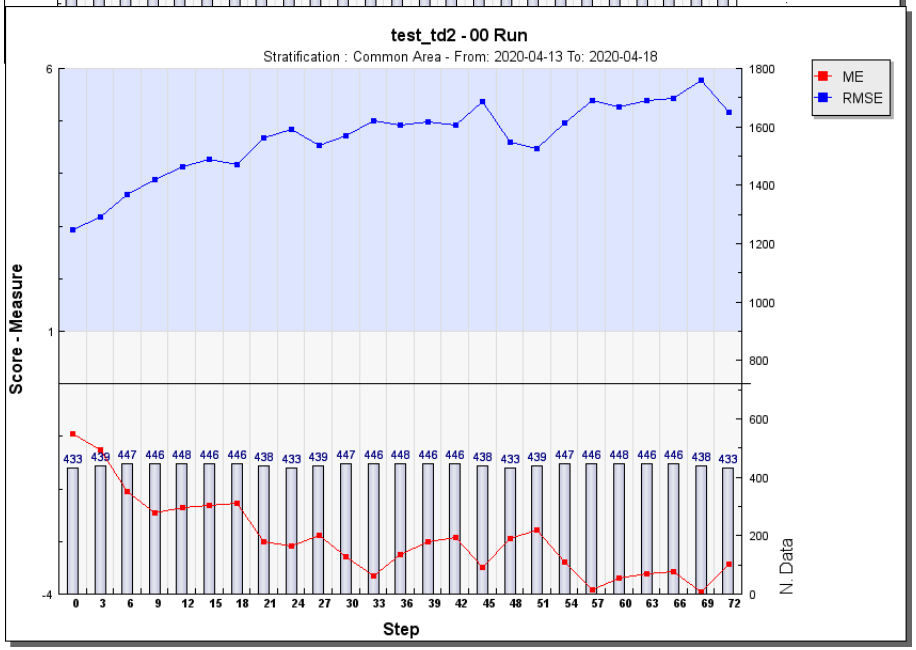
PP CARMA - RESULTS

Results – IMGW / Rfdbk vs. VERSUS



CA1





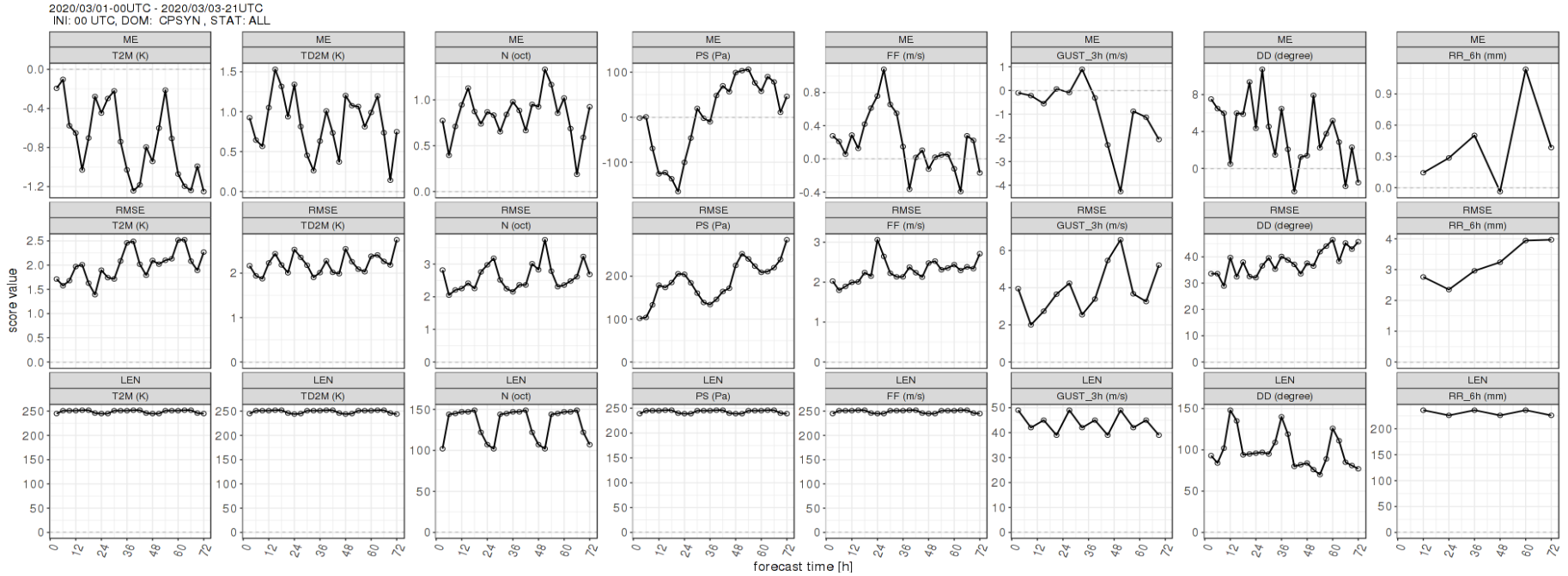
