

PP INSPECT status

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(6) ARPA-SIMC, (7) ARPA-PT**

Status highlights

- The PP INSPECT is extended until August 2017 due to delays in some tasks, with overall FTE amount almost unchanged
- Delayed tasks in question are extended with unused FTEs shifted to later periods

Tasks involving reruns of MesoVICT test cases



- MCH: COSMO-1 reruns for ALL MesoVICT cases are **DONE** and available at WG5 repository
- ARPA-SIMC: ECMWF-IFS reruns for cases 1 and 2
- COSMO-Ru2-EPS: rerun for the 1st MesoVICT case
- MCH: Probably, at least one COSMO-E run could be made until the end of this year, if the initial and boundary conditions from ECMWF-EPS (IFS-ENS) are suitable for COSMO-E

This created a base for the application of spatial methods to ensembles (INSPECT priority) and comparison of deterministic and ensemble approach for a family of COSMO models of different resolutions

Tasks involving development of routines for running spatial methods



- RHM, HNMS, INGW-PIB: examples of scripts for neighborhood methods, CRA, SAL, and MODE are uploaded at the WG5 repository, but the documentation is still very limited
- *ARPA-PT: It was decided to add two new developments of high priority for the project in VAST: inclusion of time dimension and the possibility to operate with other variables besides precipitation, primarily TCC*

The policy on Additional Verification Tools and verification data and formats



- *HNMS, RHM. IMGW-PIB*: **The policy on Additional Verification Tools and verification data and formats** is prepared and sent to TAG for consideration.

Tasks involving the application of spatial methods to deterministic forecasts

- Progress in application of the routines developed earlier **to MesoVICT cases** -> this should facilitate the comparison of different approaches and summarizing the results

Wind verification with DIST method: preliminary results

Maria Stefania Tesini

Offenbach - 6 September 2016

COSMO General Meeting

Application to MesoVict cases 1-3

- Available data:

Observations: VERA analysis (8 Km grid)

Forecasts: COSMO-2 interpolated on the VERA grid, COSMO-1 model (original grid)

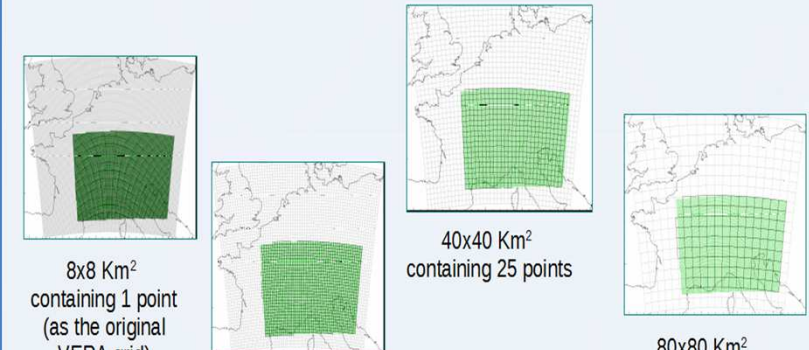
- Several sets of boxes were created:

Dimension of box in Km	Grid points in the box	Points in the box with time aggregation
8x8	1	3
16x16	4	12
24x24	9	27
40x40	25	75
80x80	100	300
120x120	225	675
160x160	400	1200

Application to the Core case

20-22/07/2007

- On the COSMO-2 domain we create a set of boxes of different size:



8x8 Km² containing 1 point (as the original VERA grid)

