

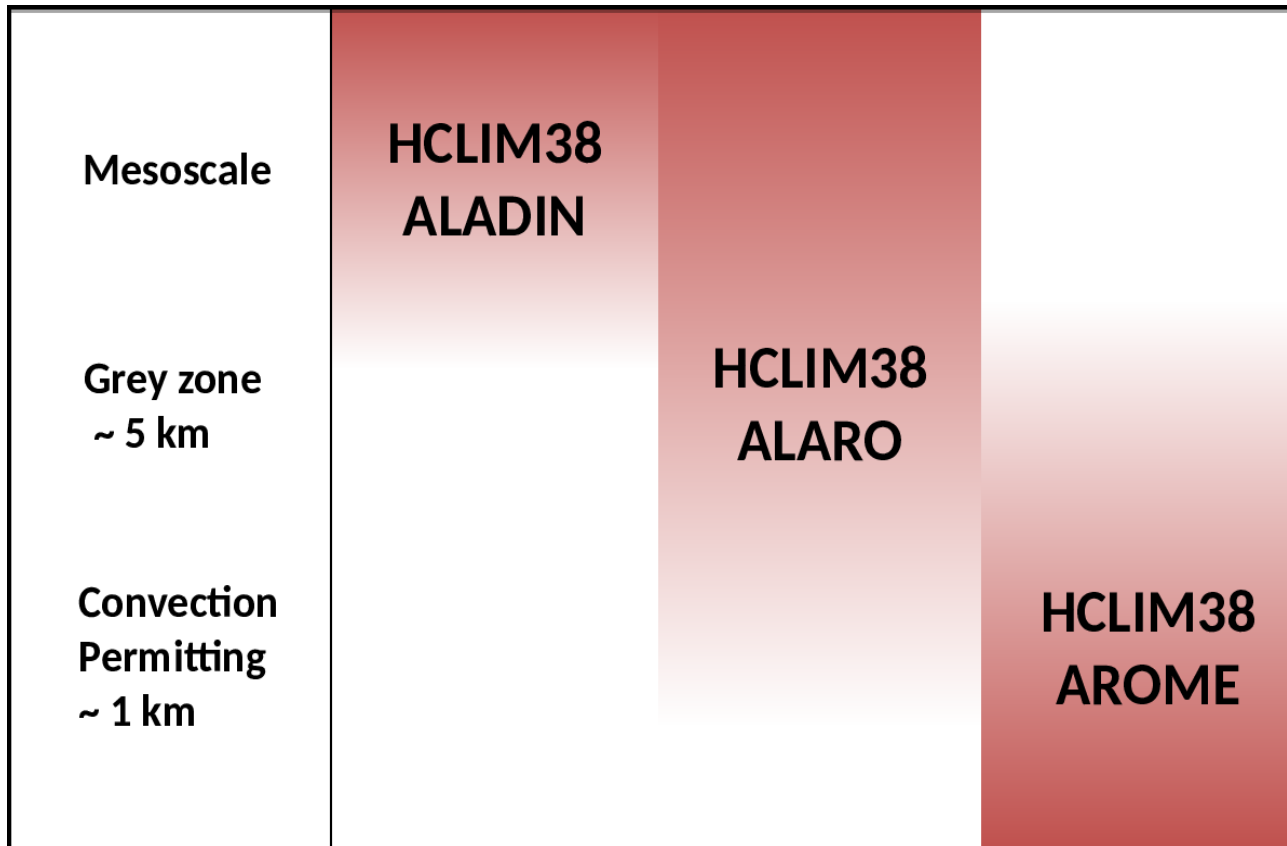
(When) is convection permitting resolution important in the northern latitudes?

Danijel Belušić, Petter Lind, David Lindstedt, Erika Toivonen, Rasmus Anker Pedersen, Erik Kjellström, Oskar Landgren, Fuxing Wang, Ole Bøssing Christensen

SMHI, FMI, DMI, MET Norway

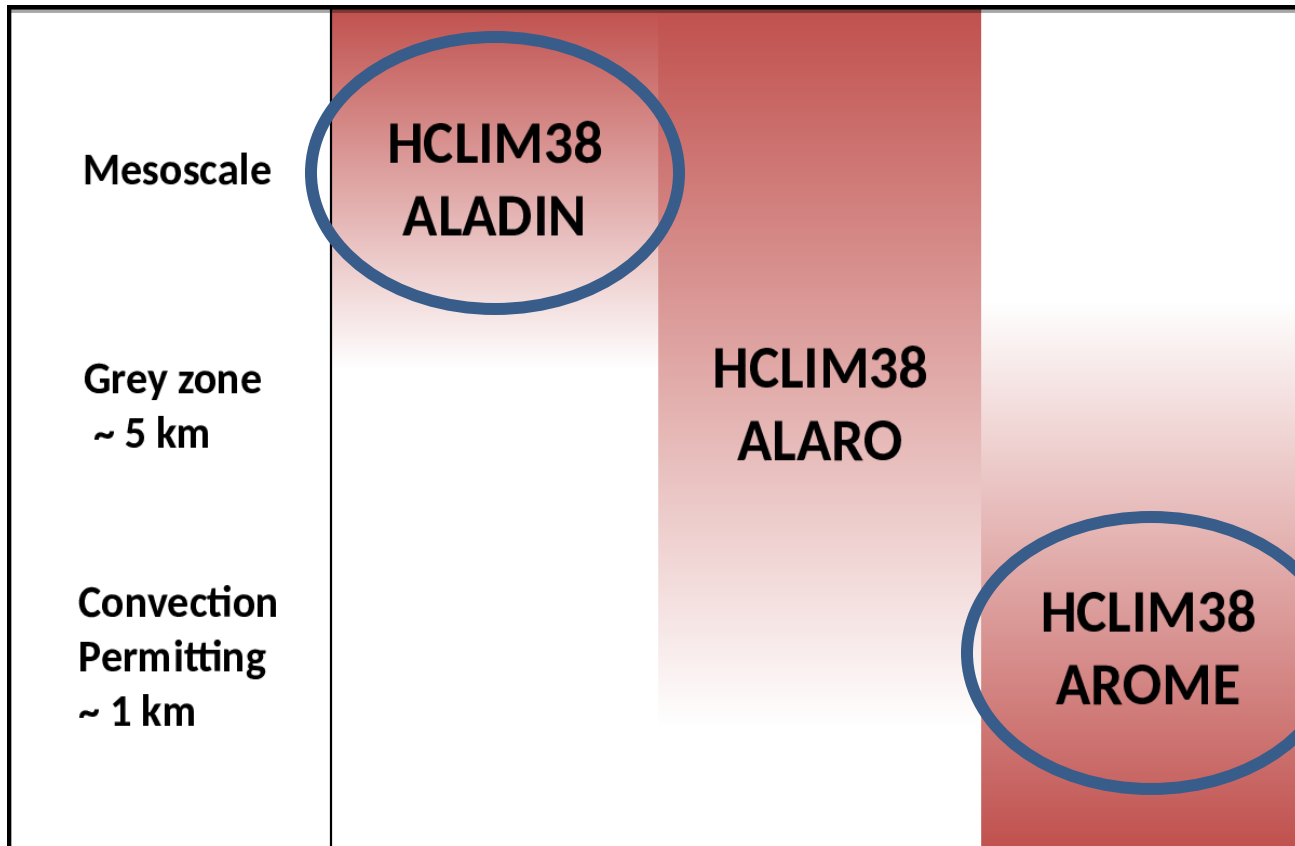
danijel.belusic@smhi.se

HCLIM38



Belušić et al. 2019. *HCLIM38: A flexible regional climate model applicable for different climate zones from coarse to convection permitting scales*, GMD Discuss.

