

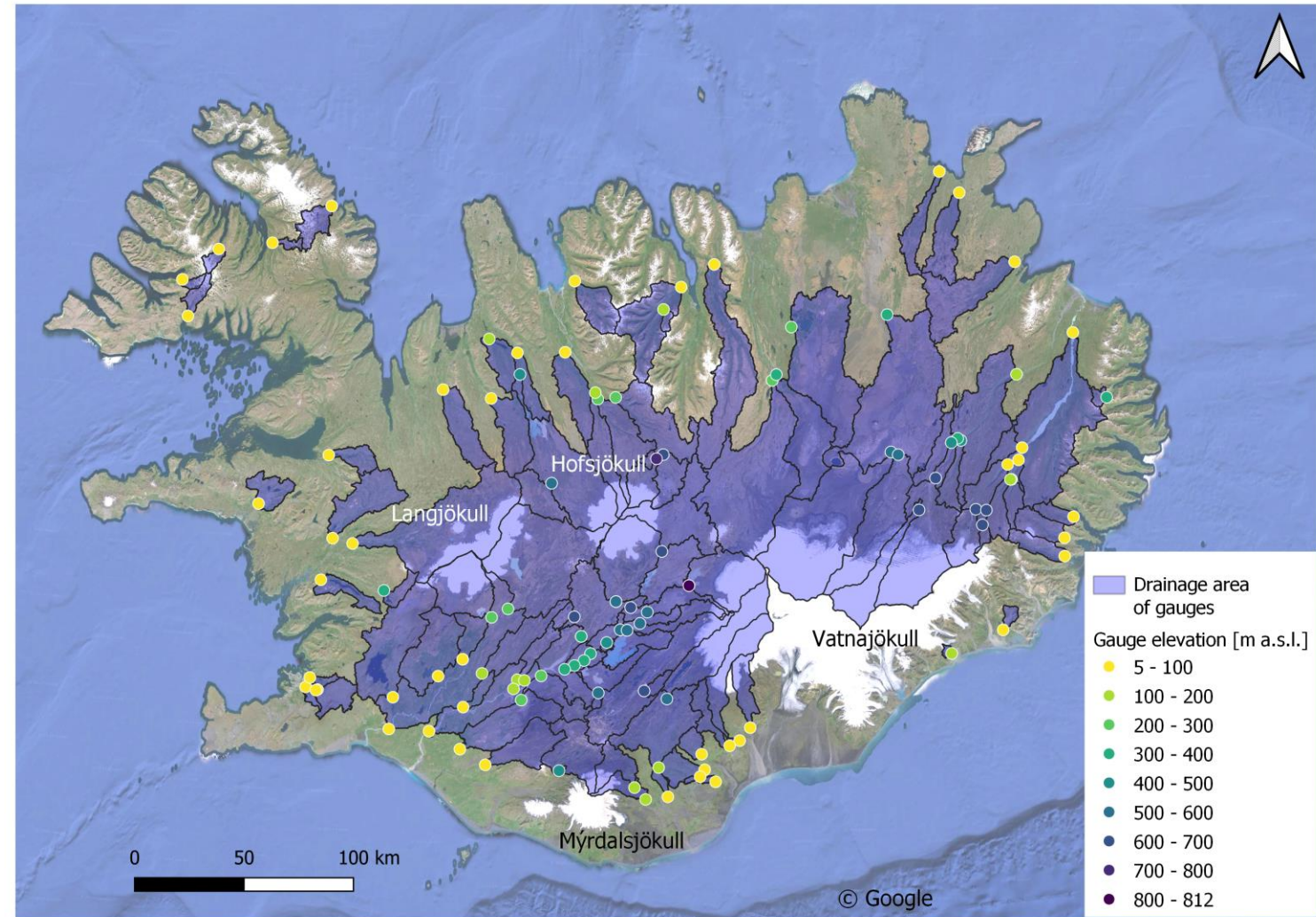
Hefur rennsli íslenskra vatnsfalla breyst á síðustu áratugum?

Hörður Bragi Helgason

Haustþing Veðurfræðifélagsins - 29/10/2024

Gögn: LamaH-Ice: LARge-SaMple Data for Hydrology and Environmental Sciences for Iceland

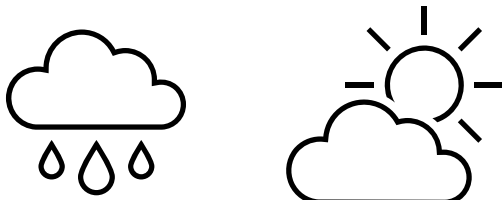
- Gögn frá 107 rennslismælum
- Vatnasvið þekja:
 - 45% af flatarmáli landsins
 - 60% af flatarmáli jökla



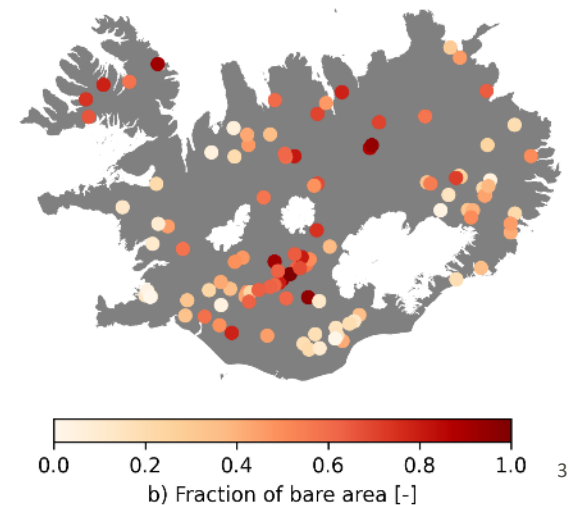
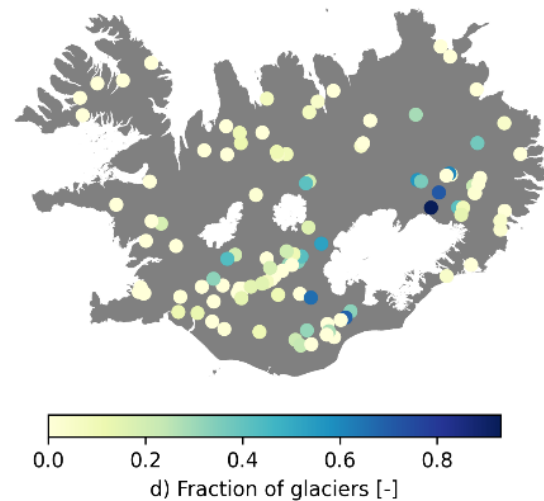
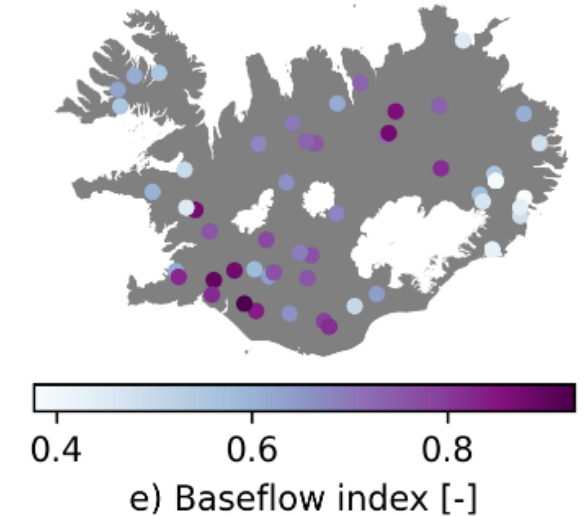
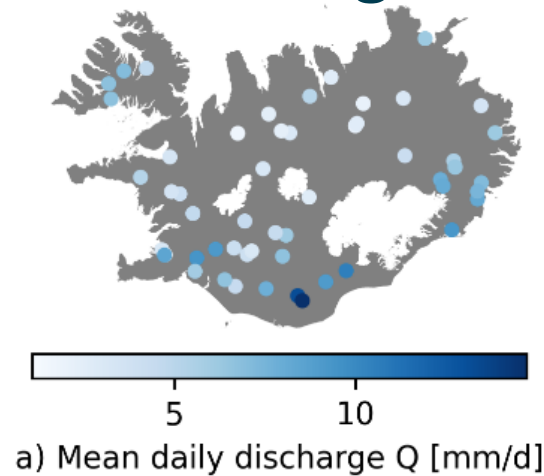
Gögn: LamaH-Ice: LARge-SaMple Data for Hydrology and Environmental Sciences for Iceland

Tímaraðir

- Tímaraðir úr endurgreiningum
 - ERA5-Land, RÁV-II, CARRA
 - Meðaltöl vatnasviða
- Snjóhula á vatnasviðum (MODIS)
- Afkoma jökla



Eiginleikar vatnasviða



Gögn: LamaH-Ice: LARge-SaMple Data for Hydrology and Environmental Sciences for Iceland

www.hydroshare.org/resource/86117a5f36cc4b7c90a5d54e18161c91/



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3_shapefiles	5/15/2024 3:02 PM	File folder	
readme.txt	5/15/2024 11:56 AM	Text Document	2 KB

Earth System Science Data

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Article

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<https://doi.org/10.5194/essd-16-2741-2024>
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Data description paper | 13 Jun 2024

LamaH-Ice: LARge-SaMple DATA for Hydrology and Environmental Sciences for Iceland

Hordur Bragi Helgason and Bart Nijssen

Abstract

Access to mountainous regions for monitoring streamflow, snow and glaciers is often difficult, and many rivers are thus not gauged and hydrological measurements are limited. Consequently, cold-region watersheds, particularly heavily glacierized ones, are poorly represented in large-sample hydrology (LSH) datasets. We present a new LSH dataset for Iceland, termed LamaH-Ice (LARge-SaMple DATA for Hydrology and Environmental Sciences for Iceland). Glaciers and ice caps cover about 10 % of Iceland and,

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- ▶ EndNote

Short summary

LamaH-Ice is a large-sample hydrology (LSH) dataset for Iceland. The dataset includes daily and...

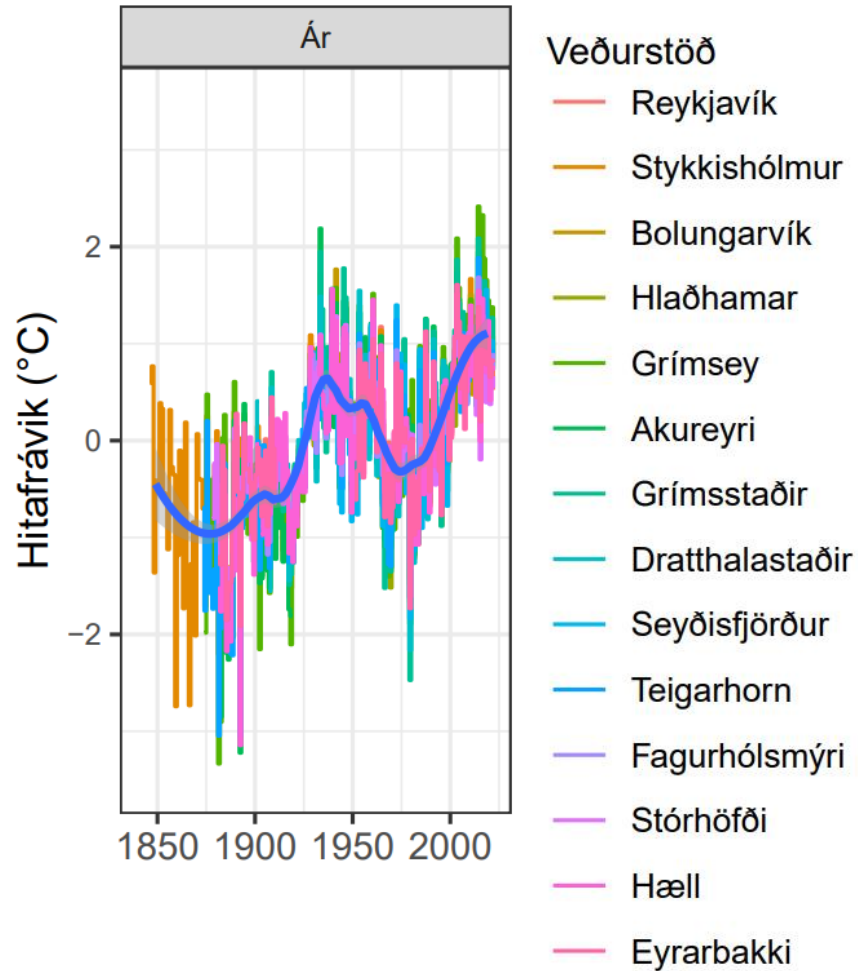
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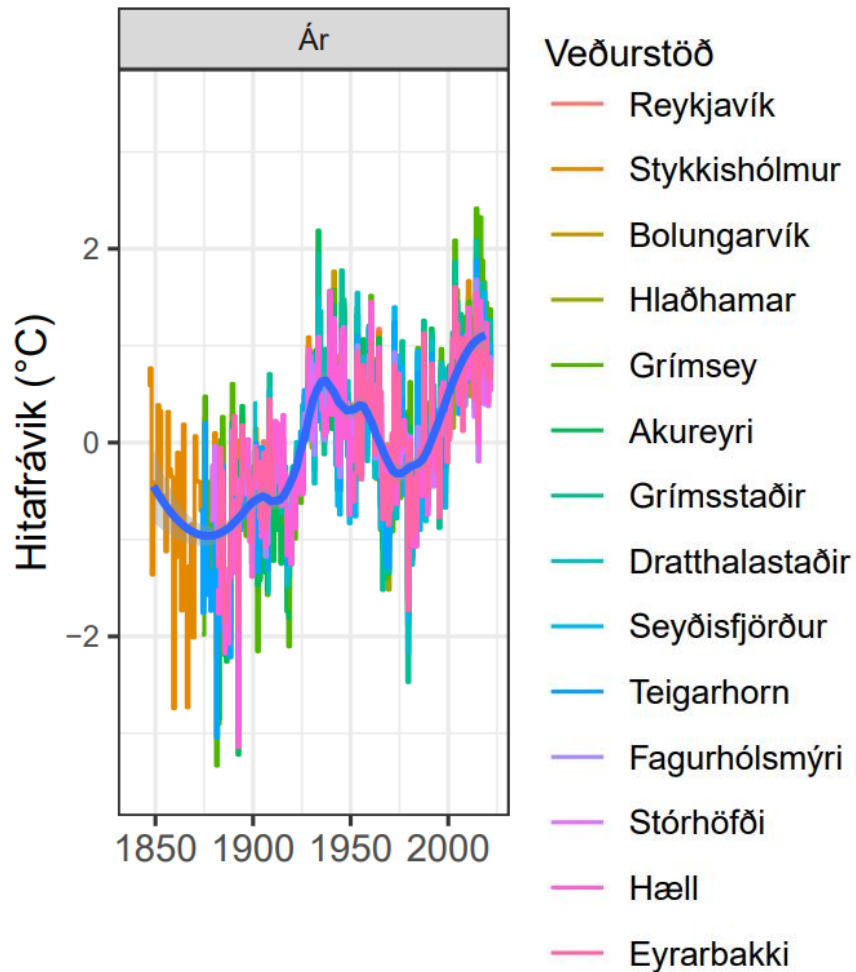
Þróun meðalhita og úrkomu á Íslandi

Þróun meðalhita á tímabili samfelldra mælinga

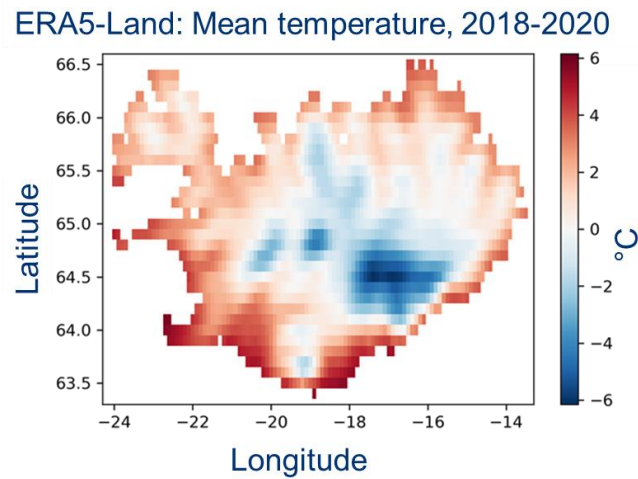


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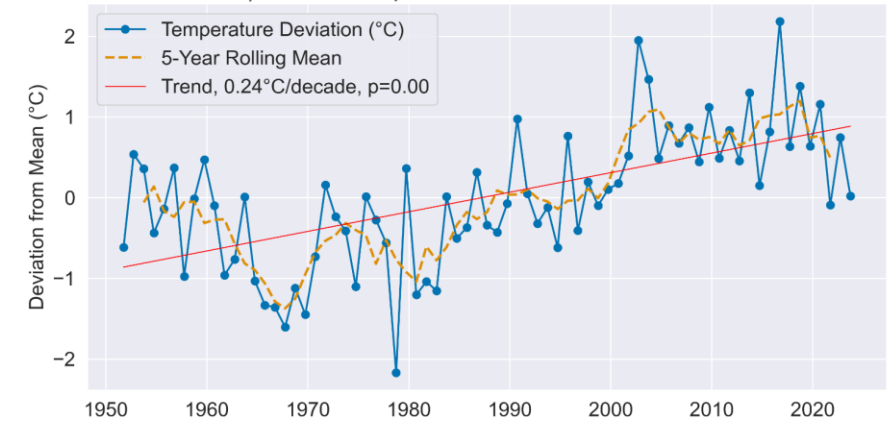
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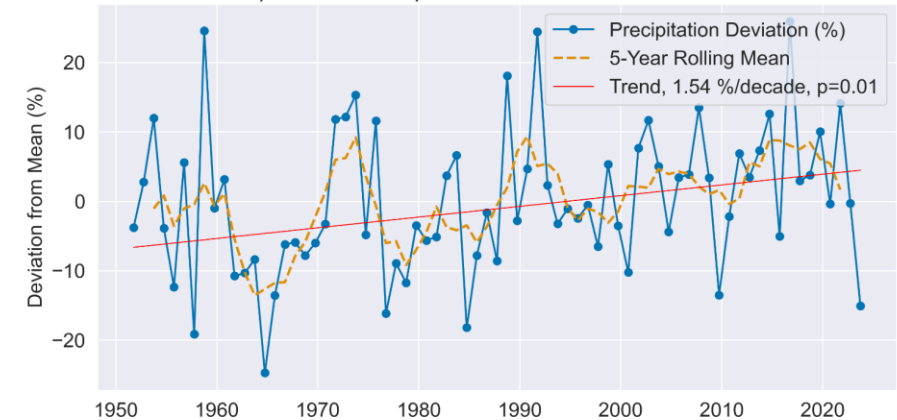
ERA5-Land



