



# Deriving climate forcing data for simulations of future permafrost thaw

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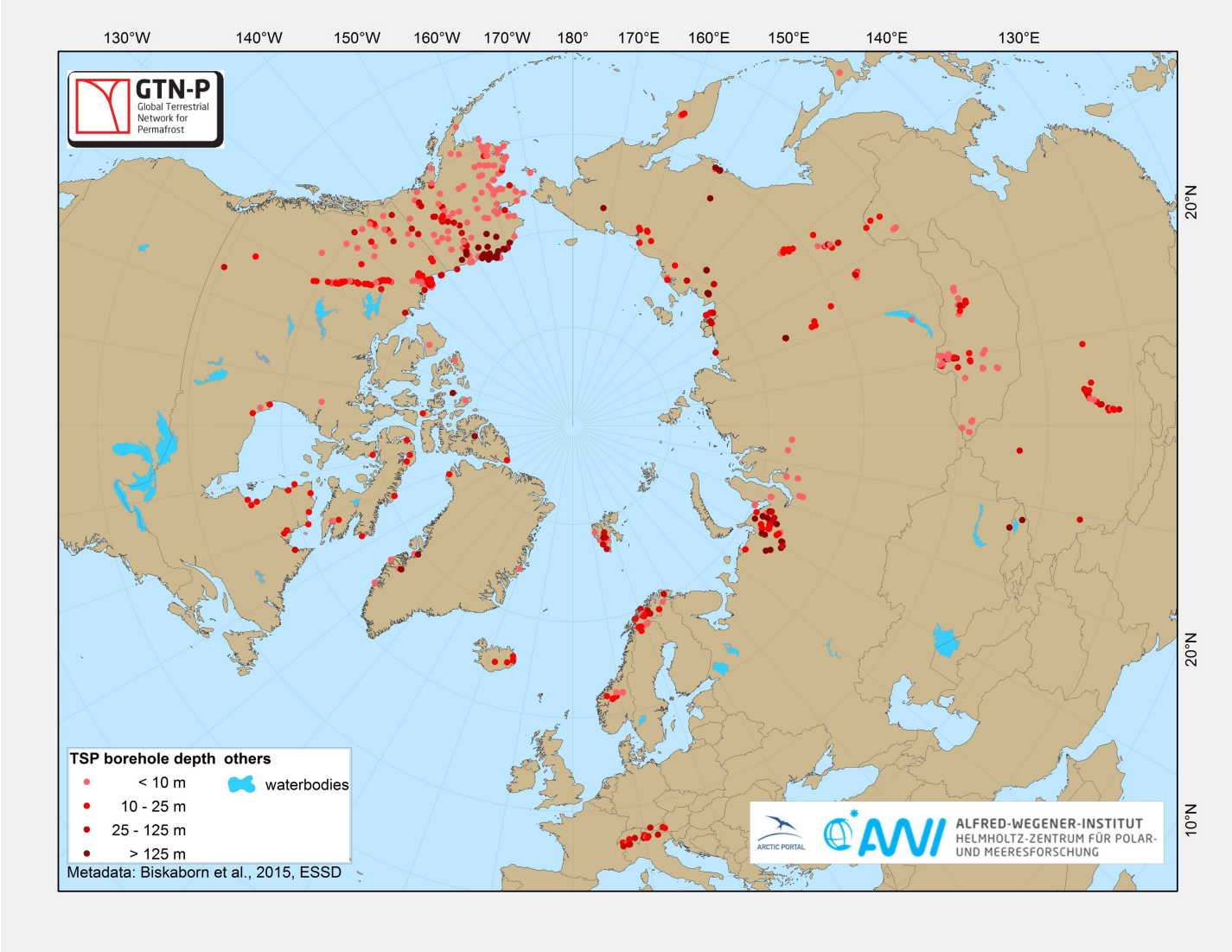




Why do we need to simulate future permafrost thaw?

