Exploring the climate data

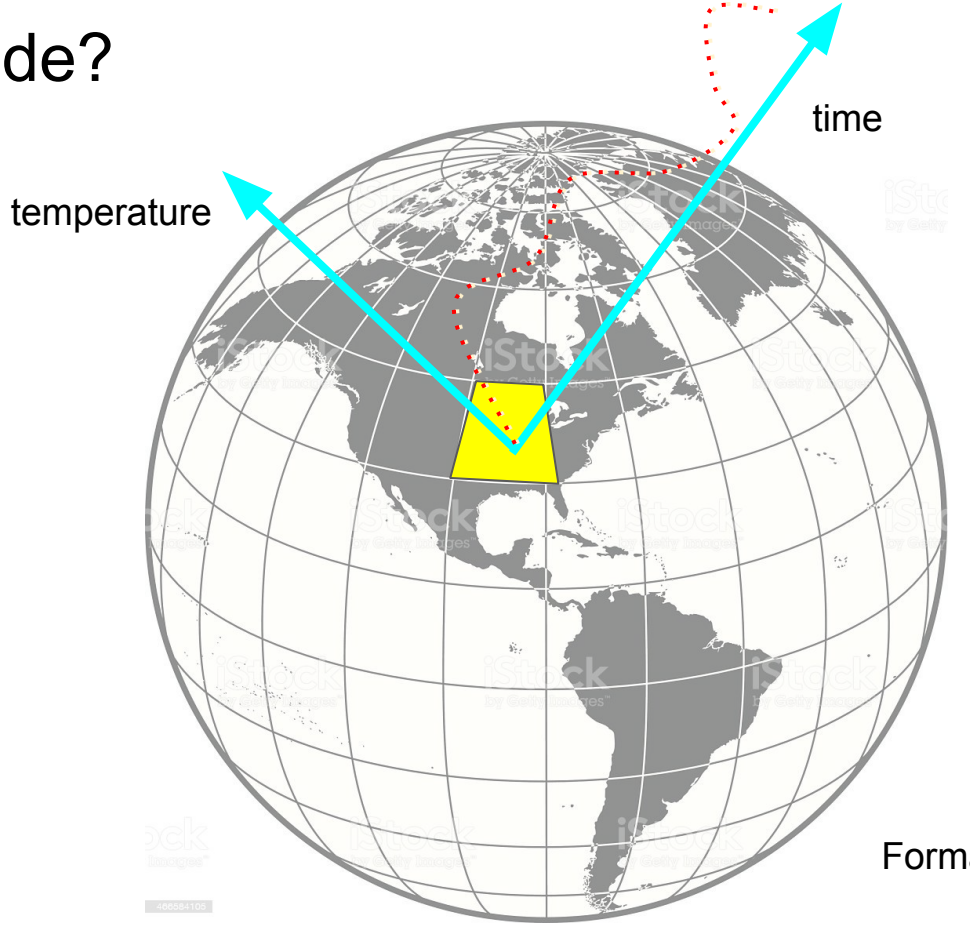
CICERO
Senter for klimaforskning

Dec 1, 2021 *Victor*

Plan