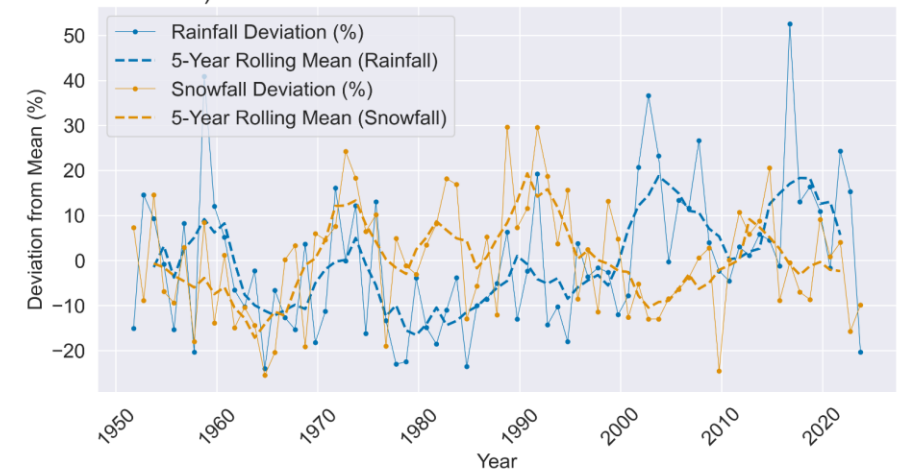
a) Annual Temperature Deviation over Iceland



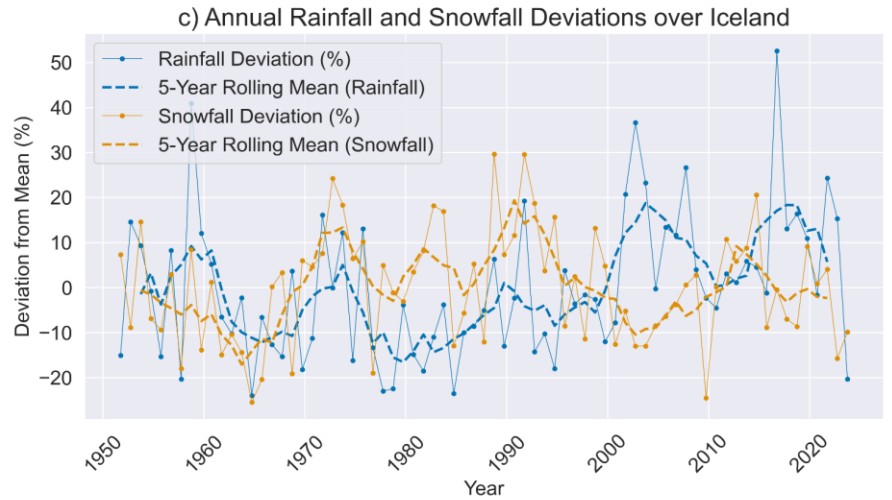
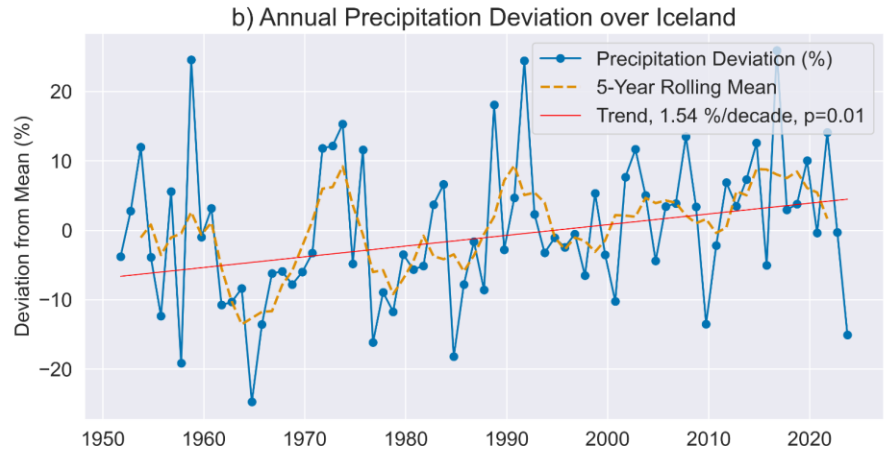
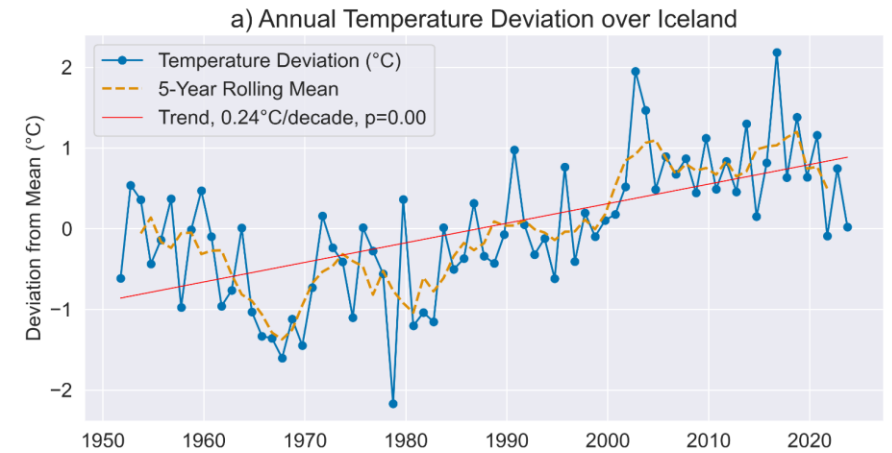
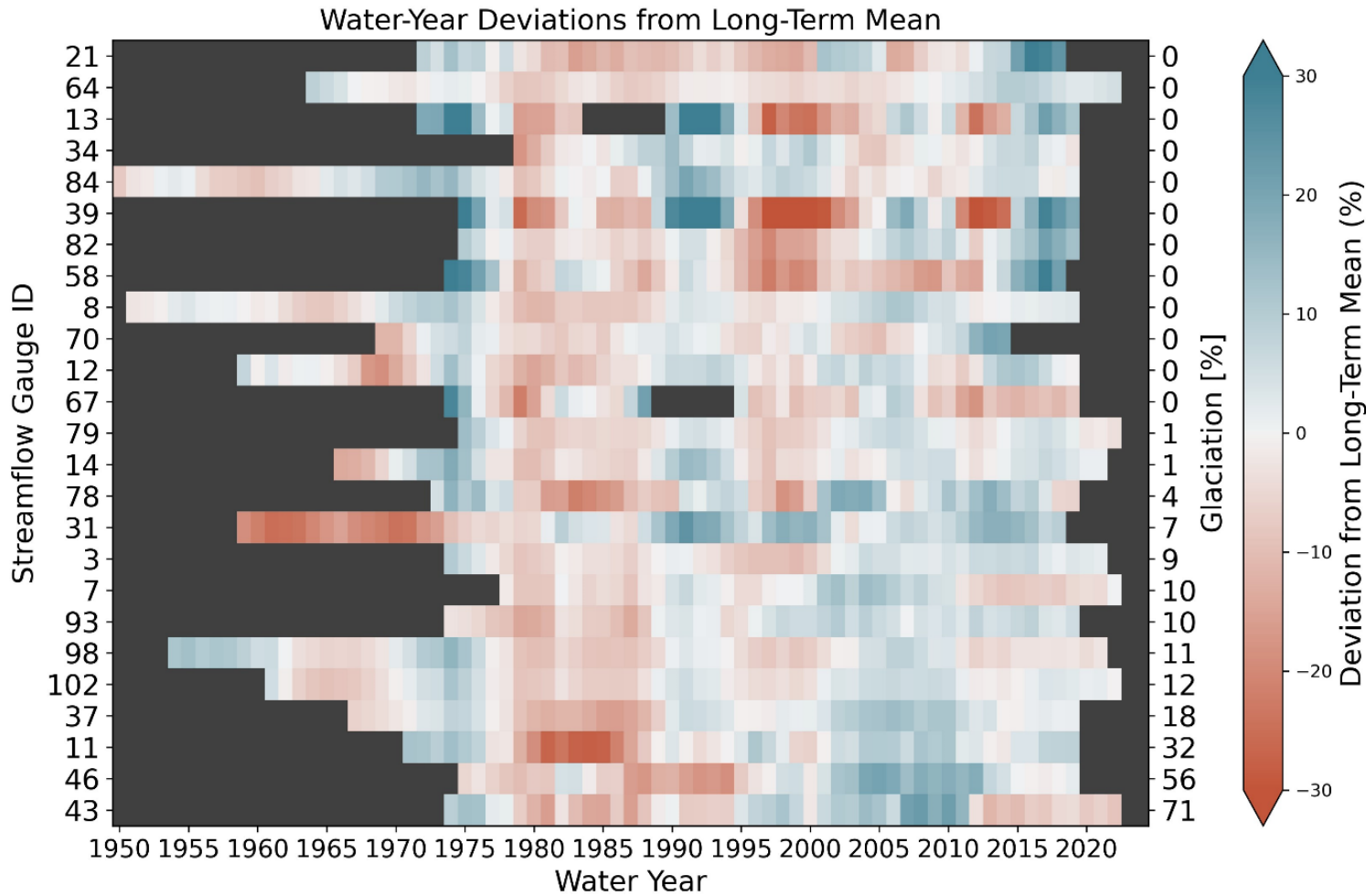
b) Annual Precipitation Deviation over Iceland



c) Annual Rainfall and Snowfall Deviations over Iceland



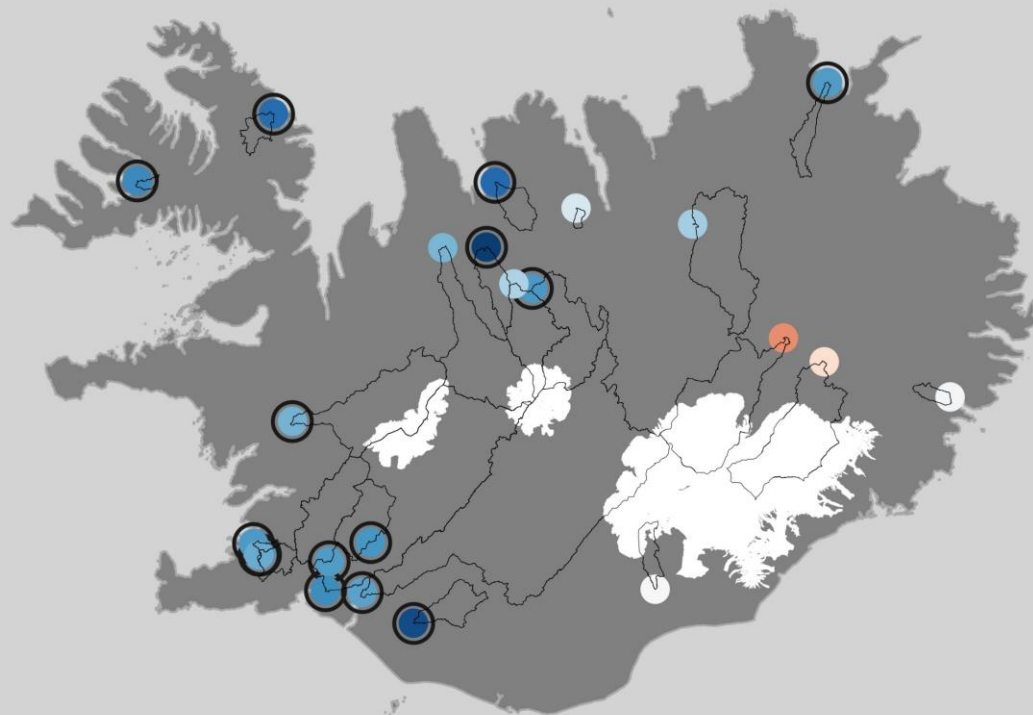
Breytileiki í rennsli vatnsfalla



Fylgni rennslis við loftslagsvísa

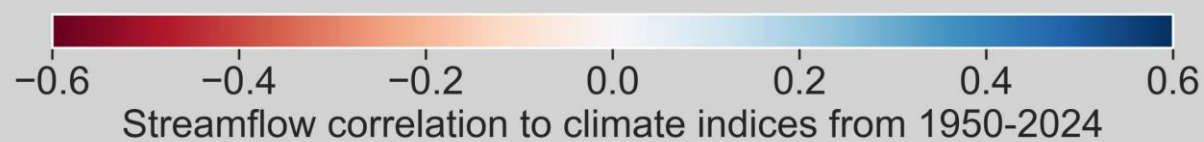
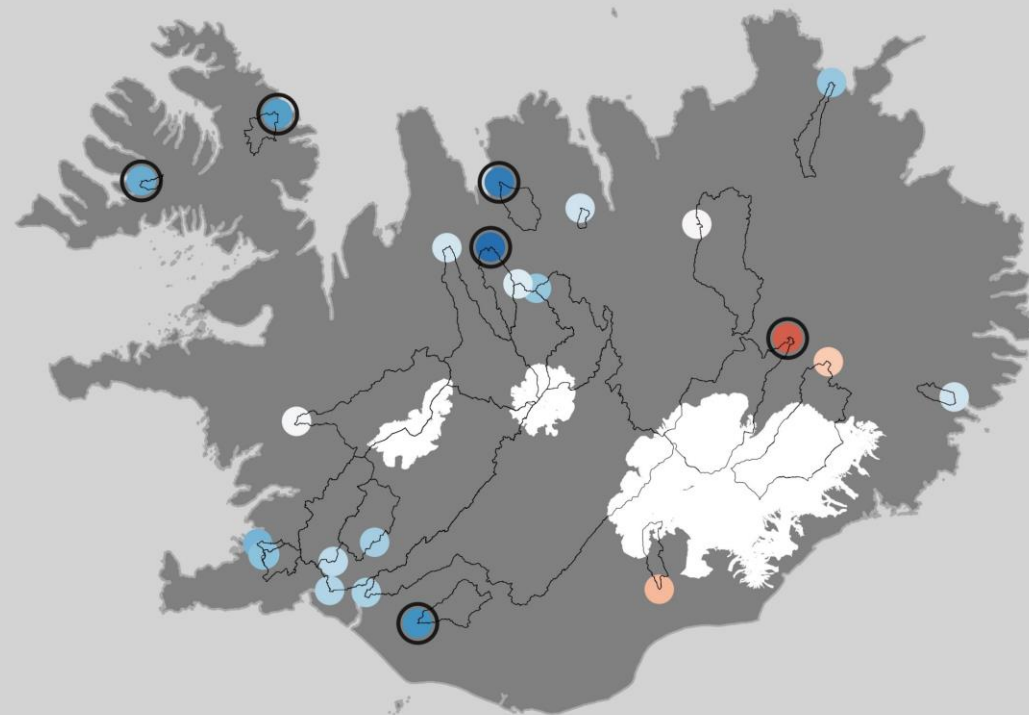
Arctic Oscillation