24x24Km² containing 9 points

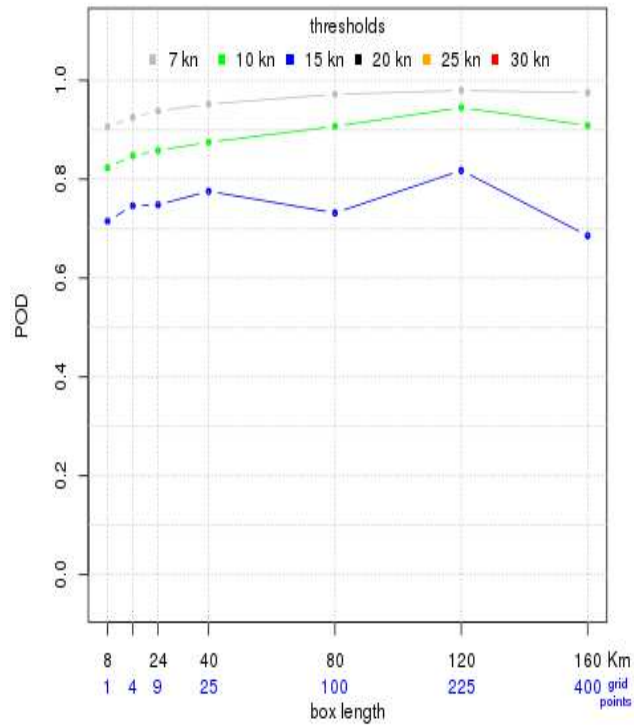
40x40 Km² containing 25 points

80x80 Km² containing 100 points

WIND SPEED case 3 – Cosmo-2 50%

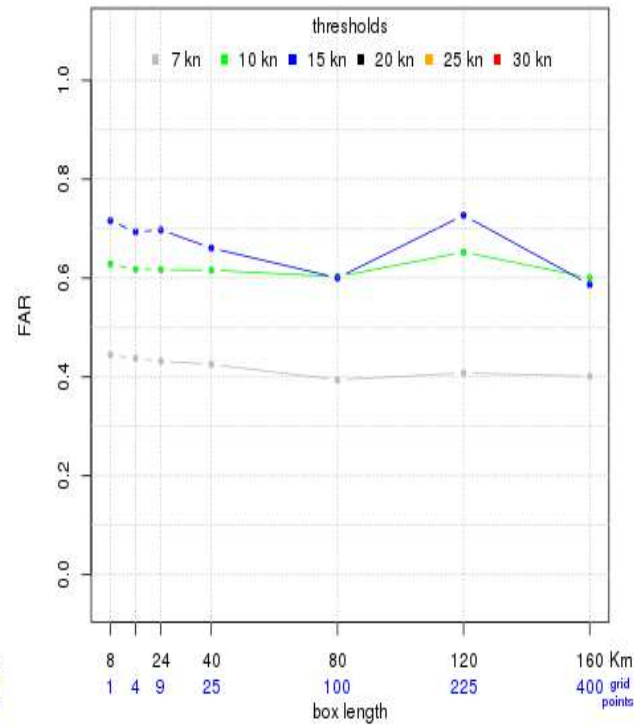
POD

50% points>thr
CASE 3



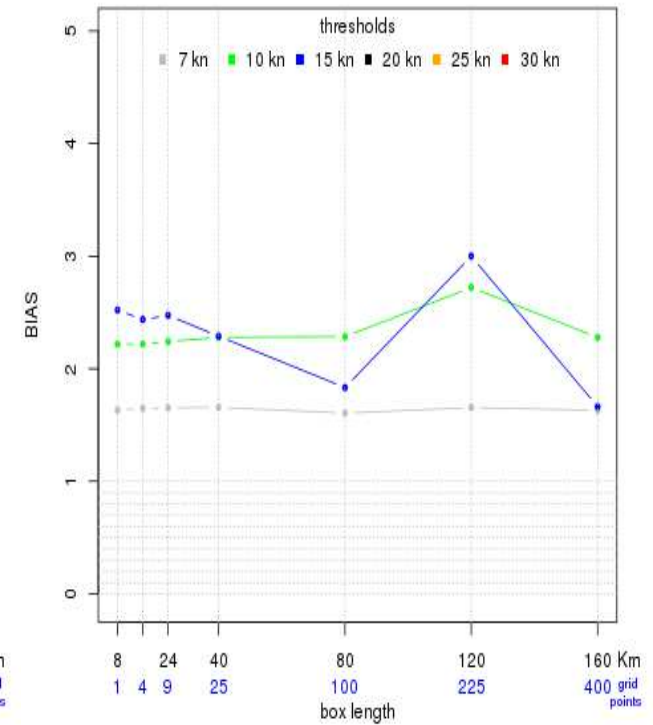
FAR

50% points>thr
CASE 3



BIAS

50% points>thr
CASE 3

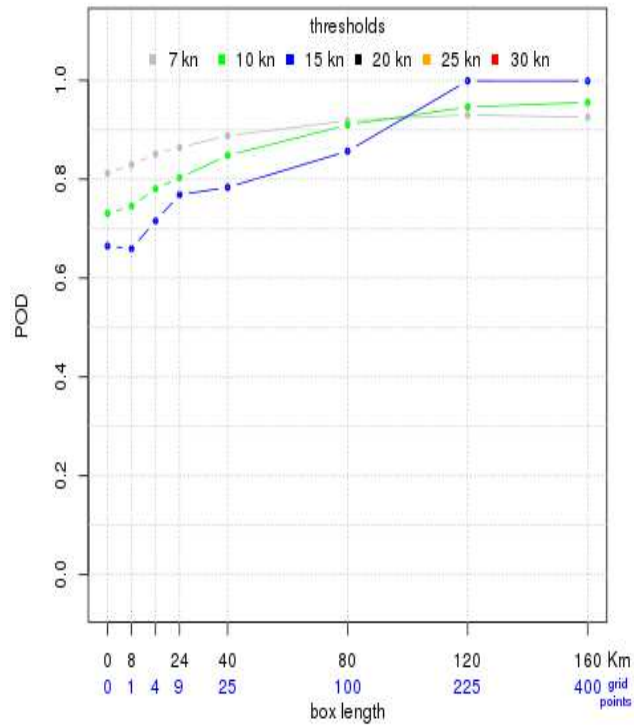


The event is defined as “median exceeding a predefined threshold”
The scores are plotted as a function of the box dimension