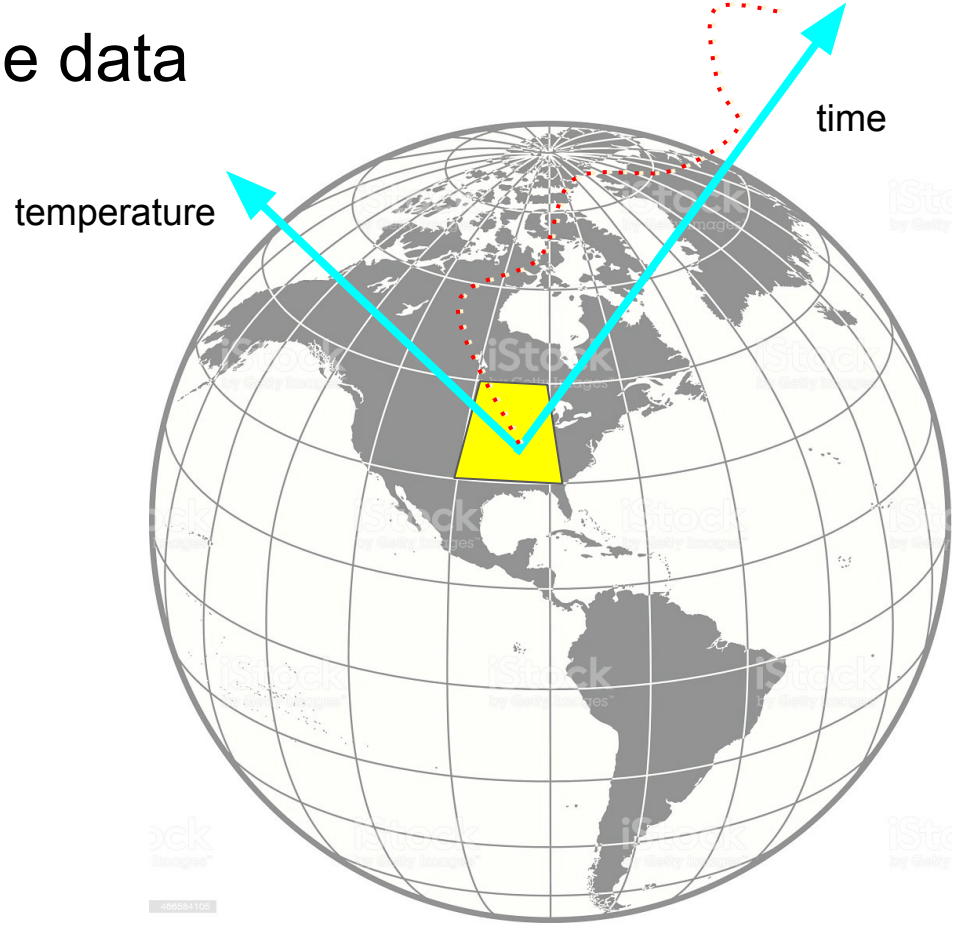
- The data
- What we do with it?
- How we do it?
- What we could do?

What's inside?

