

Common Plot Reports 2020-2021

Key Questions

- A. Models: COSMO/ICON
- B. Comparable resolution(s)
- C. Model domain(s)
- D. (Common) Verification Software
- E. Guidelines
- F. Responsible person

Key Questions

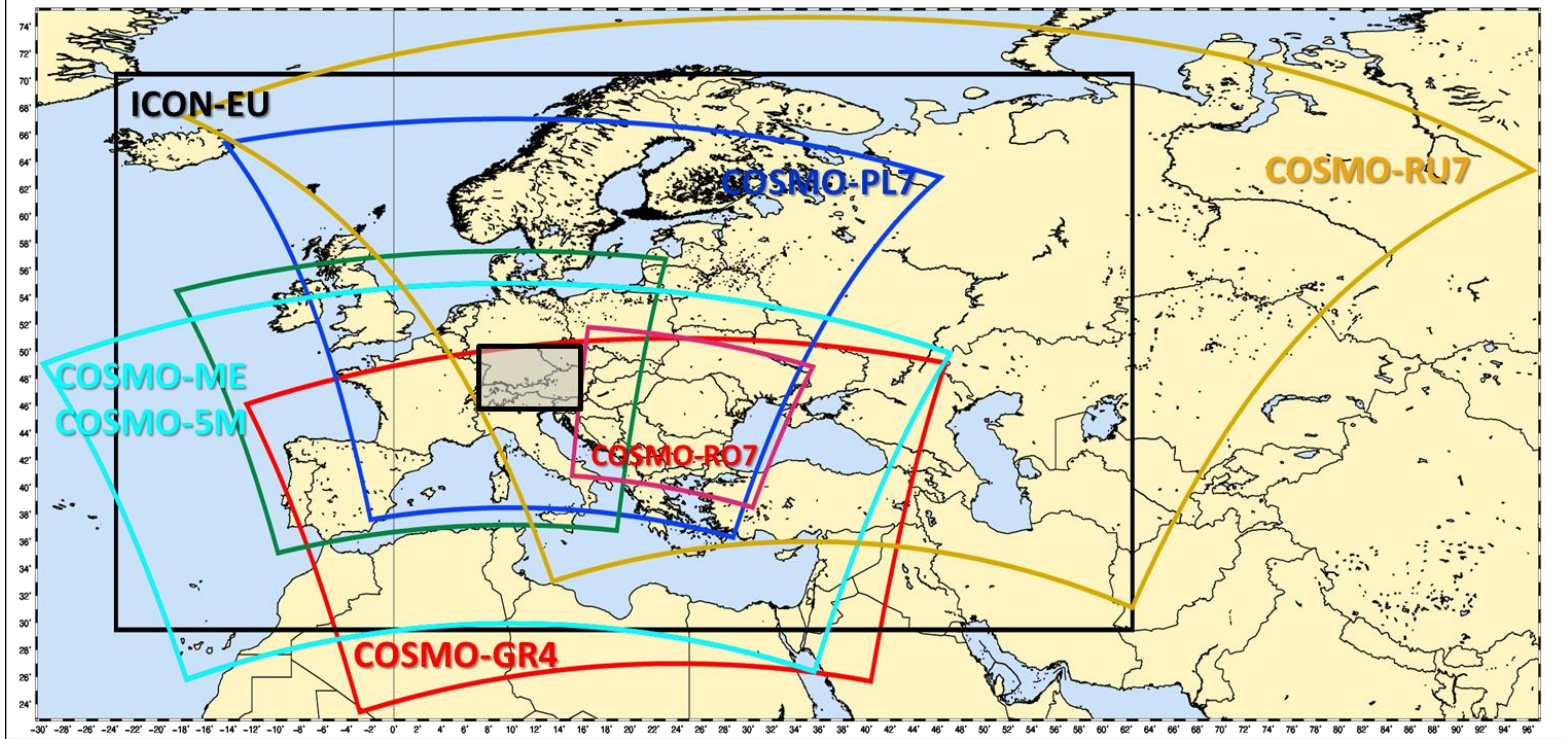
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- ☐ Various implementations of models, resolutions not comparable, few domains overlapping
- ☐ Importance to keep long term trend, necessity for Common Plots if not Common Areas/Models possible