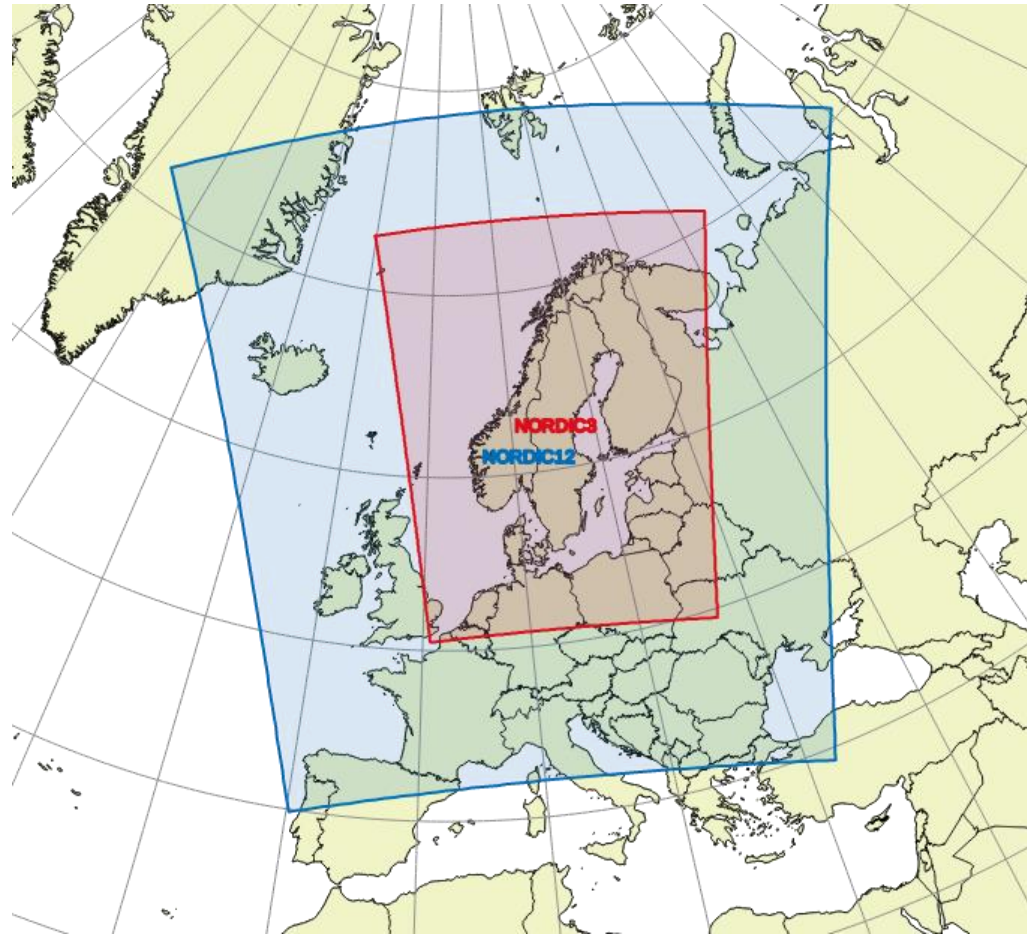
HCLIM38



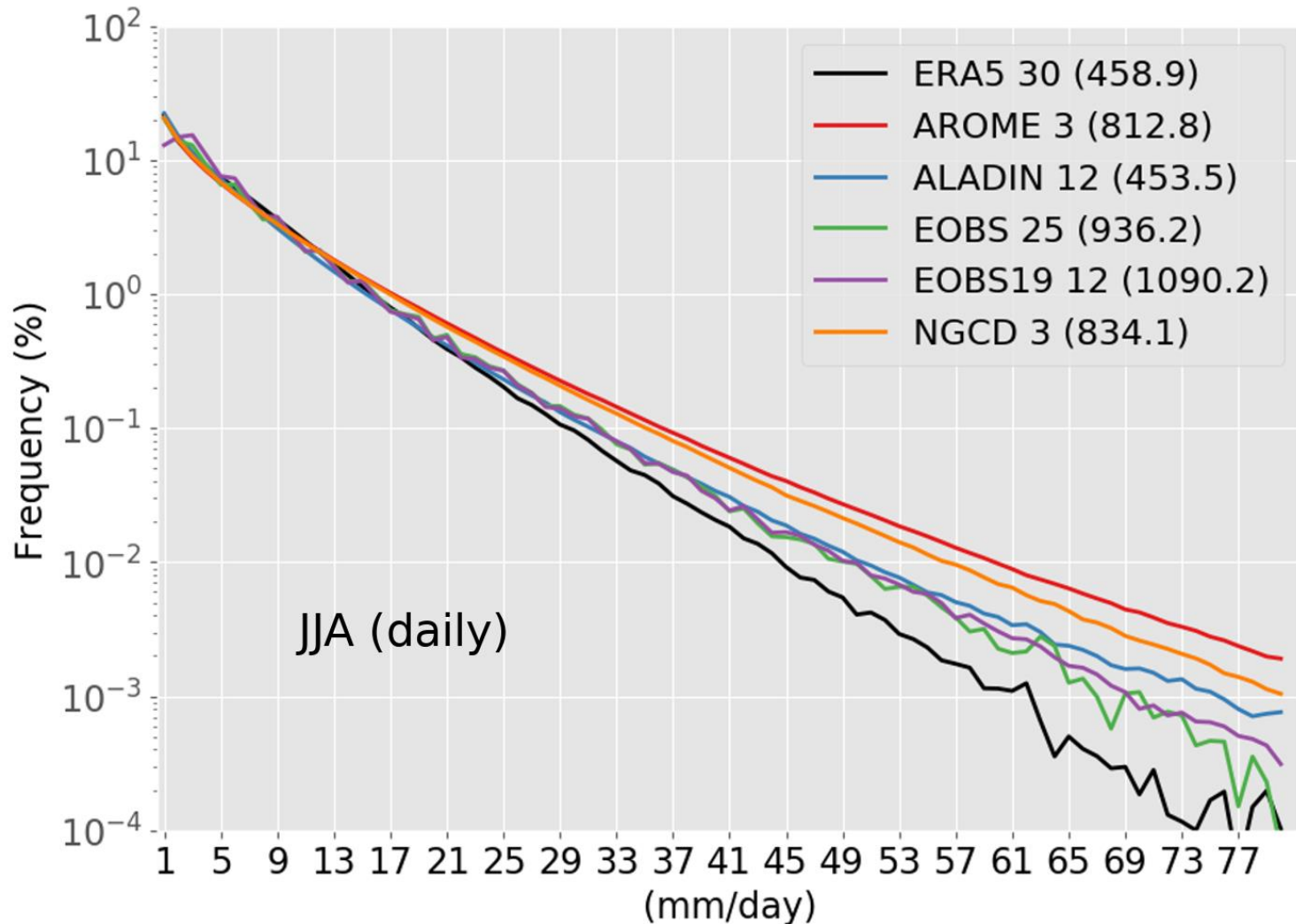
Belušić et al. 2019. *HCLIM38: A flexible regional climate model applicable for different climate zones from coarse to convection permitting scales*, GMD Discuss.