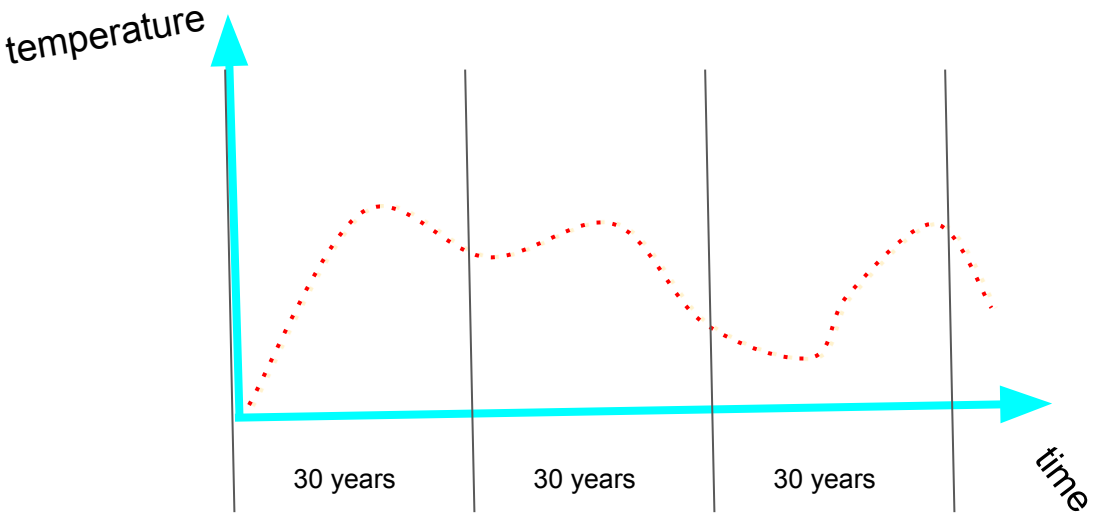


Format: netCDF4

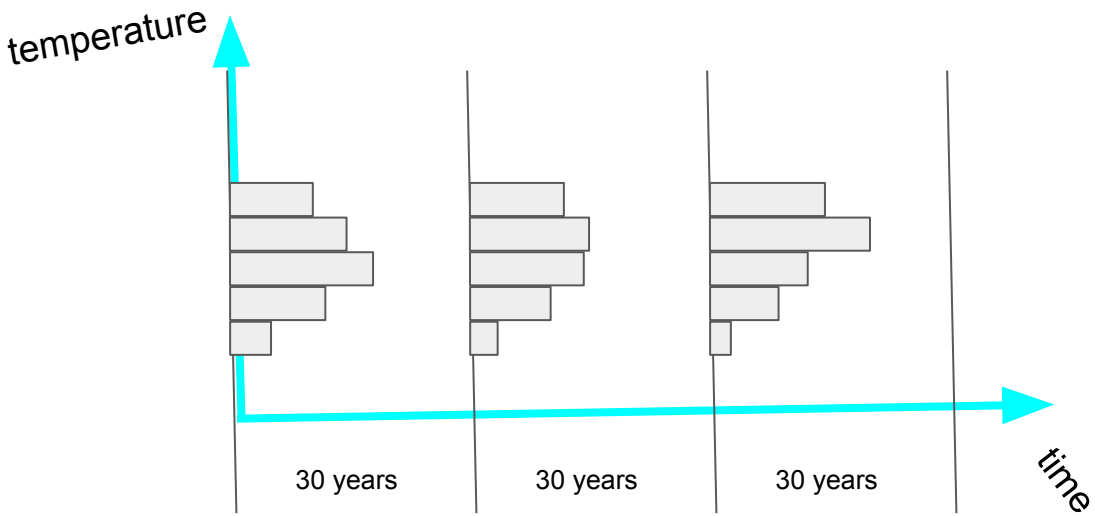
We take the data