Service	model	type	IC/BC	DA	cycles	fct range	Mbs	Plans for 2020-2021
DWD	ICON-EU	det	VAE-EnKF/ICON	ICON-EDA	00UTC /3h	120/30h		status confirmed
DWD	ICON-EU-EPS	eps	VAE-EnKF/ICON	ICON-EDA	00UTC /3h	120/30h	40	status confirmed
DWD	ICON-D2	det	ICON-EU	KENDA LHN	00UTC /3h	27h	1	oper in 2020
DWD	ICON-D2-EPS	det	ICON-EU-EPS	KENDA LHN	00UTC /3h	27h	20	oper in 2020
DWD	COSMO-DE	det	ICON-EU	KENDA, LHN	00UTC /3h	27h	1	cease in 2020
DWD	COSMO-D2-EPS	eps	ICON-EU	KENDA, LHN	00UTC /3h	27h	20	cease in 2020
MCH	COSMO-1E	eps	KENDA-1/IFS-HRES	KENDA + LHN	00UTC /3h	33	11	oper Aug 2020
MCH	COSMO-7	det	COSMO-7 Analysis Cycle /IFS-HRES	Nudging + LHN	00,06,12UTC	72		shutdown Oct 2020
MCH	ICON							no plans
COMET	COSMO-ME	det	KENDA 7km/IFS	KENDA 7km	00,06,12,18 UTC	72		status confirmed
COMET	COSMO-ME-EPS	eps	KENDA 7km/IFSENS	KENDA 7km	00,12UTC	72	20	status confirmed
COMET	COSMO-IT	det	KENDA 2.2 km/IFS	KENDA 2.2km	00,06,12,18 UTC	30-48		status confirmed
COMET	COSMOIT-EPS	eps	KENDA 2.2 km/IFSENS	KENDA 2.2km	00,12UTC	48	20	status confirmed
COMET	ICON-IT	det	KENDA 2.2 KM/IFS	KENDA 2.2km	00,12 UTC	48		status confirmed
IMGW	COSMO-PL7	det	DAC/ICON	Nudging	00,06,12,18 UTC	86		status confirmed
IMGW	COSMO-CE PL2.8	det	COSMO-PL7	Nudging	00,06,12,18 UTC	48		status confirmed
IMGW	COSMO-PL2.8-TLE	eps	COSMO-PL7	No	00,06,12,18 UTC	36	20	status confirmed
IMGW	ICON-PL	det	ICON	No	00, 12UTC	48		Upgrade to ICT 2019 distribution
RHM	COSMO-RU7	det	ICON	Nudging	00,06,12,18 UTC	78		status confirmed
RHM	COSMO-RU6-ENA	det	ICON	Nudging	00,06,12,18 UTC	120/78		not oper
RHM	COSMO-RU13	det	ICON	No	00,06,12,18 UTC	99/78		status confirmed
RHM	COSMO-RU2cfo	det	COSMO-Ru7	Nudging	00,06,12,18 UTC	42		status confirmed
RHM	COSMO-RU2sfo	det	COSMO	Nudging	00,06,12,18 UTC	42		status confirmed
RHM	COSMO-RU2vfo	det	COSMO	Nudging	00,06,12,18 UTC	42		status confirmed
RHM	COSMO-RU	det	COSMO	Nudging	00,06,12,18 UTC	36		status confirmed
RHM	COSMO-RU2-ETR	det	COSMO-RU6-ENA	Nudging	00,06,12,18 UTC	48		not oper
RHM	ICON-RU	det	ICON		00,12UTC	120/48		test phase

