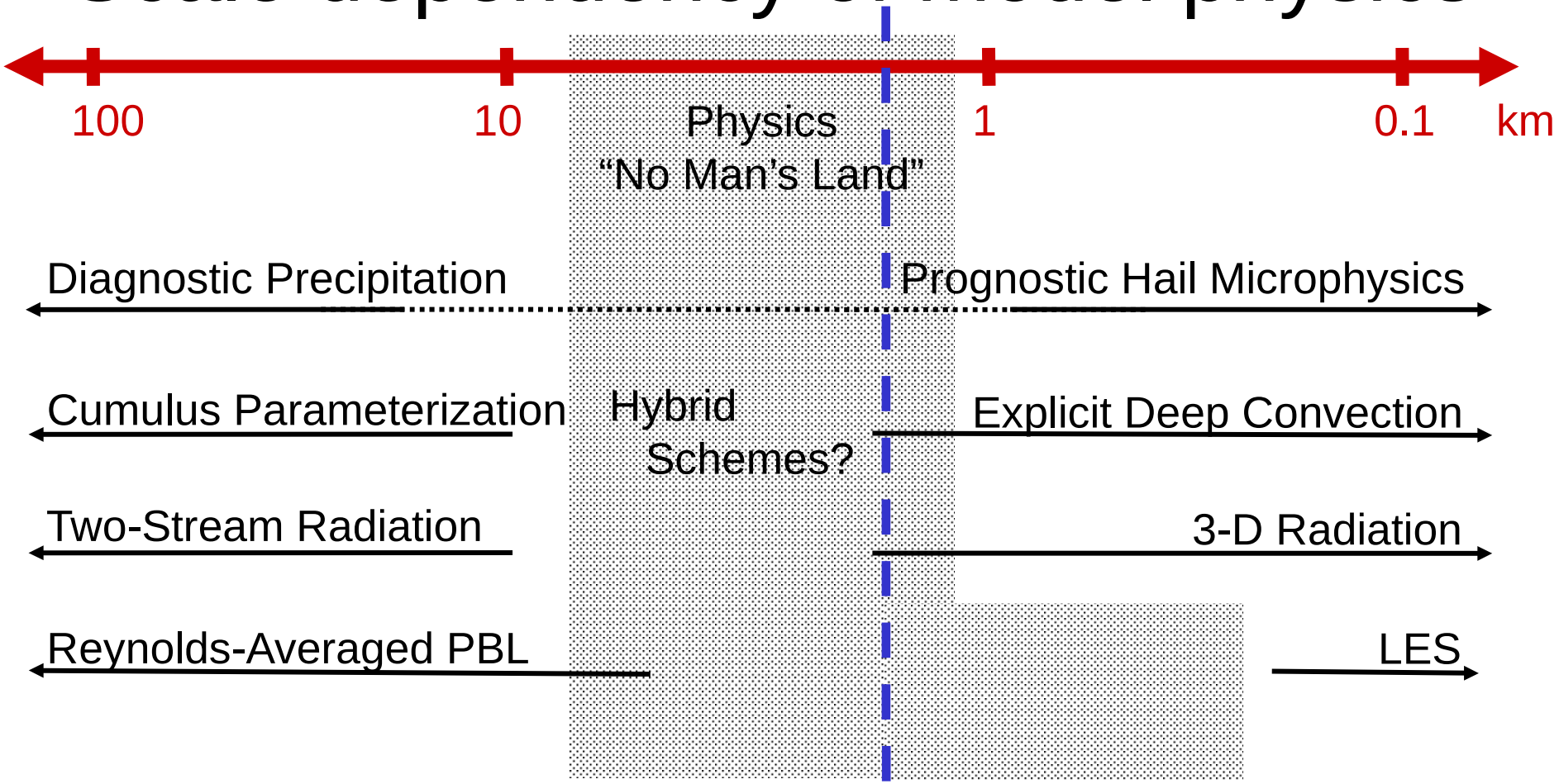
ALARO Wds

Bratislava

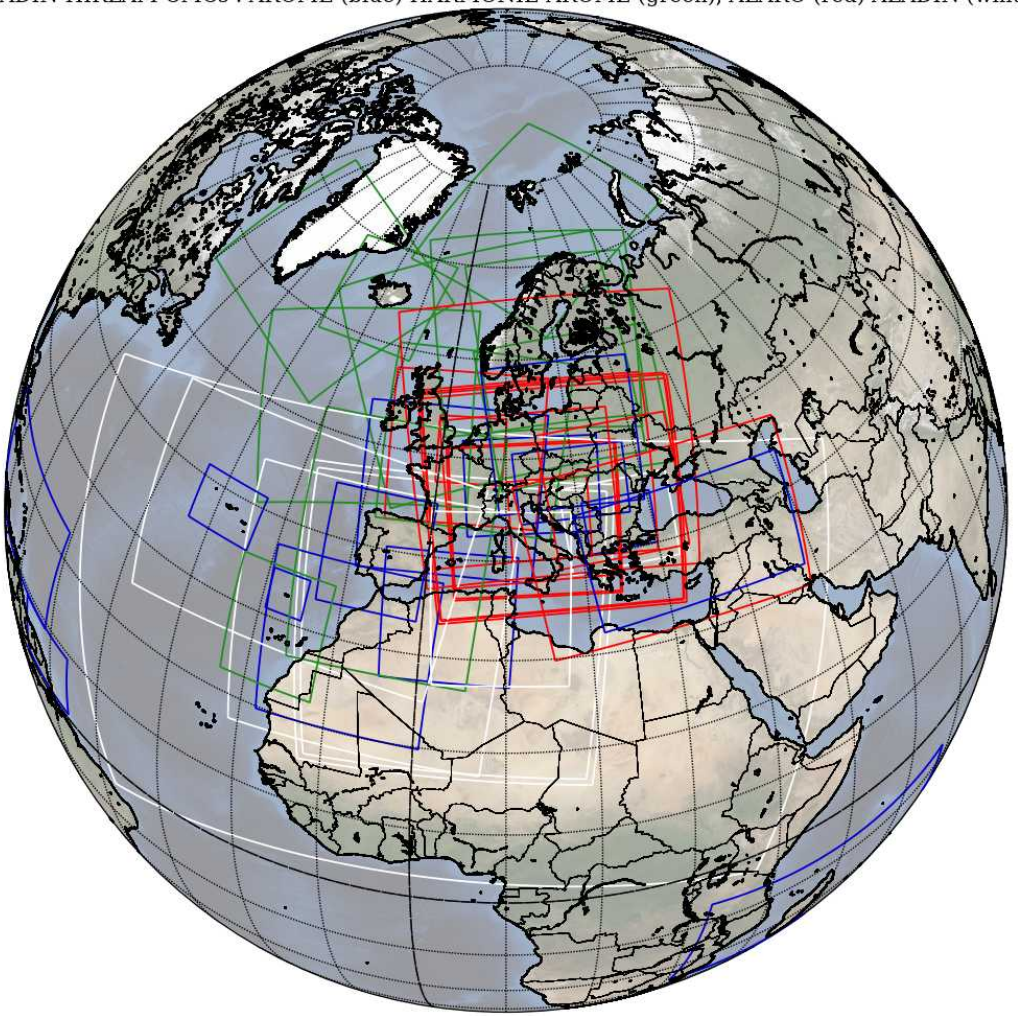
11-13 March 2019

Scale dependency of model physics



(adapted from Klemp 2007, by A. Seifert [GCSS, Toulouse, June 2008])

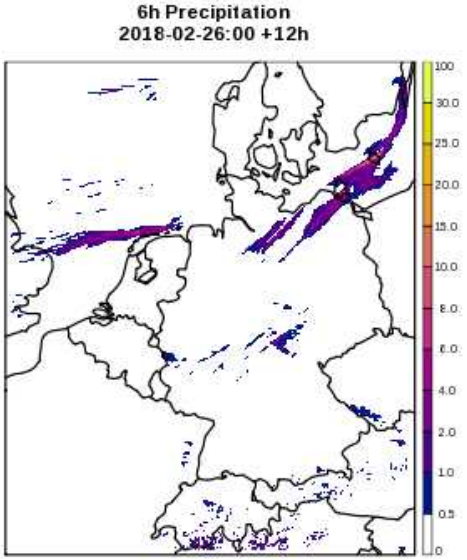
ALADIN-HIRLAM CMCs : AROME (blue) HARMONIE-AROME (green), ALARO (red) ALADIN (white)