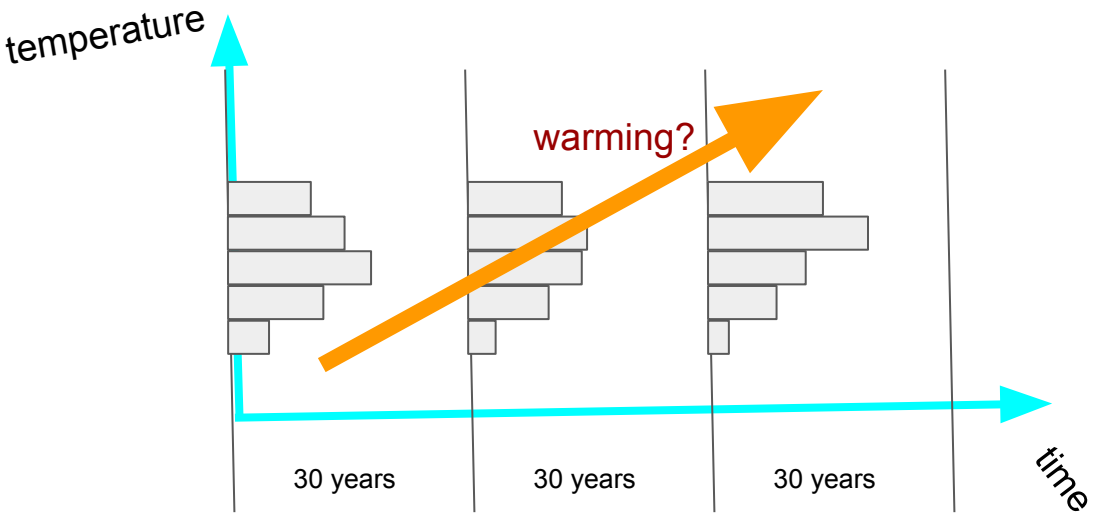
Split the timeline into 30-year slices



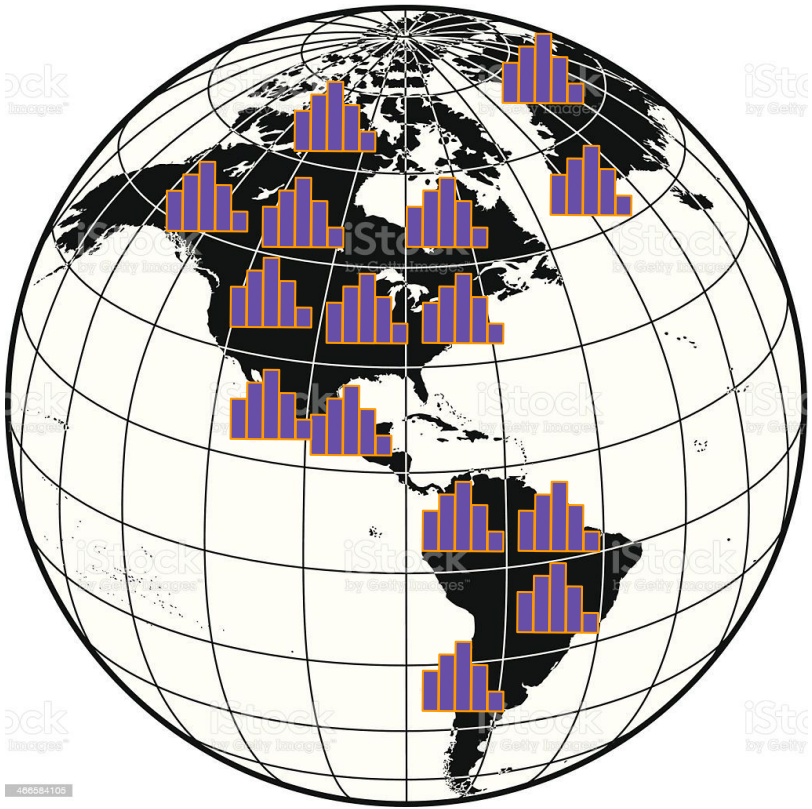
Build distribution