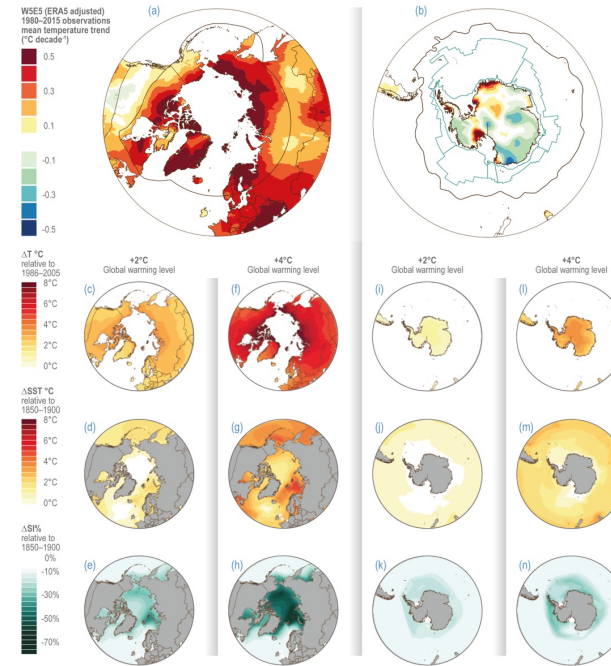


# Models complement observations



# Climate modelling and permafrost modelling – Scale and purpose

Observed and projected climate changes across the Arctic and Antarctic



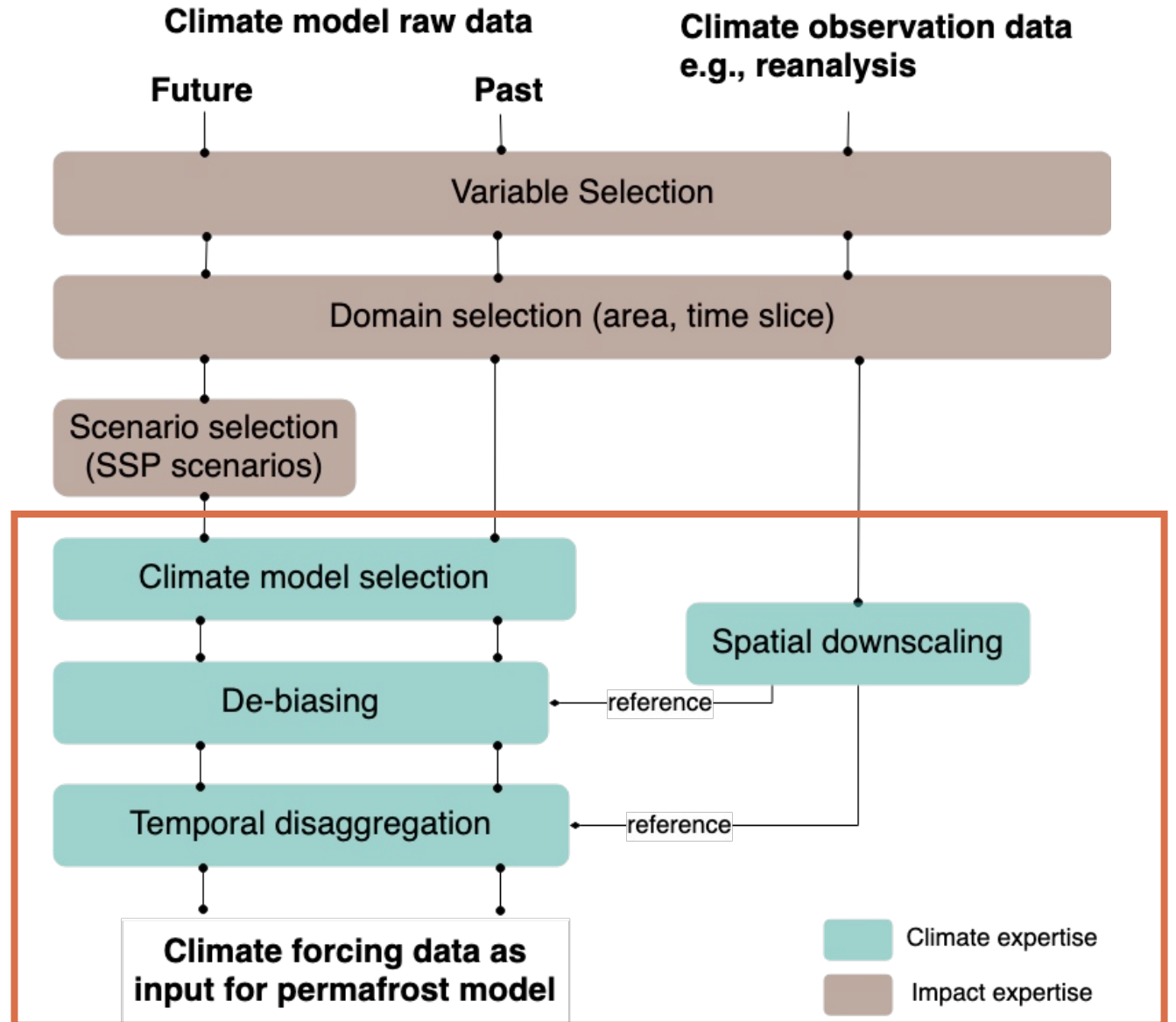