Service	model	type	IC/BC	DA	cycles	fct range	Mbs	Plans for 2020-2021
IMS	ICON-IL-ICON	det	ICON-IN/ICON	No	00,12 UTC	78		oper Nov. 2020
IMS	ICON-IL-IFS	det	ICON-IN/IFS	No	00,12 UTC	78		test phase
IMS	COSMO-IL-RUC	det	IFS	Nudging	hourly	12		pre-oper
IMS	COSMO-IL-ENS	det	IFS	Nudging	00,12 UTC	78	20	oper Nov 2020
IMS	COSMO-IL-CAMS	det	IFS	Nudging	00,12 UTC	78		test phase
IMS	COSMO-IL-IFS	det	IFS	Nudging	00,06,12,18 UTC	90		oper
NMA	COSMO-RO7	det	ICON	Nudging	00,06,12,18 UTC	78/48/174/48		status confirmed
NMA	COSMO-RO3	det	COSMO-RO7	Nudging	00,06,12,18 UTC	30/18/84/30		status confirmed
NMA	ICON-RO2p8	det	ICON	NO	00,12UTC	78		testing phase
HNMS	COSMO-GR4	det	IFS	NO	00-12UTC	72		status confirmed
HNMS	COSMO-GR1	det	COSMO-GR7	NO	00-12UTC	48		status confirmed
HNMS	ICON-GR	det	IFS	NO	00UTC	48		status confirmed
Arpae SIMC	COSMO-5M	det	LETKF-COMET/IFS-ECMWF	NO	00-12UTC	72		status confirmed
Arpae SIMC	COSMO-2I	det	COSMO-5M	KENDA (40 members)	00-12UTC	48		status confirmed
Arpae SIMC	COSMO-2I RUC	det	COSMO-5M	KENDA (40 members)	00UTC /3h	18		status confirmed
Arpae SIMC	COSMO-2I-EPS	eps	KENDA/COSMO-ME-EPS	KENDA (40 members)	00-12UTC	51	20	pre-oper phase
Arpae SIMC	ICON							test phase

Model Information: updated Aug2020



ComA models

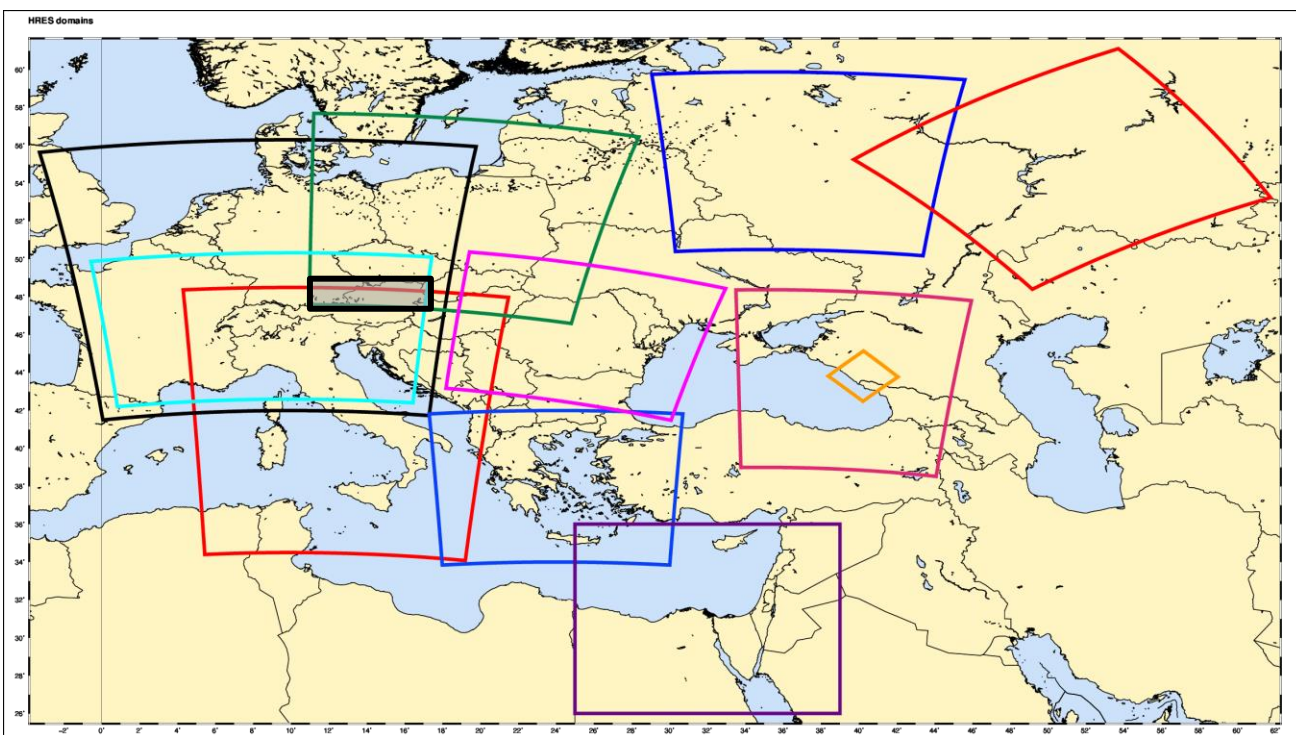
COSMO and ICON-LAM (6 models)

