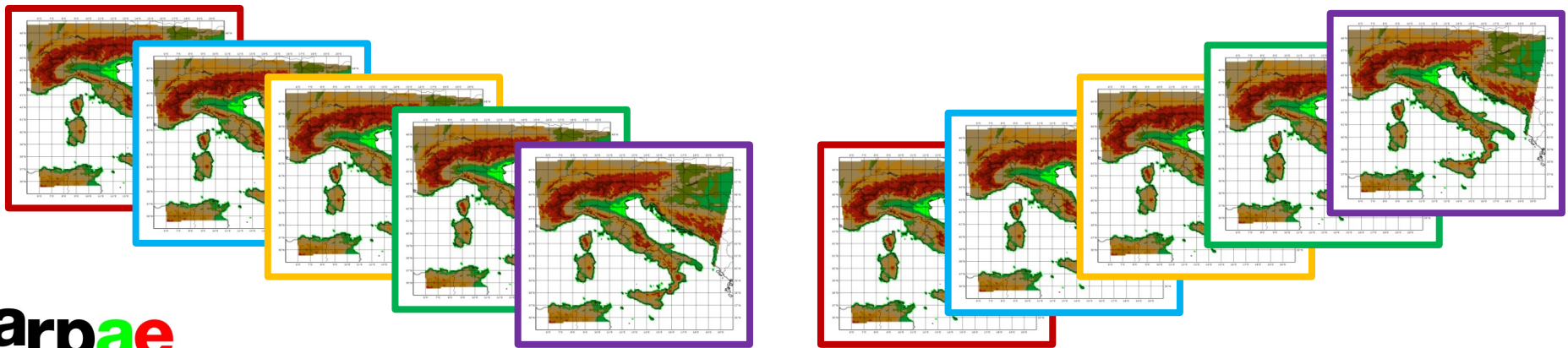


Ensemble activities at Arpae-SIMC

Chiara Marsigli

Arpae SIMC

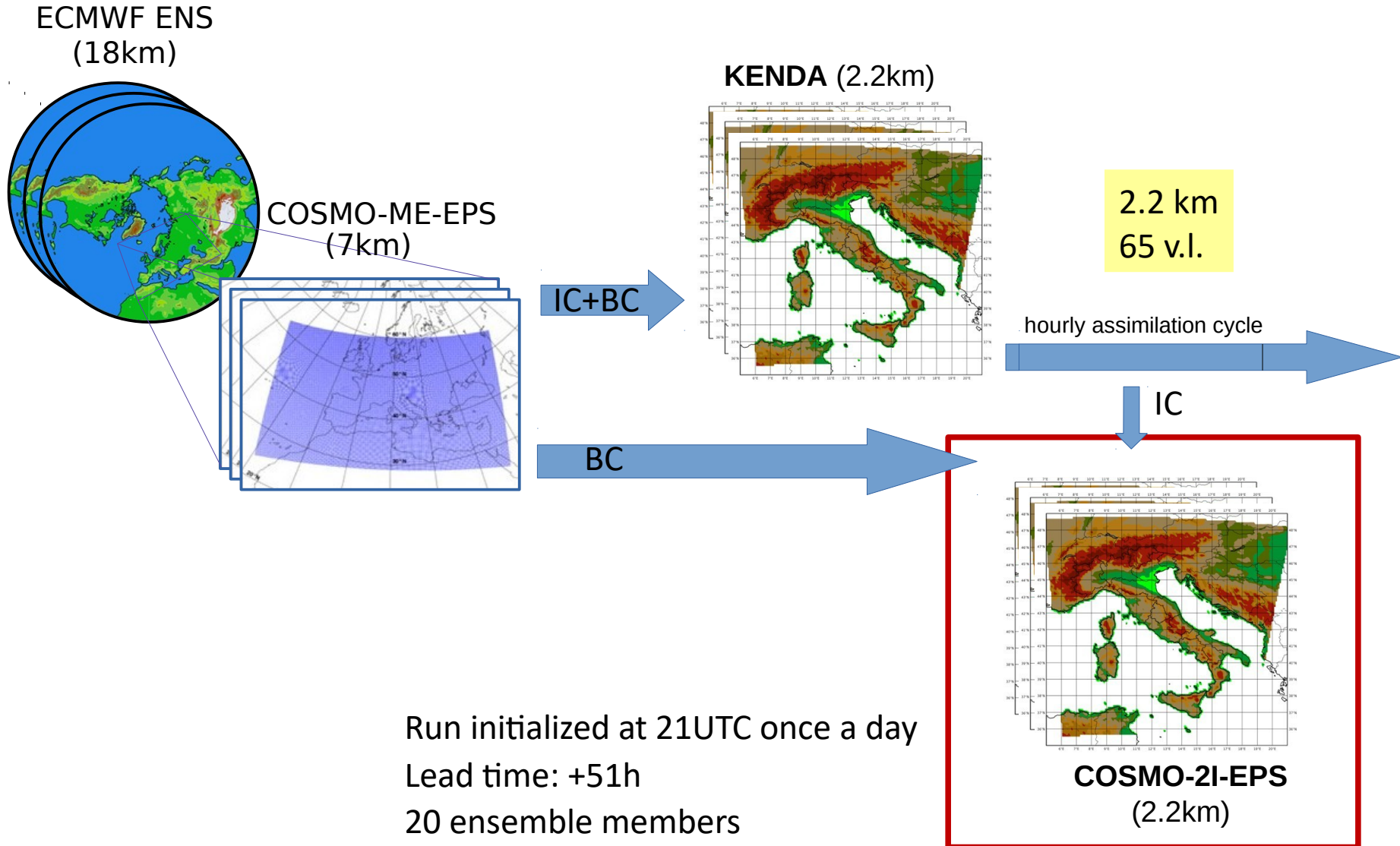
V. Poli, D. Cesari, I. Cerenzia, T. Gastaldo, M.S. Tesini