# Translating large-scale climate change to local impacts

Preparing the driving data for our scenarios of future permafrost change is a major source of uncertainty.

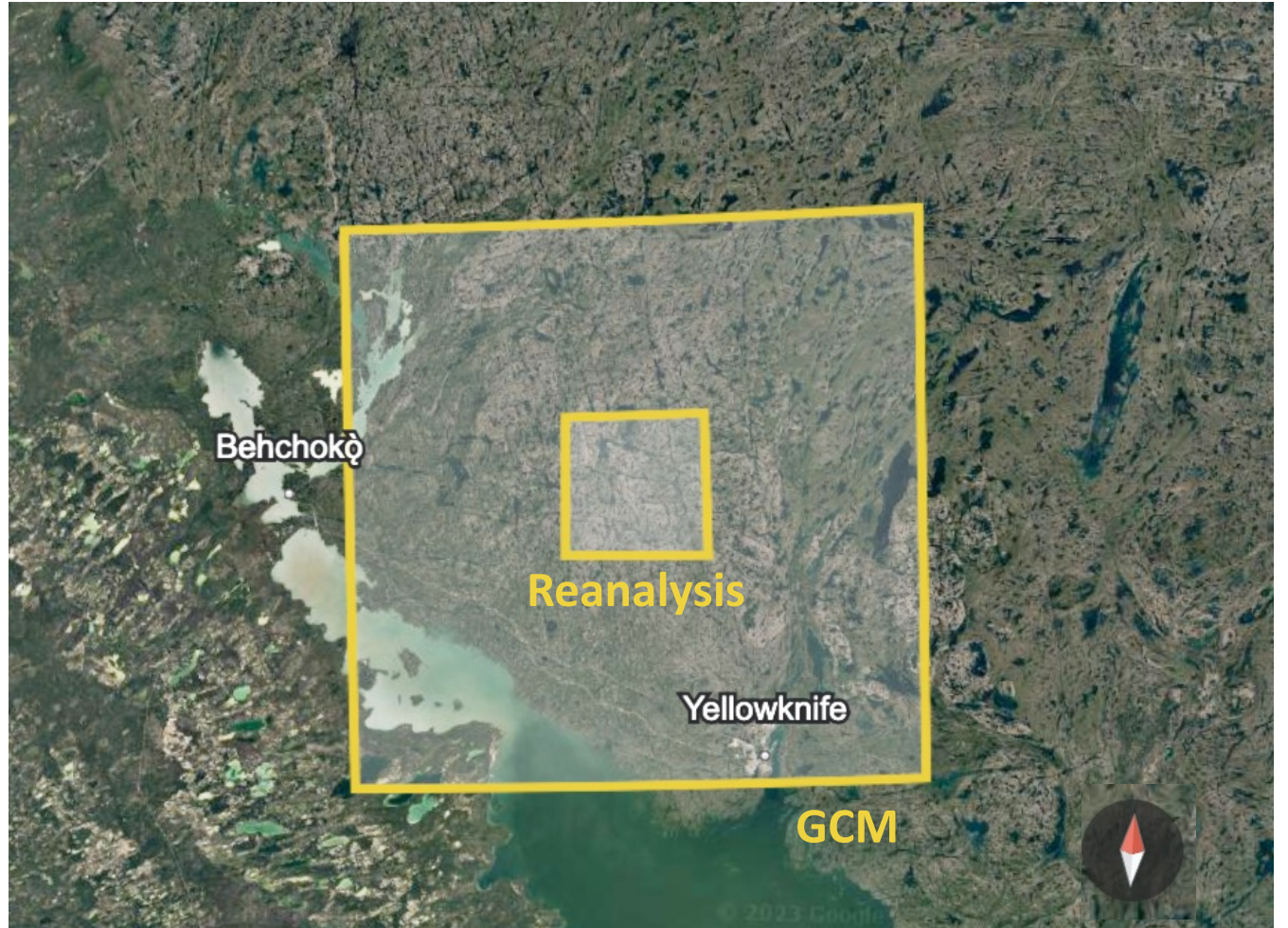
**How can we better understand and reduce it?**

