

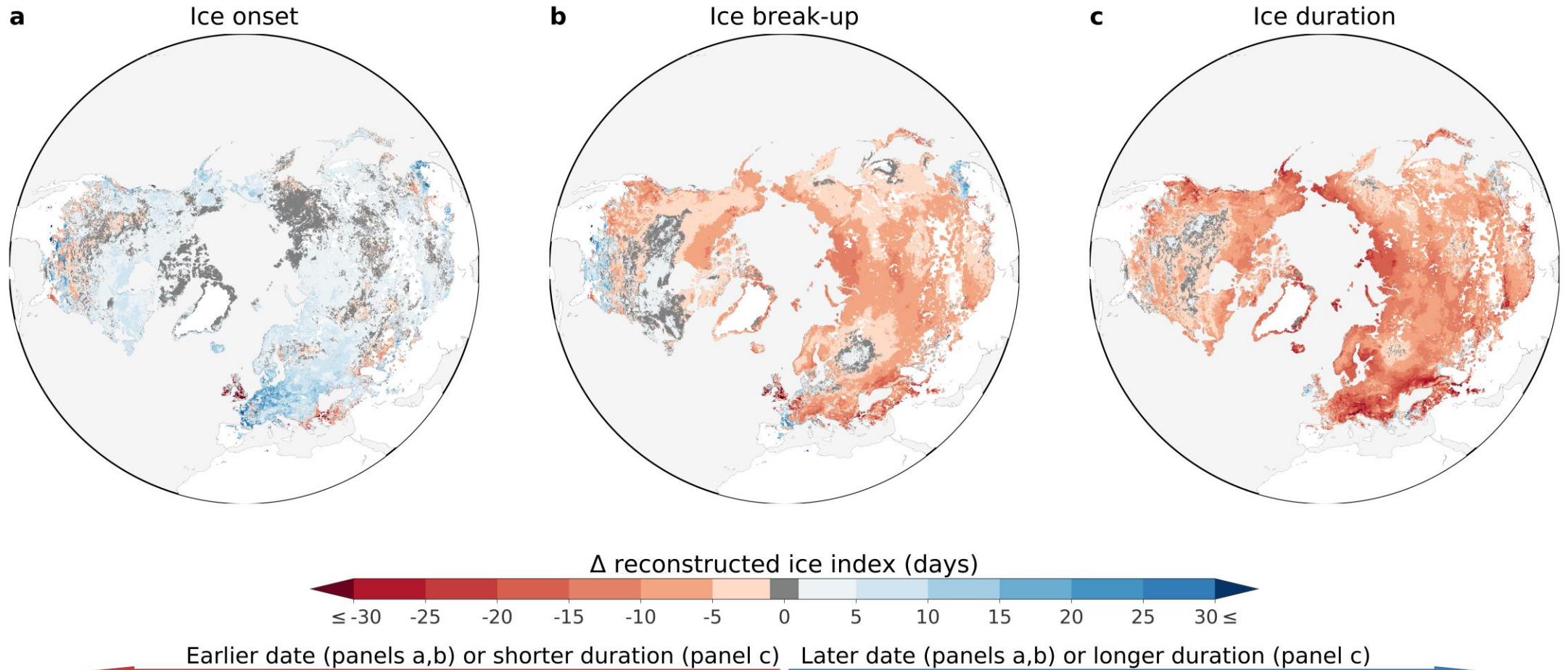
# DETECTION AND ATTRIBUTION OF GLOBAL-SCALE LAKE CHANGES