Outline

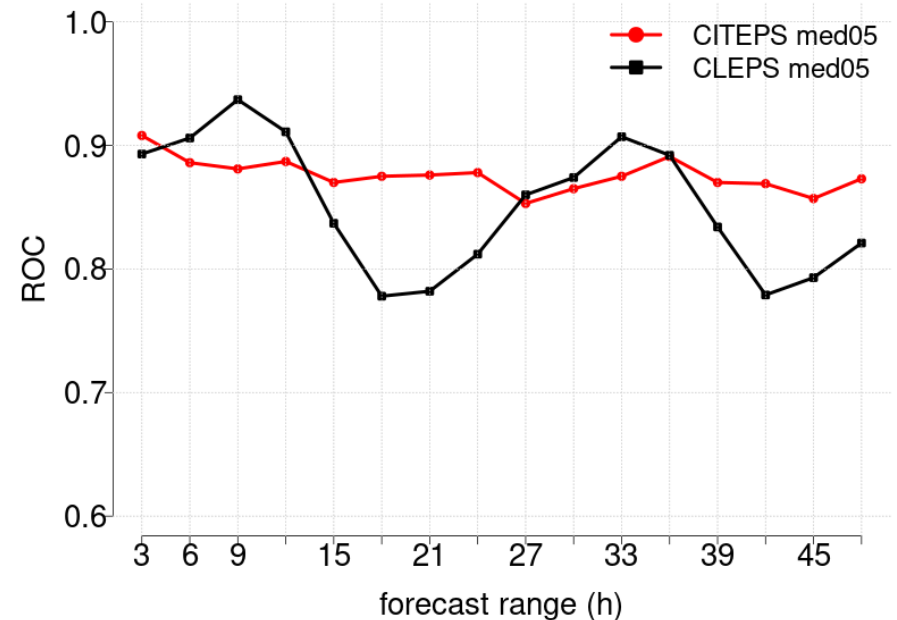
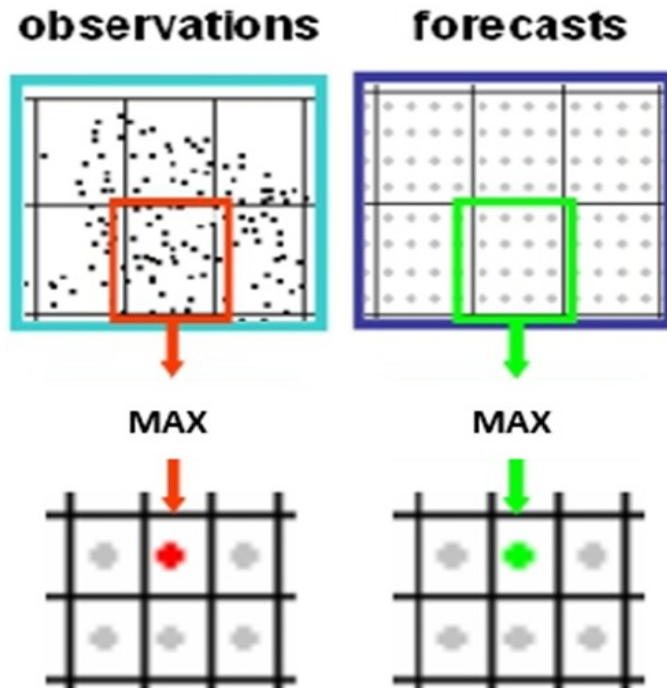
- COSMO-2I-EPS:
 - Current status
 - Comparison with COSMO-LEPS
 - Products
 - Plans
- ICON-LEPS

COSMO-2I EPS: operational set-up



Probabilistic verification

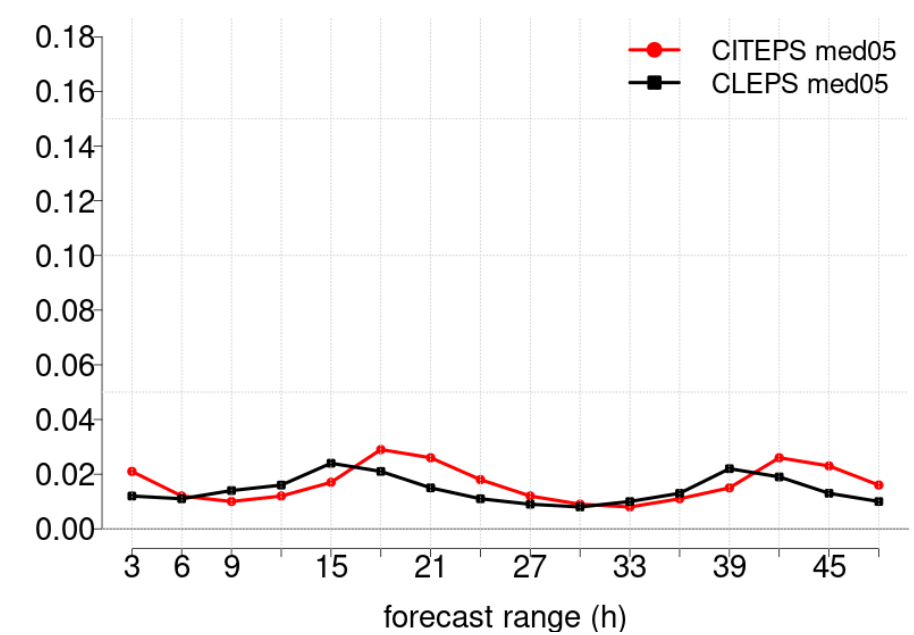
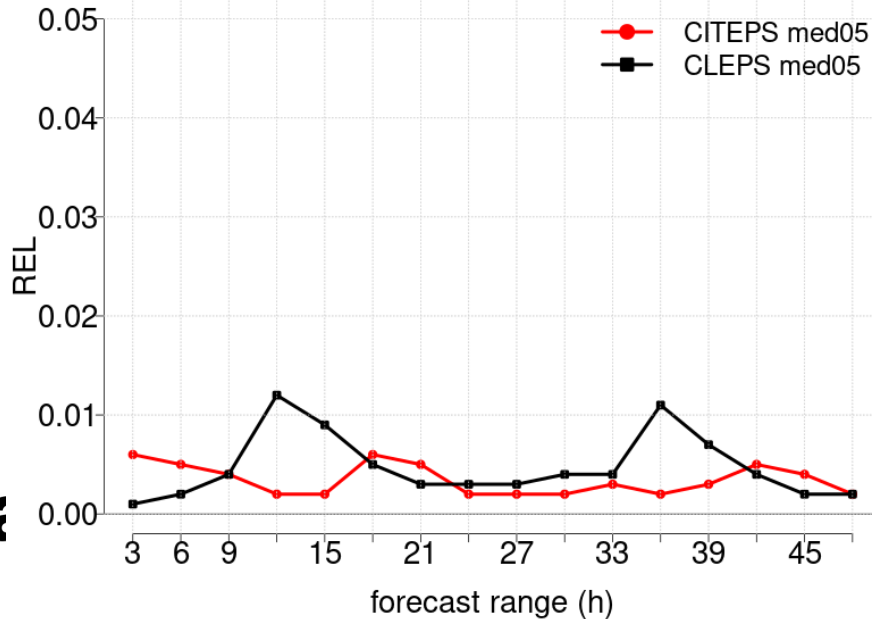
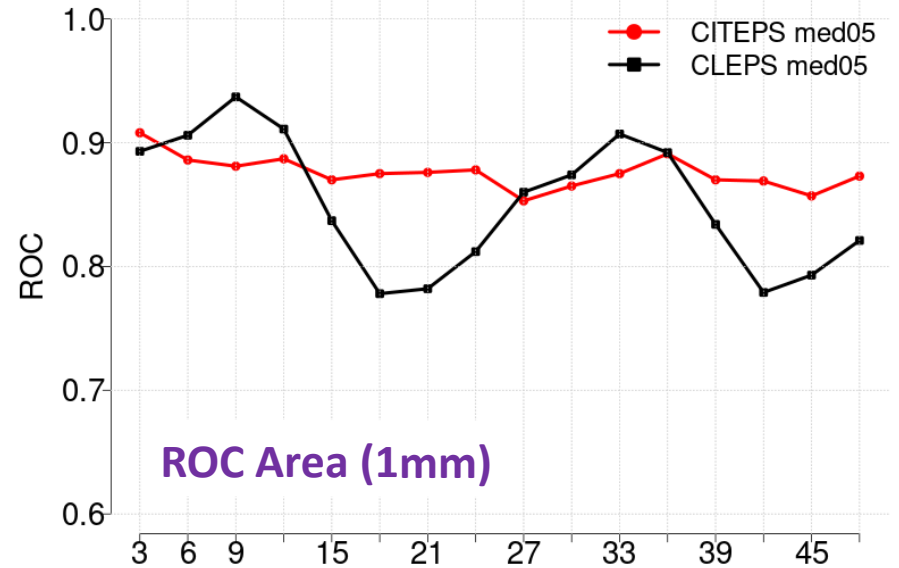
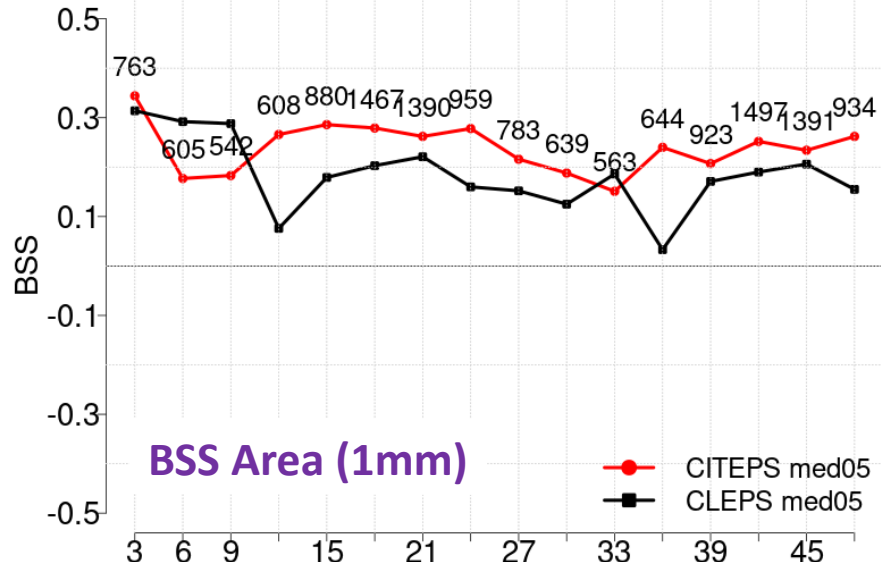
- Computation of scores over boxes
- Average and maximum