WIND SPEED case 1 – Cosmo-1 50%

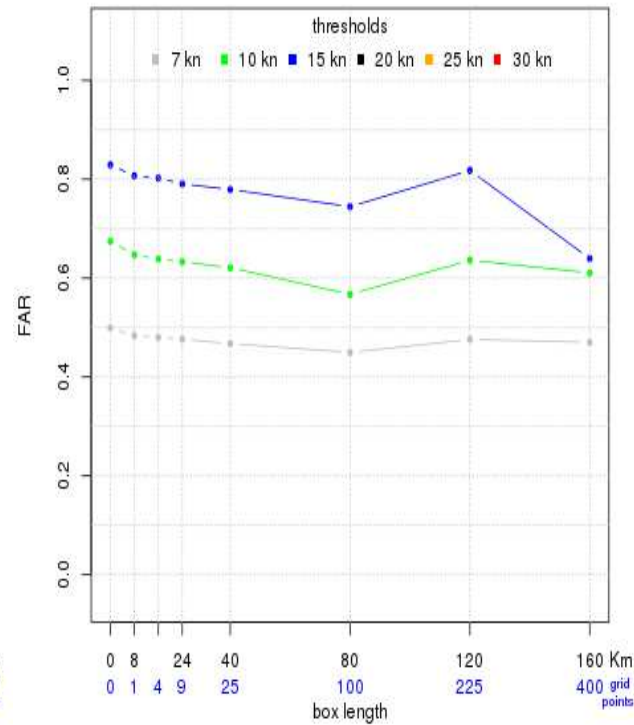
POD

50% points>thr
COSMO1-case1



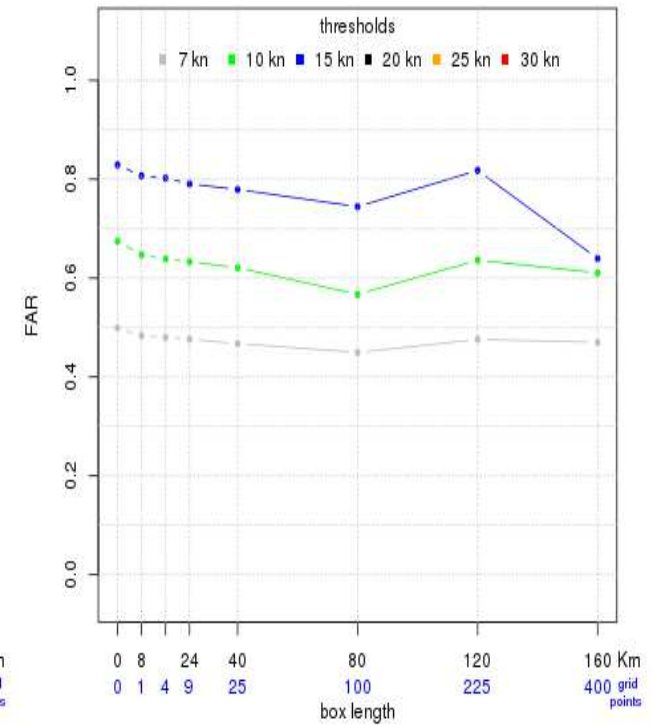
FAR

50% points>thr
COSMO1-case1



BIAS

50% points>thr
COSMO1-case1



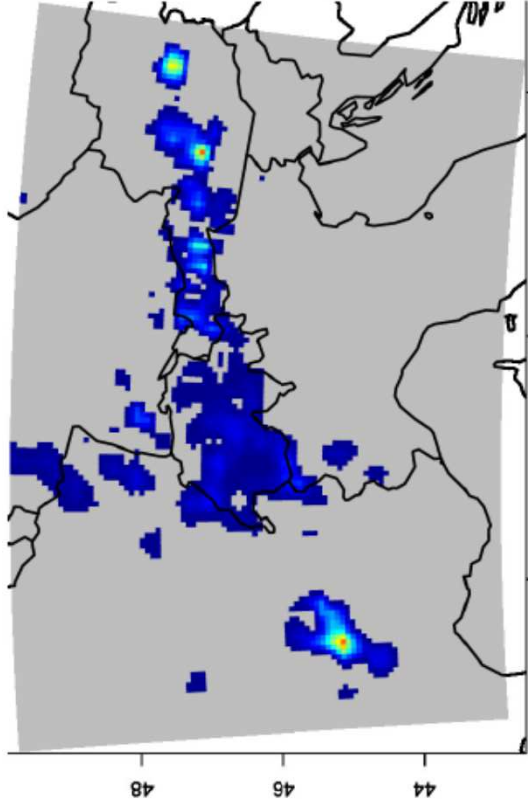
The event is defined as “median exceeding a predefined threshold”
The scores are plotted as a function of the box dimension