Annual streamflow correlation with AO



North Arctic Oscillation

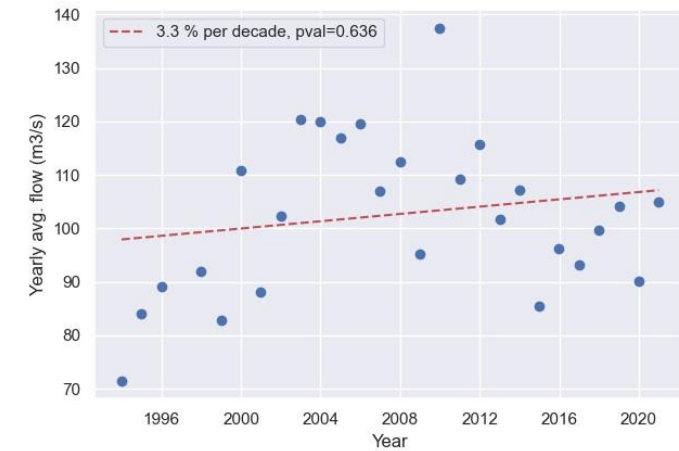
Annual streamflow correlation with NAO



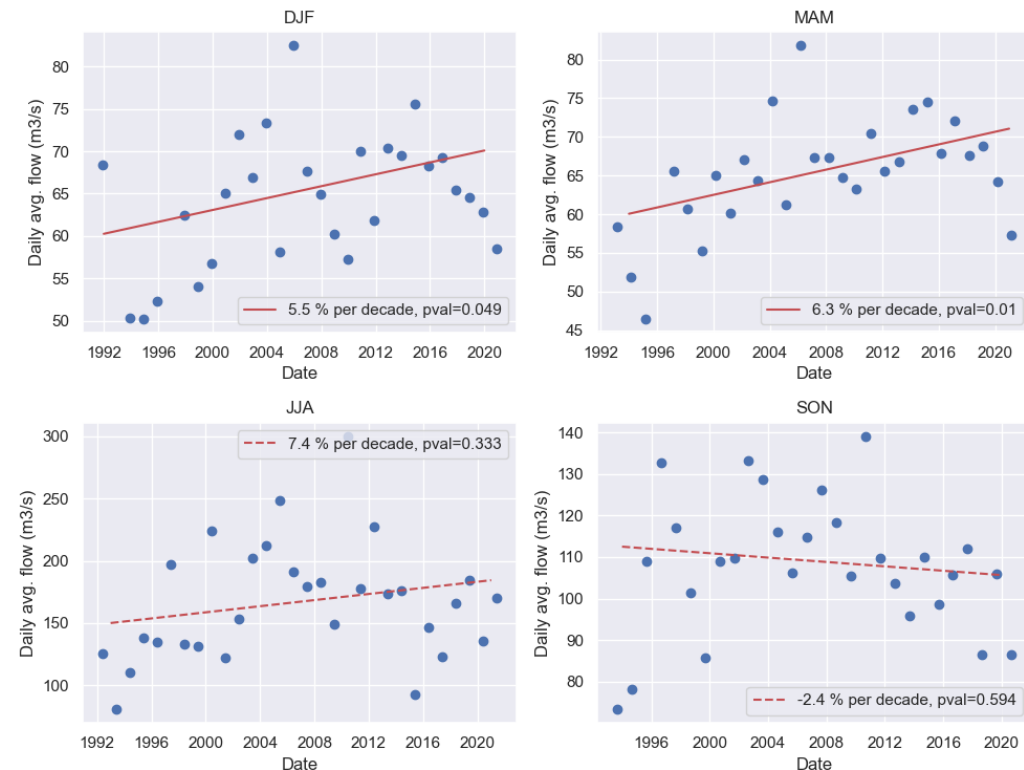
Leitnigreining - Aðferðafræði

- Veljum einsleitar raðir (Pettitt's test)
- Reiknum leitni á árs-, árstíða og dagsgrunni.
 - Aðferð Theil-Sen notuð til að meta leitni
 - Modified Mann-Kendall próf til að meta marktækni:
 - Tekur tillit til sjáffylgni í gagnaröðum
 - Marktæknimörk sett við 5%
- Notum öll gögn (einnig áætluð)
- Þegar eyður í gögnum:
 - Leyfum vöntun á 10% af ári/árstíð
 - Leyfum vöntun á 20% af árum/árstíðum yfir tímabilið
- Skoðum tvö tímabil:
 - 1972-2021
 - 1992-2021

Gauge 46, Jökulsá á Fjöllum Upptýppingar II



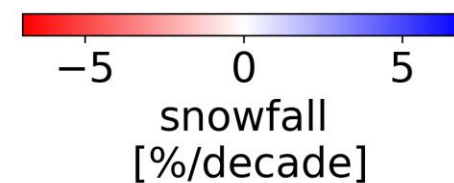
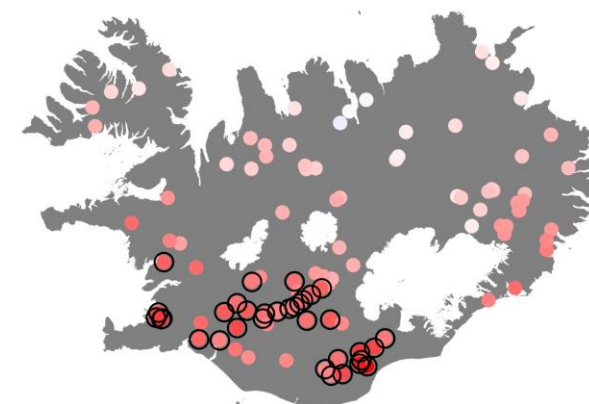
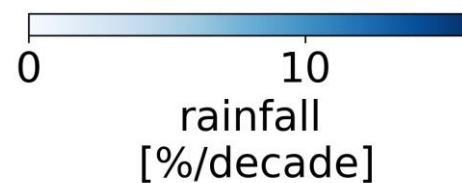
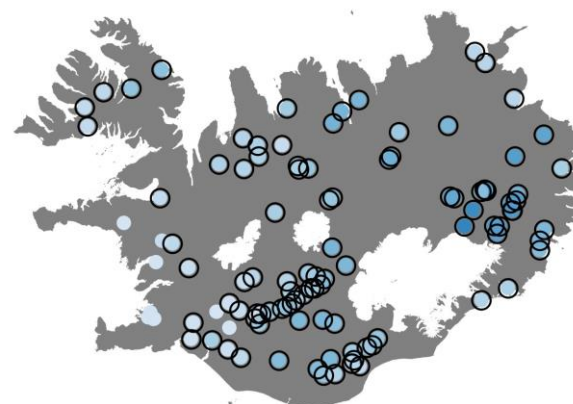
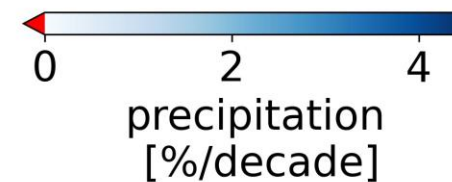
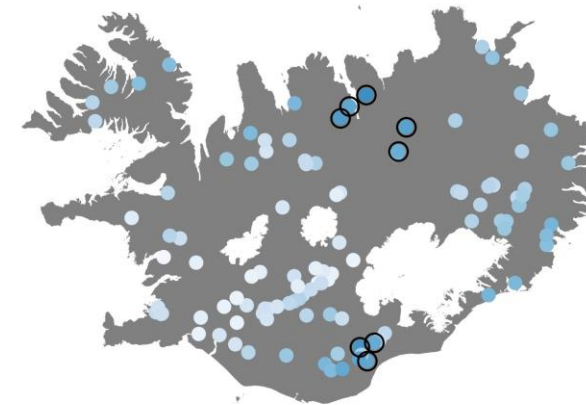
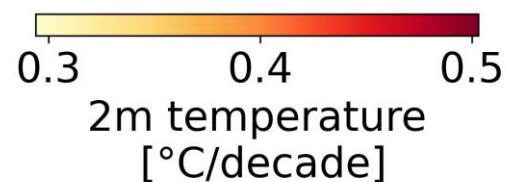
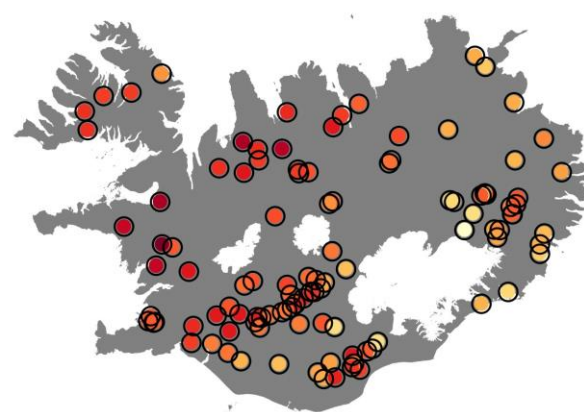
Gauge 46, Jökulsá á Fjöllum Upptýppingar II