JJA 2020

COSMO-2I-EPS and COSMO-LEPS

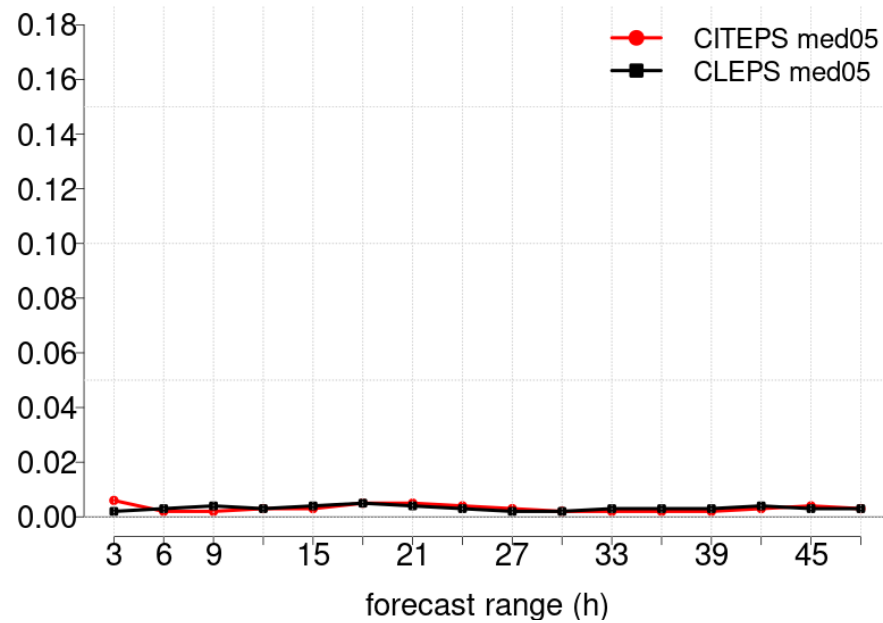
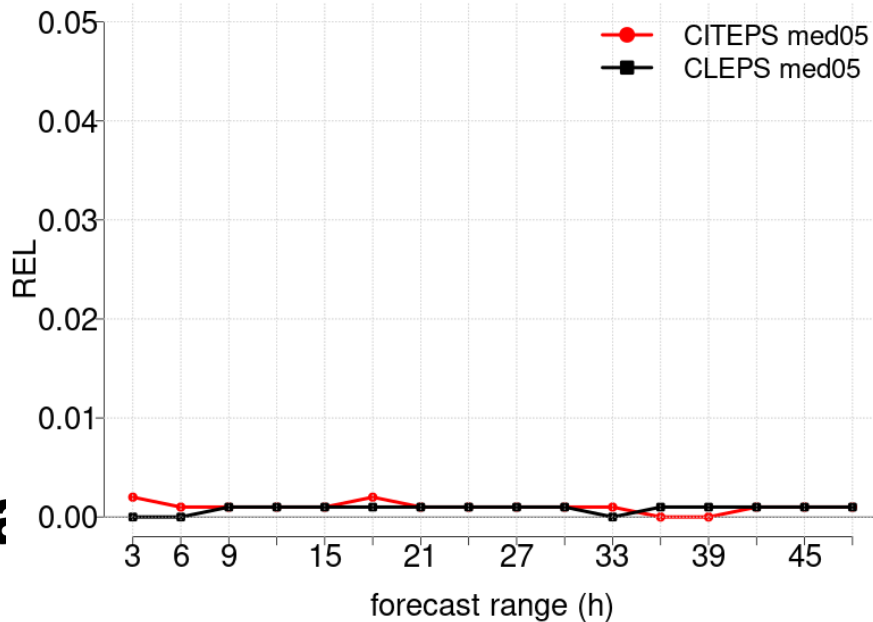
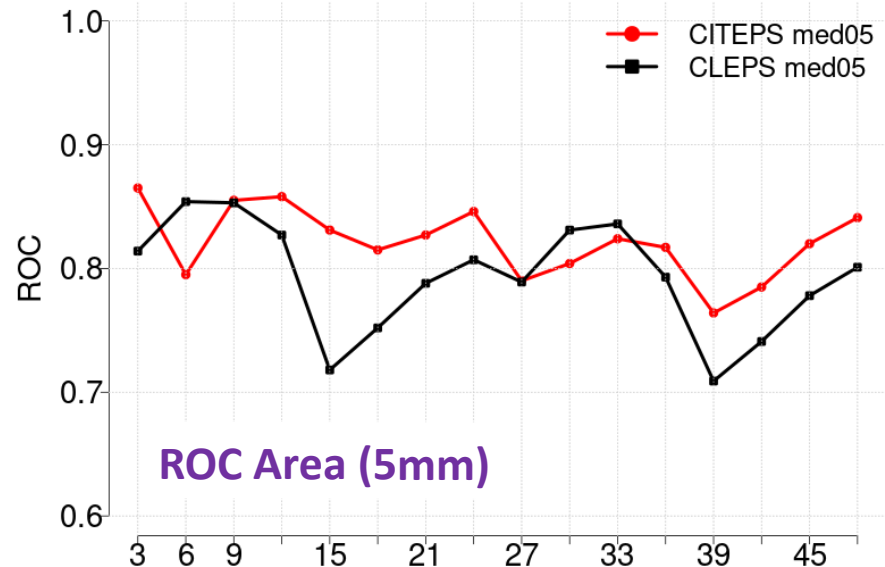
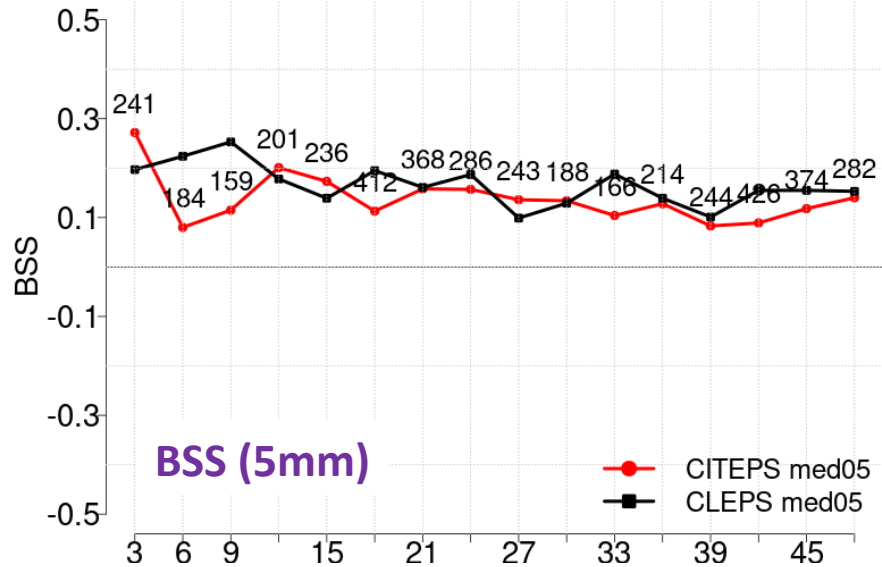
Average 0.5x0.5
1mm