Driving Md: ECMWF-IFS

Driving Md: ICON

Long term trend

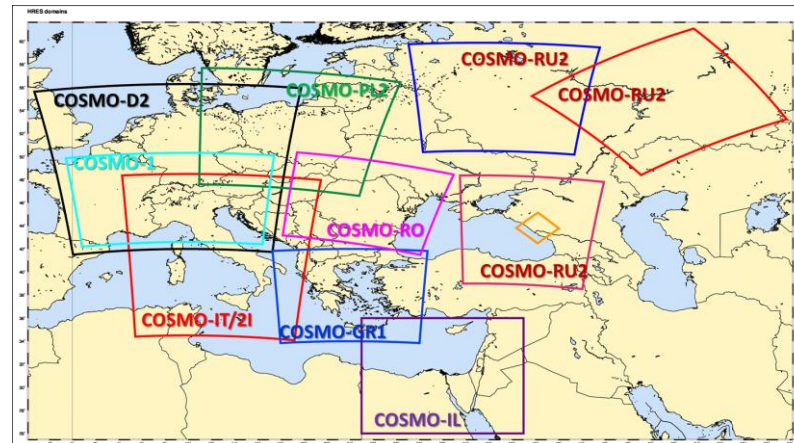
Num	Service	model	IC/BC	DA	cycles	fct range	Plans for 2020-2021
1	DWD	ICON-EU	VAE-EnKF/ICON	ICON-EDA	00UTC/3h	120/30h	status confirmed
2	COMET	COSMO-ME	KENDA 7km/IFS	KENDA 7km	00,06,12,18UTC	72	status confirmed
3	IMGW	COSMO-PL7	DAC/ICON	Nudging	00,06,12,18UTC	86	status confirmed
4	RHM	COSMO-RU7	ICON	Nudging	00,06,12,18UTC	78	status confirmed
	RHM	ICON-RU	ICON		00,12UTC	120/48	test phase
	NMA	COSMO-RO7	ICON	Nudging	00,06,12,18UTC	78/48/174/48	status confirmed
5	HNMS	COSMO-GR4	IFS	NO	00-12UTC	72	status confirmed
6	Arpae SIMC	COSMO-5M	LETKF-COMET/IFS-ECMWF	NO	00-12UTC	72	status confirmed