NorCP

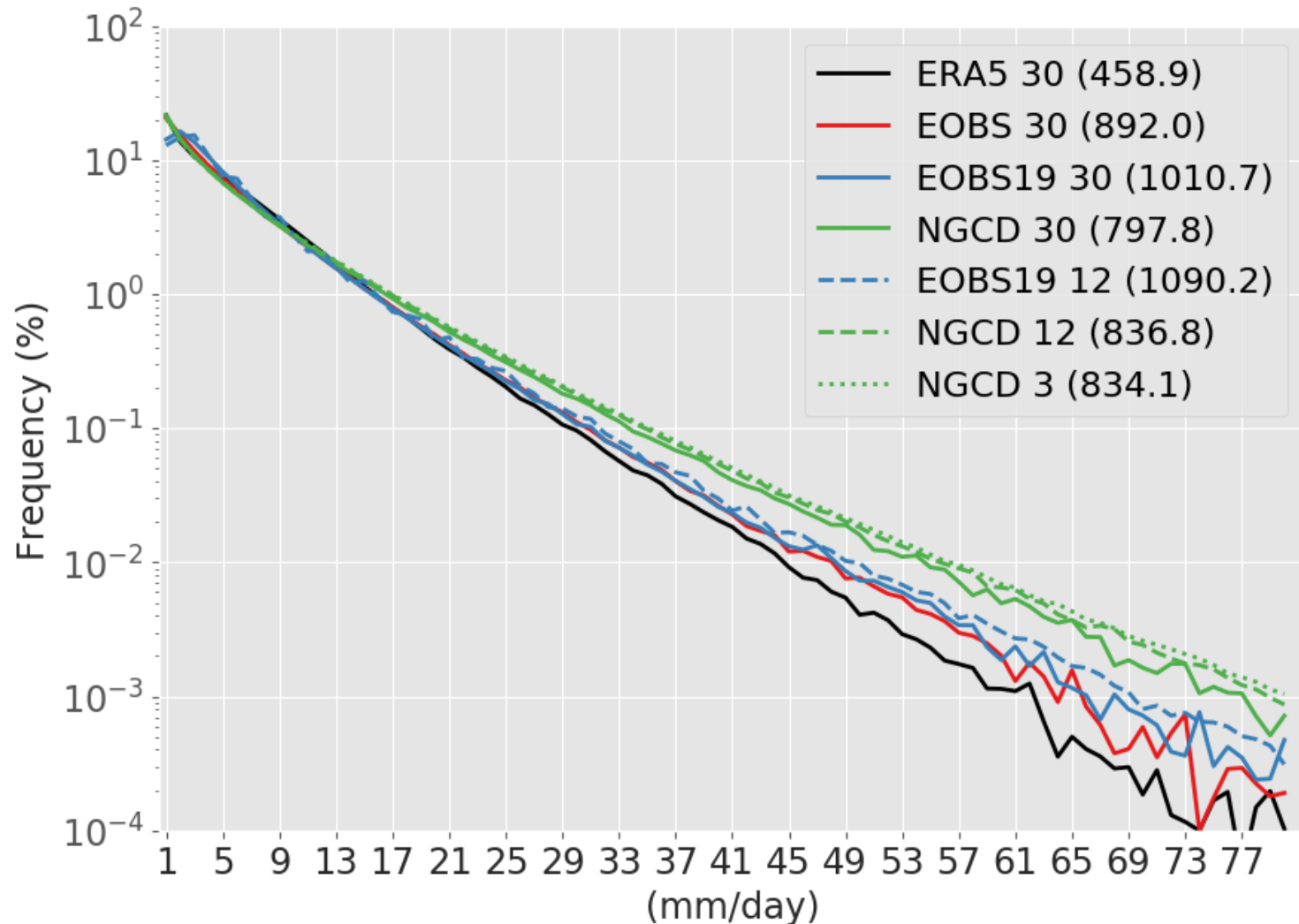
- Periods (20 years):
 - ERA-Interim: 1997 – 2017
 - Historical GCMs: 1985 – 2005
 - Mid-century GCMs: 2040 – 2060
 - End of century GCMs: 2080 – 2100
- GCMs:
 - EC-Earth
 - GFDL
- RCP8.5