Highlights of PP INSPECT results at IMGW-PB

Joanna Linkowska
Andrzej Wyszogrodzki
IMGW-PIB

VERA



2006 07 20, 18 UTC

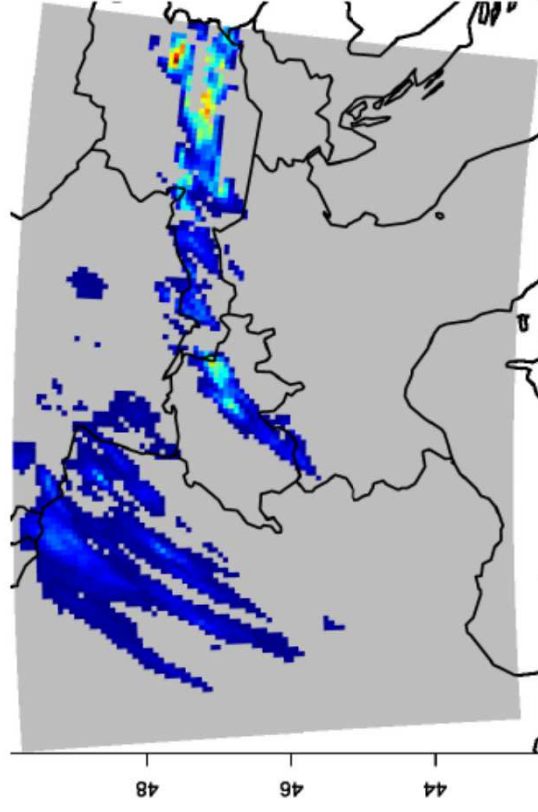
COSMO

S=0.11 **A**=0.22 **L**= 0.26

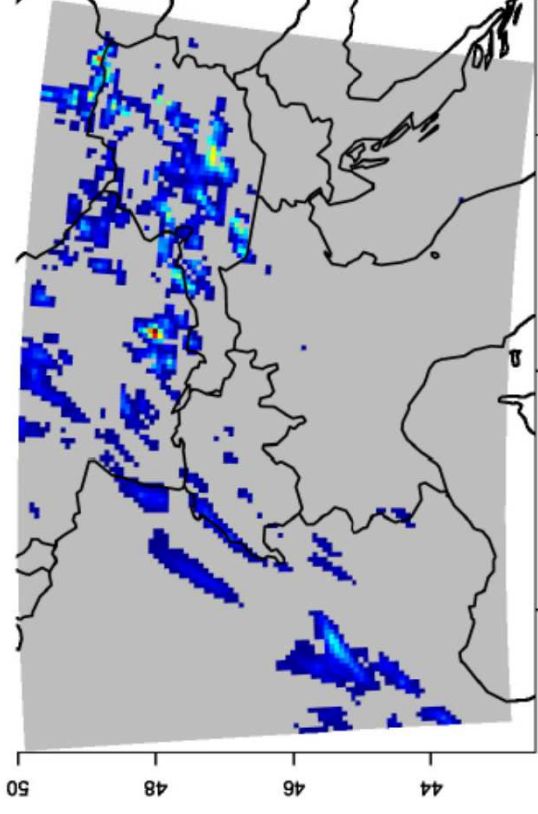
CMH

S=-0.59 **A**=0.22 **L**=0.25

COSMO

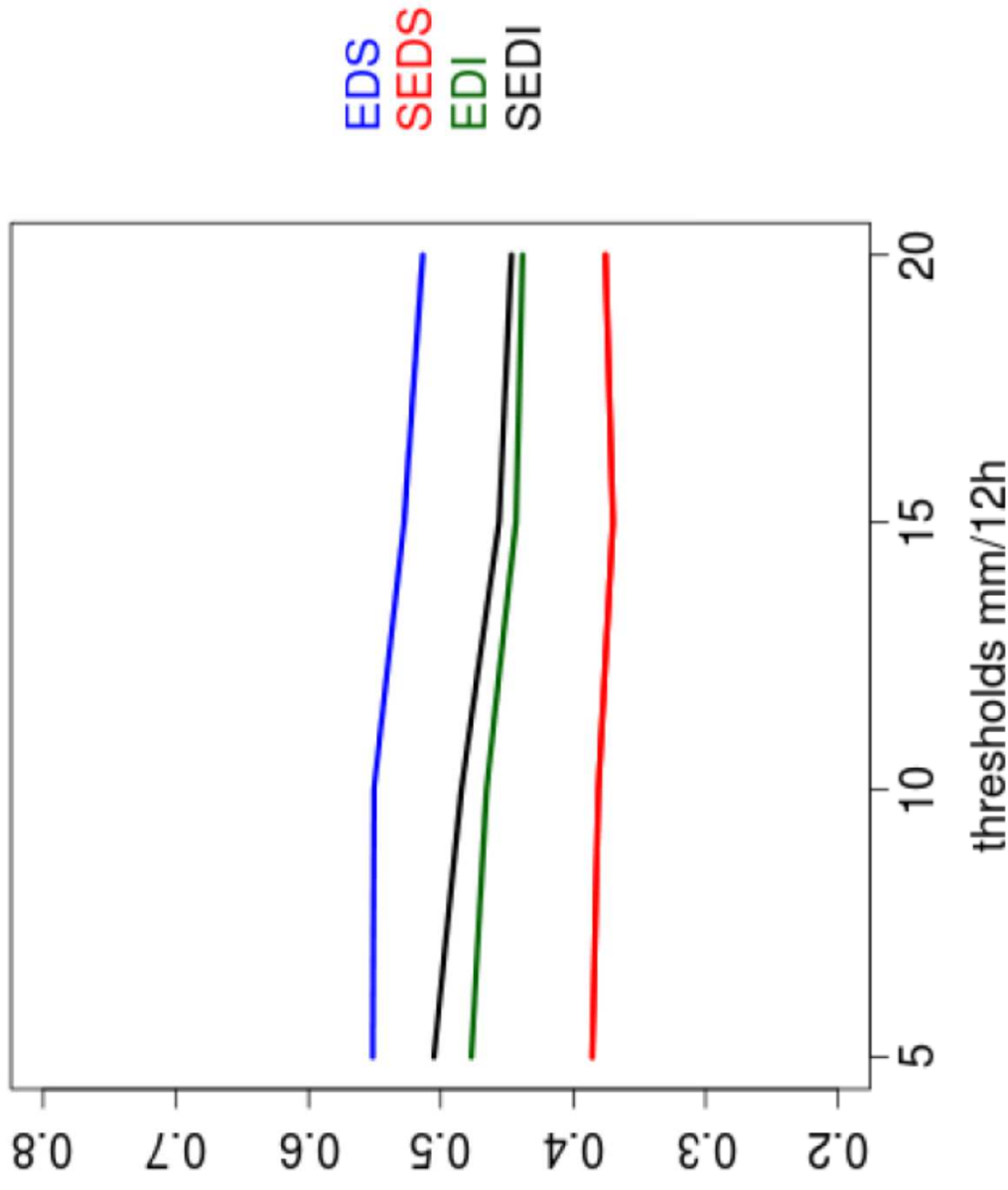


CMH



Extreme events scores

2006 07 20, 18 UTC, COSMO 2
12 h accumulated precipitation





Matching objects and CRA application for MesoVICT cases (RHM)