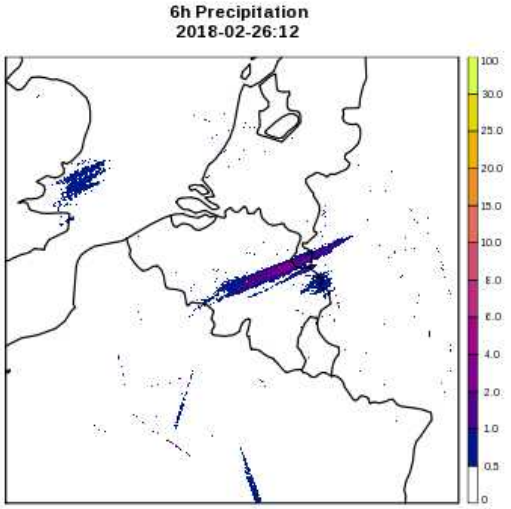
1. Algeria: ALGE (aladin)
2. Algeria: AROME-NORD-ALGE
3. Algeria: ALADIN_DUST
4. Austria: ALARO5-AUSTRIA
5. Austria: AROME-AUSTRIA
6. Belgium: Belgium-Alaro-4km
7. Belgium: Belgium-Alaro-1.3km
8. Bulgaria: aladin-Bulgaria
9. Bulgaria: AROME BG
10. Croatia: HR-alaro-88
11. Croatia: HR-alaro-44
12. Croatia: HR-alaro-22
13. Czech Rep: CZ-alaro
14. Denmark: H-AROME-DMI
15. Denmark: H-AROME-IGA
16. Finland: H-AROME-FMI
17. France: Arome-France
18. France: AROME-Indian
19. France: AROME-Polynesia
20. France: AROME-Caledonia
21. France: AROME-Guyana
22. France: AROME-Antilles
23. Hungary: ALARO-HU determinis
24. Hungary: Arome-HU
25. Iceland: H-AROME-IMO
26. Ireland: H-AROME-IRELAND25
27. Lithuania: H-AROME-LHMS
28. Morocco: aladin-Mo1
29. Morocco: aladin-Mo2
30. Morocco: AROME Maroc
31. Netherlands: H-AROME-KNMI
32. No&Se&Fi: H-AROME-MetCoOp
33. Norway: H-AROME-Arctic
34. Poland: E040-alaro
35. Poland: P020-arome
36. Portugal: ALADIN-Portugal(ATP)
37. Portugal: AROME-Portugal(PT2)
38. Portugal: AROME-Madeira(MAD)
39. Portugal: AROME-Azores(AZO)
40. Romania: ALARO-RO
41. Slovakia: Slovakia-alaro
42. Slovenia: sis4-alaro
43. Spain: H-AROME-IBERIA
44. Spain: H-AROME-CANARIAS
45. Tunisia: Tunisia-aladin
46. Turkey: Turkey-Alaro
47. Turkey: Turkey-Arome

Performance snow cases

Configuration	Machine	DA, surface, coupling model
ALARO 4km	RMI HPC	• No DA • No SURFEX • ARPEGE
ALARO 1.3 km	RMI HPC	• No DA • No SURFEX • ARPEGE
AROME 1.3 km	RMI HPC	• Surface DA relatively soon • SURFEX • ARPEGE
CrtlALARO 2.5 km	ECMWF (not TCF)	• 3Dvar + surface • ECWMF
CtrlAROME 2.5 km	ECMWF (not TCF)	• 3Dvar + surface • ECWMF