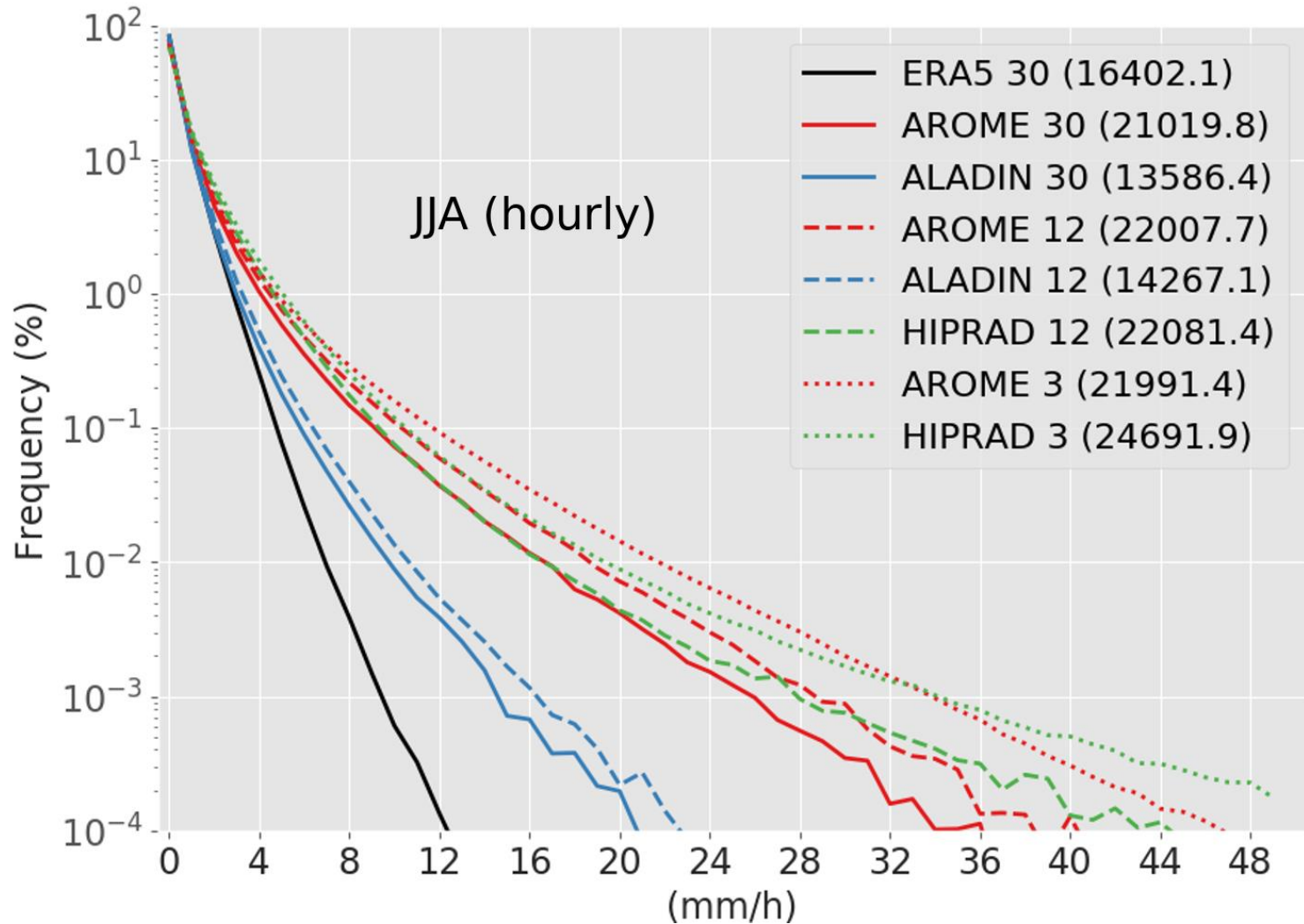
Summer precipitation - daily



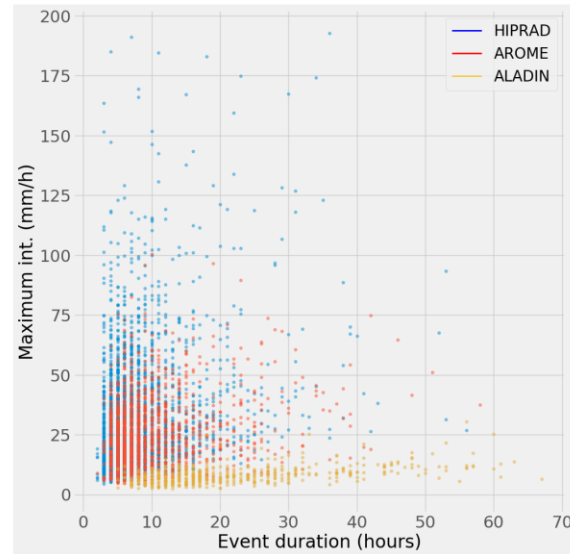
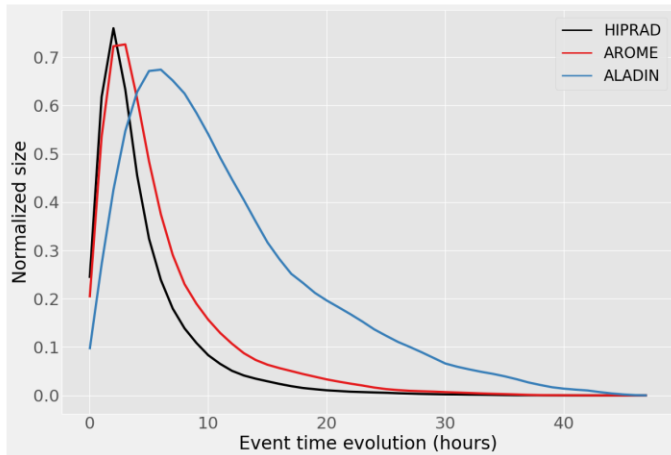
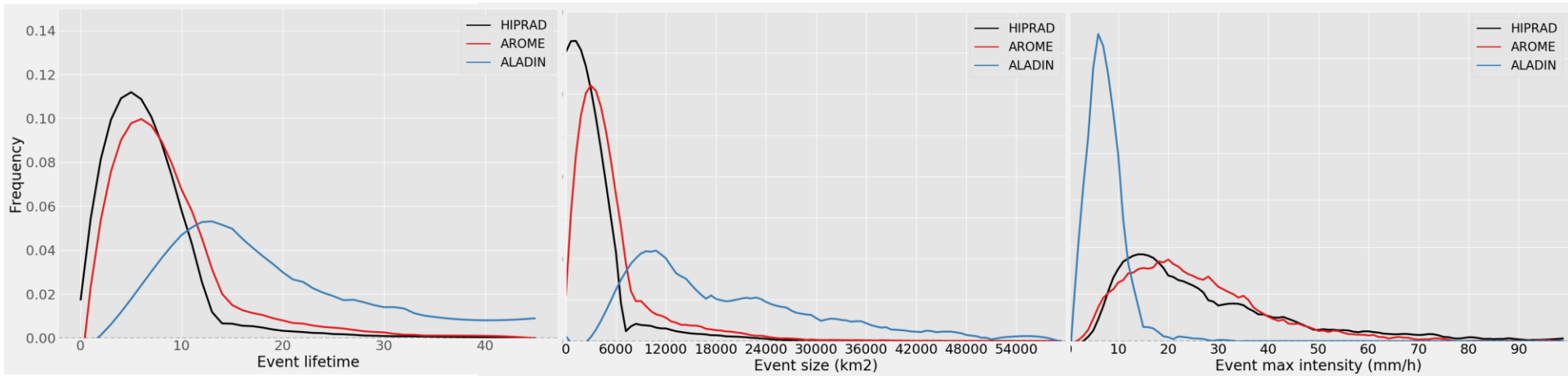
Summer precipitation - daily