# Translating large-scale climate change to local impacts



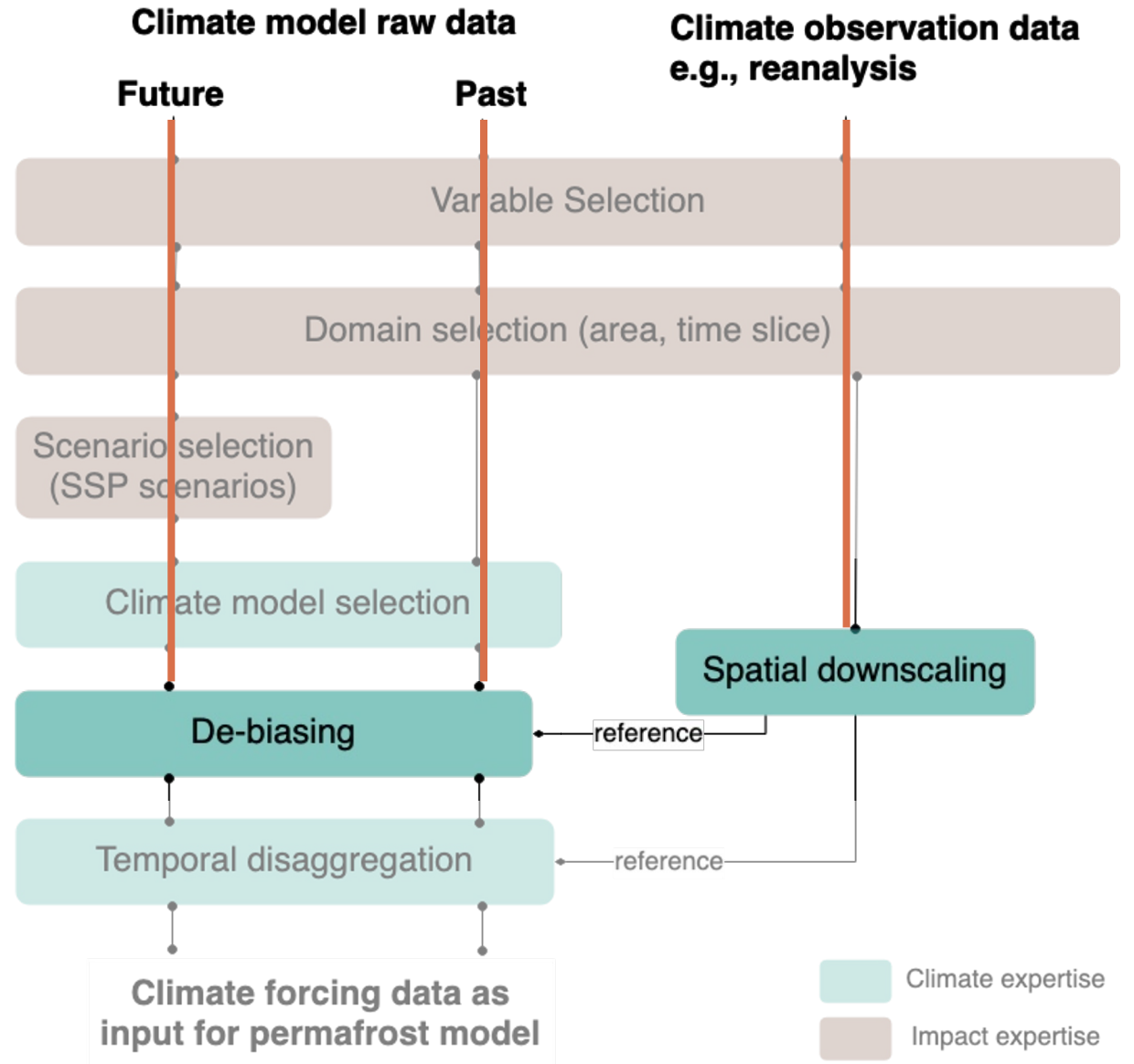


# Challenge #1: Spatial resolution of climate