CONSORTIUM FOR SMALL SCALE MODELING

COSMO

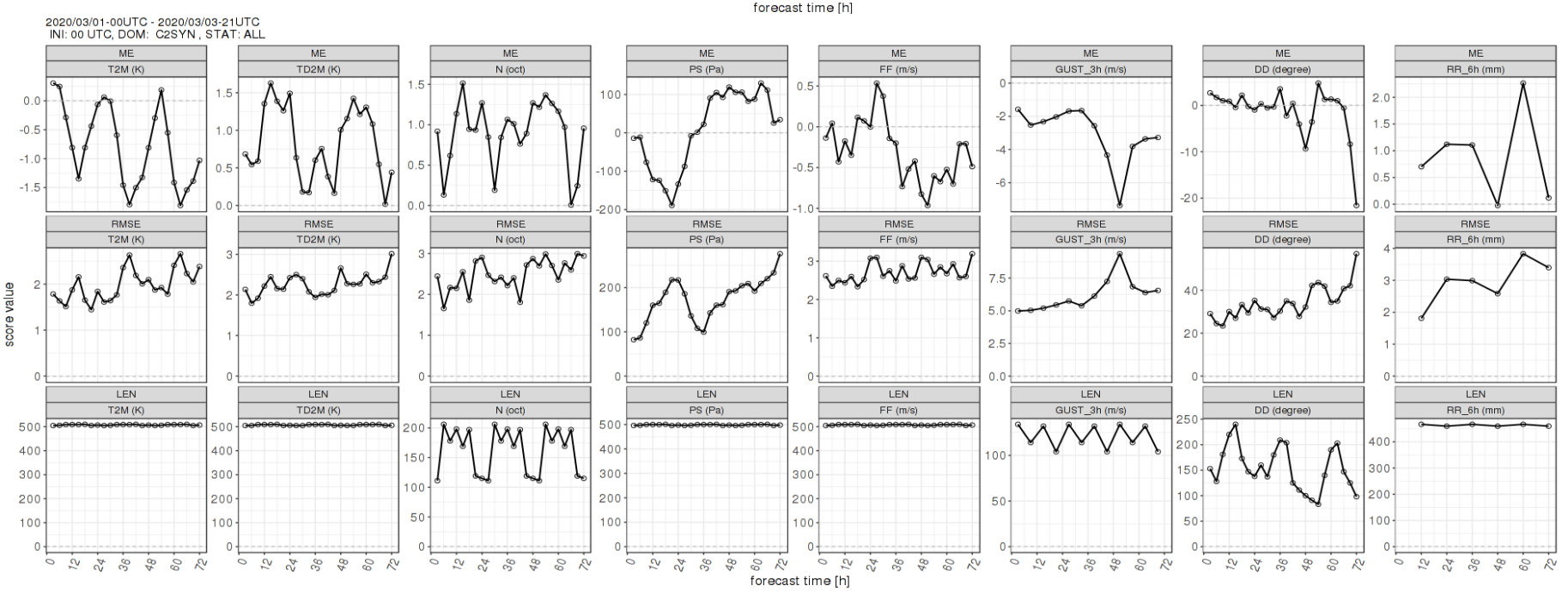
METEO ROMANIA

PP CARMA - RESULTS

Results – COMET (test Rfdbk)