Luke Grant & most lake sector contributors

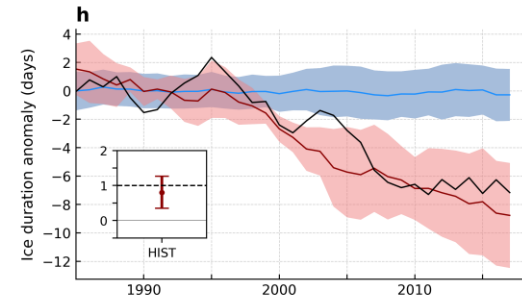
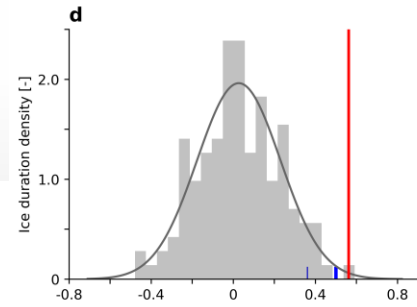
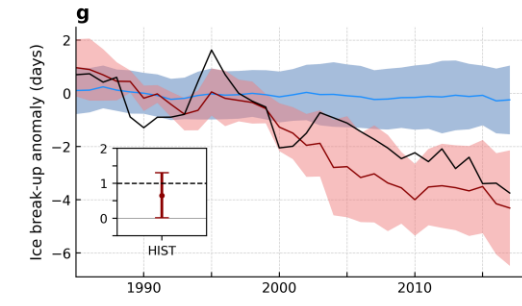
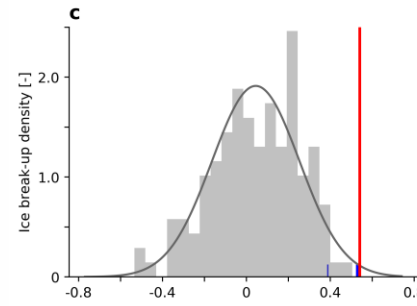
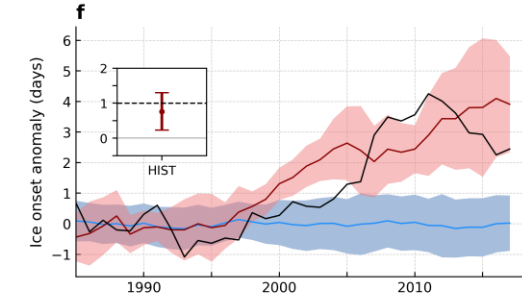
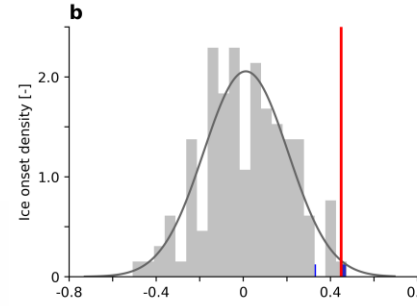
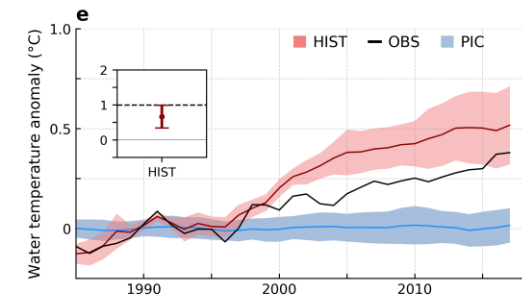
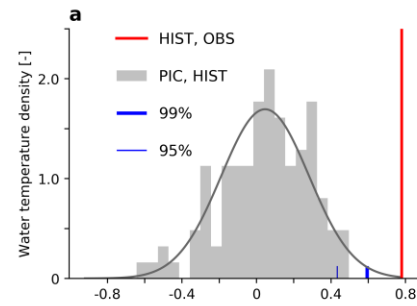