JJA 2020

COSMO-2I-EPS and COSMO-LEPS

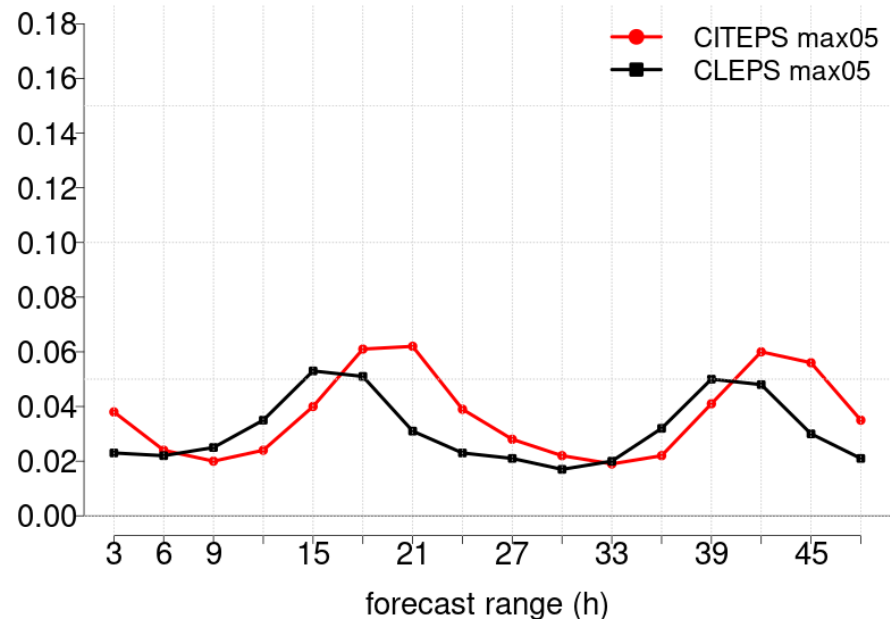
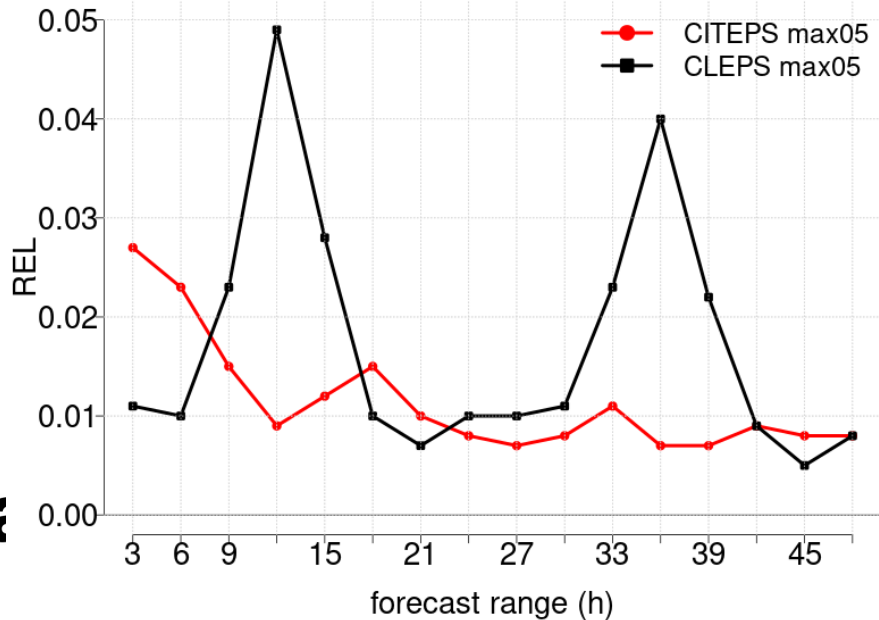
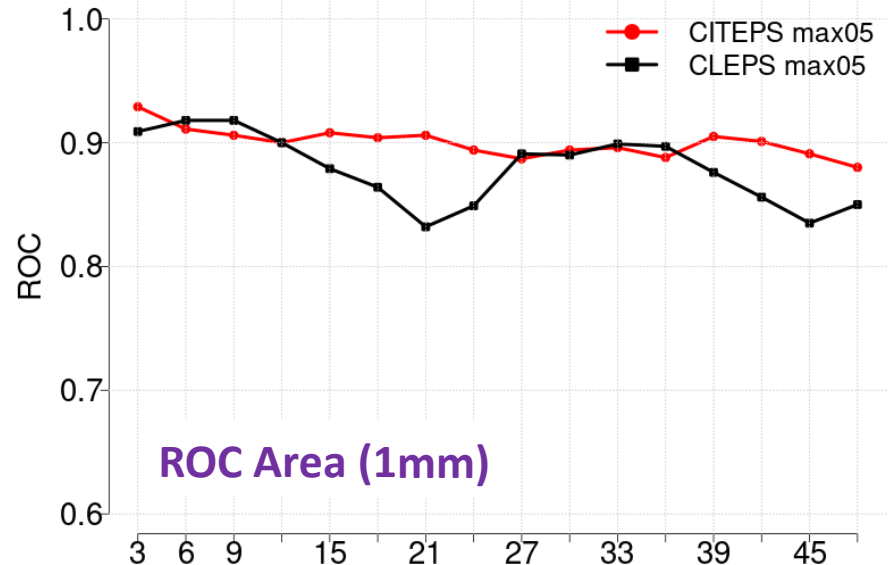
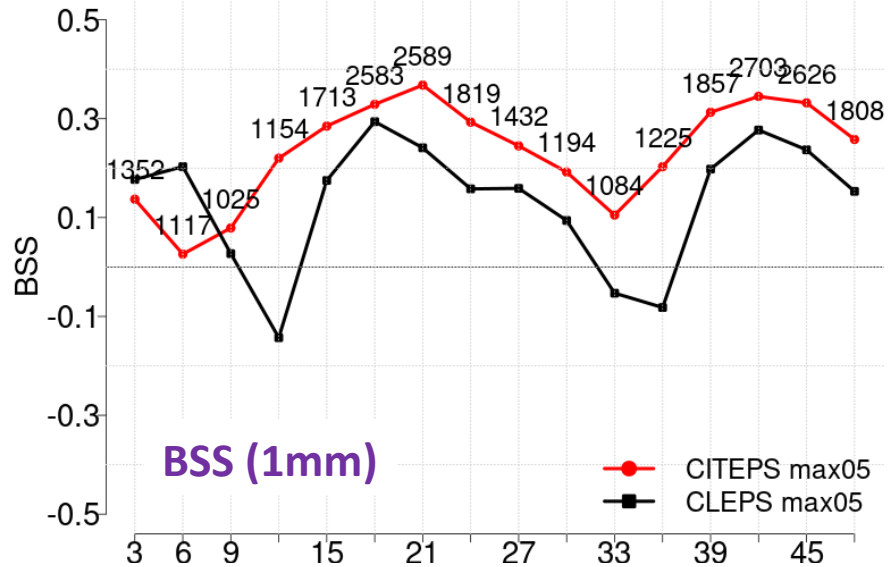
Average 0.5x0.5
5mm