CA1

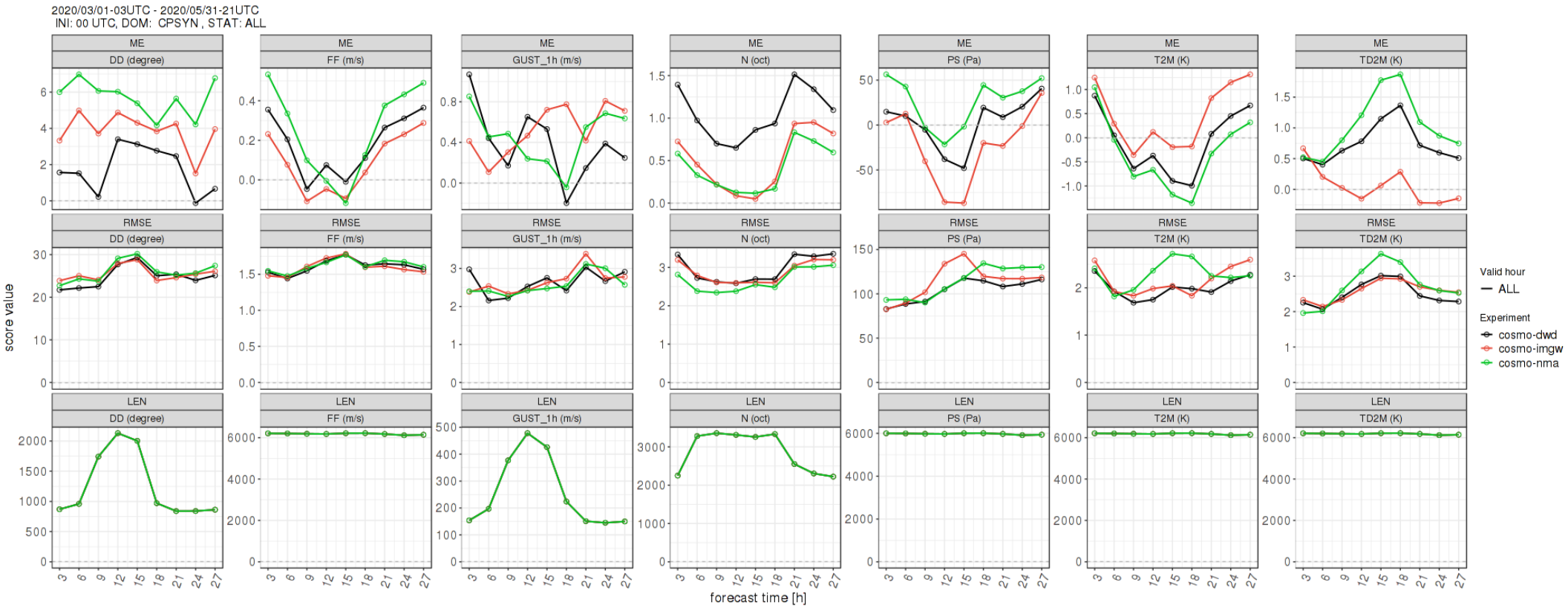


CA2

PP CARMA - RESULTS

Results – CP (Intermediary)