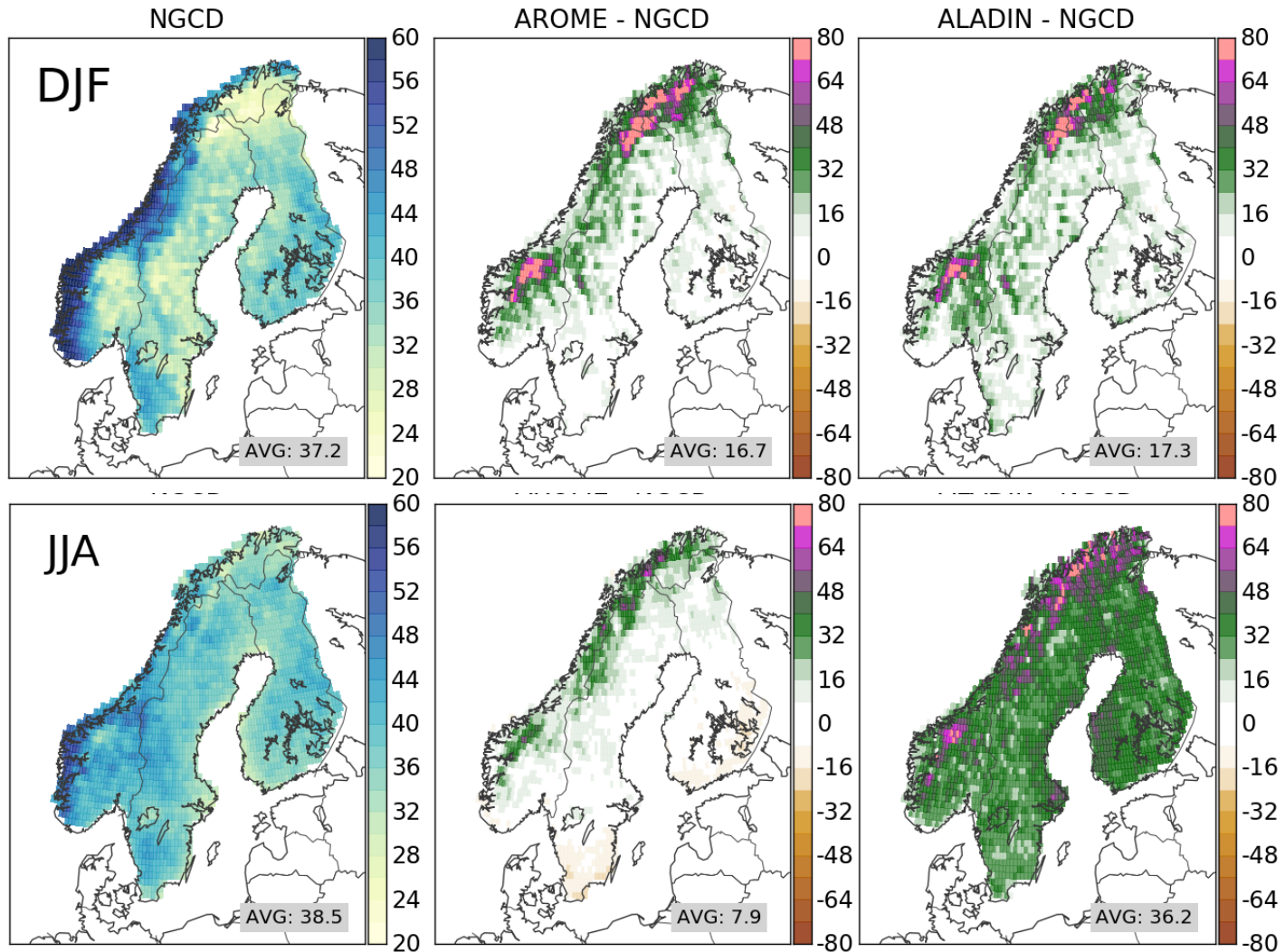
Summer precipitation - hourly



Event tracking



Wet-day frequency

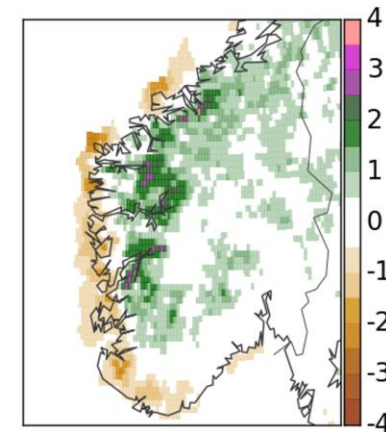
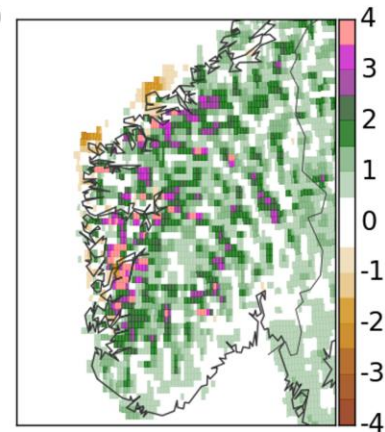
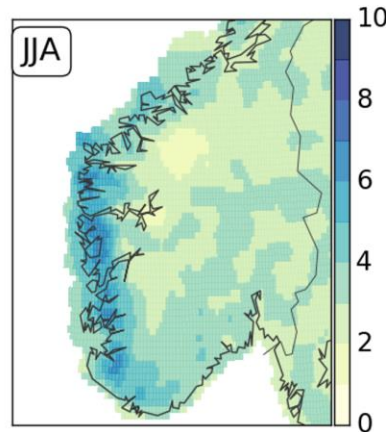
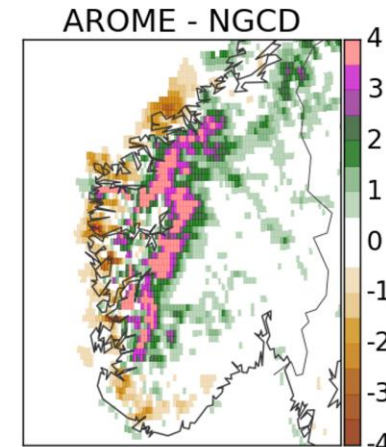
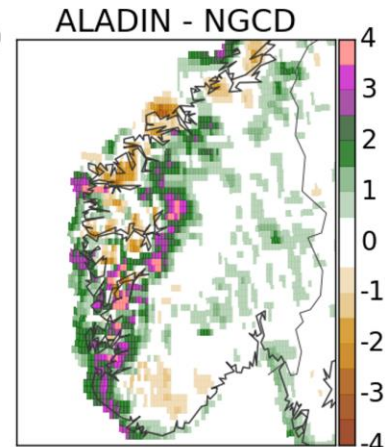
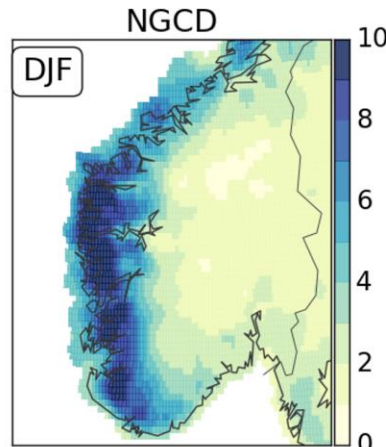
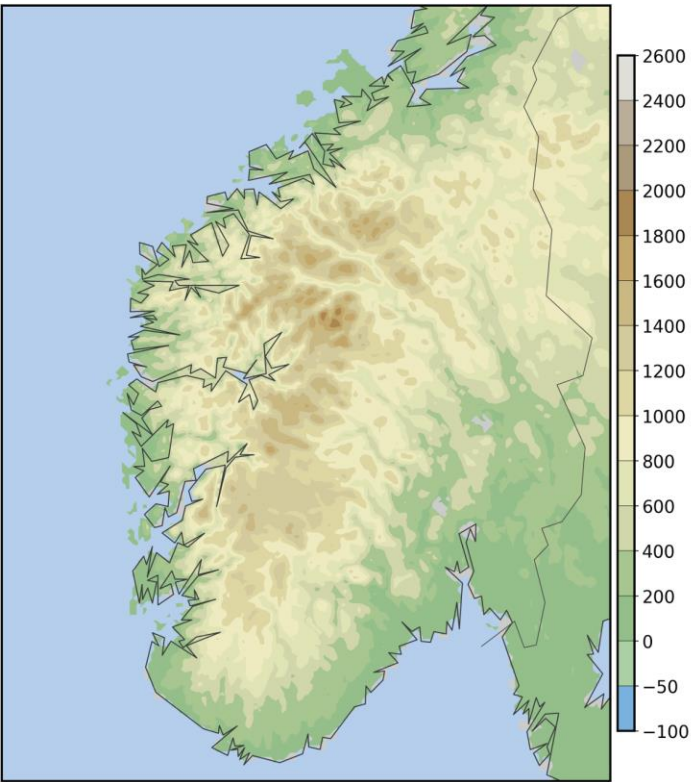