JJA 2020

COSMO-2I-EPS and COSMO-LEPS

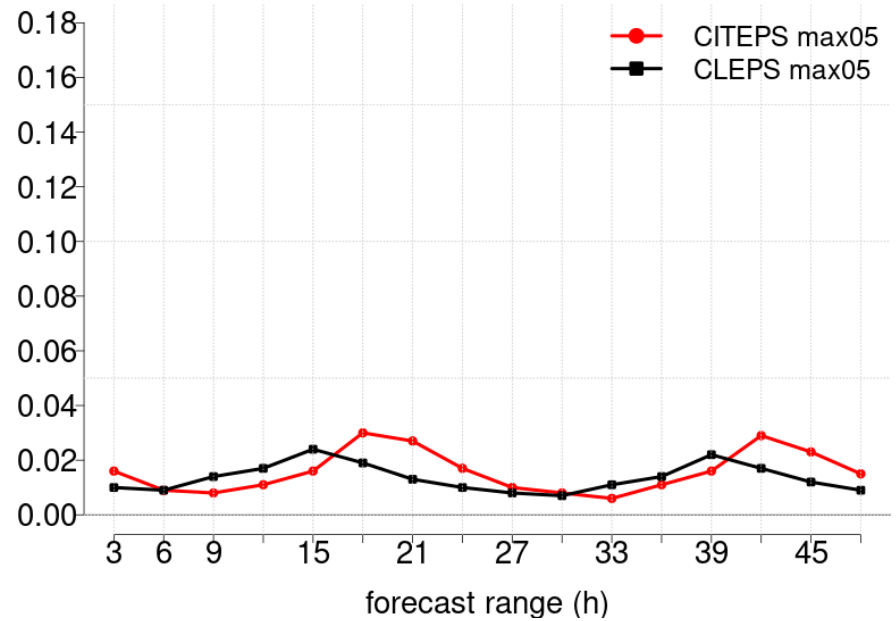
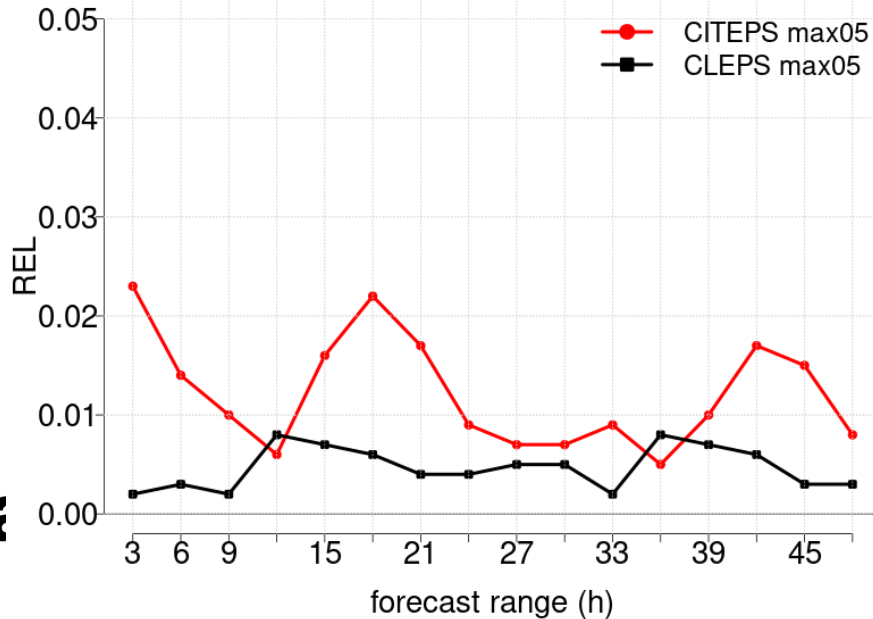
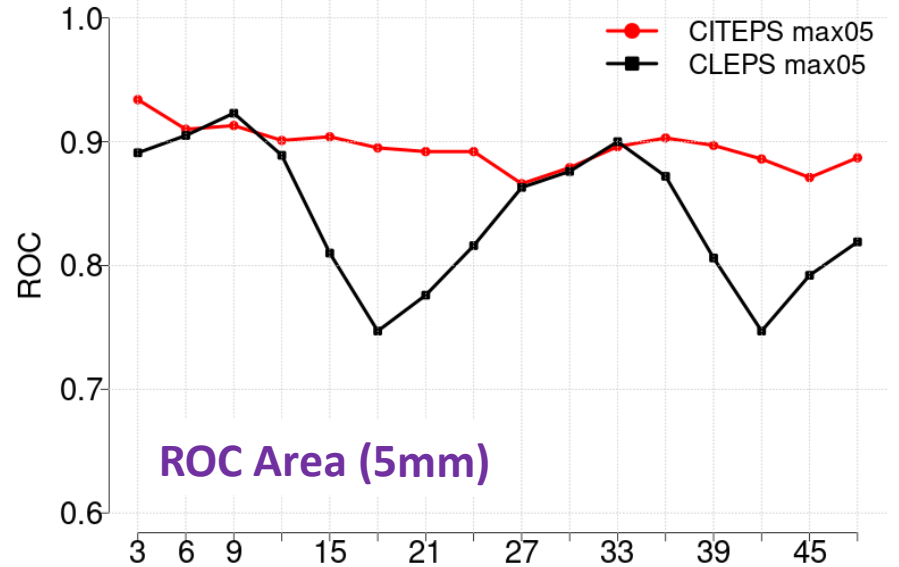
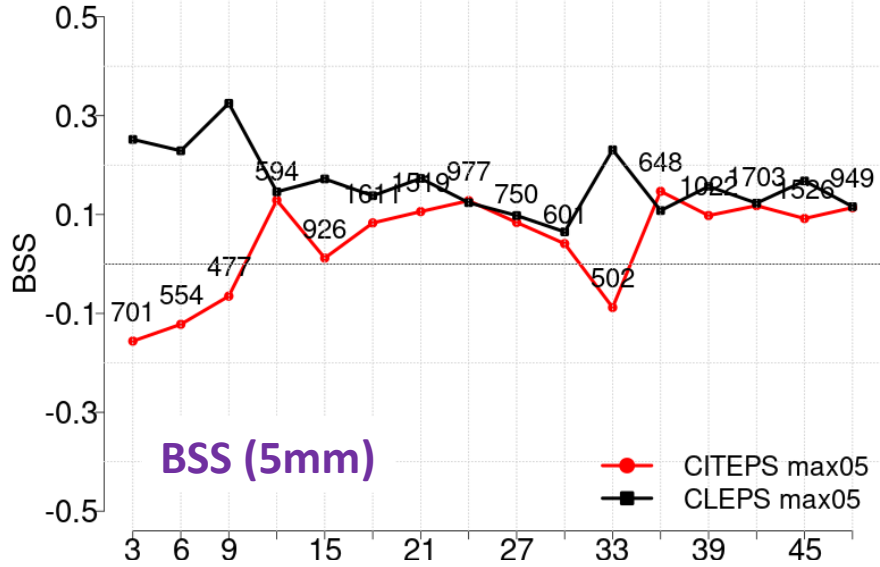
Maximum 0.5x0.5
1mm