CA1

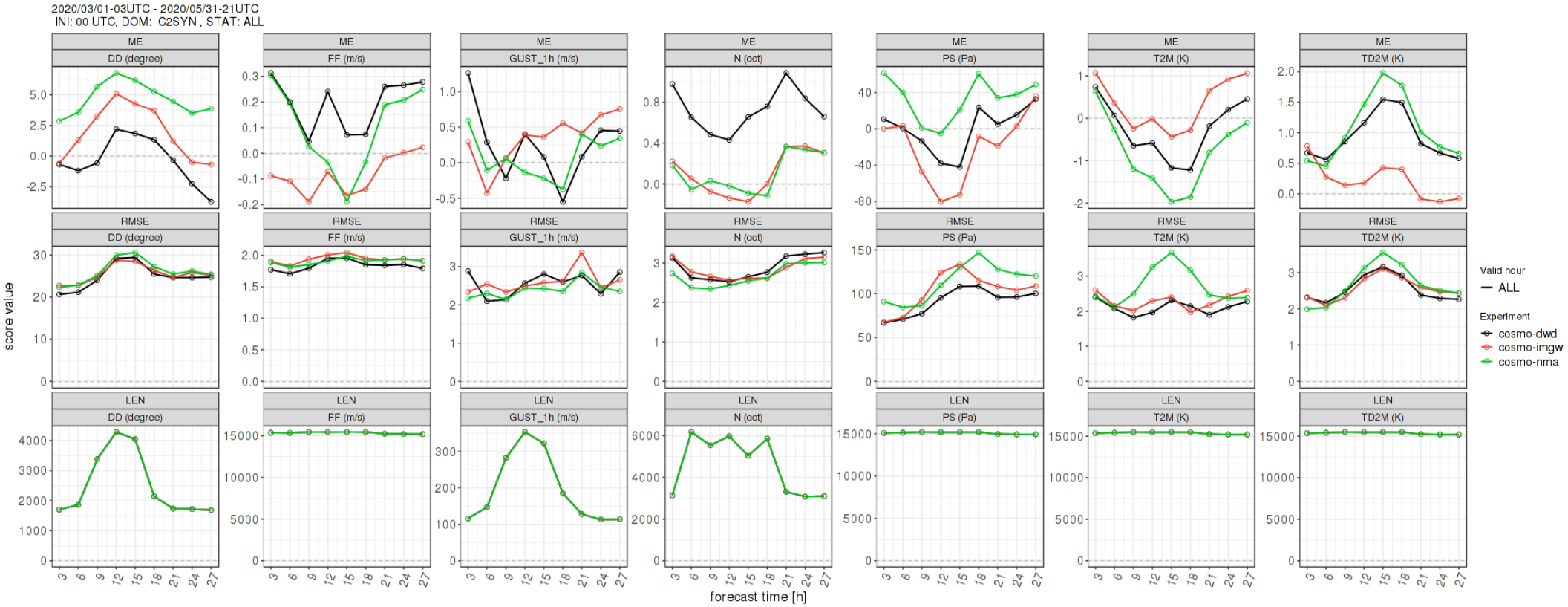


DWD / IMGW / NMA

PP CARMA - RESULTS

Results – CP (Intermediary)

CA2

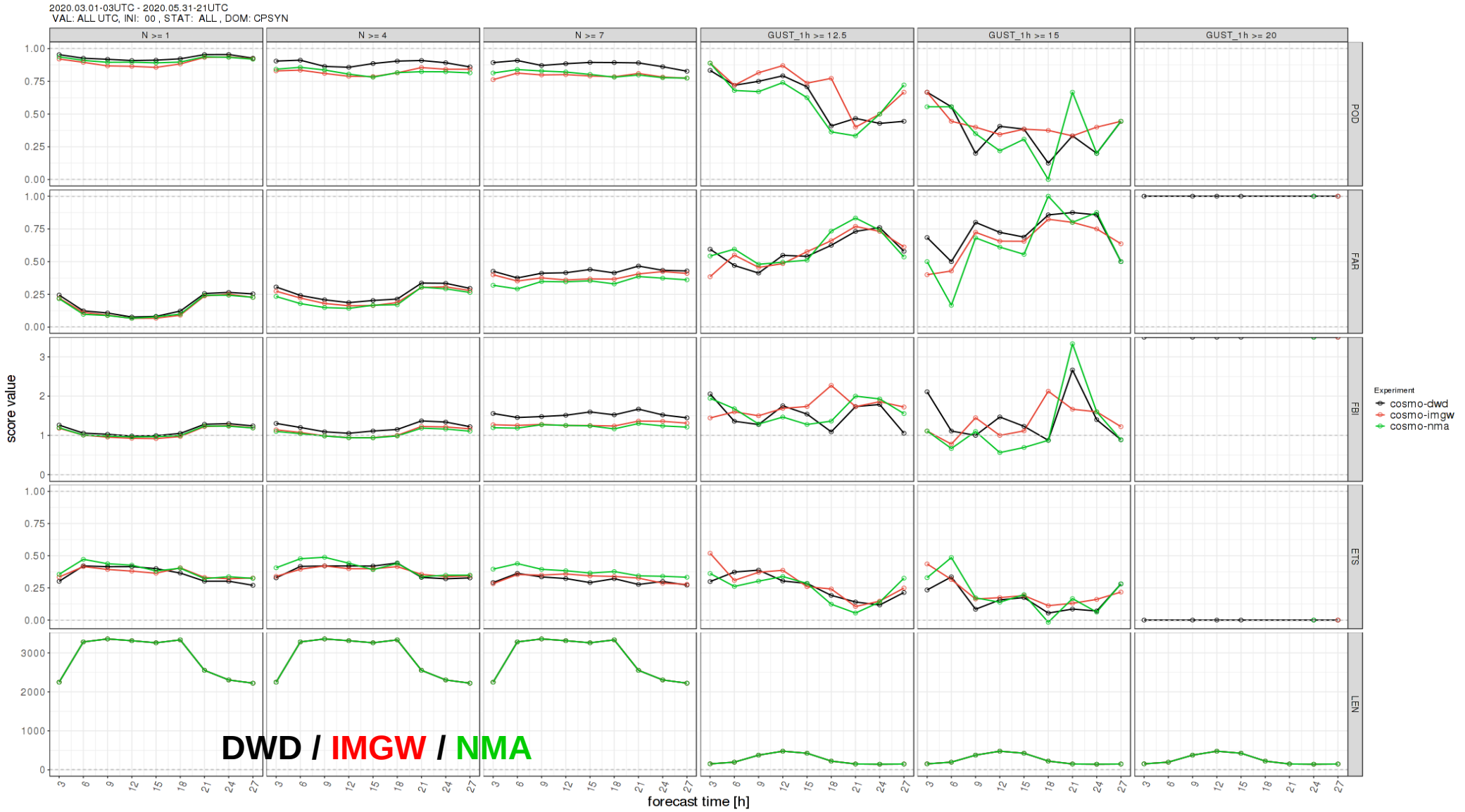


DWD / IMGW / NMA

PP CARMA - RESULTS

Results – CP (Intermediary)