A. Bundel and A. Muraviev

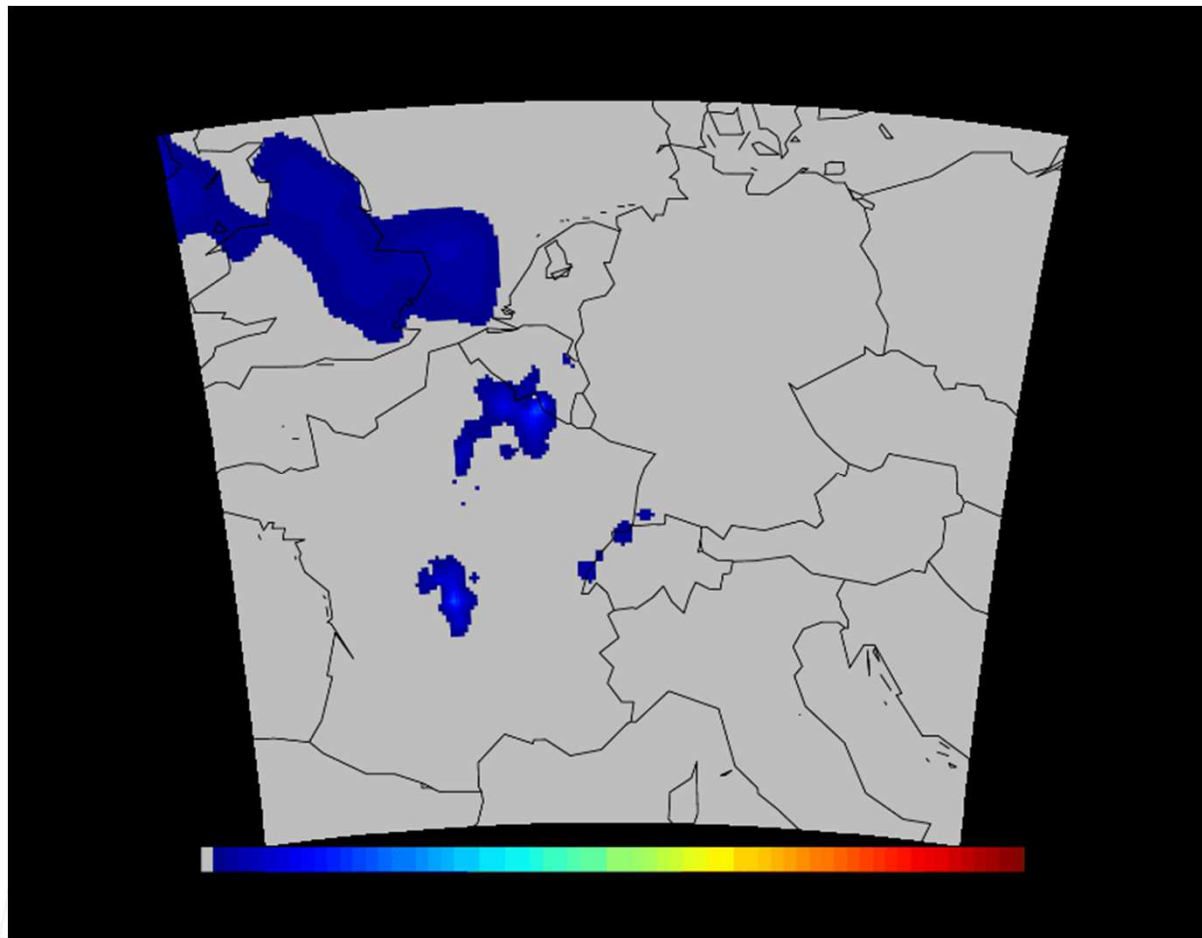


MesoVICT case 1 (core case): 20-21 June 2007



Strong convective developments north of the Alps followed by a cold front the next day. Cold air mass could not spill over the Alps.

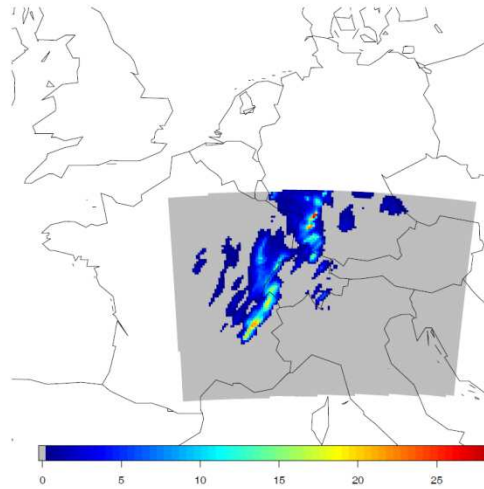
The most intense precipitation: during June 21 afternoon