ComA-2 models

~~COSMO-D2~~, ICON-D2,
~~COSMO-PL2.8~~, ICON-PL,
COSMO-IT, ICON-IT
COSMO-2I
~~COSMO-1~~, COSMO-!E?
4 COSMO - 3 ICON-LAM

Num	Service	model	type	dlon,dlat	IC/BC	DA	cycles	fct range	Plans for 2020-2021
1	DWD	ICON-D2	det	0.02	ICON-EU	KENDA LHN	00UTC /3h	27h	oper in 2020
2	MCH	COSMO-1E	eps	0.01	KENDA-1/IFS-HRES	KENDA + LHN	00UTC /3h	33	oper Aug 2020
3	COMET	COSMO-IT	det	0.02	KENDA 2.2 km/IFS	KENDA 2.2km	00,06,12, 18UTC	30-48	status confirmed
4	COMET	ICON-IT	det	0.02	ICON-KENDA 2.2 KM/IFS	ICON-KENDA 2.2km	00,12 UTC	48	status confirmed
5	IMGW	COSMO-CE PL2.8	det	0.025	COSMO-PL7	Nudging	00,06,12, 18UTC	48	status confirmed
6	IMGW	ICON-PL	det	2.5km / R2B10	ICON	No	00, 12UTC	48	Upgrade to ICT 2019 distrib
7	RHM	COSMO-RU2cfo	det	0.02	COSMO-Ru7	Nudging	00,06,12, 18UTC	42	status confirmed
	RHM	COSMO-RU2sfo	det	0.02	COSMO	Nudging	00,06,12, 18UTC	42	status confirmed
	RHM	COSMO-RU2vfo	det	0.02	COSMO	Nudging	00,06,12, 18UTC	42	status confirmed
8	RHM	COSMO-RU	det	0.01	COSMO	Nudging	00,06,12, 18UTC	36	status confirmed
9	IMS	ICON-IL-ICON	det	0.025	ICON-IN/ICON	No	00,12 UTC	78	oper Nov. 2020
	IMS	ICON-IL-IFS	det	0.025	ICON-IN/IFS	No	00,12 UTC	78	test phase
	IMS	COSMO-IL-IFS	det	0.025	IFS	Nudging	00,06,12, 18UTC	90	oper
10	NMA	COSMO-RO3	det	0.025	COSMO-RO7	Nudging	00,06,12, 18UTC	30/18/84 /30	status confirmed
11	NMA	ICON-RO2p8	det	0.025	ICON	NO	00,12UTC	78	testing phase
12	HNMS	COSMO-GR1	det	0.01	COSMO-GR7	NO	00-12UTC	48	status confirmed
13	HNMS	ICON-GR	det	0.025	IFS	NO	00UTC	48	status confirmed
14	Arpae SIMC	COSMO-2I	det	0.02	COSMO-5M	KENDA (40 members)	00-12UTC	48	status confirmed
	Arpae SIMC	ICON							test phase



No-ComA models

COSMO and ICON-LAM (~14 models)
Various areas but both COSMO/ICON-LAM for some domains
COSMO-1E (eps): Control run?

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- F. Responsible person

- ☐ ComA AND ComA-2 or no ComA?
- ☐ Area for No-ComA? Forecast range?
- ☐ Upper air stats to be included in annual analysis (Rfdbk)
- ☐ Obs:netcdf (Amalia) every 15days, obs:bufr/OPERA (Flora) @WG5 rep
- ☐ FSS for ComA2? Add ICON-LAMs
- ☐ **Delays in data dissemination to Alexander**
- ☐ **Guidelines to be prepared by WGc (end of Sept)**

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- ☐ **MEC/Rfdbk is not installed-used in every service as expected. PP-CARMA is extended, will include also ICON-LAM FFs for verif**
- ☐ **Use both VERSUS and Rfdbk, save in appropriate text format, adaptation of Common Plots scripts**

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☐ **BIG THANKS to Dimitra and Alexander for the effort!**

☐ **Common Plots visualisation (all data)**

☐ **Shiny server web plots (Rfdbk)**

☐ **Annual Report and Coordination of Task**

Who will be the verification magician?