JJA 2020

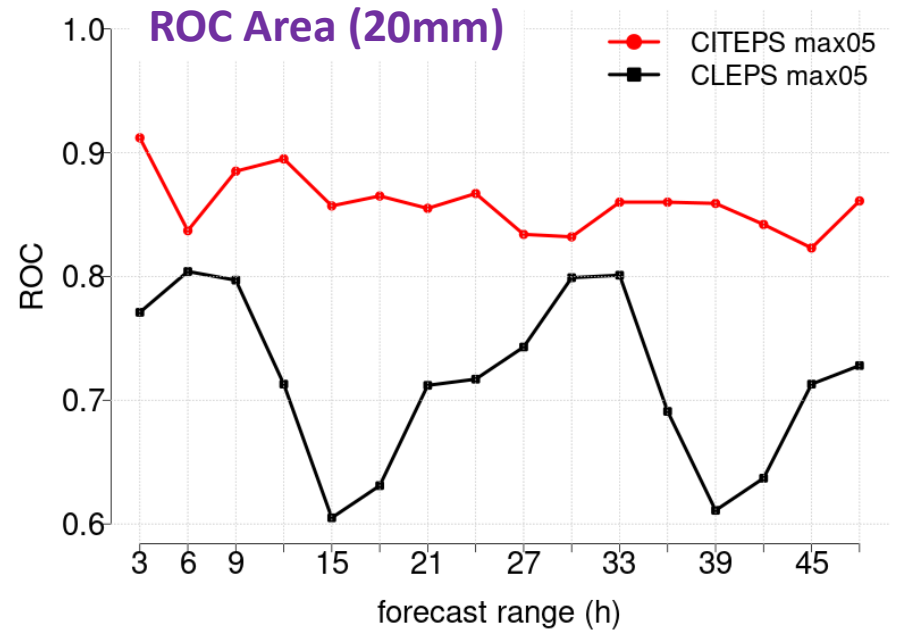
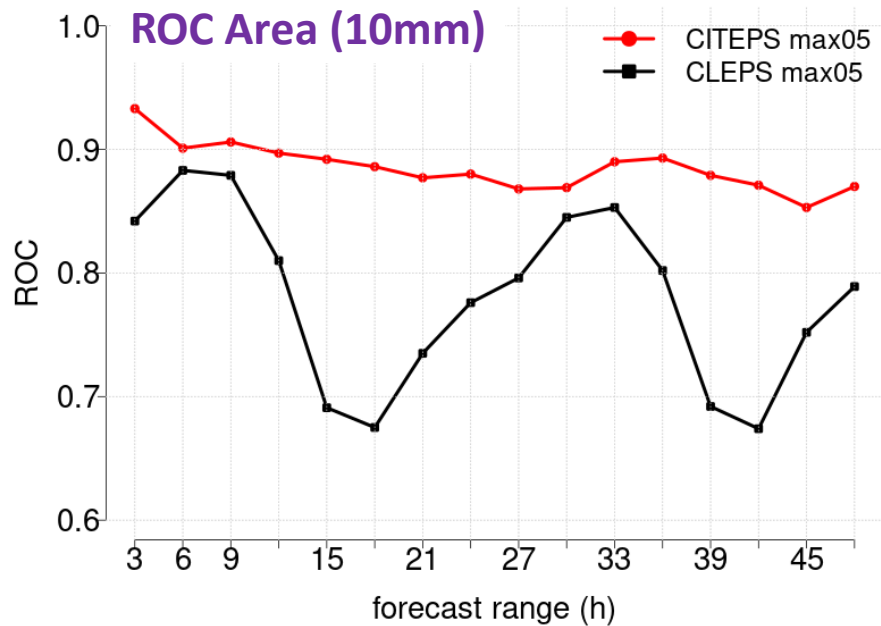
COSMO-2I-EPS and COSMO-LEPS

Maximum 0.5x0.5
5mm



COSMO-2I-EPS and COSMO-LEPS

Maximum 0.5x0.5
10 and 20 mm



Usage of ensemble forecast

- How to benefit from ensemble forecasts?
 - Most likely scenario (Ensemble mean)
 - Alternative scenarios (Clusters)
 - Worst case (Extremes)
 - “Best” case (Select the best)
 - Probability of occurrence of specific phenomena (probability maps)
 - Estimate forecast reliability (spread, diversity)

- Focus of precipitation and wind gusts

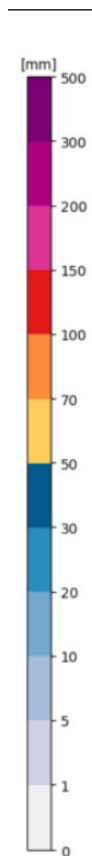
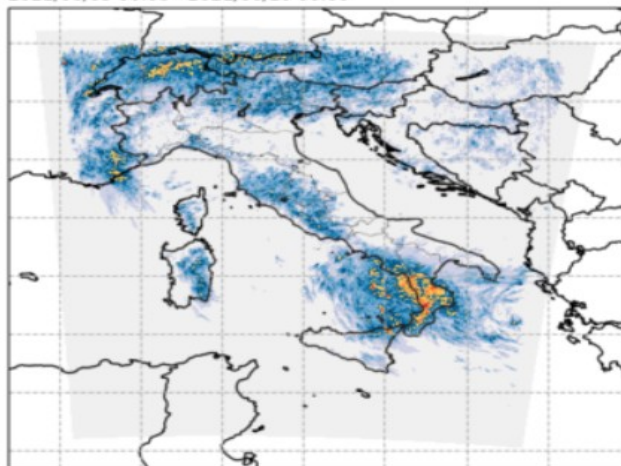
Usage of the ensemble