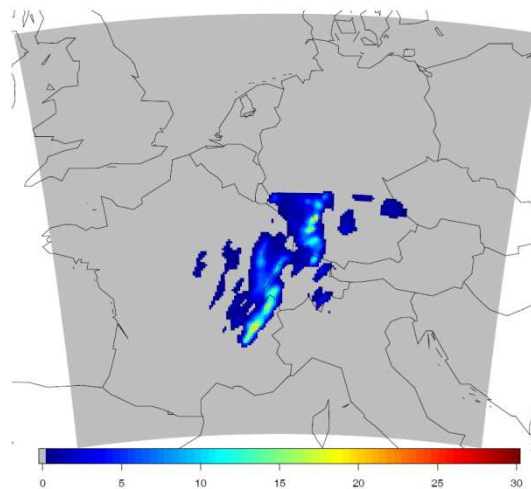


Experiments on smoothing the COSMO-2 field, 2007062106

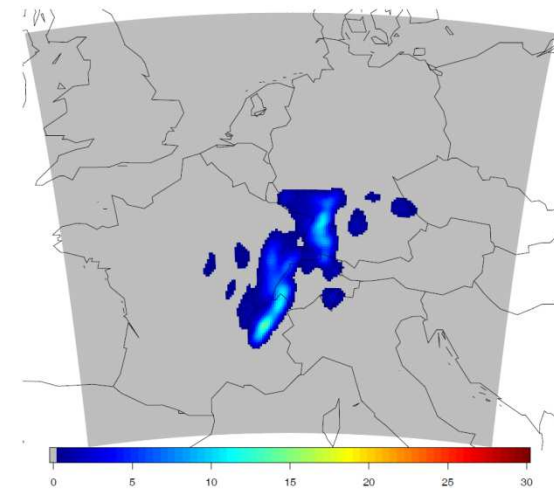
COSMO-2 data with NA where COSMO=9999



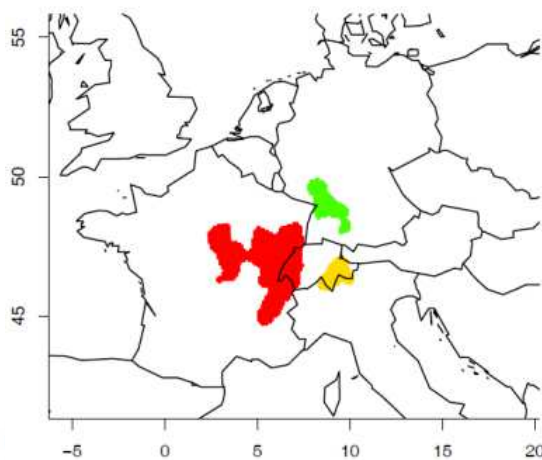
frc, disk smoothing, smooth.par=1



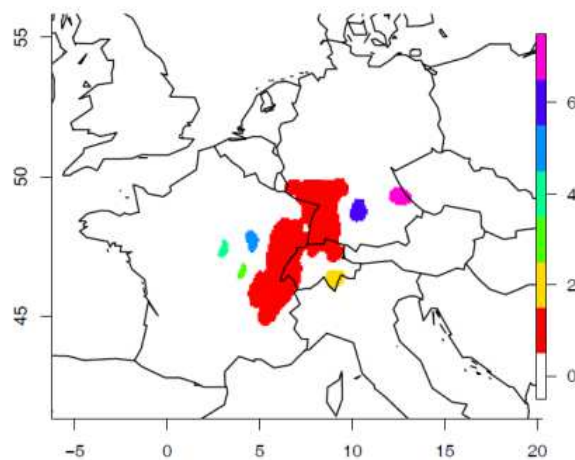
frc, disk smoothing, smooth.par=3



VERA case 1



COSMO-2



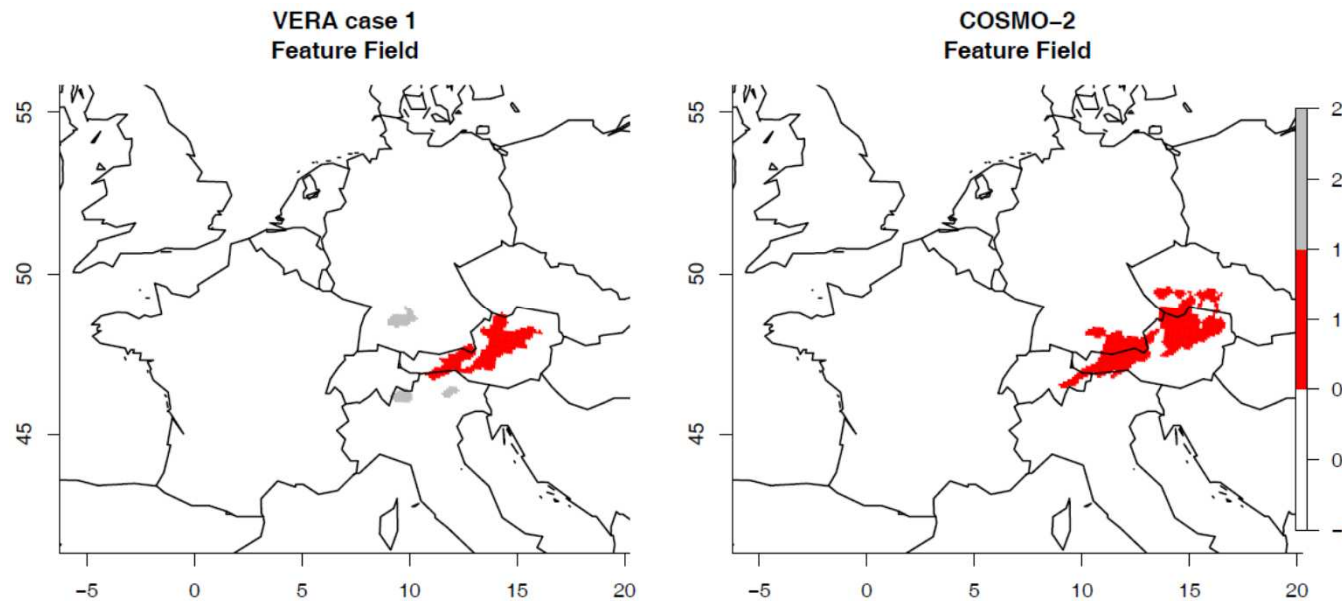
**Features, smoot.par=3,
Min.size=20 grid points
(~36*36 km)
precip threshold=0.5 mm/h**

**Do we need smoothing for
more intense precipitation?
Probably, not.**



CRA scores, 2007062115, intense precipitation

Centmatch 2



ir	MSE.total	MSE.shift	MSE.displace	MSE.volume	MSE.pattern
1	0.0193	0.0165	0.0028	0.0002	0.0163

In most cases, most of the error is due to fine scale structure (MSE.pattern)

Tasks involving the application of spatial methods to ensemble forecasts

- A progress is made, although some of these tasks are delayed

Sensitivity of COSMO-LEPS forecast skill to the verification network: application to MesoVICT cases

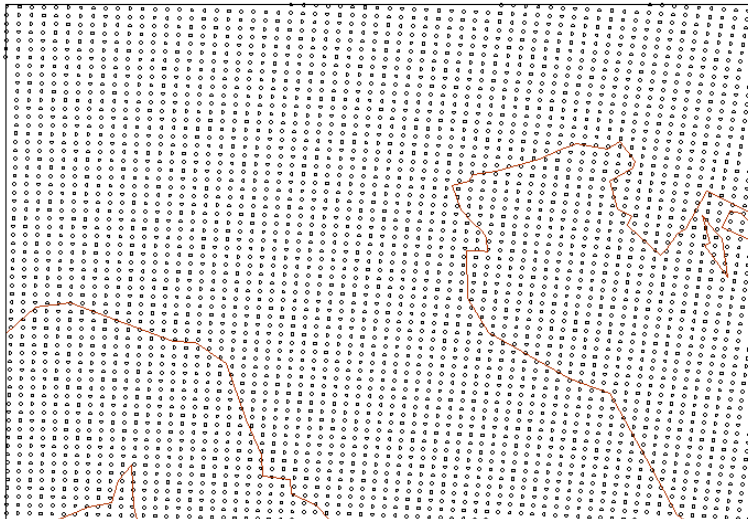
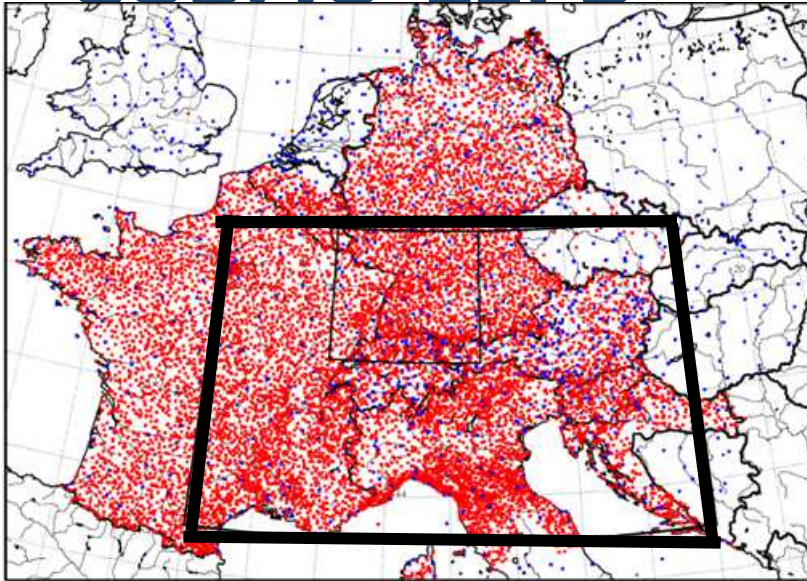