VRIJE  
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BRUSSEL

## Reconstructed lake ice changes (ERA5)



# Detection and attribution of lake ice and temperature

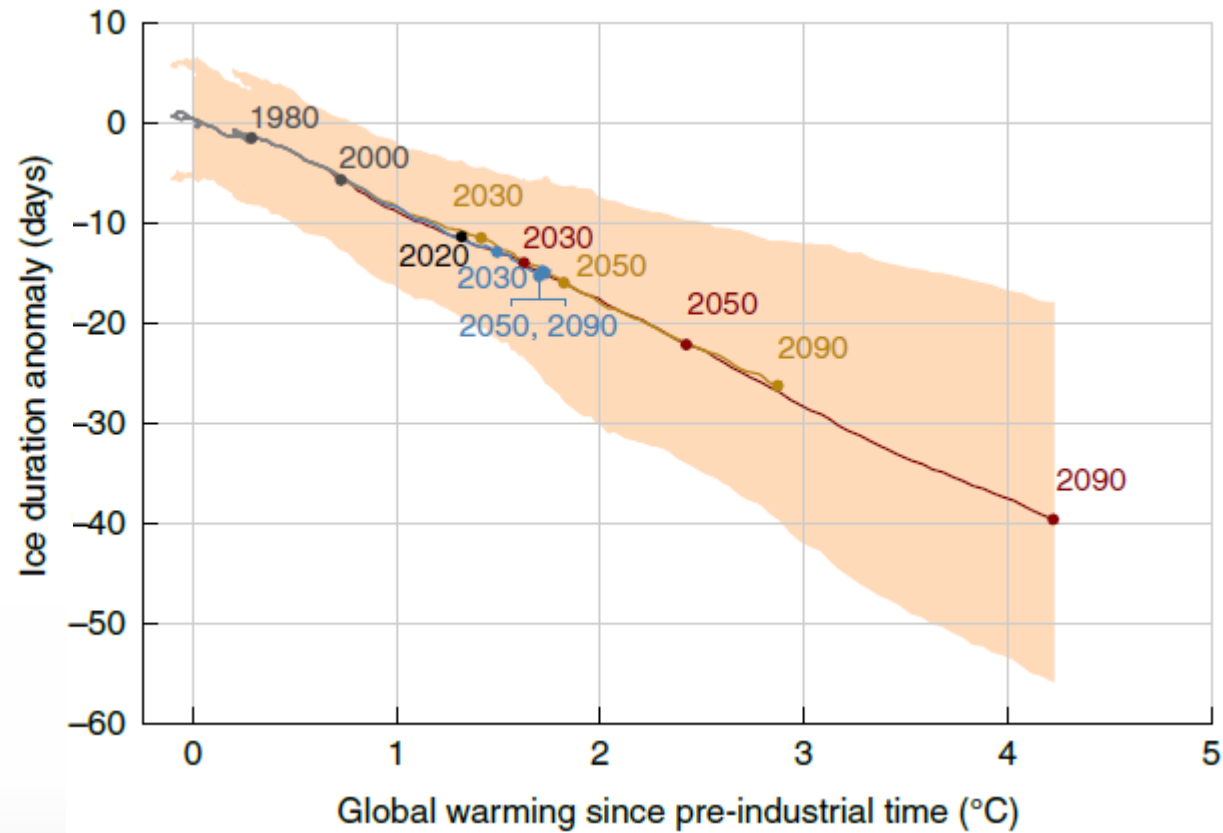
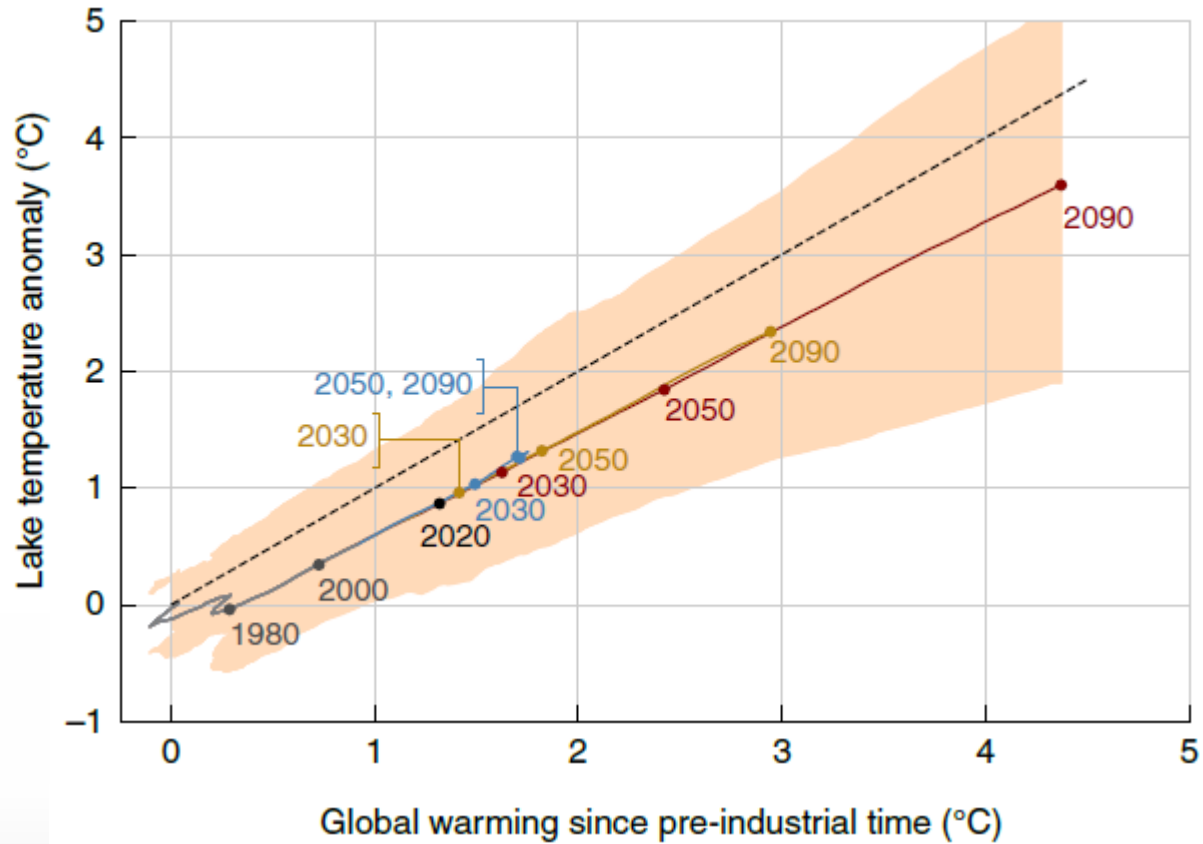