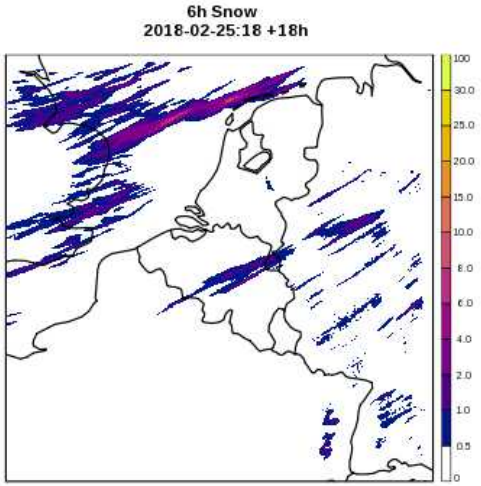


RMI-EPS arome



INCA analysis

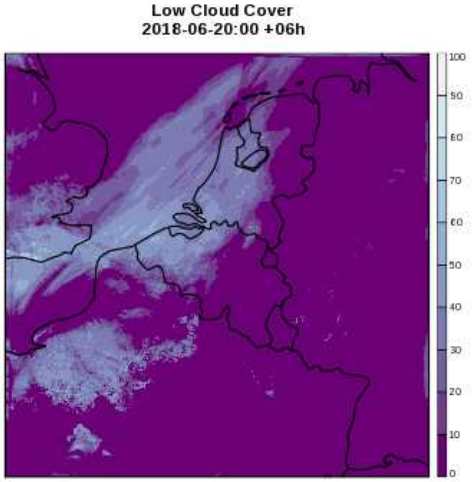
UTC 2018/02/26 12:00



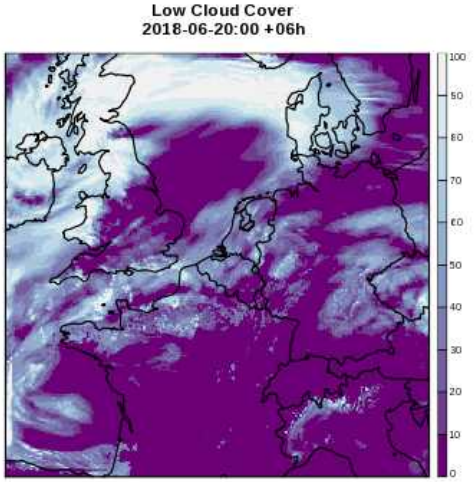
Alaro 1.3km

Performance low clouds

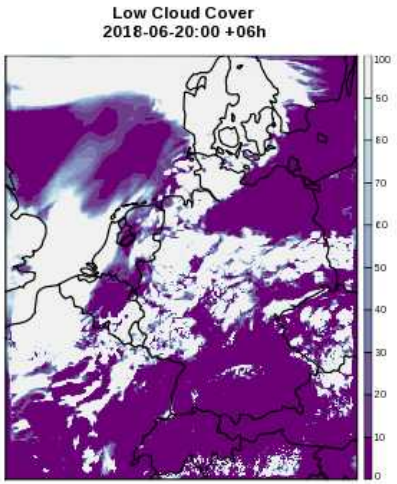
UTC 2018/06/20 06:00



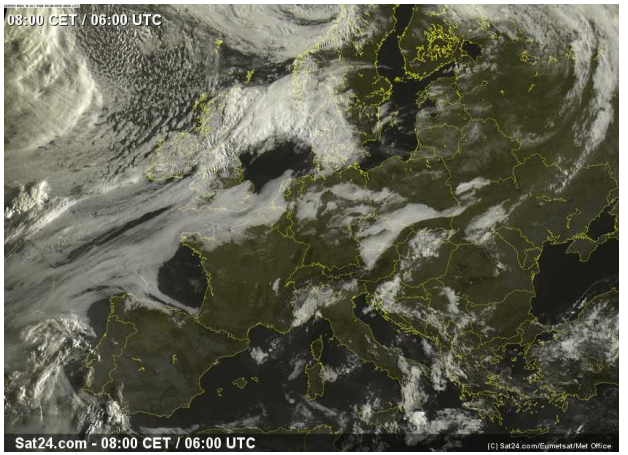
Alaro 1.3km



Alaro 4km



RMI-EPS arome



EPS (work of Michiel)