Mean frequency

Difference in percent

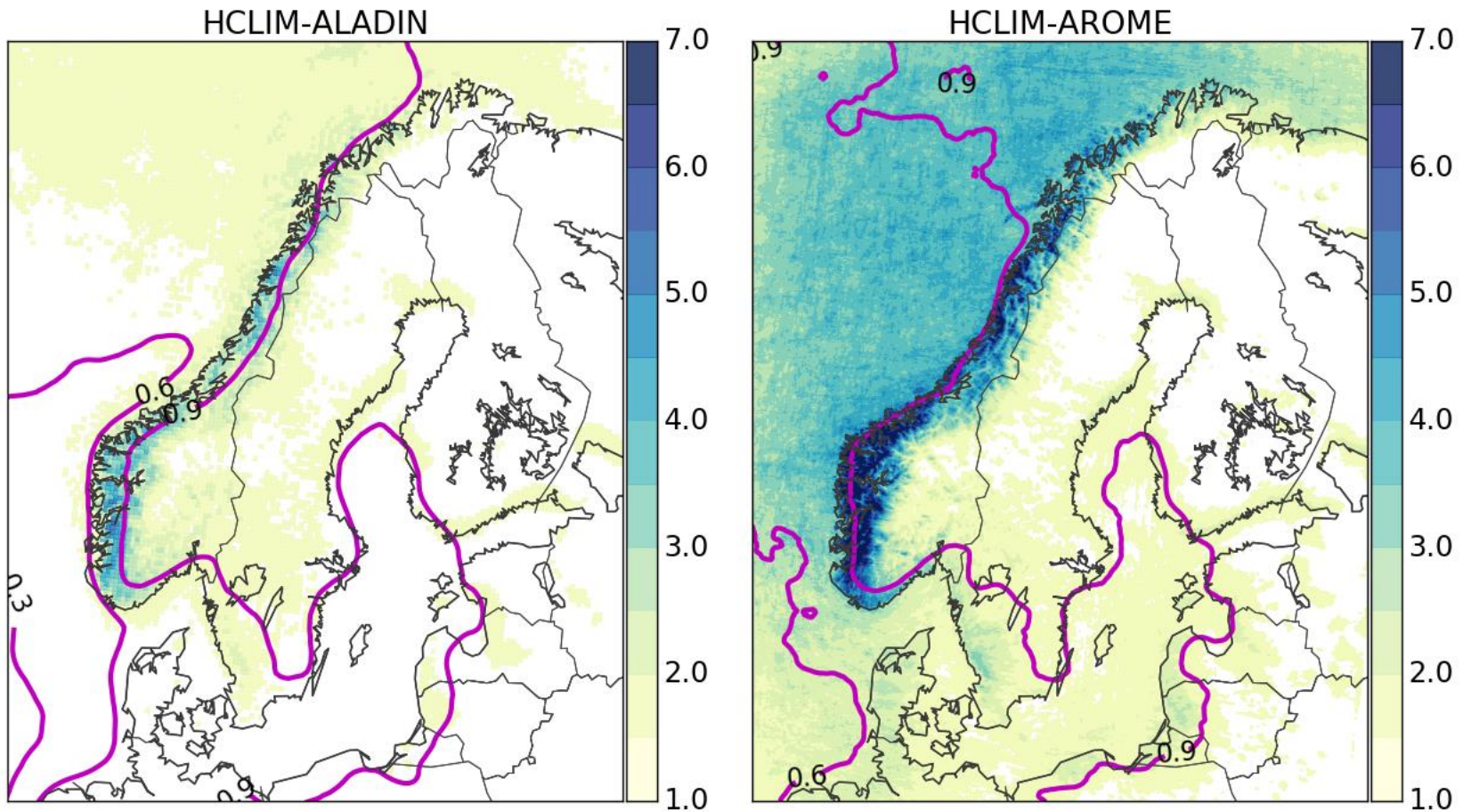
Complex terrain benefits

Pr (mm/day) | 1998-2017



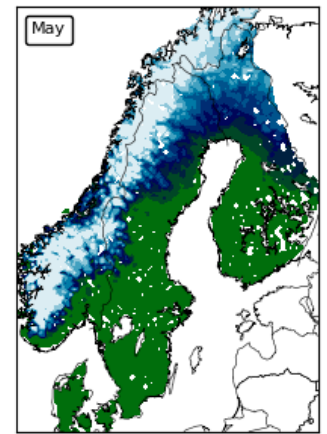
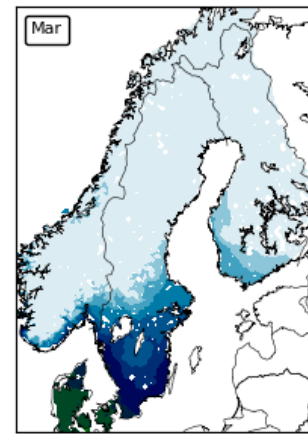
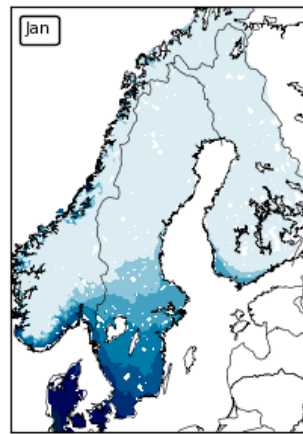
Winter extremes