Andrea Montani

Arpae Emilia-Romagna Servizio IdroMeteoClima, Bologna, Italy

COSMO WG5/INSPECT

Objective verification of COSMO-LEPS



Main features:

variable: 6h cumulated precip (0-6, ..., 18-24 UTC);

period: from 20 to 22 June 2007;

region: 43-50N, 2-18E (D-PHASE area);

method: nearest grid point; no-weighted fcst;

obs: JDC or VERA;

fcst ranges: 0-6h, 6-12h, ..., 42-48h;

thresholds: 1, 5, 10, 15, 25, 50 mm/6h;

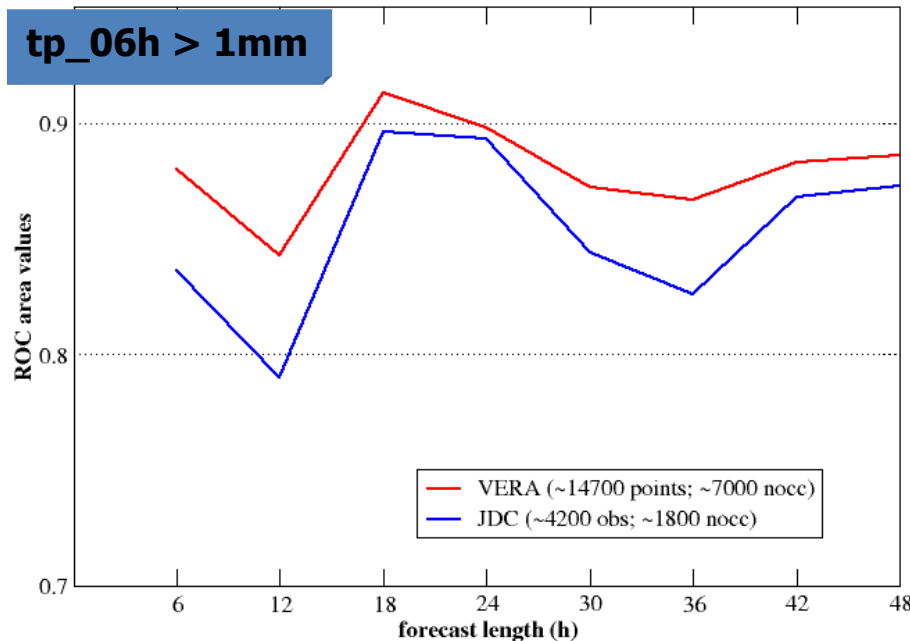
system: COSMO-LEPS;

scores: ROC area, RPS, RPSS, Outliers, ...

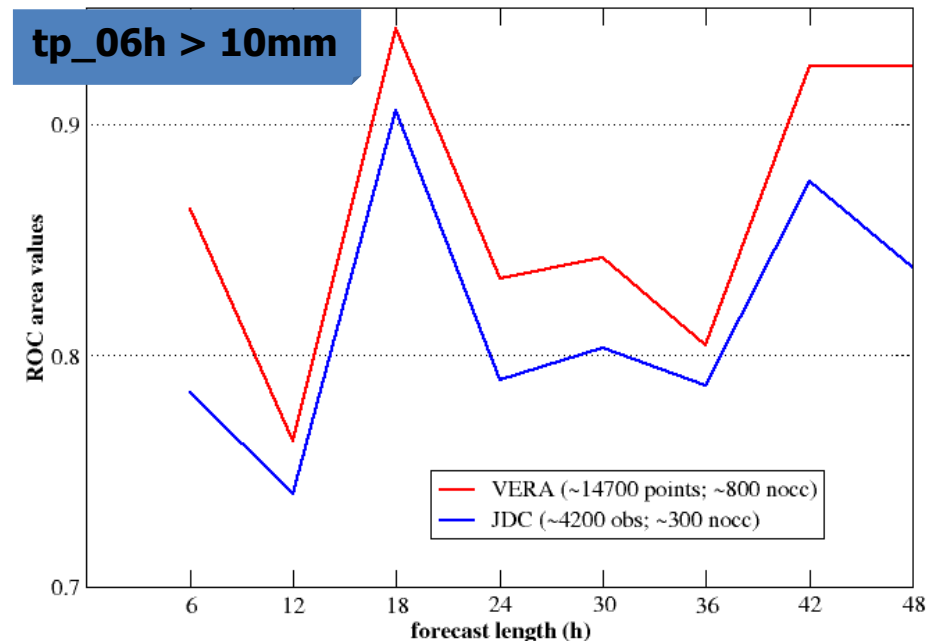
Probabilistic prediction of tp: ROC area

- Area under the curve in the HIT rate vs FAR diagram; the higher, the better ...
- Valuable forecast systems have ROC area values > 0.6.
- Consider two events: 6-hour precipitation exceeding 1 mm and 10 mm.