Tímabil 1: 1972-2021

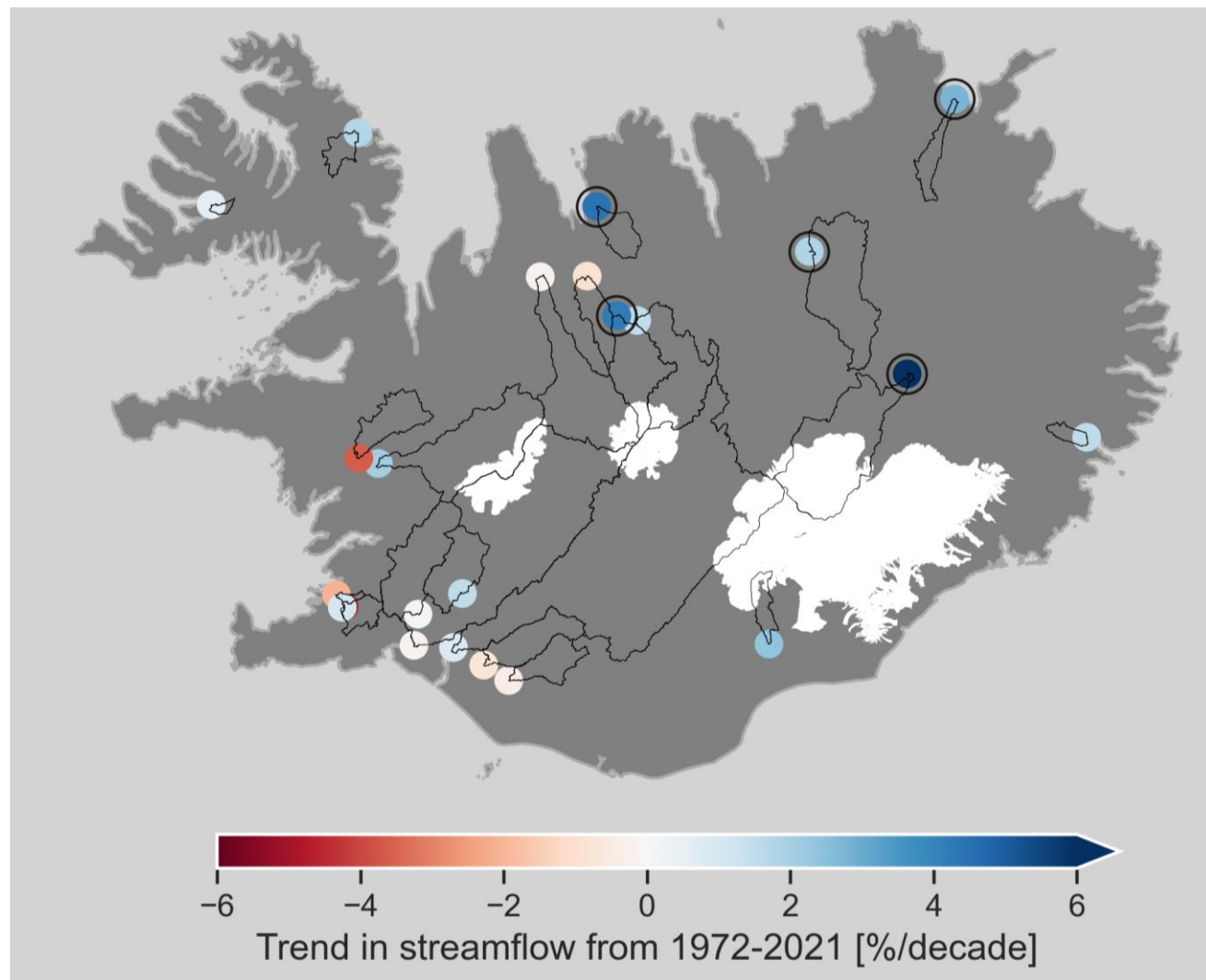
Leitni á ársgrunni: 1972-2021

Hitastig og úrkoma - ERA5-Land

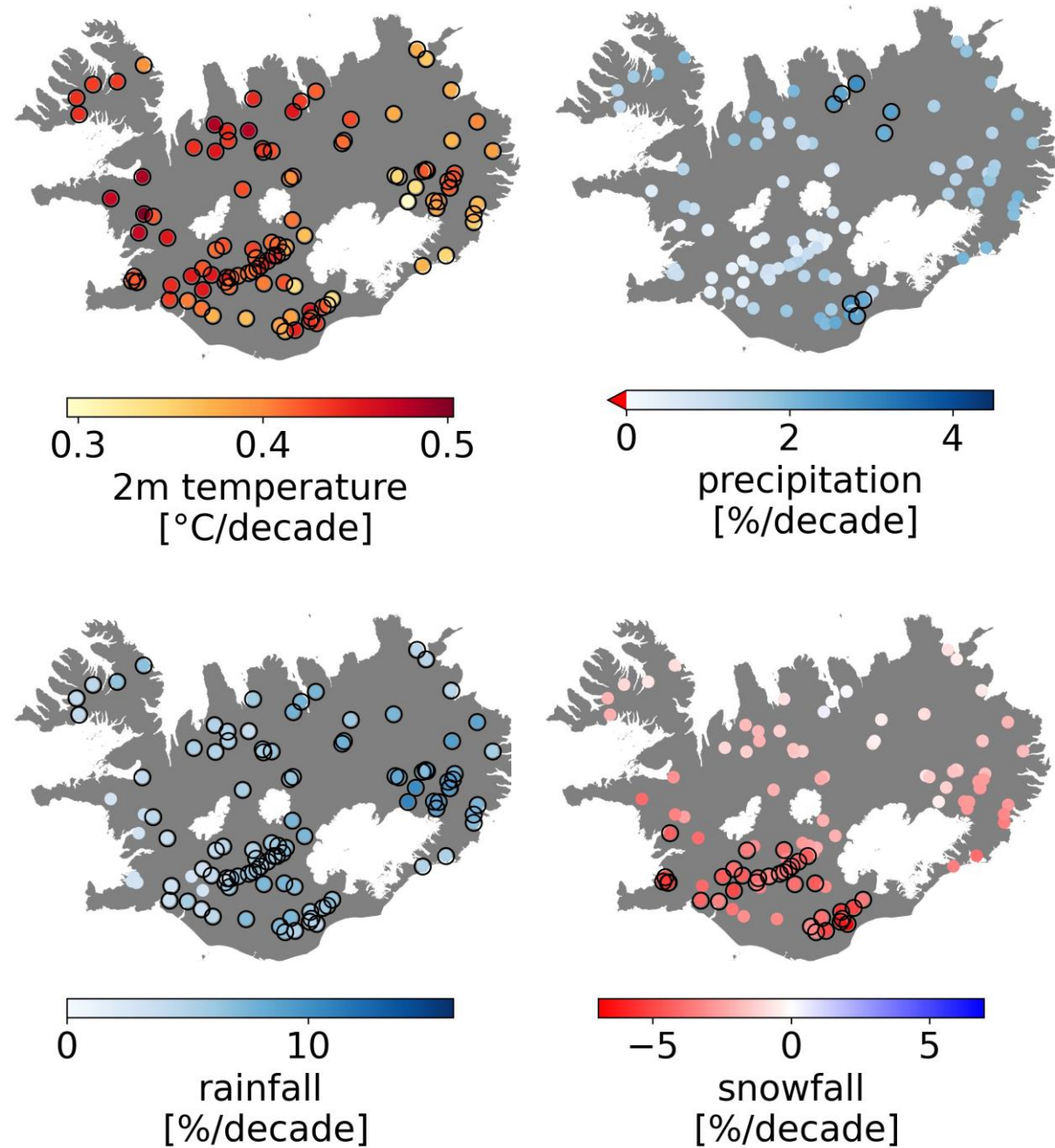


Leitni á ársgrunni: 1972-2021

Rennsli

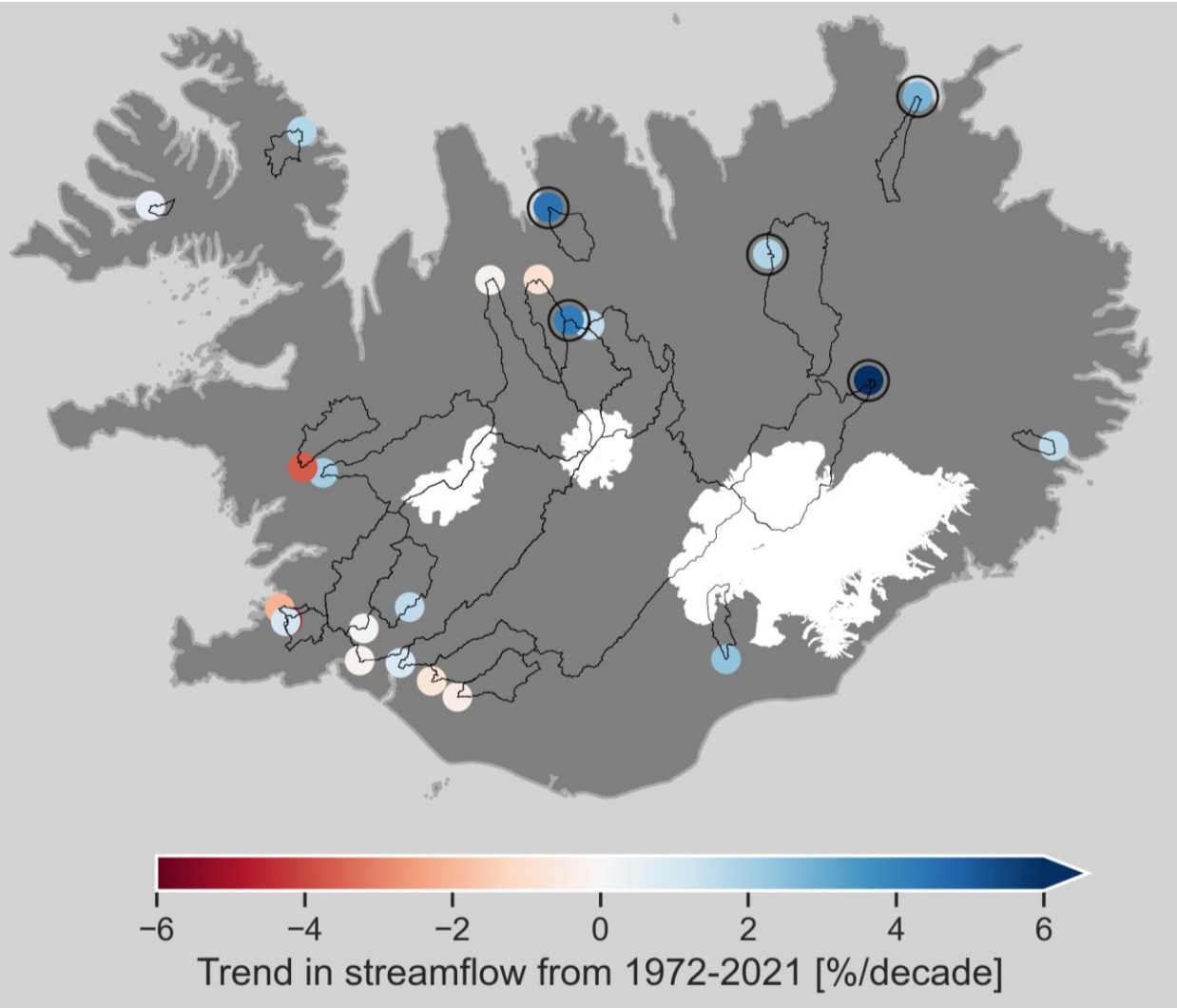


Hitastig og úrkoma - ERA5-Land

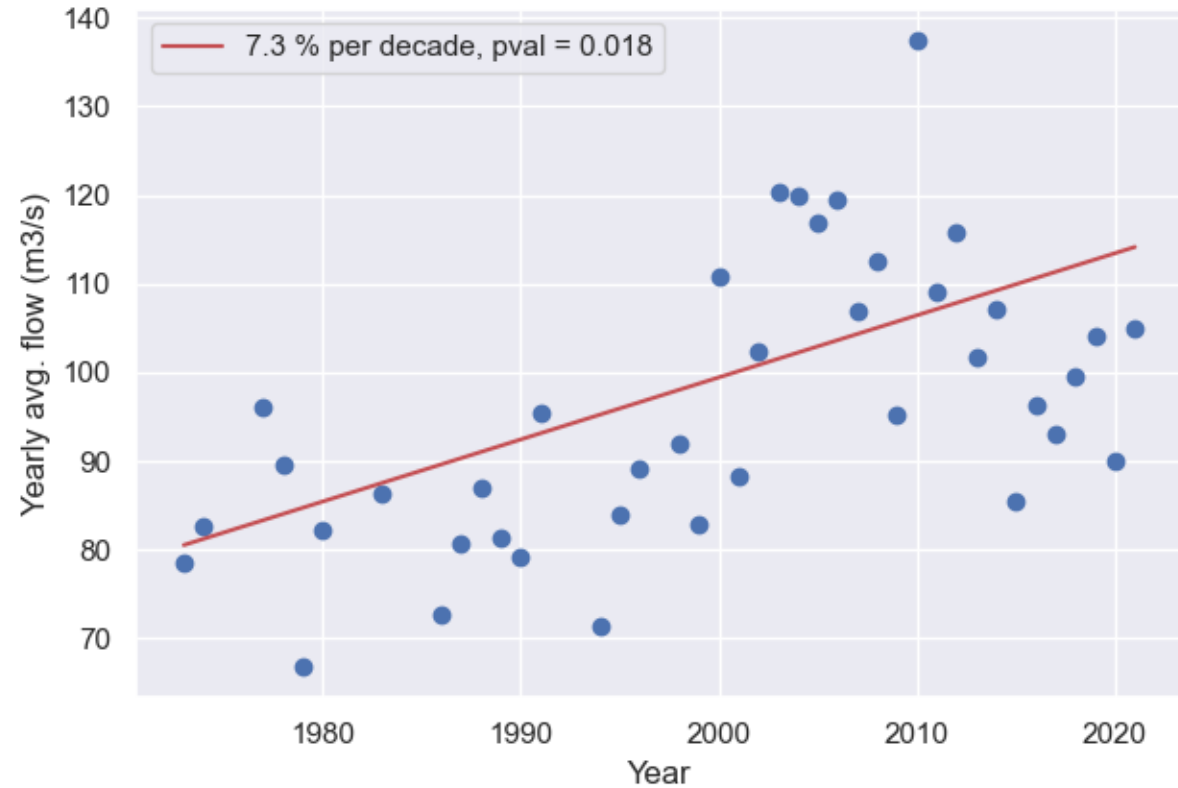


Leitni á ársgrunni: 1972-2021

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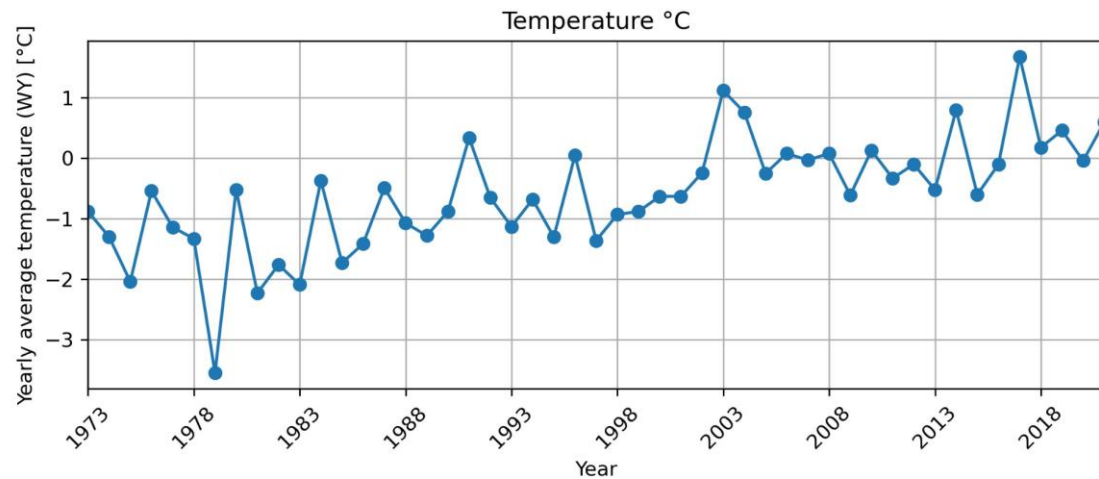
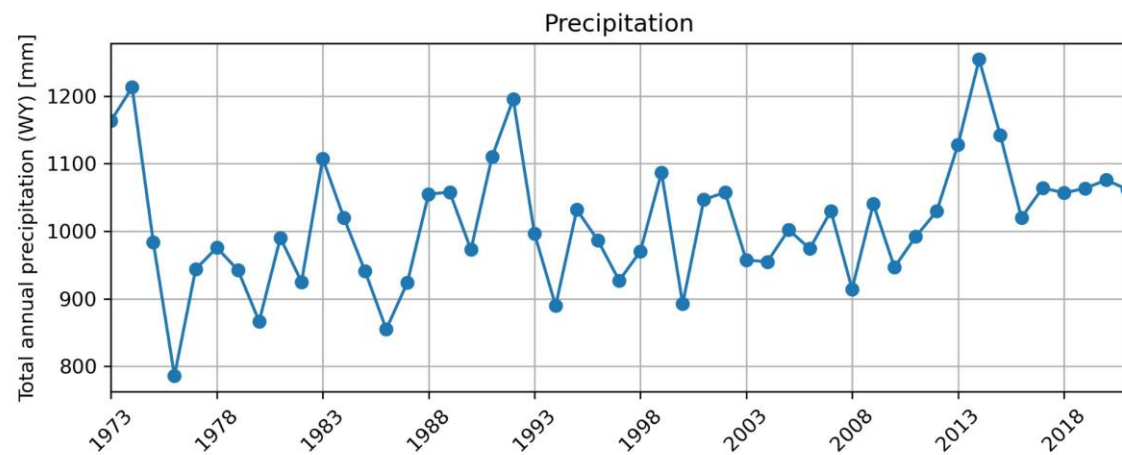
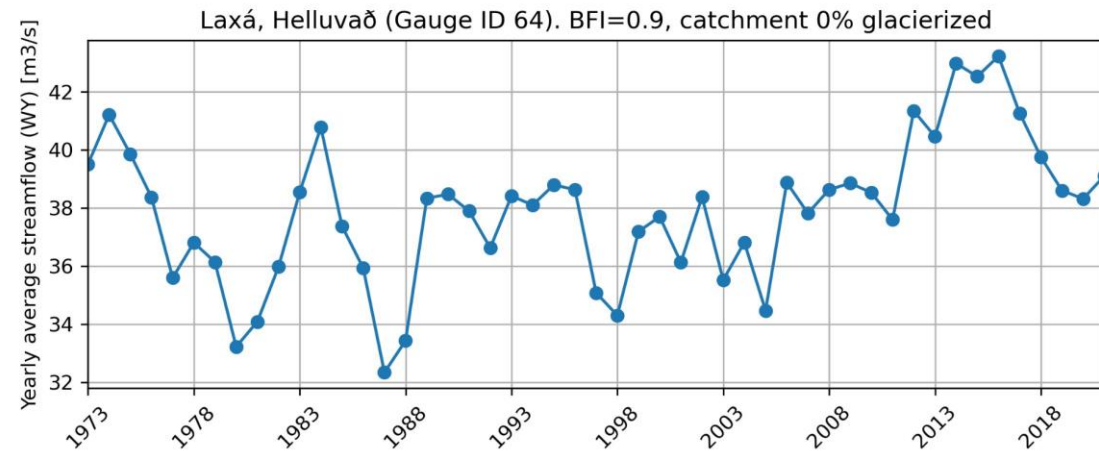
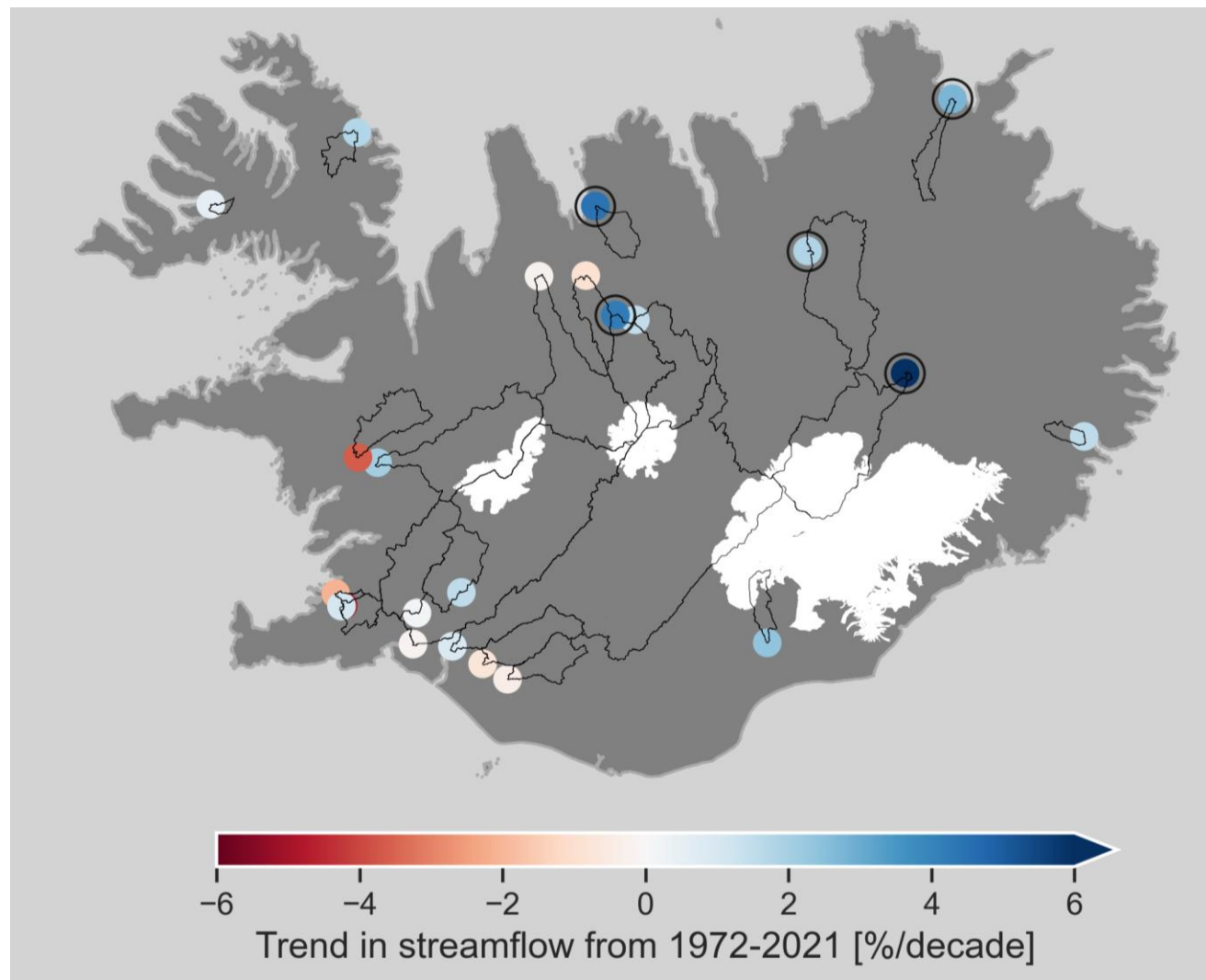


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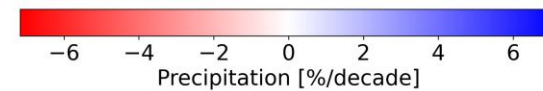
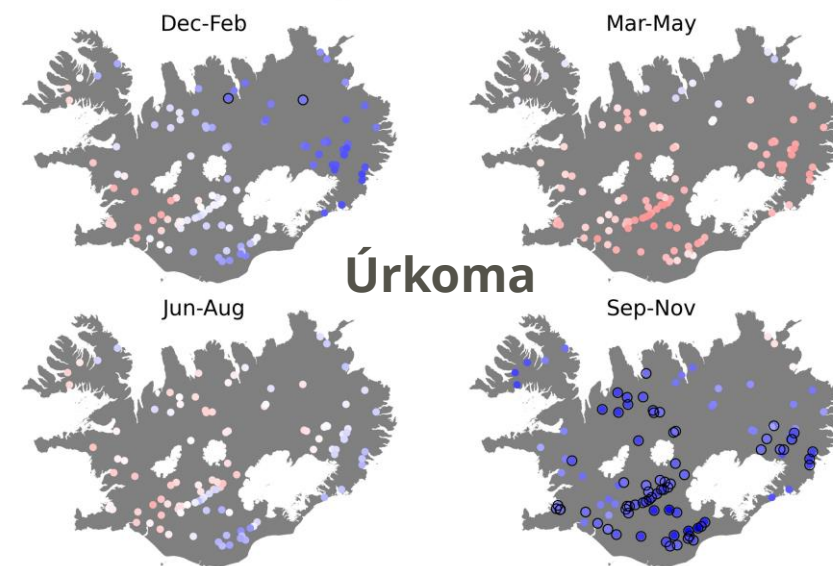
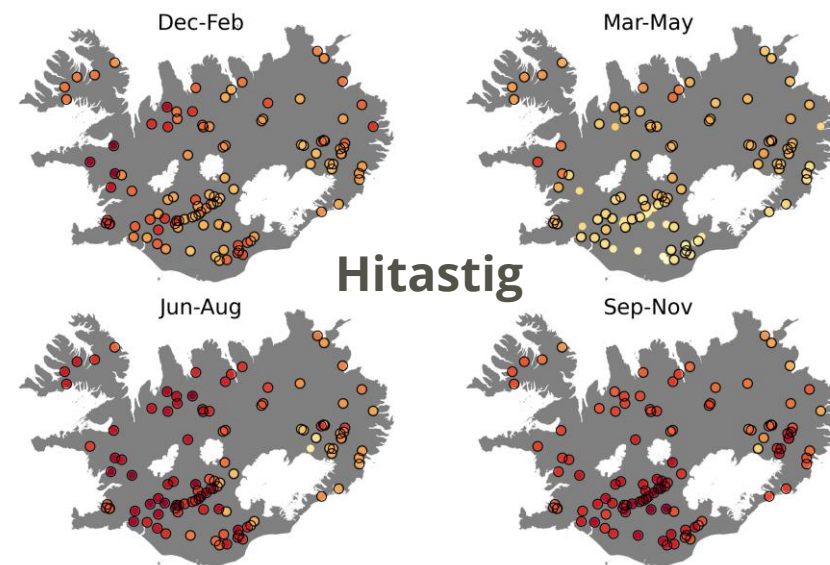