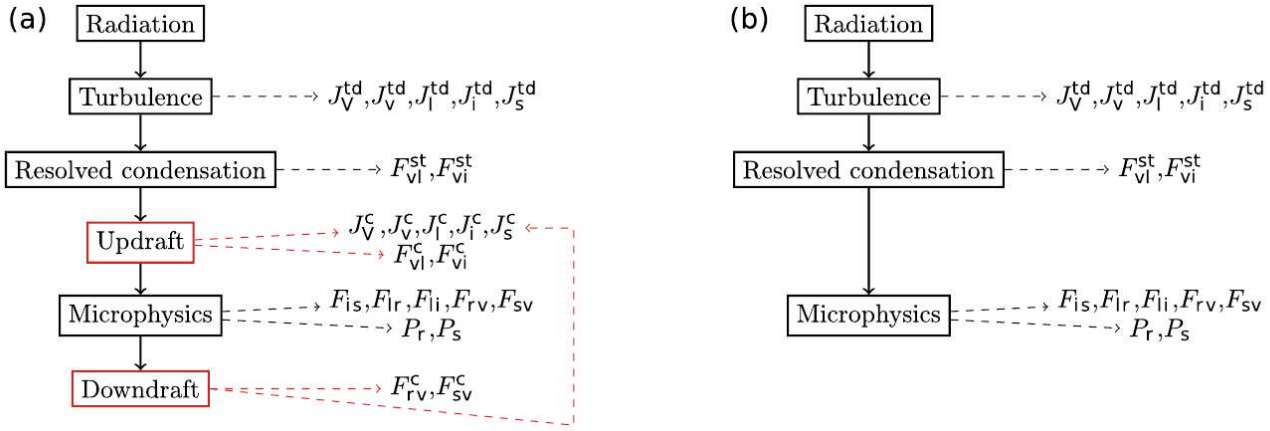
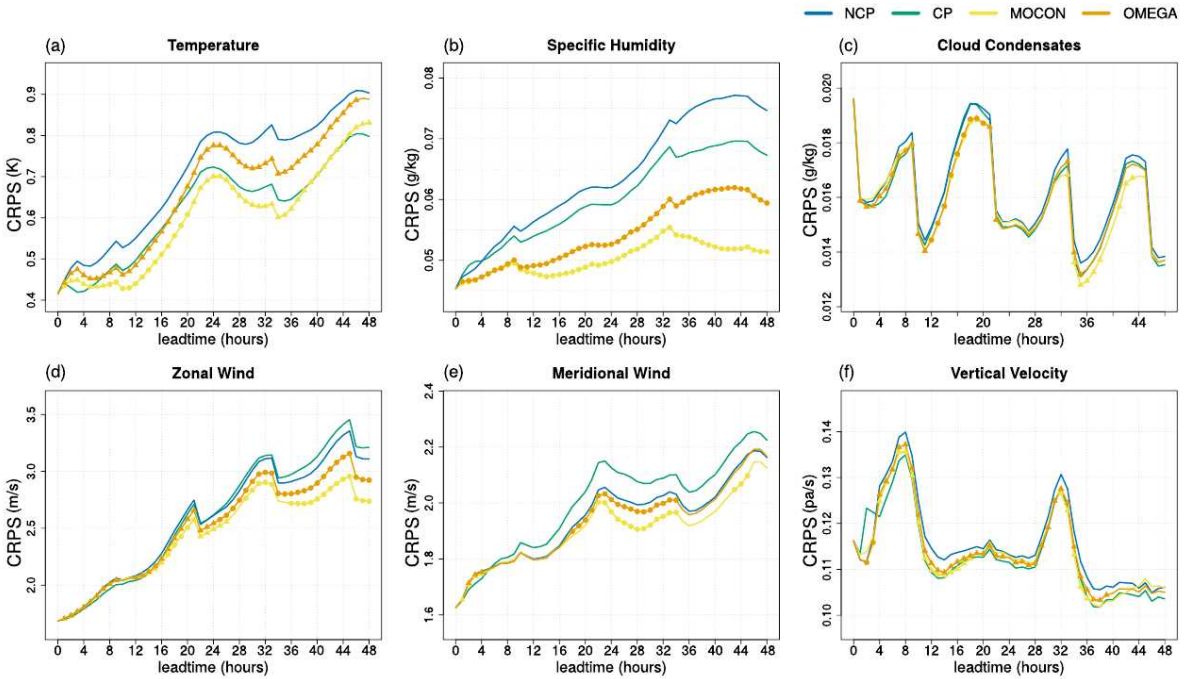
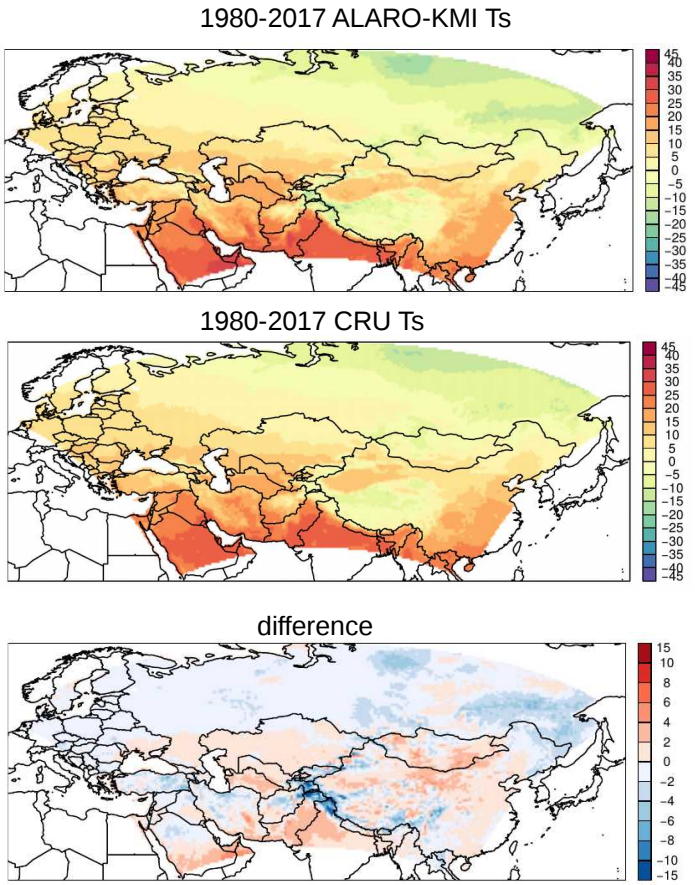