of the variable within each slice



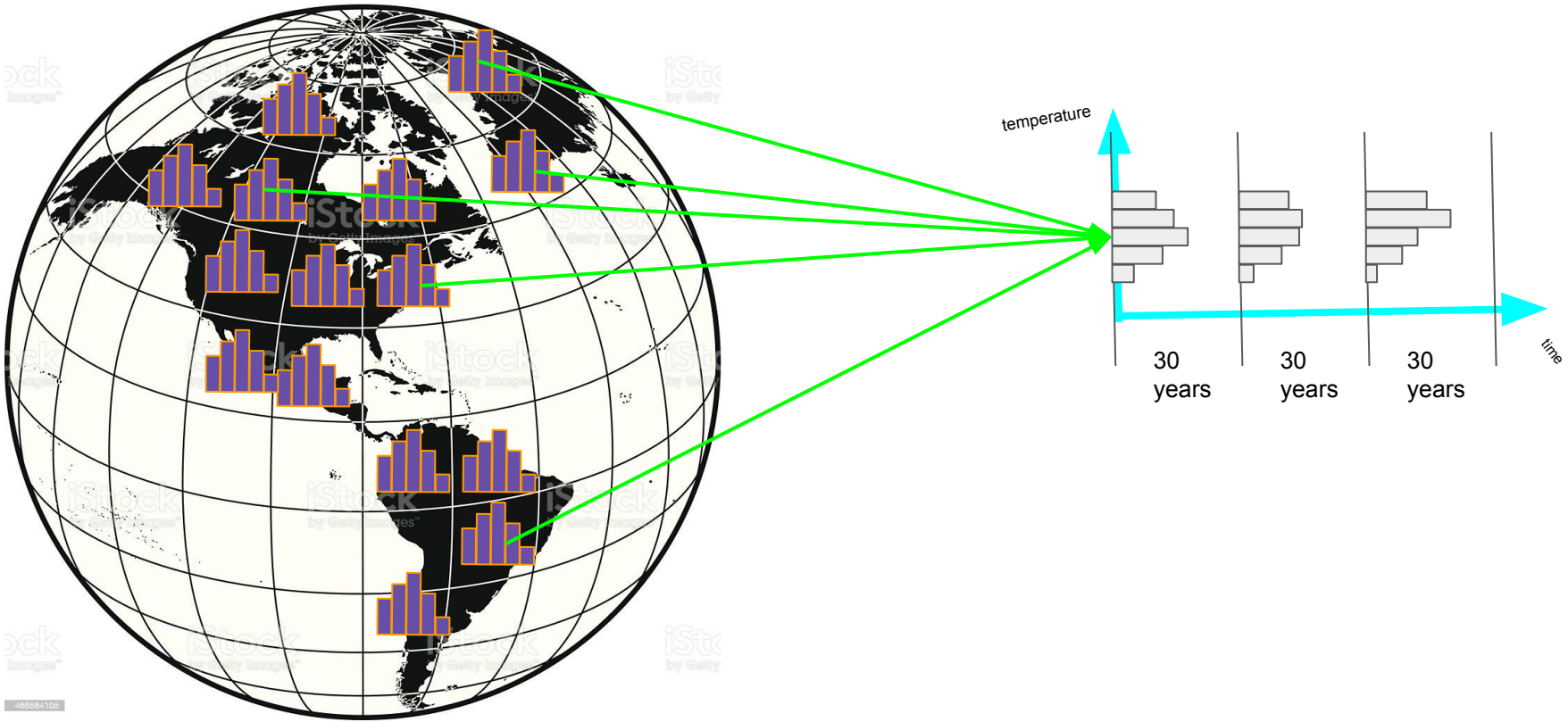
Build distribution of the variable within each slice