Leitni á ársgrunni: 1972-2021

Rennsli

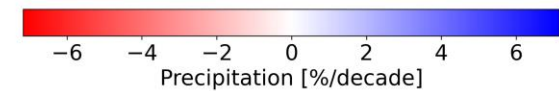
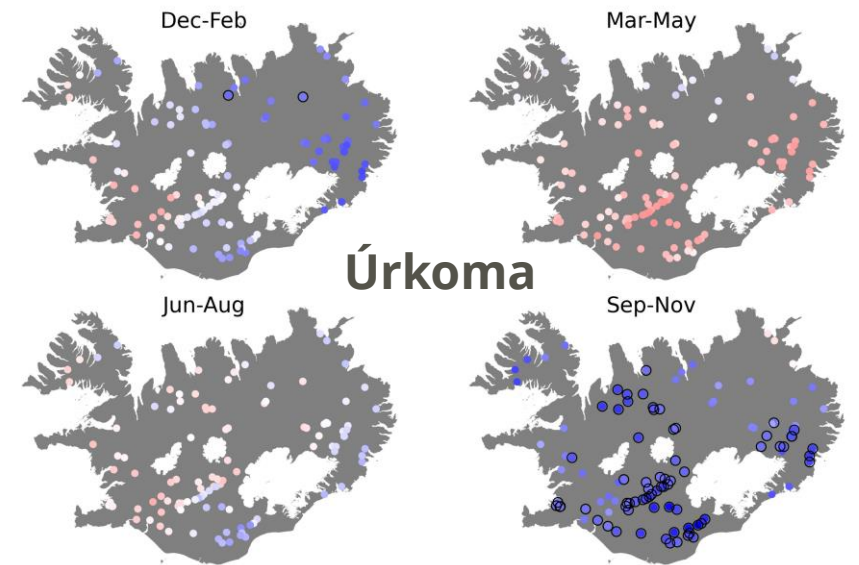
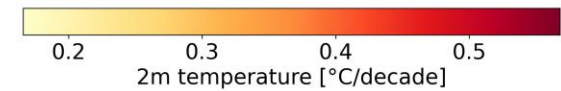
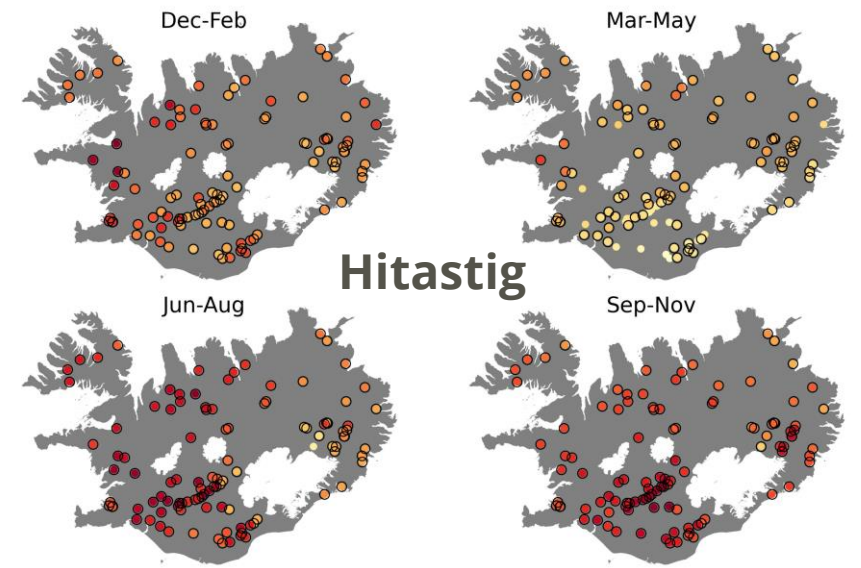
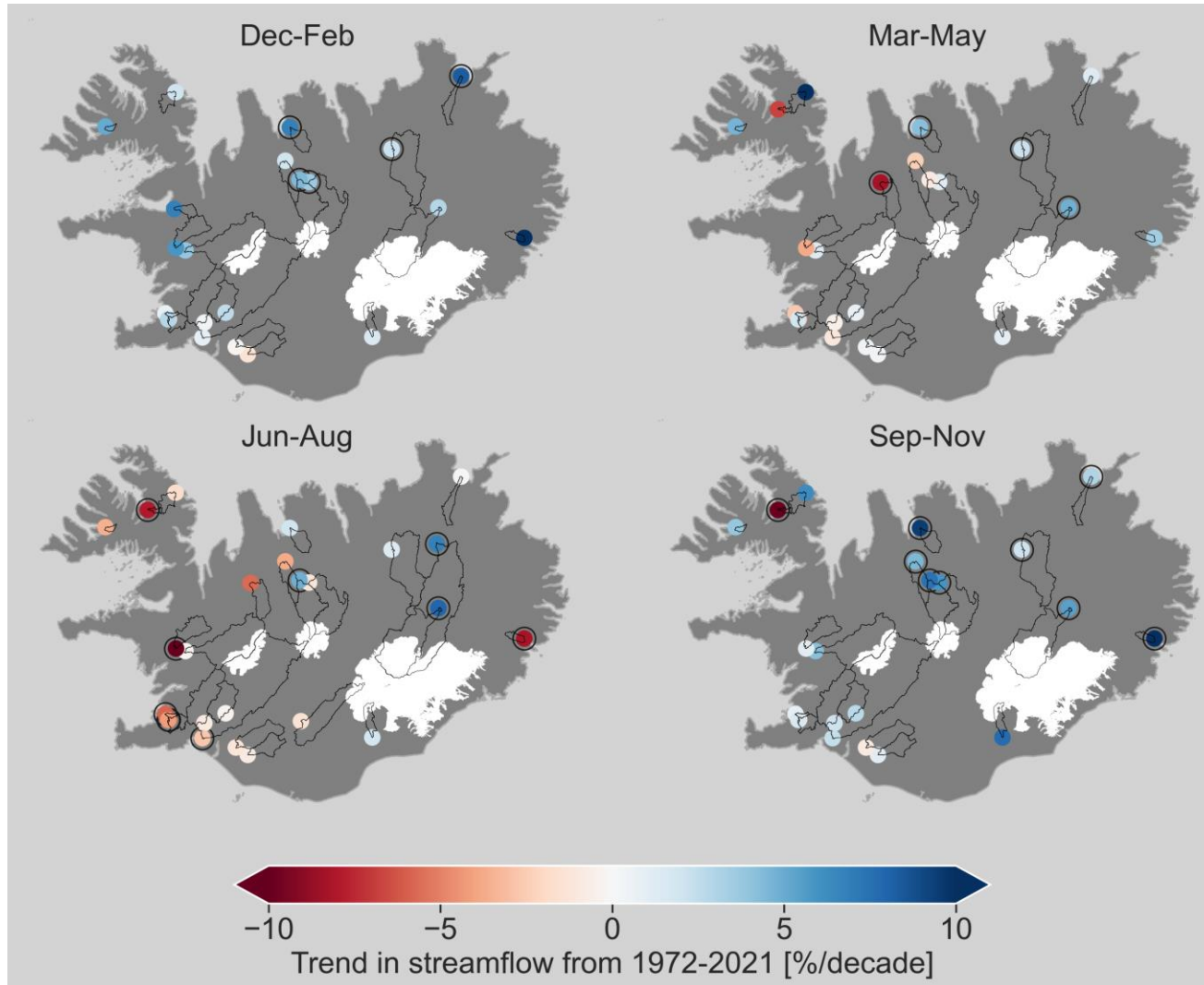


Leitni á árstíðagrunni: 1972-2021



Leitni á árstíðagrunni: 1972-2021

Rennsli

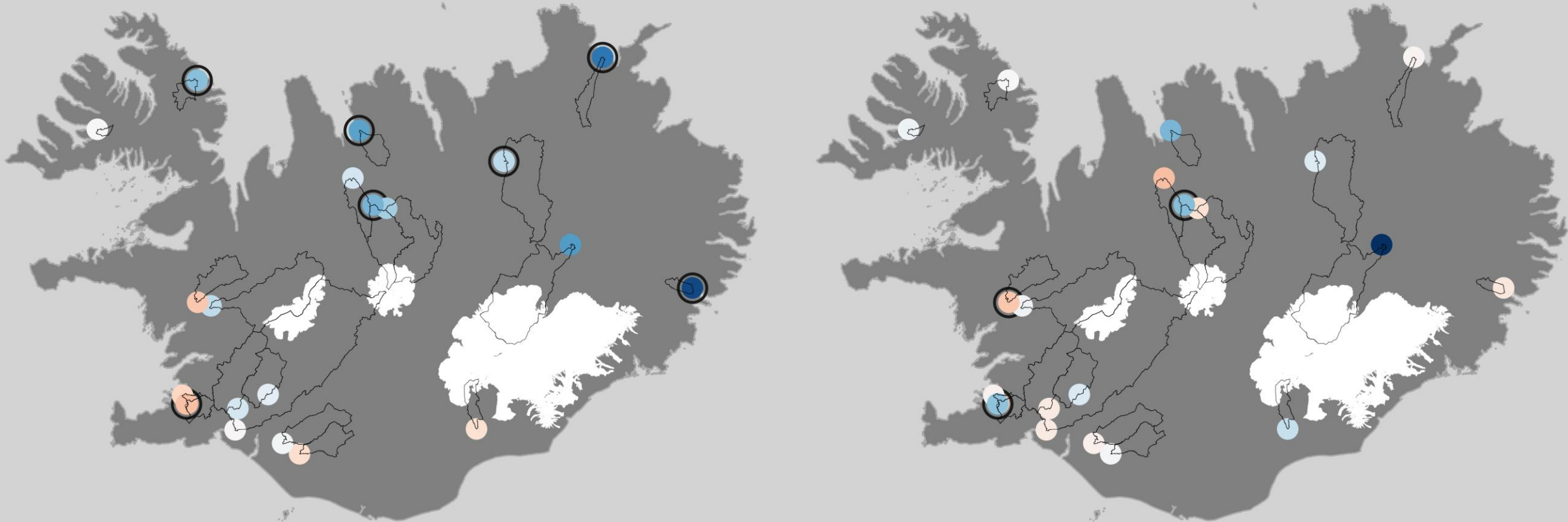


Hitastig

Úrkoma

Annual low flow (10th percentile)

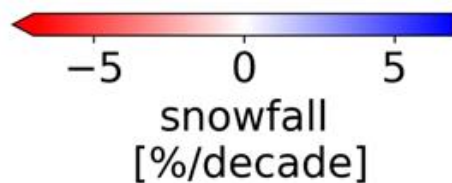
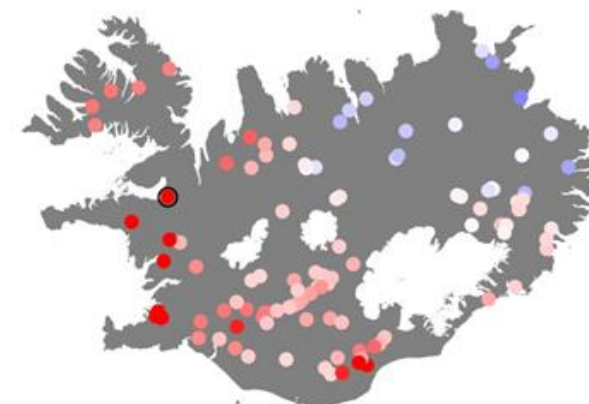
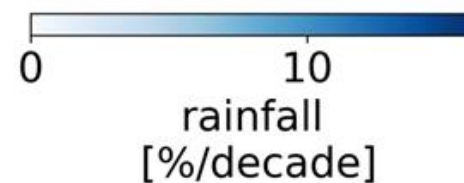
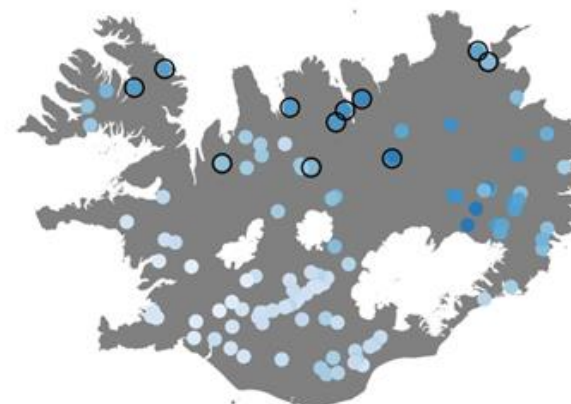
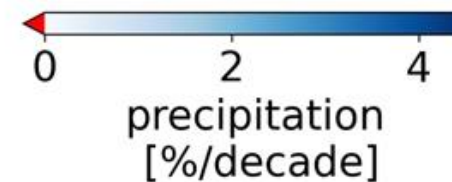
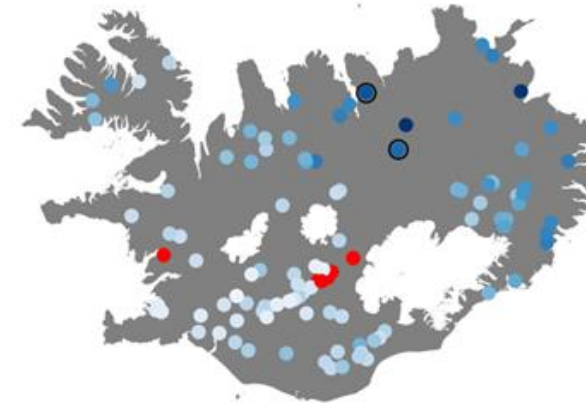
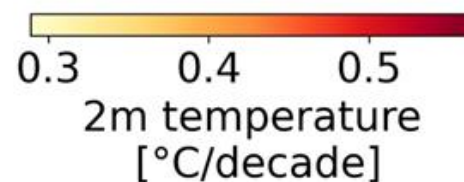
Annual high flow (90th percentile)