Or



ADDITIONAL SLIDES

Common Area1-2: Guidelines

Standard Verification (seasonal):

T2m, MSLP, Td 2m, WSpeed, TCC. Scores: ME, RMSE

Precipitation. Scores: Contingency table, FBI, ETS. Cumulating: 6h and 24h

Thresholds: 0.2, 0.4, 0.6, 0.8, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 14, 16, 18, 20 mm/6h and mm/24h

TCC (**30km radius method**). Scores: Contingency table, FBI, ETS, CSI.

Intervals: [0,25], (25, 75), [75,100]

Windgust (**3D method height optimized**): Obs: WMO Code 11233, Fcs:VMAX_10M (187,201). Scores: Contingency table, FBI, ETS, CSI. Thresholds: 12.5, 15, 20 m/sec.

EDI (Extremal Dependency Index) - **exclude**

FSS for Common Area2

Wind Performance Rose for Common Area1

Upper Air verification only with MEC/Rfdbk

A. Participating models - COSMO/ICON

- COSMO models
- Comparison of ICON-LAM/COSMO desirable

B. Choice of comparable resolution(s)

- As in plots

C. Choice of common domain(s)

- Common area 1 / Common area 2

D. Choice of (Common) Verification Software

- VERSUS or else (provide only txt numerical results)
- With end of PPCARMA (03/2020) desirable to provide statistical analysis with MEC/Rfdbk

E. Decision on guidelines

- Basic surface parameters, 00UTC run
- No Extreme Dependency scores
- Wind Performance Rose? (Maria Stefania)
- FSS on common Area2 (Naima)
- Upper air when MEC/Rfdbk is adopted

Common Plot Activity – Status and Future

- Seasonal summary graphics available on COSMO web
- Annual report prepared by A. Kirshanov available on COSMO web
- Remains as an activity to encourage all services to contribute to the minimum necessary verification practices to monitor COSMO model performance (trend since 2011) over same domain and periods
- Common Verification Software (CSV) is currently VERSUS but depending on the feedback introducing MEC/Rfdbk for NWP Test suite, this could change
- Transition period (2018-2019) for CP activity NOT based on CVS but with same guidelines to be followed. Introduction of FSS scores over common domains

Common Plots suggestions for 2018-2019 – Neighborhood methods

- New possibilities of Verification for this year would be application of VAST software for the application of Neighborhood methods (with space/time windows)
- Necessary to have OPERA gridded observations for Common Area 1 in grib format
- Naima Vela could take over the activity if obs are available. Files have to be however for the same area and format as the ones E.Oberto is collecting for the Long term trends
- This may not be possible for a whole season but for specific days of each season, maybe after selecting days where warning were issued over the area of interest.

FTE attribution

STC was in favor of the proposition for FTE attribution for common plots and conditional verification activities (requested by WG5 in August 2014), provided that its additional conditions are imposed, as formulated in the minutes of the STC meeting from September 2014:

- STC suggests to restrict the task to the plots on the **common area**, which are the ones bringing a benefit since really comparable. STC requests for a **deeper analysis** in the report
 - STC suggests that FTE should be required to perform some **additional explanation** of results which will help to detect and improve outdated installations and correct model setups.
 - STC decides to keep **conditional verification** in the task, but requests that **the conditions should be decided every year new by the WG3a/b**.
-

Task description

Score Production (4.2)

Preparation of input data and calculation of seasonal statistics over a common area according to the guidelines derived on an annual basis from WG5 (<http://www.cosmo-model.org/content/tasks/verification.priv/common/guidelines.pdf>) for each participating model. This Task includes conditional verification tests performed over this area. IFS and ICON driving model statistics have also been added.

Seasons: JJA 2014, SON 2014, DJF 2015, MAM 2015

Reporting (4.1)

Processing of data from all models for each parameter and conditional verification test in appropriate format

R scripting for production of graphs (cross model representation)

Preparation of final annual report

Commenting of significant errors or discrepancies between models

Preparation of web graphics based on DWD representation regime

Long term trend calculations