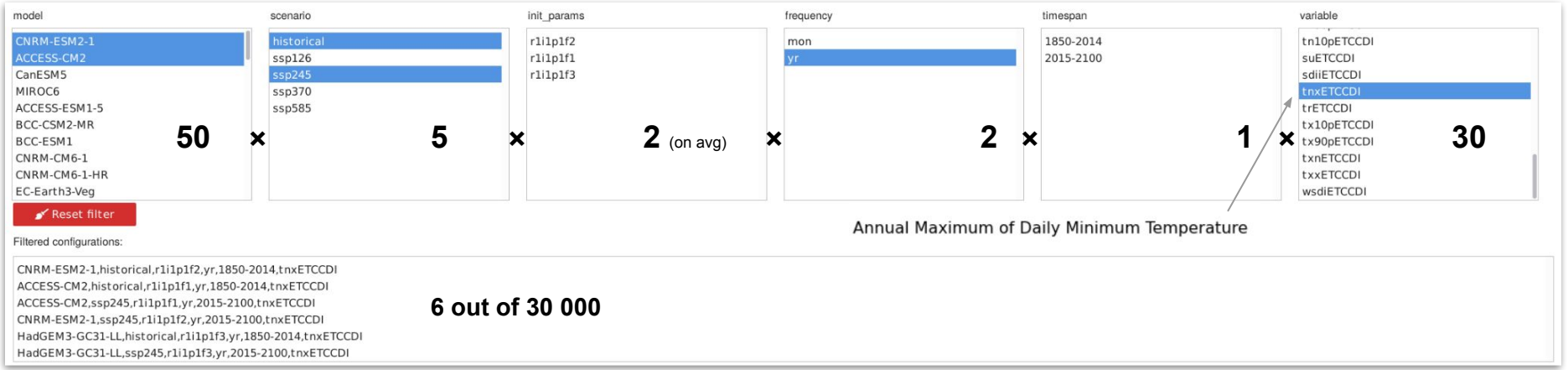
We do it for every grid cell



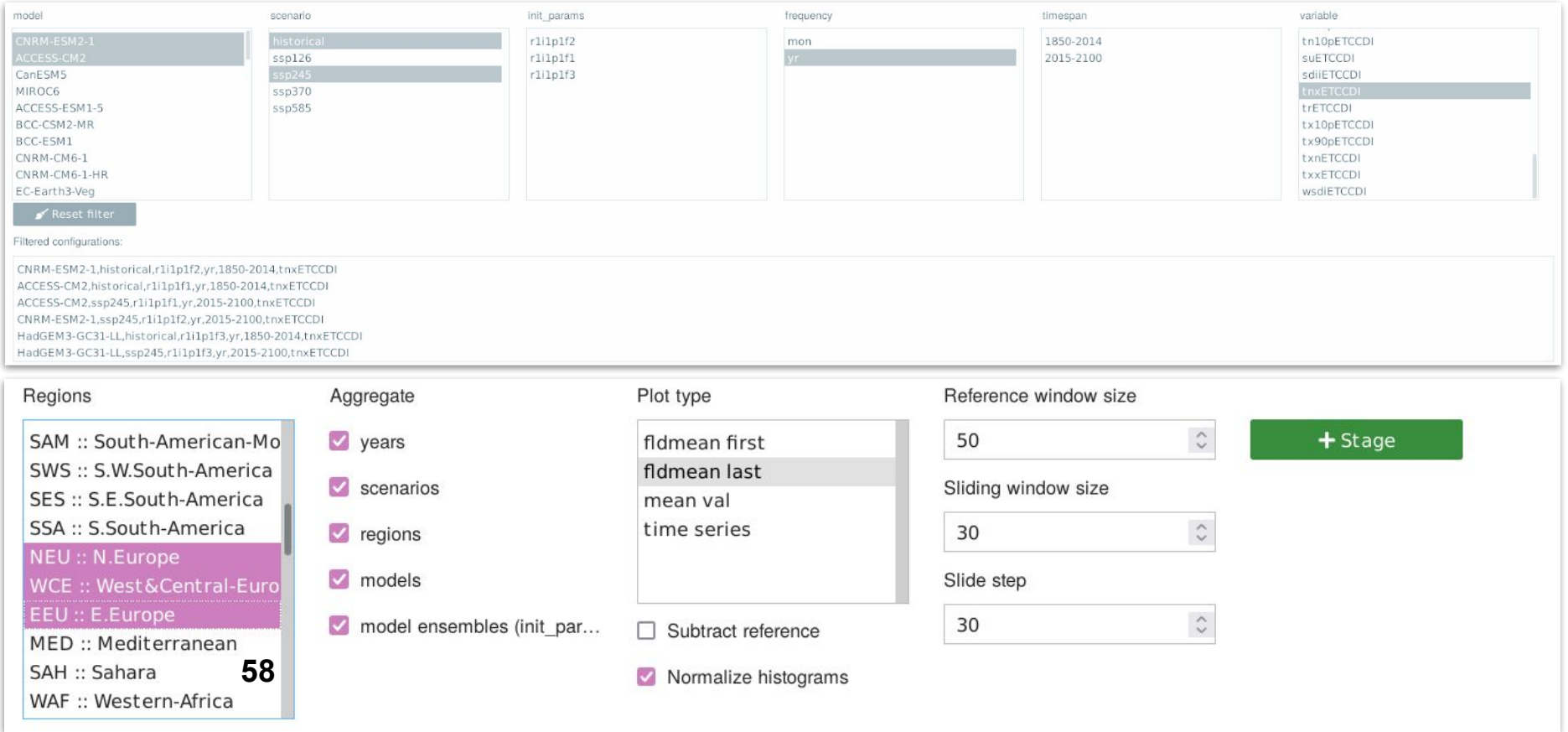
and compute weighted average proportional to the cell area