forcing data



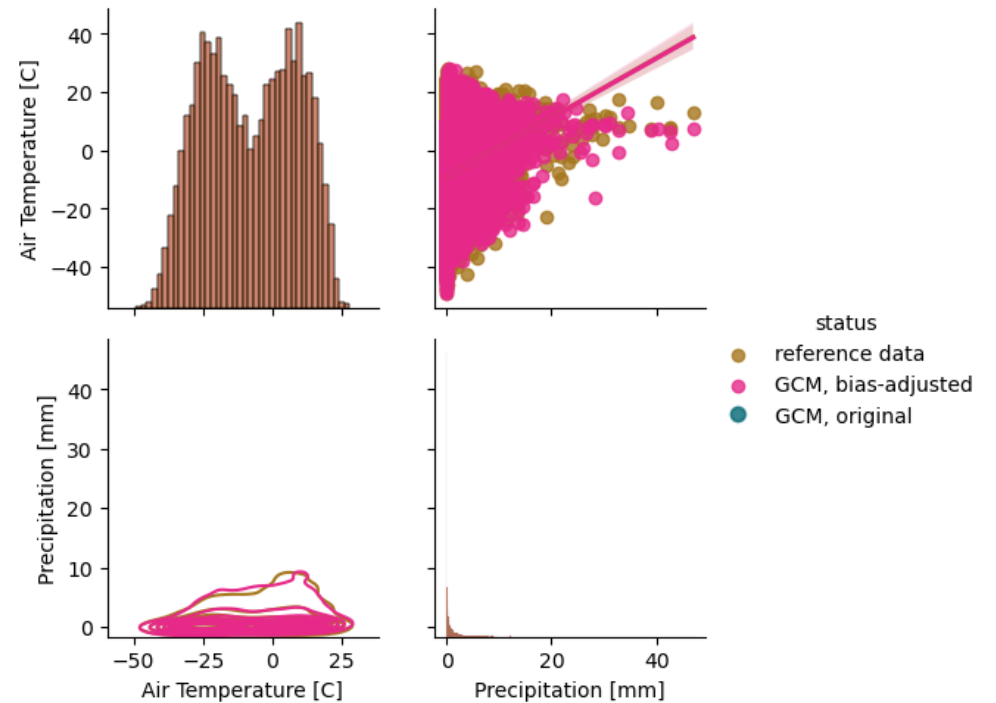
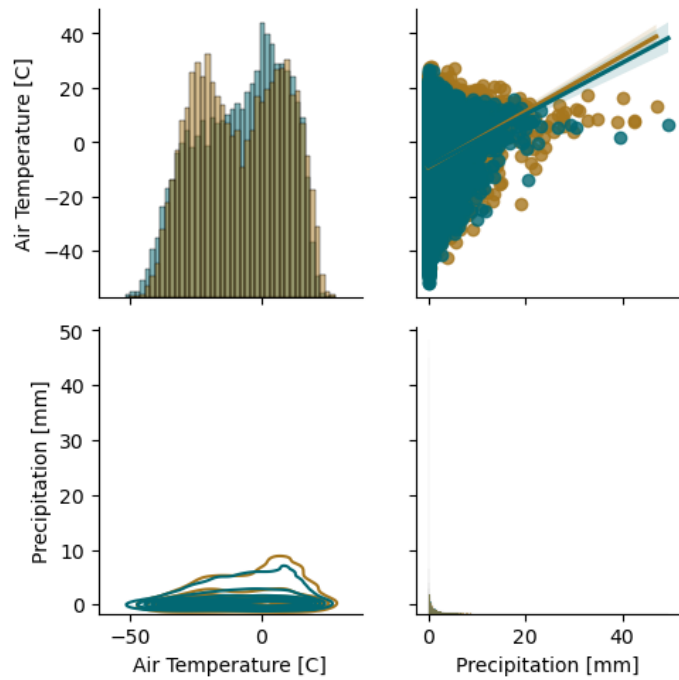
# Challenge #1: Spatial resolution of climate forcing data