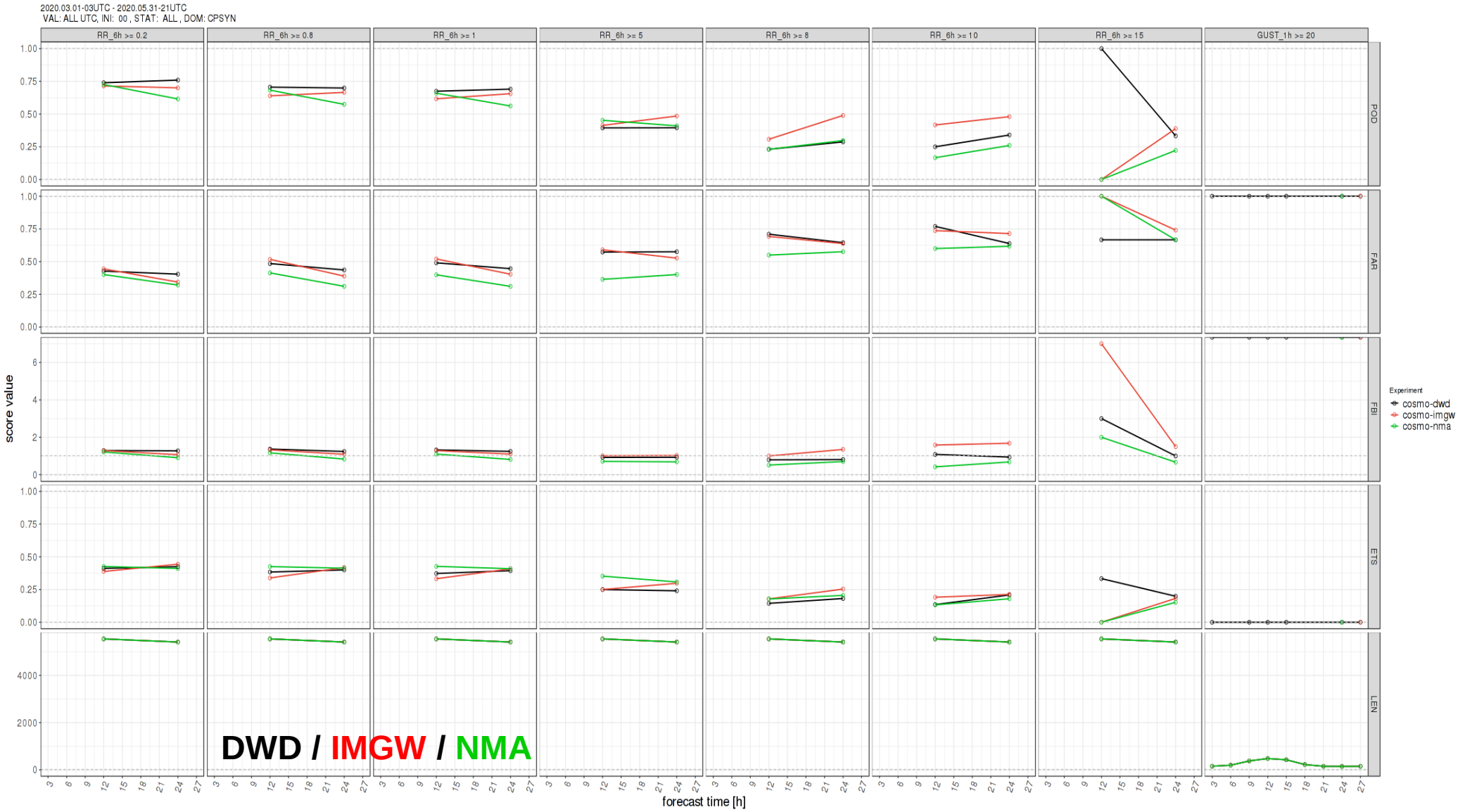
CA1 / Cloud cover / gust



PP CARMA - RESULTS

Results – CP (Intermediary)

CA1 / Precipitation



Thank you!

Questions?