Pr (mm/h) | Max 100 Events | 1998-2018 DJF

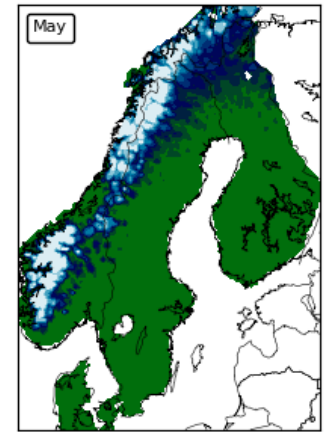
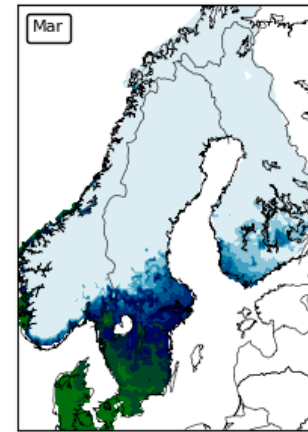
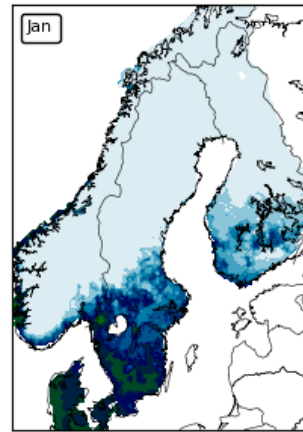


NorCP – snow

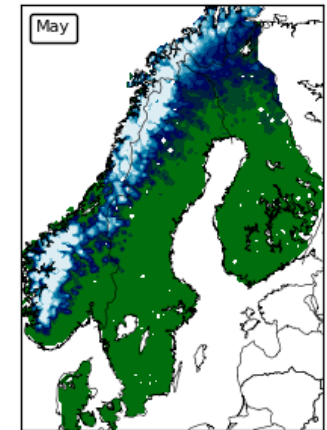
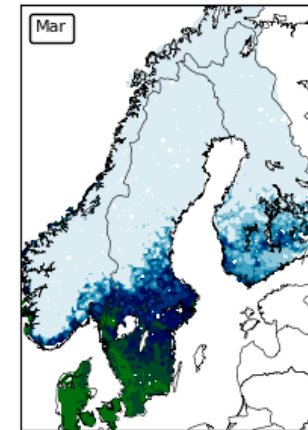
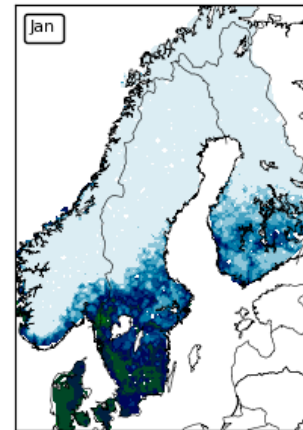
NSIDC-IMS



ALADIN

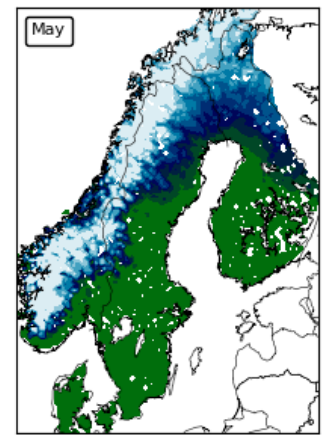
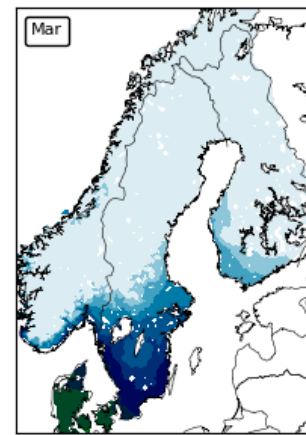
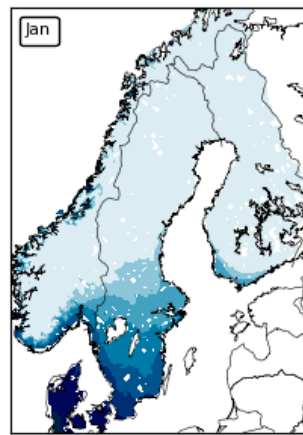


AROME

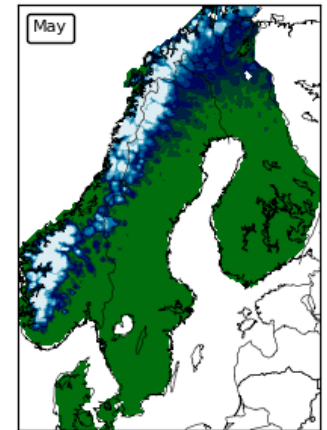
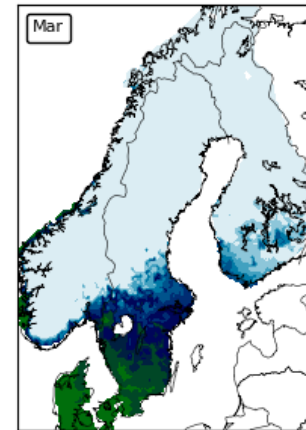
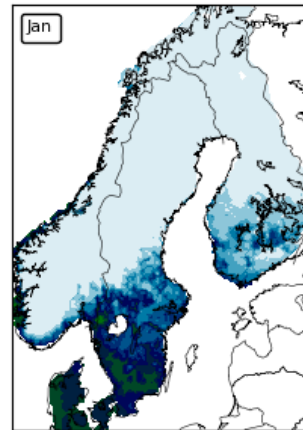


NorCP – snow

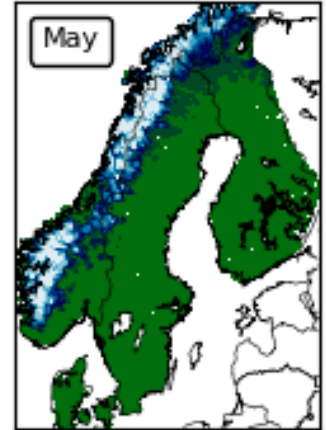
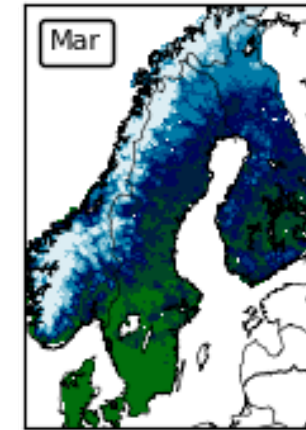
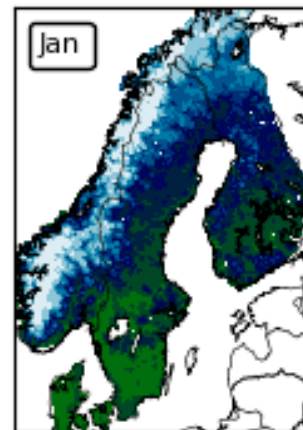
NSIDC-IMS