Tímabil 2: 1992-2021

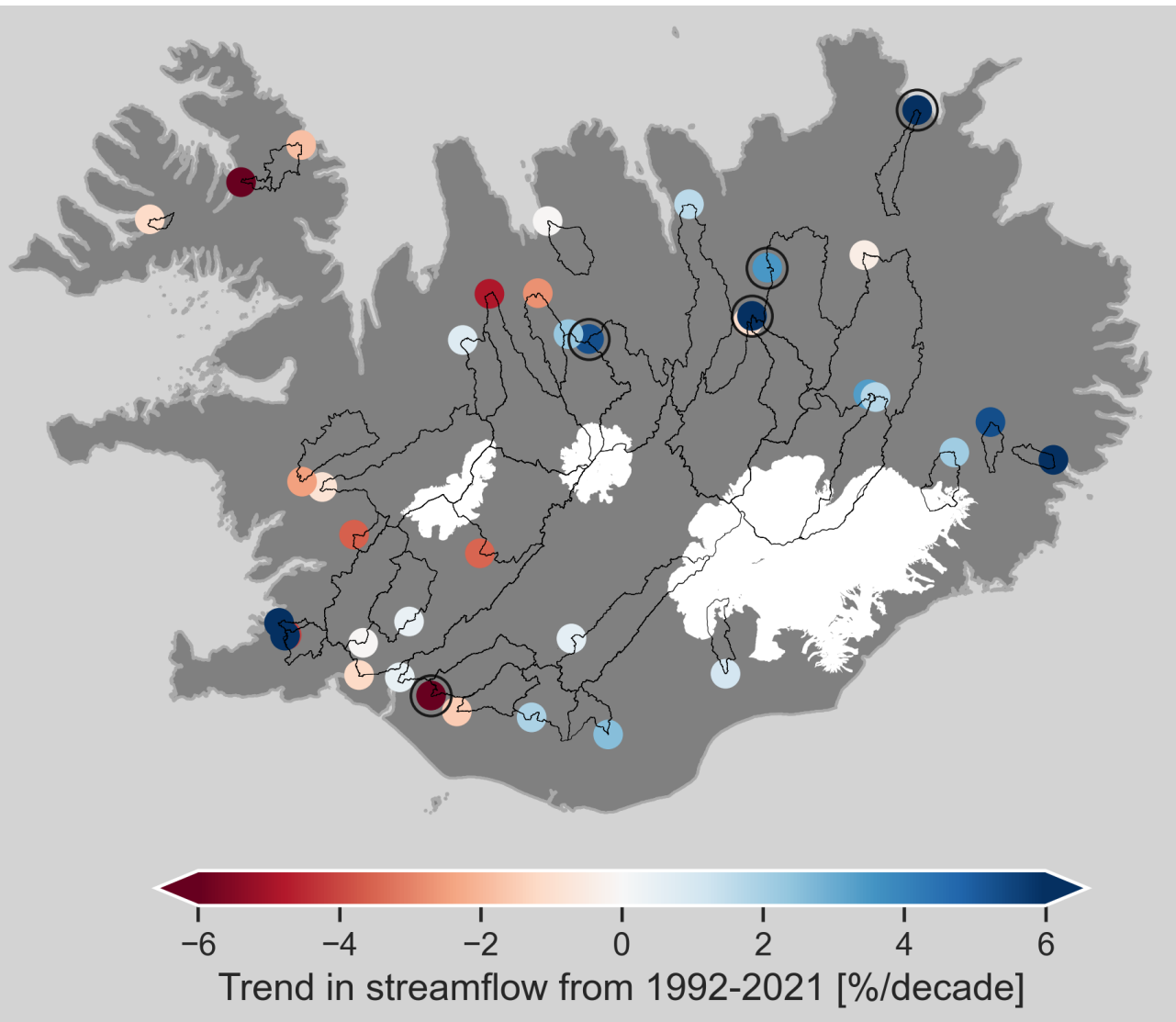
Leitni á ársgrunni: 1992-2021

Hitastig og úrkoma - ERA5-Land

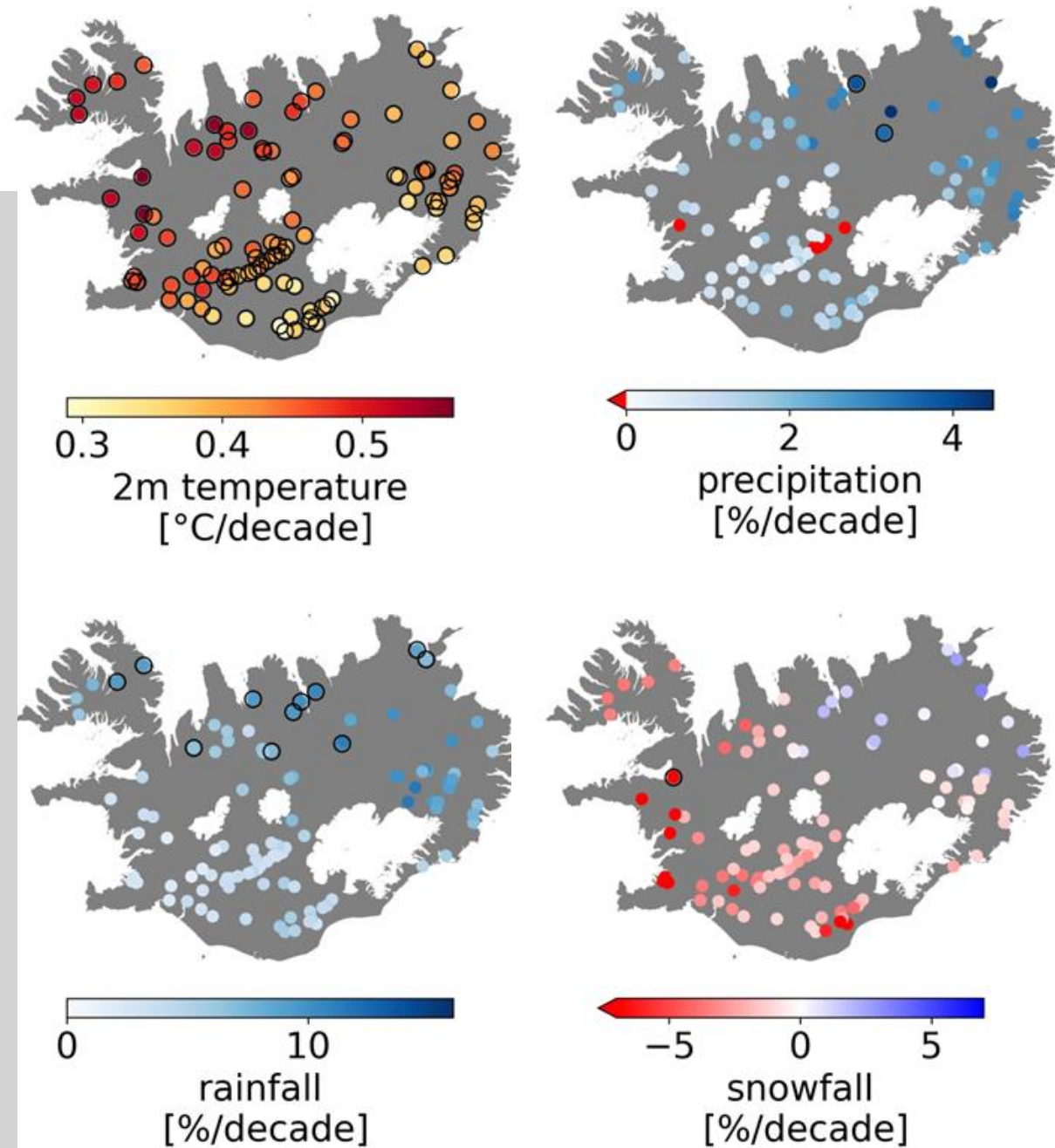


Leitni á ársgrunni: 1992-2021

Rennsli

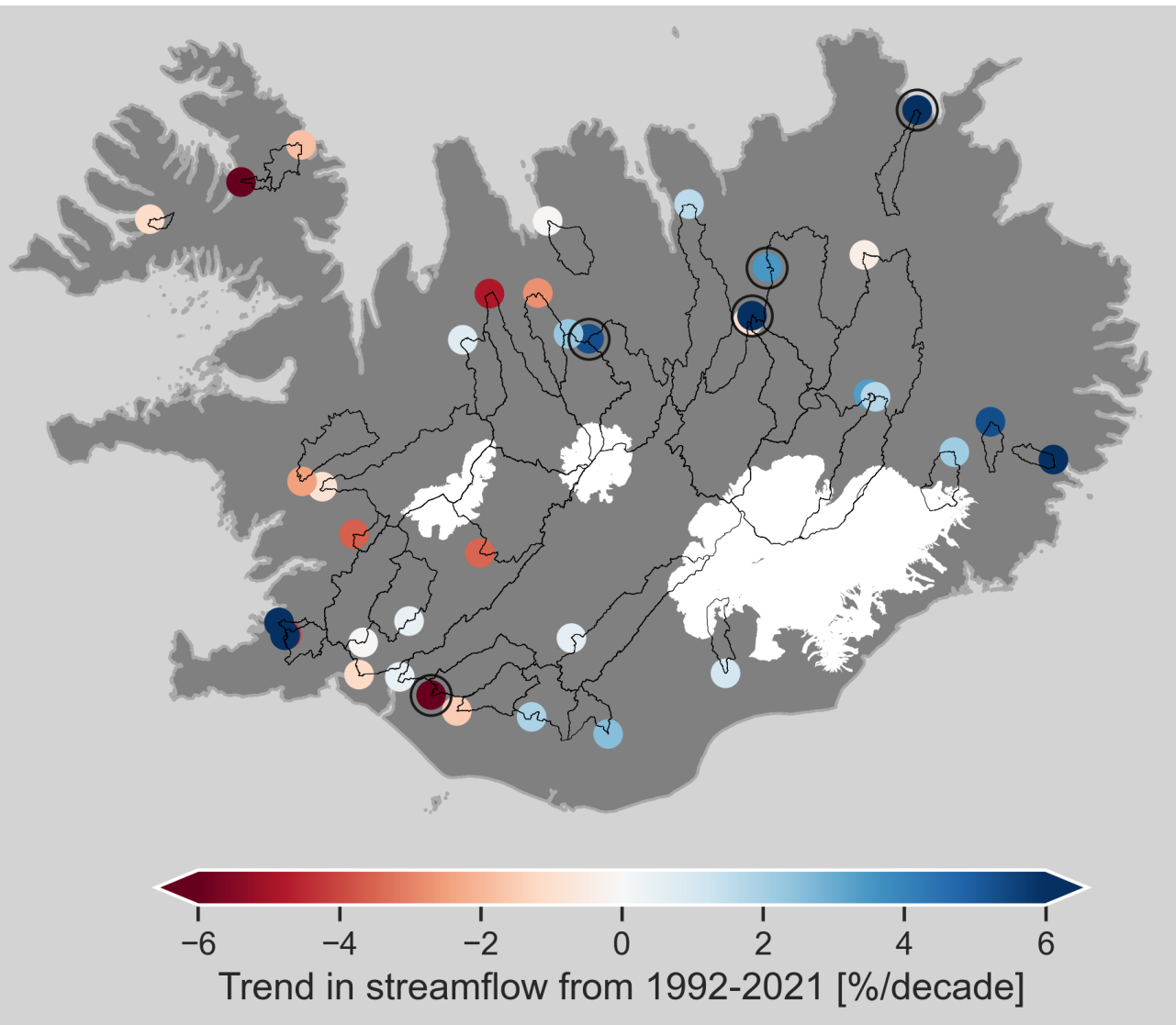


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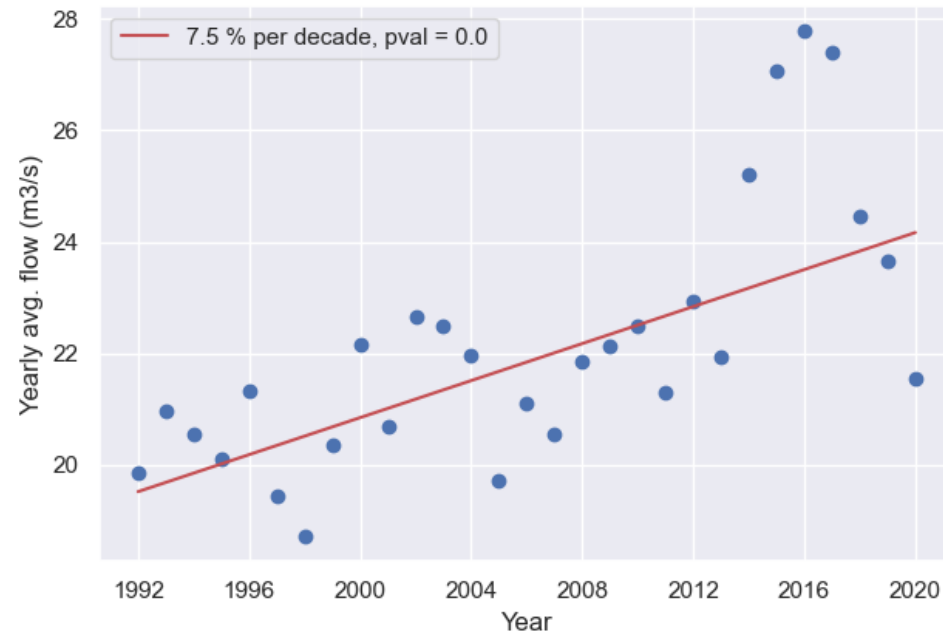