TP06H > 1mm; ROC area values; 20-22/7/2007; mapdom



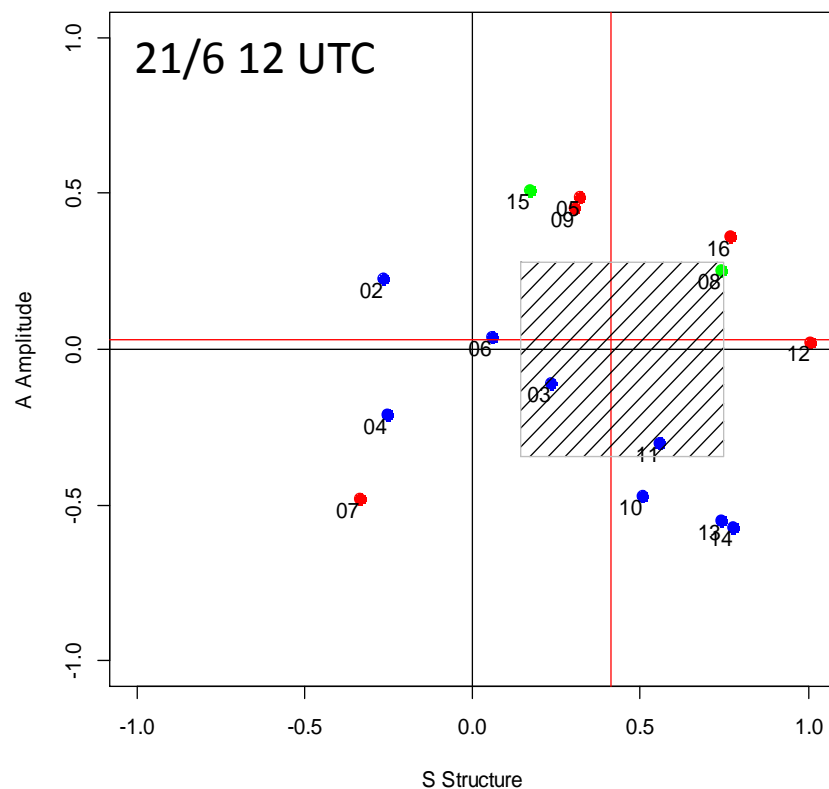
TP06H > 10mm; ROC area values; 20-22/7/2007; mapdom



- Similar performance of the system with respect to the 2 verification networks.
- Higher skill when COSMO-LEPS is verified against **VERA** gridded analysis (different number of occurrences for the 2 networks) .

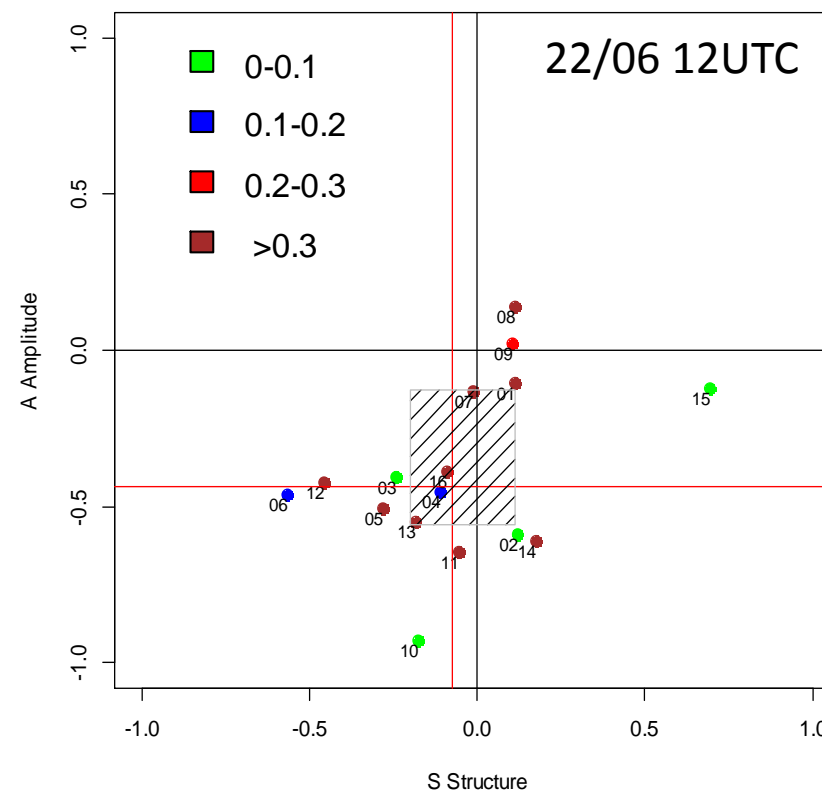
SAL for COSMO-LEPS

SAL PLOT EPS



$S > 0$ too large or too flat objects are produced.

SAL PLOT EPS



$A < 0$ underestimation, More red points

Spatial Verification for Ensemble at DWD

Susanne Theis

Deutscher Wetterdienst (DWD)



Follow-up of MesoVICT

- The 2nd MesoVICT international meeting will be held in Bologna, Italy, on 21-23 September 2016 under the umbrella of ARPA-SIMC.
- During the same period, the INSPECT meeting will also take place

During the INSPECT meeting in Bologna, we plan to summarize the last outcomes of MesoVICT and to decide the next steps within INSPECT for the last year of the project

Thank you for your attention!



Task 5: Guidelines for relative usefulness of various spatial methods in decision-making

Goal: Using the knowledge gained from INTERP, ICP and MesoVICT projects and the long time series of spatial verification scores, to try to identify the relative usefulness of each spatial method for precipitation and other weather parameters. To propose a kind of Guidelines for using spatial methods within the COSMO community

- Most of subtasks in Task 5 will start in October.
- To simplify the preparation of the Task 5 deliverables, a paper needs to be prepared by the participants for each method tested that will reflect the experience gained