- Most likely scenario (Ensemble mean)
- Best and worst cases (Extremes)

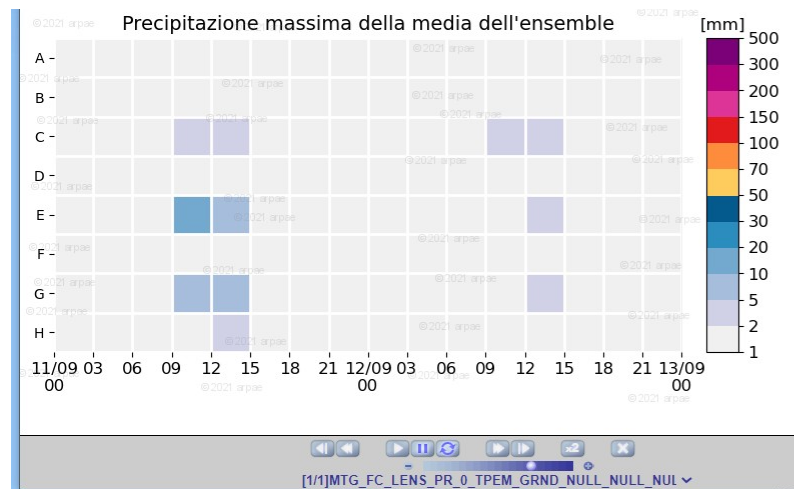
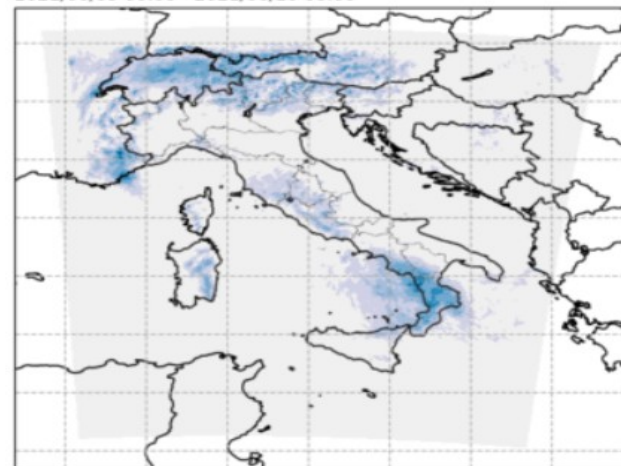
Minimum precipitation
2021/06/09 00:00 - 2021/06/10 00:00



Maximum precipitation
2021/06/09 00:00 - 2021/06/10 00:00

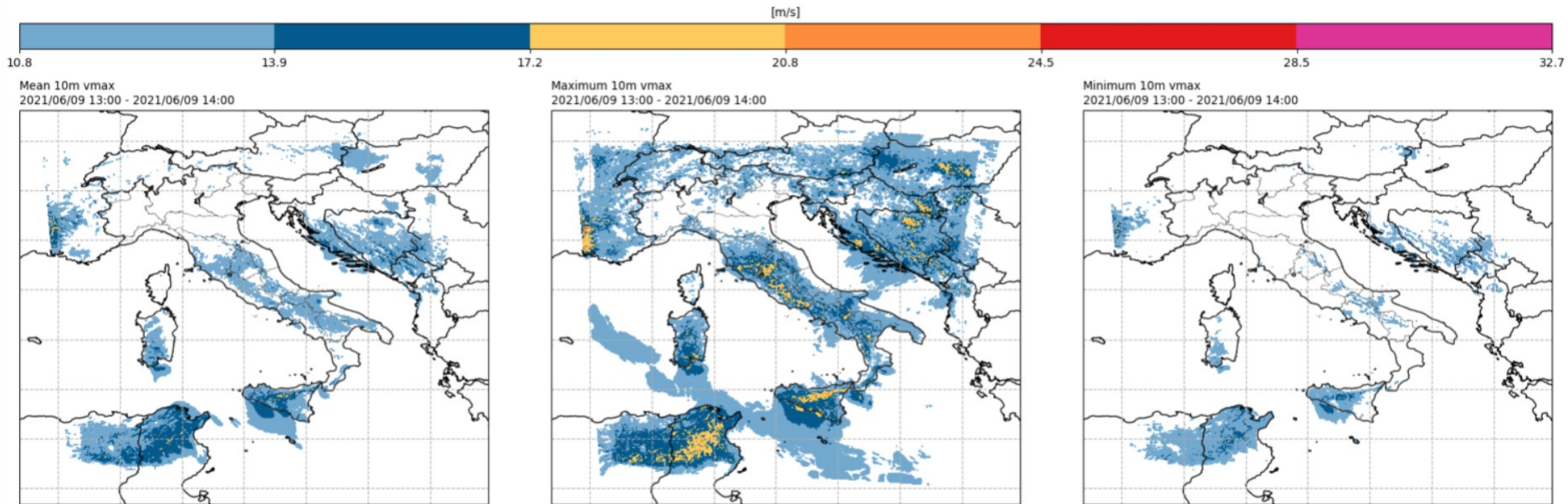


Mean precipitation
2021/06/09 00:00 - 2021/06/10 00:00



Usage of the ensemble

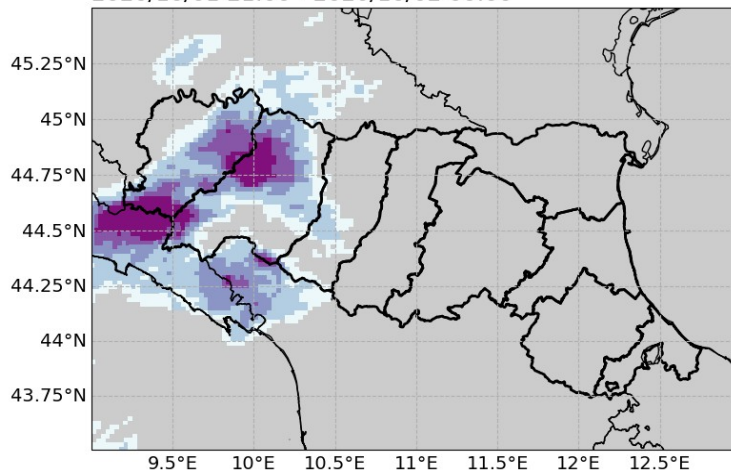
- Most likely scenario (Ensemble mean)
- Best and worst cases (Extremes)