Leitni á ársgrunni: 1992-2021

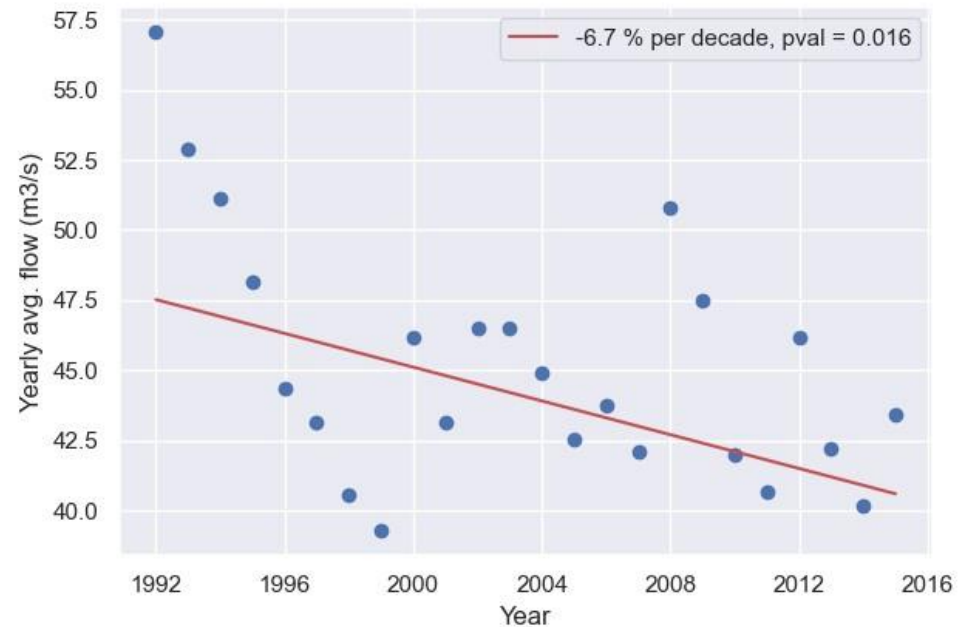
Rennsli



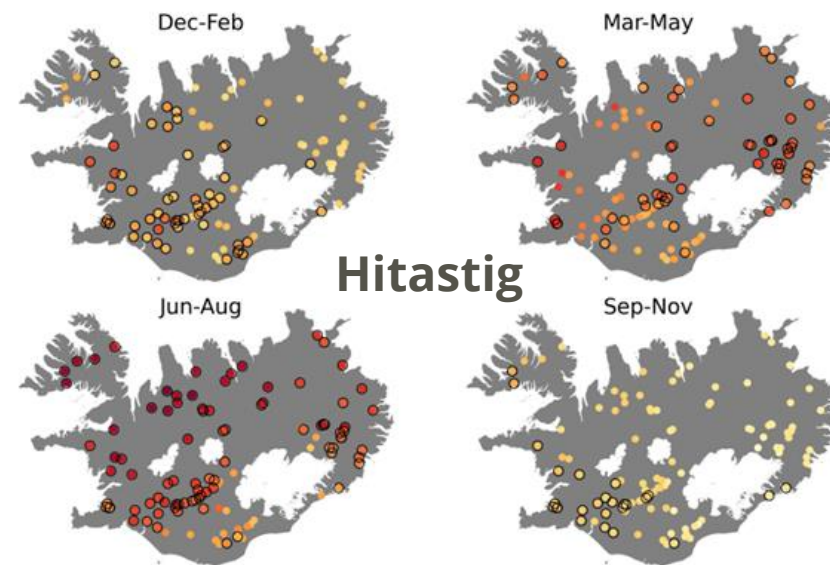
Gauge 83, Svartá ofan Ullarfossbrúar



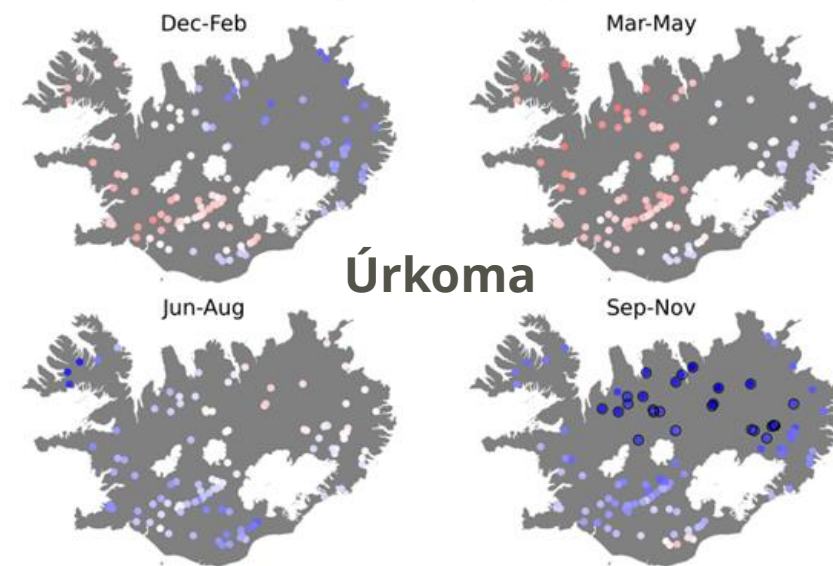
Gauge 95, Ytri-Rangá Árbæjarfoss



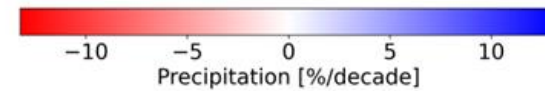
Leitni á árstíðagrunni: 1992-2021



Hitastig

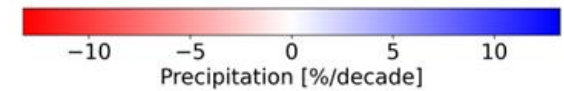
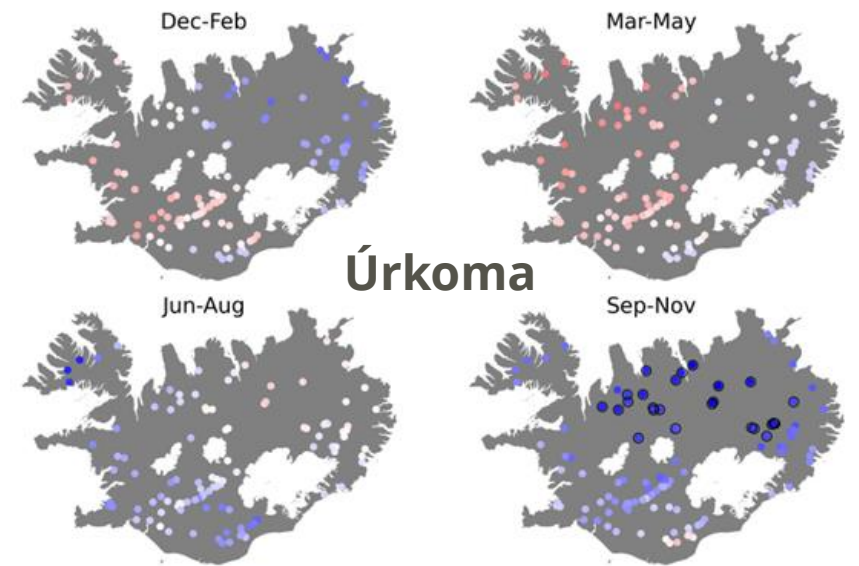
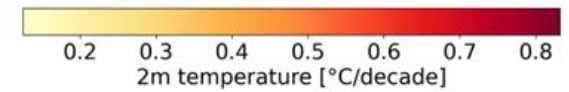
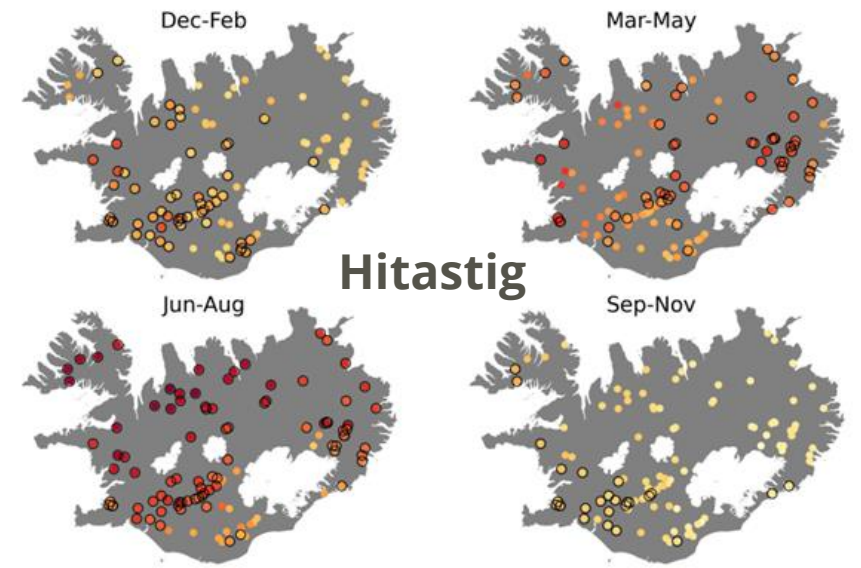
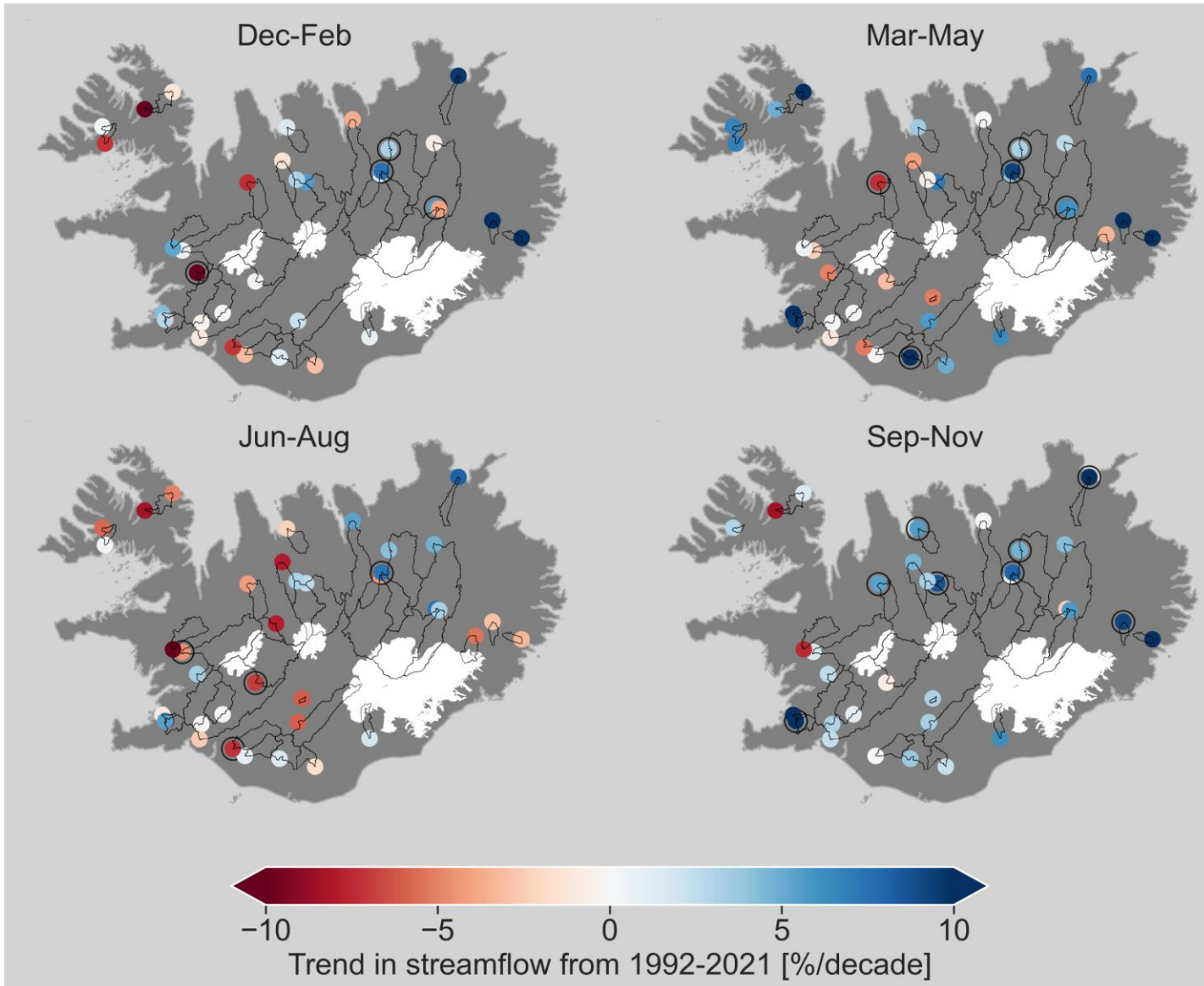


Úrkoma

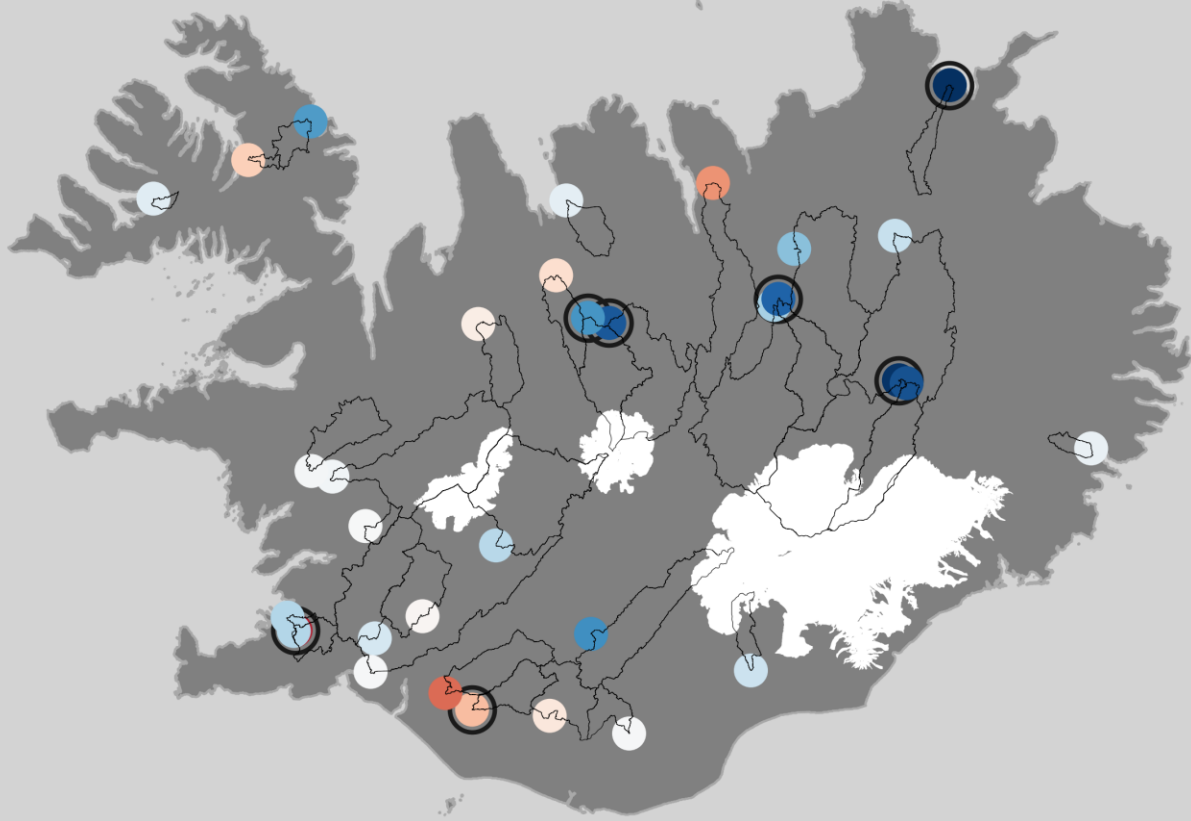


Leitni á árstíðagrunni: 1992-2021

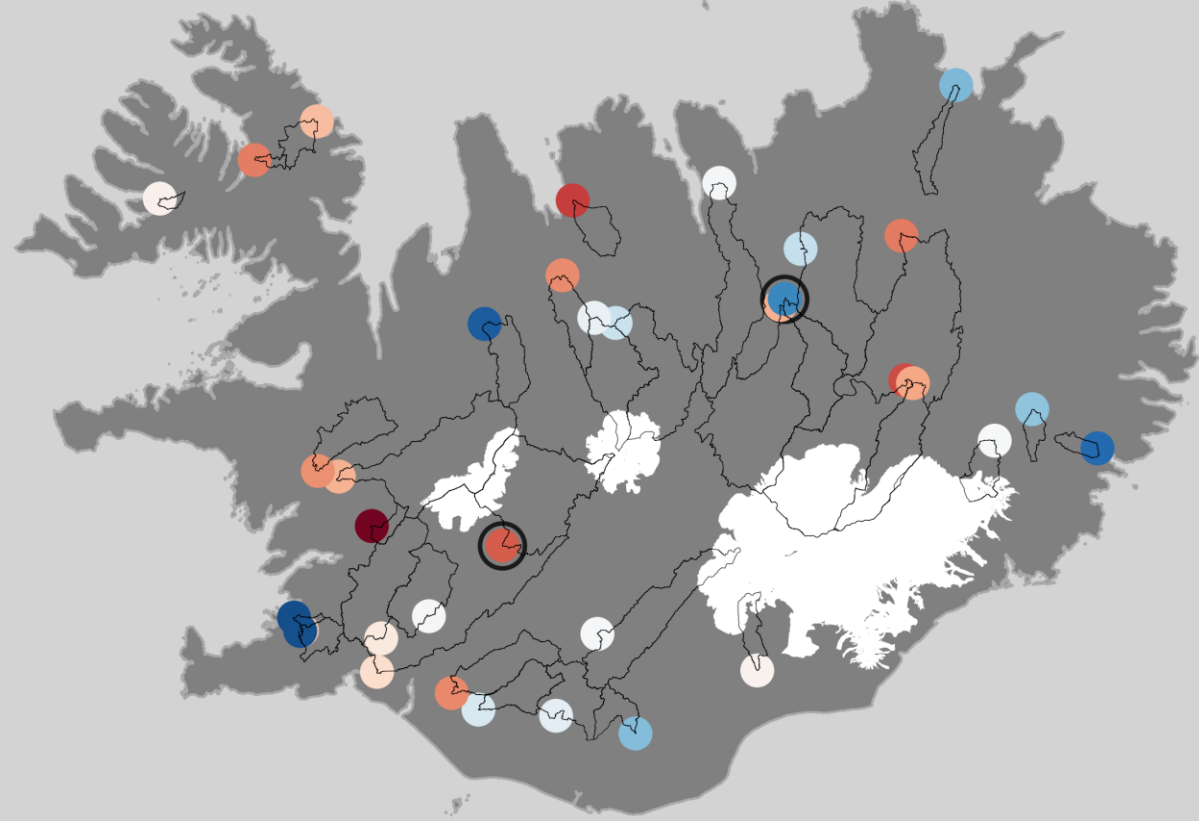
Rennsli



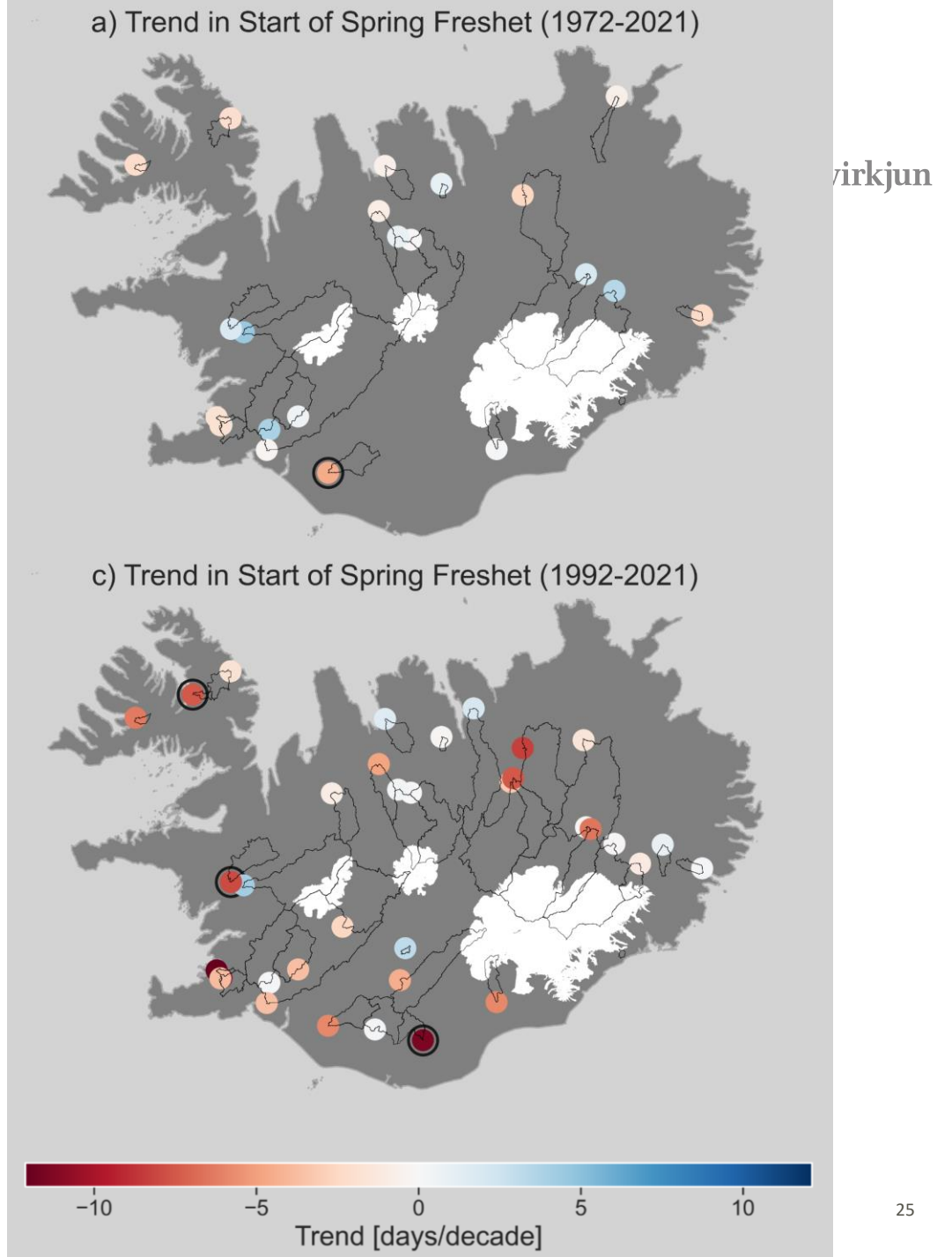
Annual low flow (10th percentile)