Reanalysis: past short-range  
weather forecasts combined  
with observations

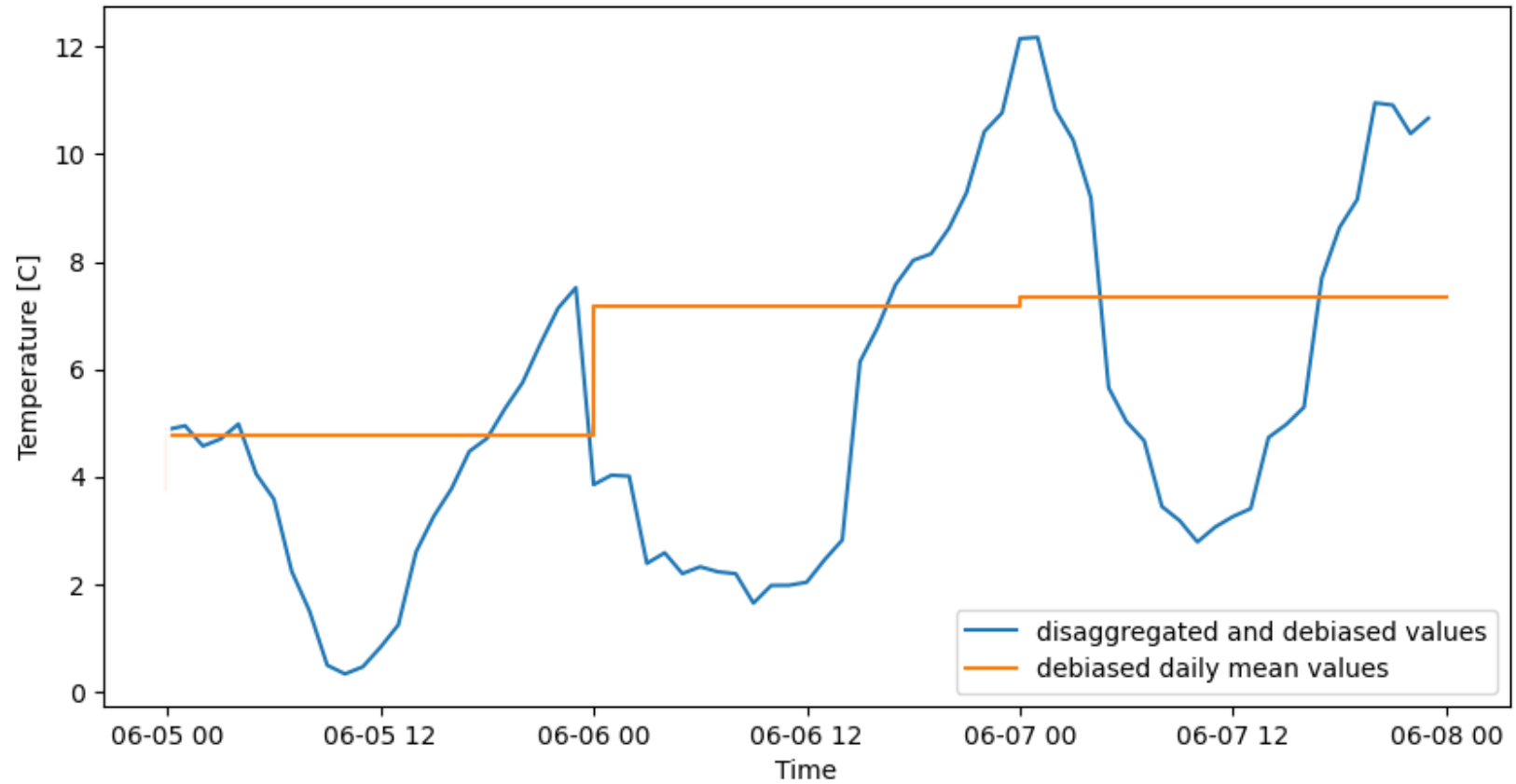




# Challenge #1: Spatial resolution of climate forcing data

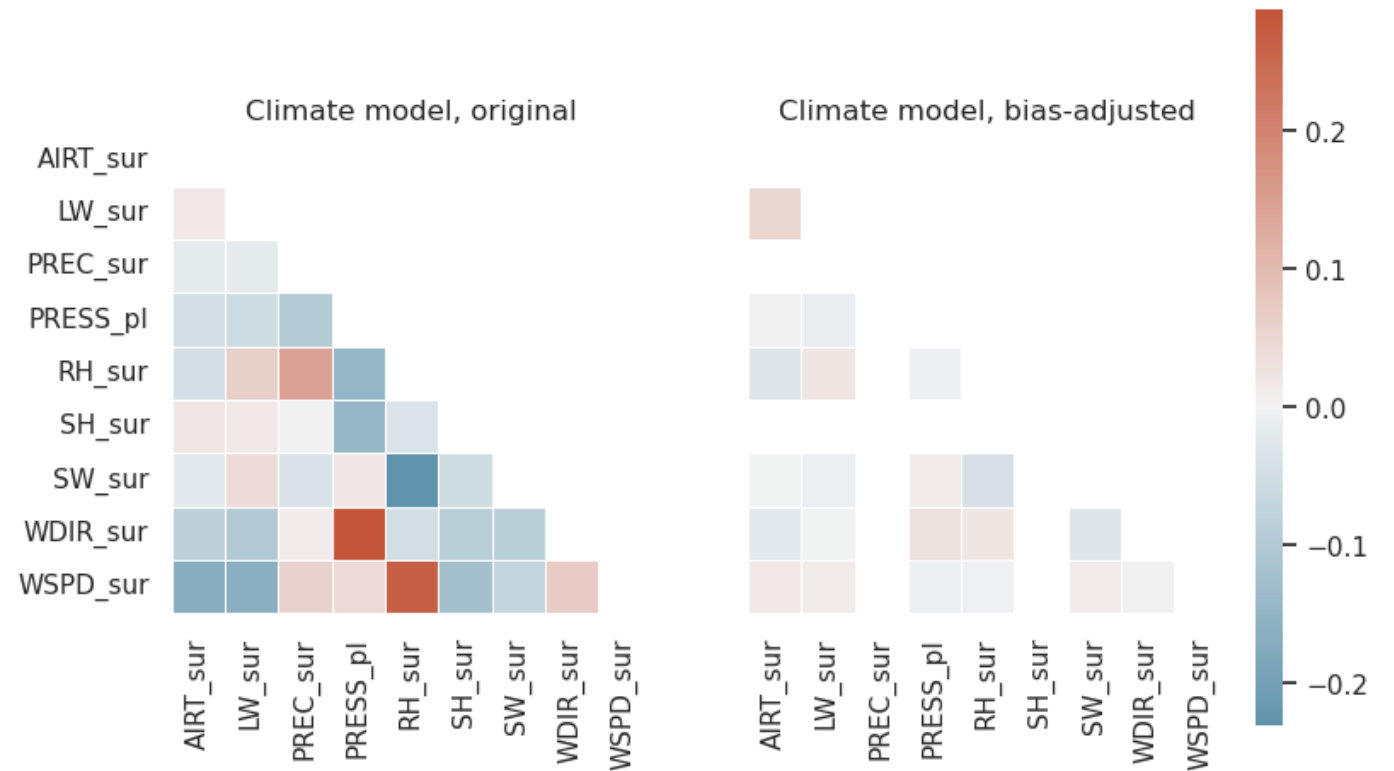


# Challenge #2: Temporal resolution of climate forcing data





# Challenge #3: Selection of models and validation metrics



Difference between correlation matrices of original and de-biased climate model data and ERA5, respectively

# Next steps – guiding questions

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How can we compare and select driving data that best represent climate in our target area?

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Is the selection of best-matched atmospheric time series resulting in the best-matched simulations of permafrost variables (e.g., ground surface temperature)?