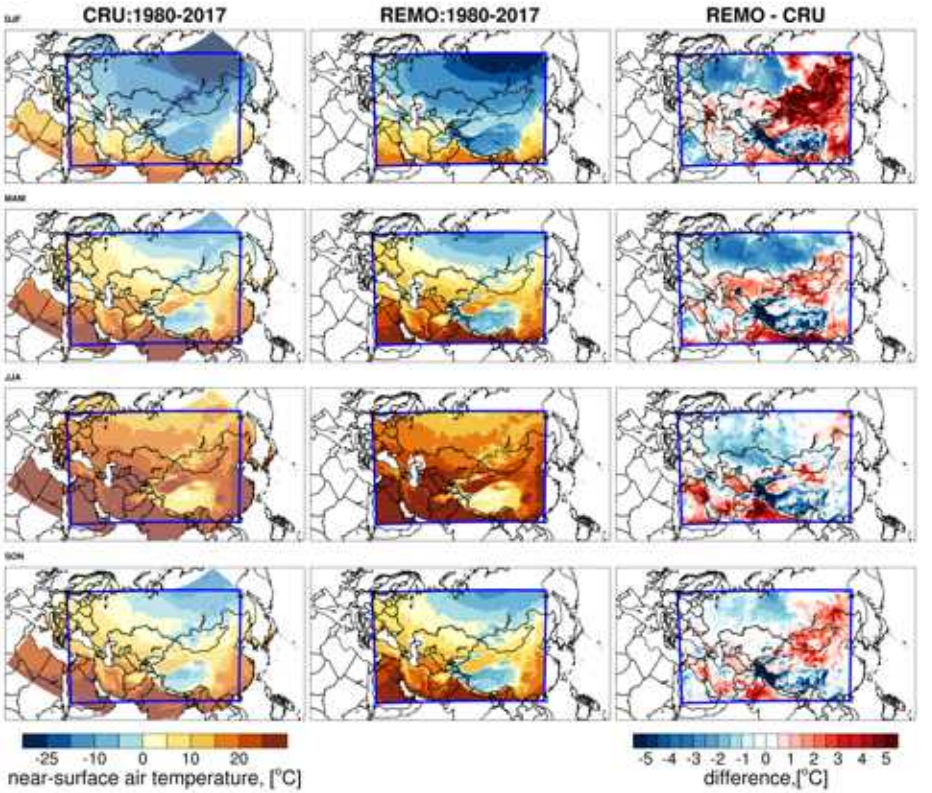
FIG. 2. The cascading of the different physics parametrizations in (a) the reference configuration with deep convection parametrization and (b) with deep convection considered explicitly resolved. After each parametrization the internal variables (temperature and five water species) are updated.



CORDEX Central Asia

https://www.projectafter.net





Kotova et al., Climate Services, (2018)

The project is granted by the ERA.Net RUS Plus Initiative, ID 166

Questions to be addressed on Wednesday

- SURFEX: we need a (new) procedure for code contributions.
- “Quality assurance”. The ALARO community is well organized. Currently we are moving away from the notion of QA from the point of view of mere scores.
- Resolutions and the role of the gray zone(s) (also the one for turbulence): where do we go?
- Use of ALARO in EPS systems. The careful treatment of the physics calls can provide way to design perturbations of the physics.
- Use of ALARO in climate: do we want to be more active nin the climate community?
- ...