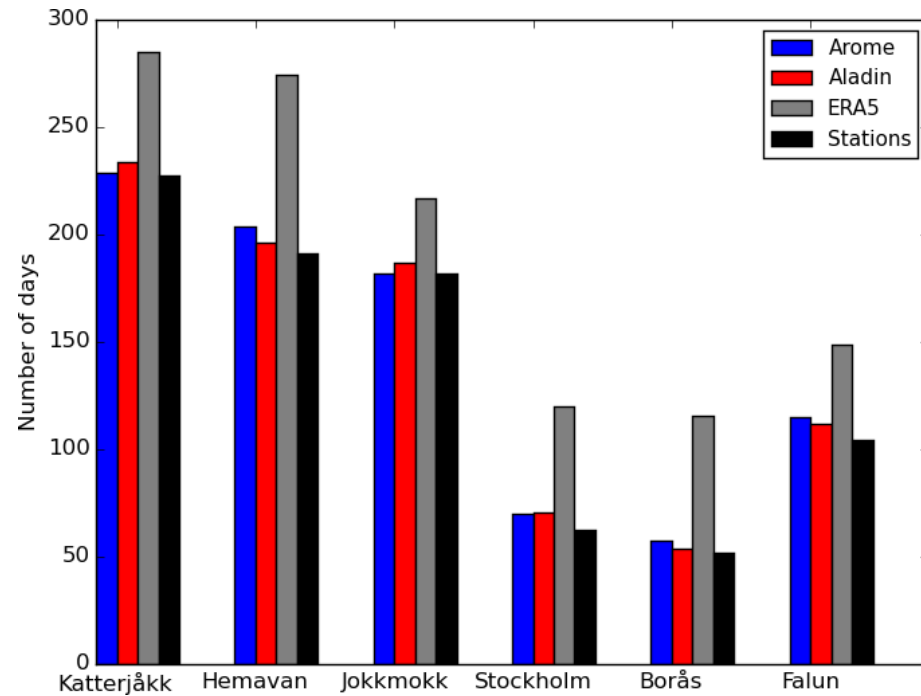
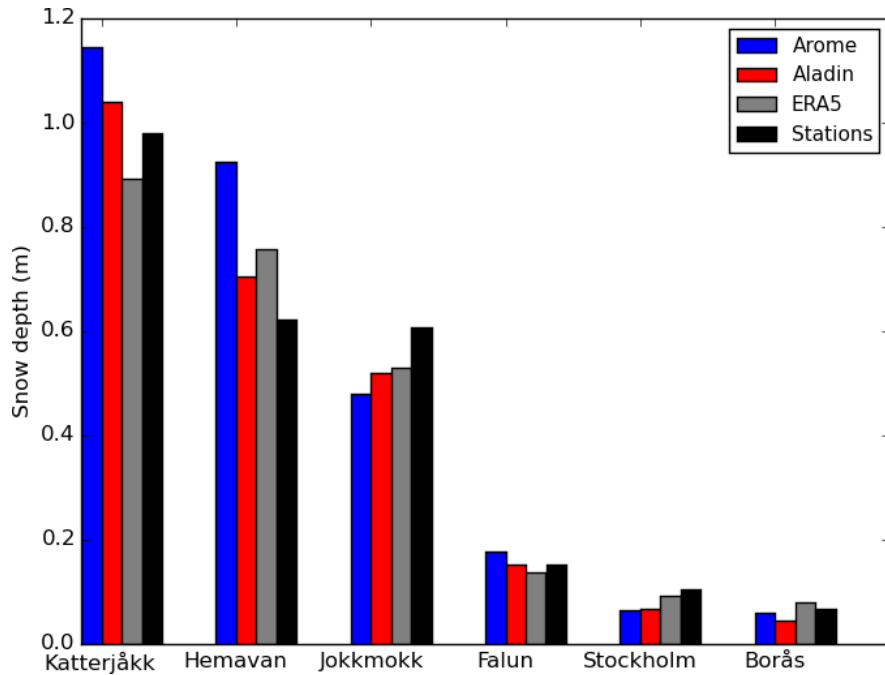
ALADIN



AROME

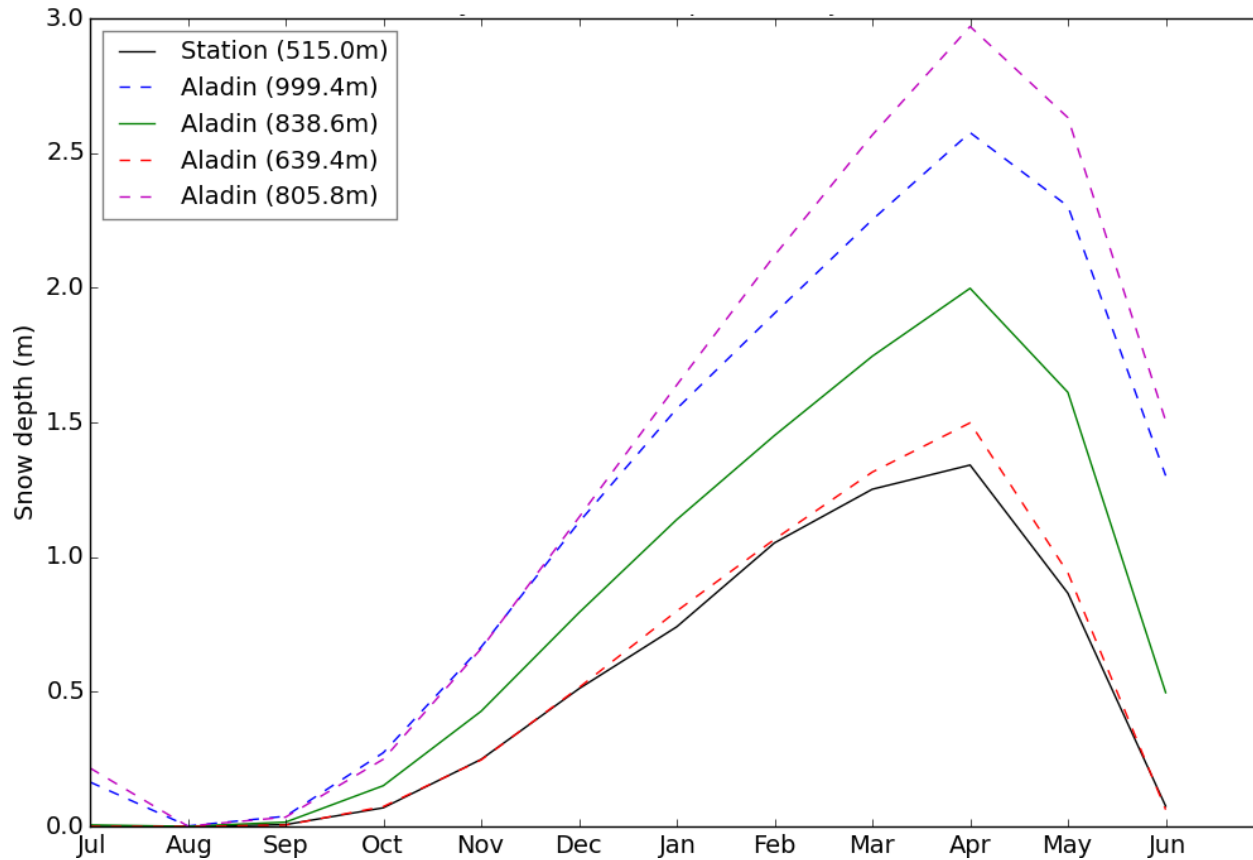


NorCP – snow



NorCP – snow

Katterjåkk



Summary of CPM benefits

- Obvious benefits for summer precipitation
- Snow and winter: need more analysis