Spearman (rank) correlation coefficient

Years

# Global lake ice/temperature projections

— Pre-industrial control   
 — Historical   
 — RCP 2.6   
 — RCP 6.0   
 — RCP 8.5   
  Range



(Grant et al., 2021 NGeo)



# Attribution of global lake systems change to anthropogenic forcing

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## Content of today

1. General current status of the initiative
2. Ongoing/finished analysis using ISIMIP2 data
  1. Response of metalimnetic oxygen minimum in dimictic waters to future climate change / Response of thermal dynamics in reservoirs to the future climate warming (Karsten Rinke)
  2. Multi-model assessment of global lake evaporation (Sofia La Fuente)
  3. LakeEnsemblR ISIMIP3 local simulations (Jorrit Mesman)
  4. Modelling the effects of climate and nutrient load changes on chlorophyll-a concentration in lakes globally (Maddalena/Annette)
  5. Lake methane modelling over Europe (Manon Maisonnier)
3. **Future ideas, collaborations and discussion**
4. GMD paper acceptance

## Content of today

1. Q&A about the scientific presentations
2. ISIMIP3 local lakes input data (new lakes, supersites)
3. ISIMIP3 modelling status (round of modellers)
4. ISIMIP2-3 new analysis plans
5. Nutrients & water quality (new working group cfr bathymetry?)