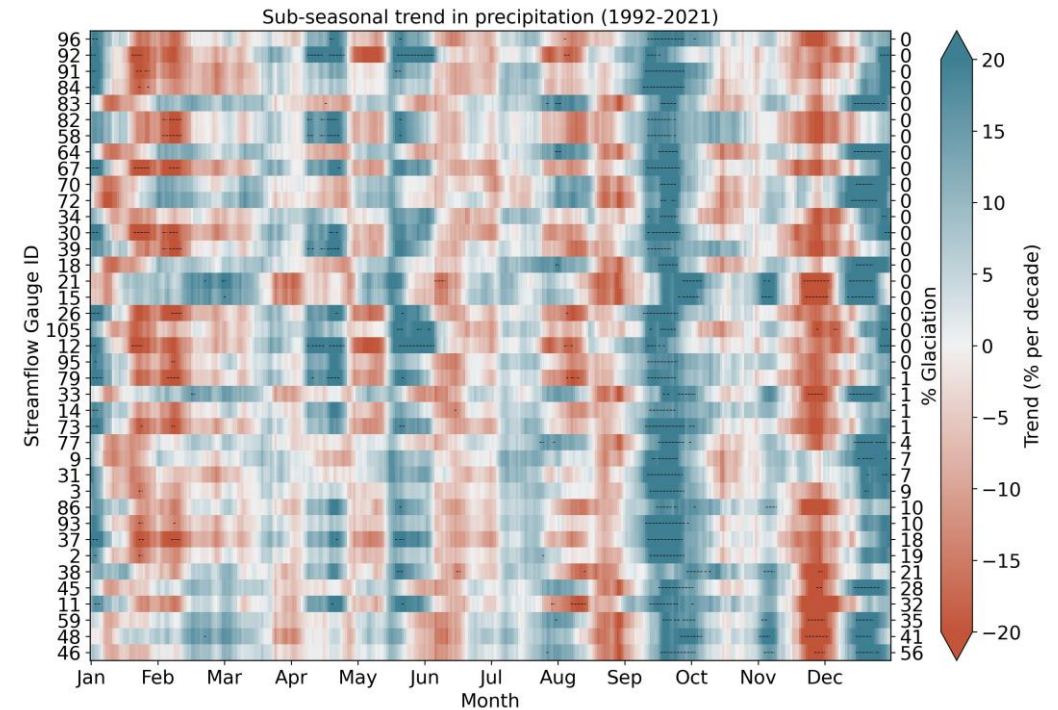
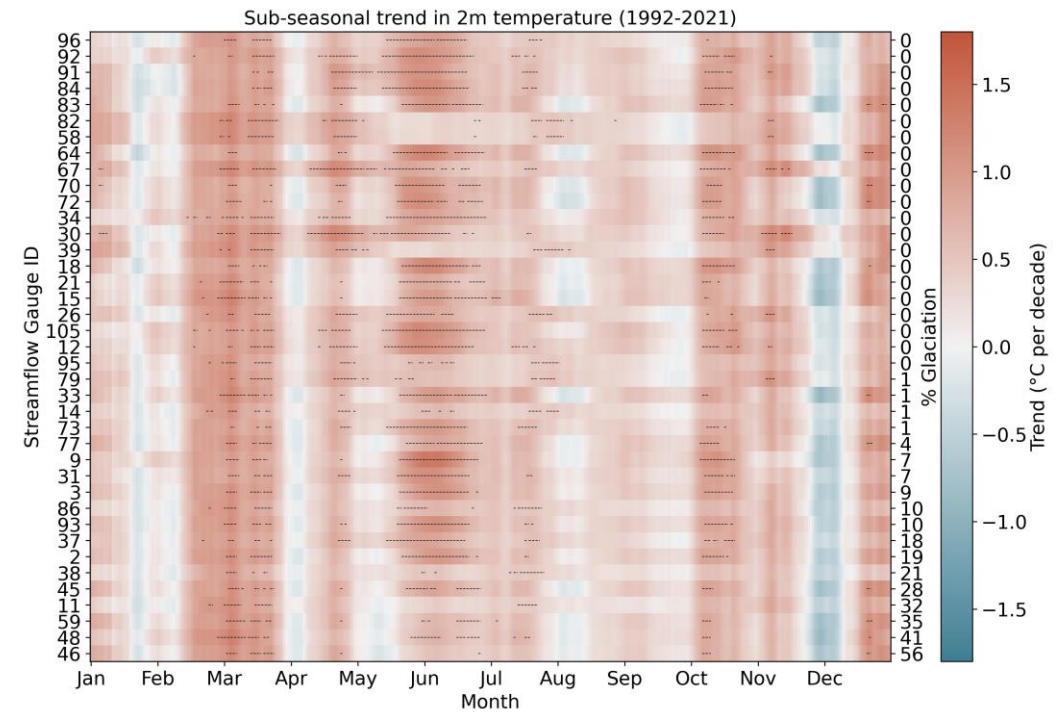
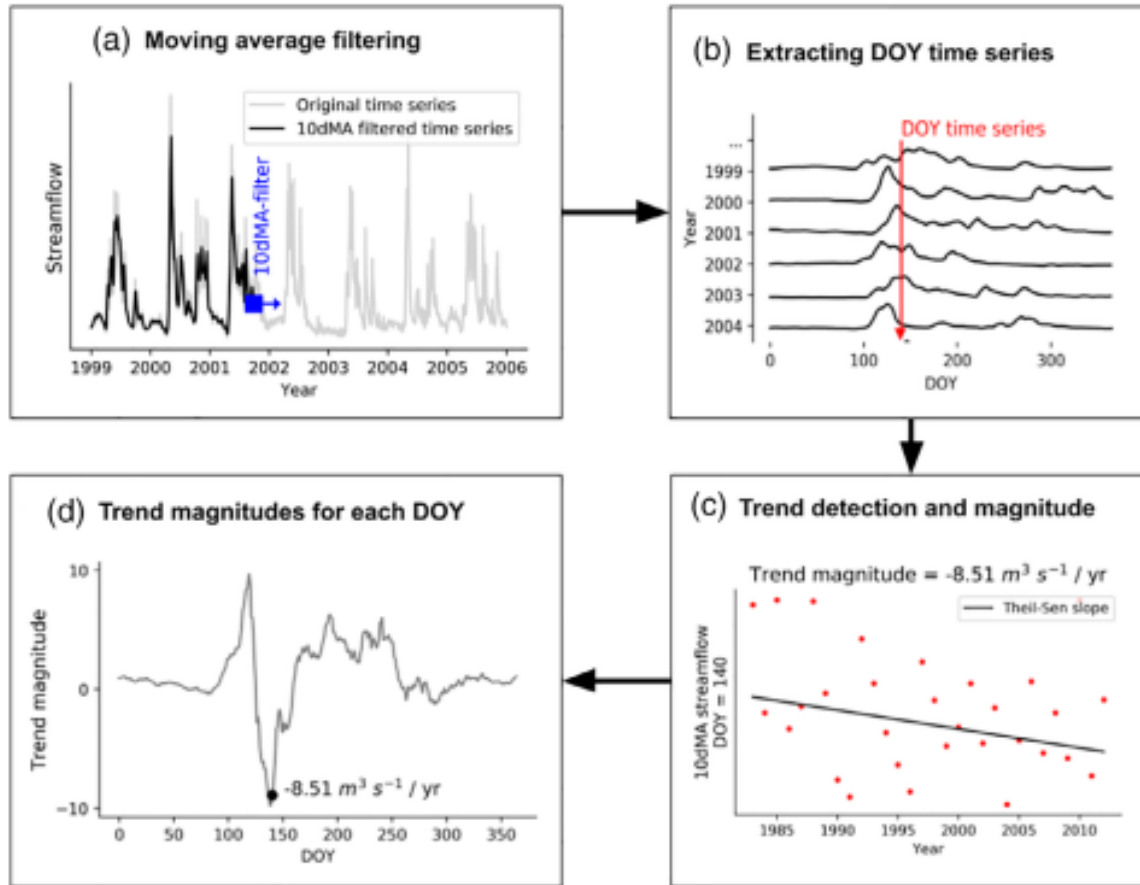
Annual high flow (90th percentile)



Tímasetning vorleysinga

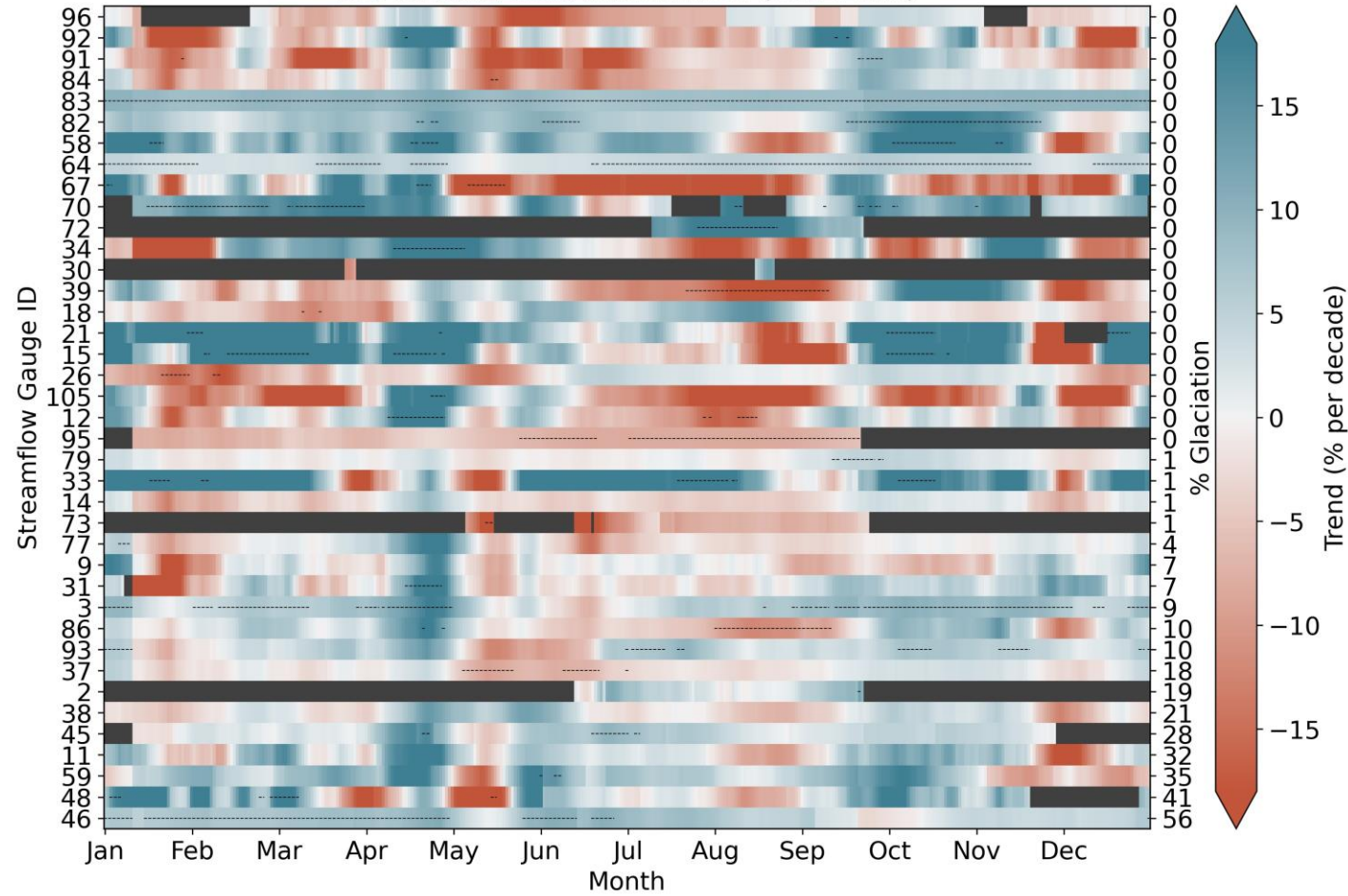


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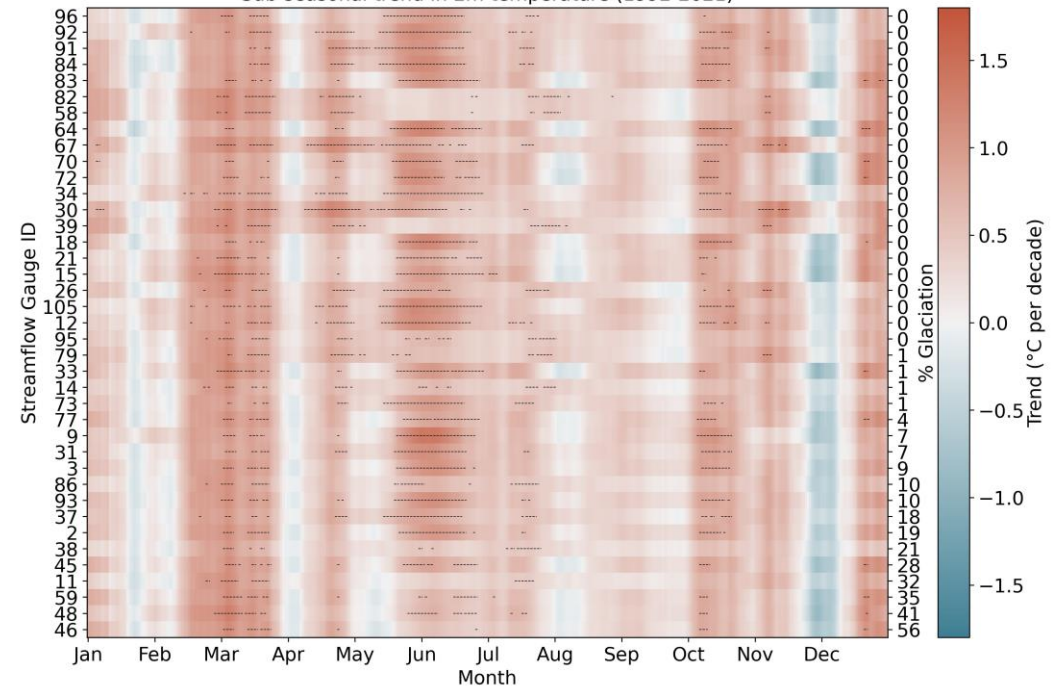


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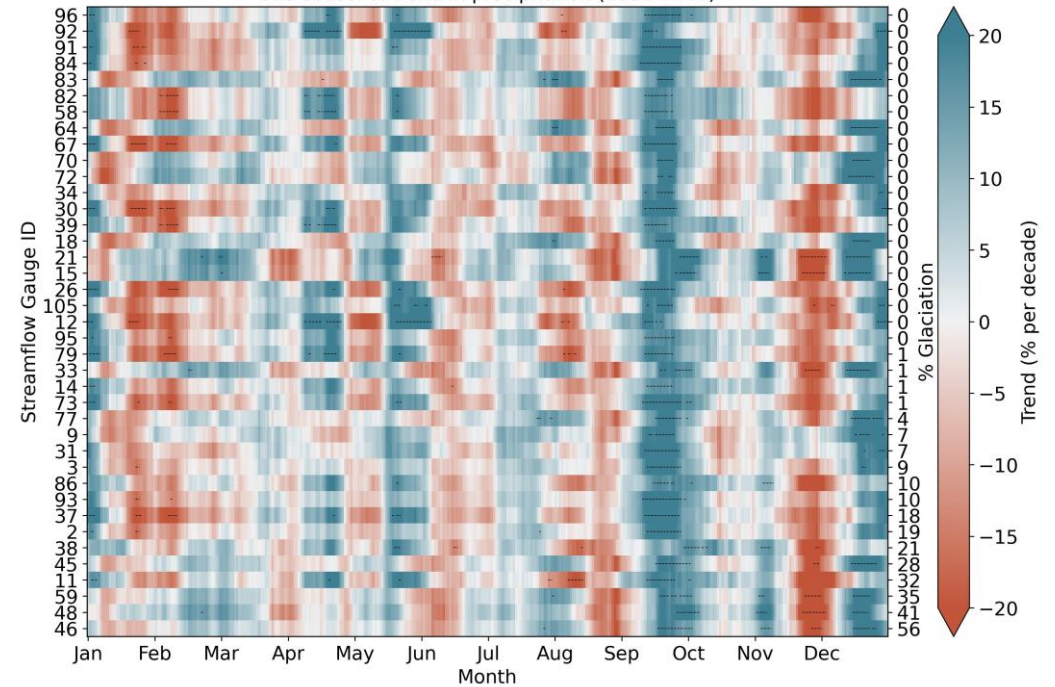
Sub-seasonal trend in streamflow (1992-2021)



Sub-seasonal trend in 2m temperature (1992-2021)



Sub-seasonal trend in precipitation (1992-2021)



Niðurstöður

- Náttúrulegur breytileiki í rennsli er mikill
 - Fylgni við loftslagsvísa
- Úrkoma hefur aukist:
 - Meiri úrkoma á norður- og austurlandi
 - Meiri úrkoma að hausti
- Rennslisbreytingar ekki einsleitar, mismunandi eftir landsvæðum og gerð vatnsfalls
- Vorleysingar hefjast almennt ekki (marktækt) fyrr
- Hlýnandi veðurfar er ekki farið að valda auknu rennsli í jökulám sunnan- og vestanlands

Hop jökla