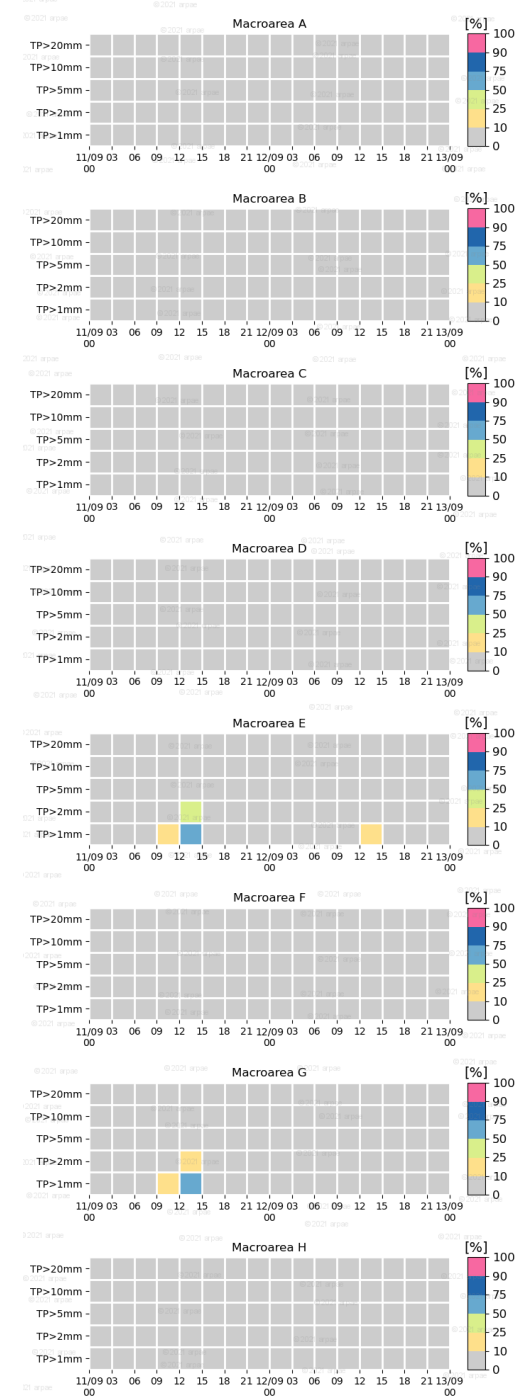
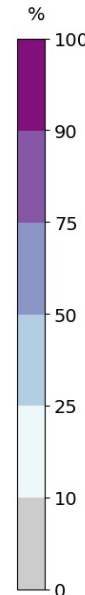
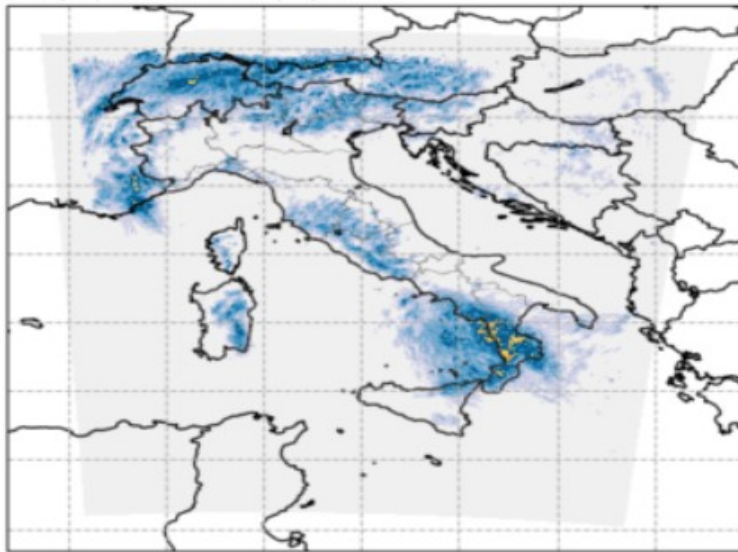
Usage of the ensemble

- Probability maps
- percentiles

Probability of total precipitation > 10 mm/h
 2020/10/01 21:00 - 2020/10/02 00:00



90th percentile precipitation
 2021/06/09 00:00 - 2021/06/10 00:00

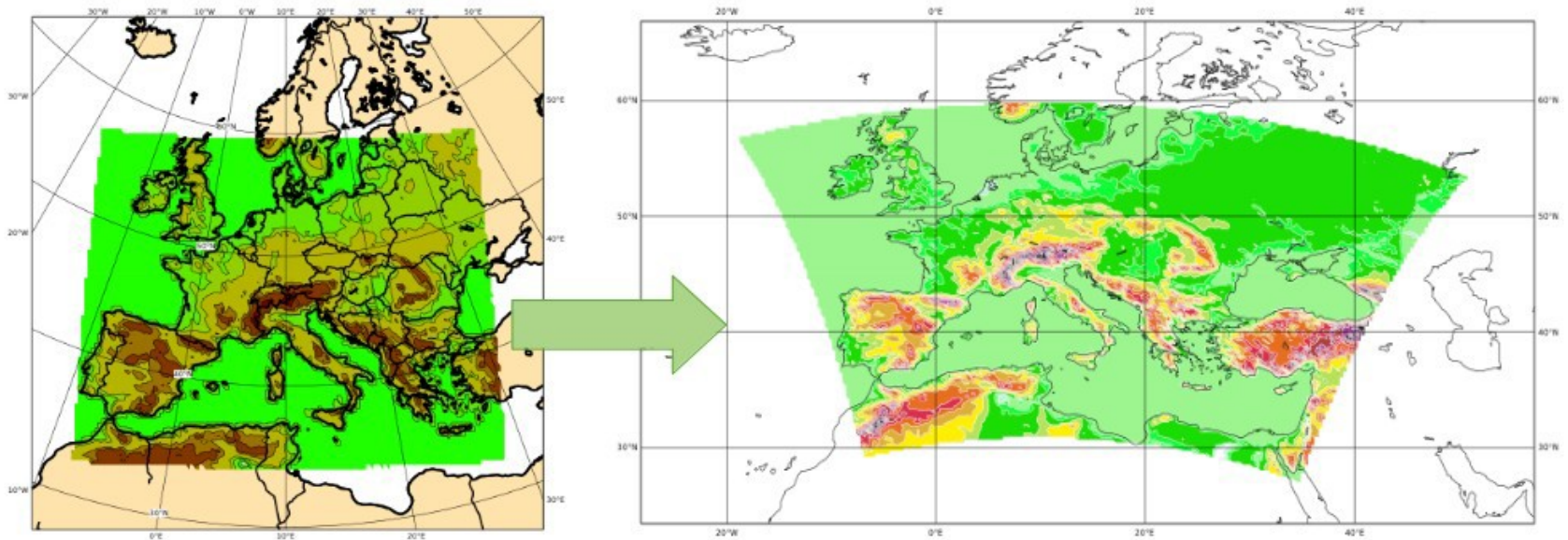


Plans for COSMO-2I-EPS

- Introduce model perturbations (Master thesis ongoing):
 - Perturbed parameters
 - SPPT
- BCs from IFS-ENS directly
- Development of products for thunderstorm
- Transition to ICON-LAM: start in 2022

COSMO LEPS => ICON-LEPS

COSMO-LEPS will be migrated to ICON-LEPS, 6.5 km horizontal resolution and domain extended towards east and south



Thank you for your attention!