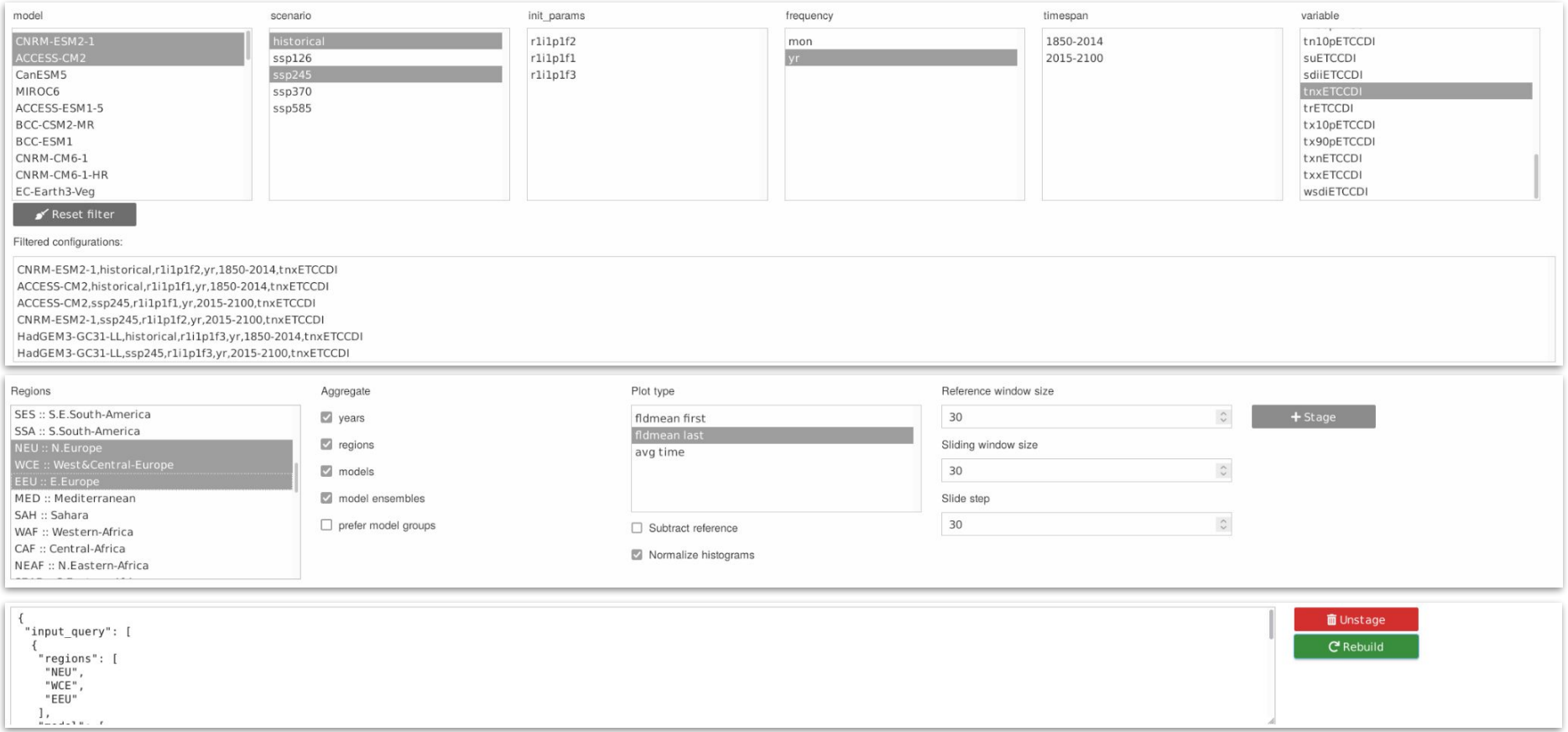
Example of the dataset: ETCCDI (Climate Change Detection and Indices)



Example of the dataset: ETCCDI (Climate Change Detection and Indices)



Example of the dataset: ETCCDI (Climate Change Detection and Indices)



Example: tnxETCCDI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   "ACCESS-CM2"
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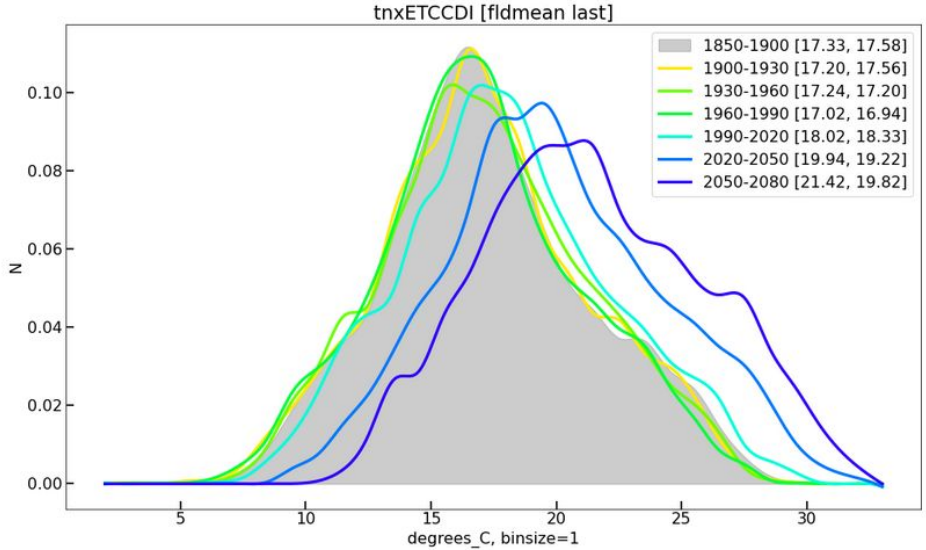
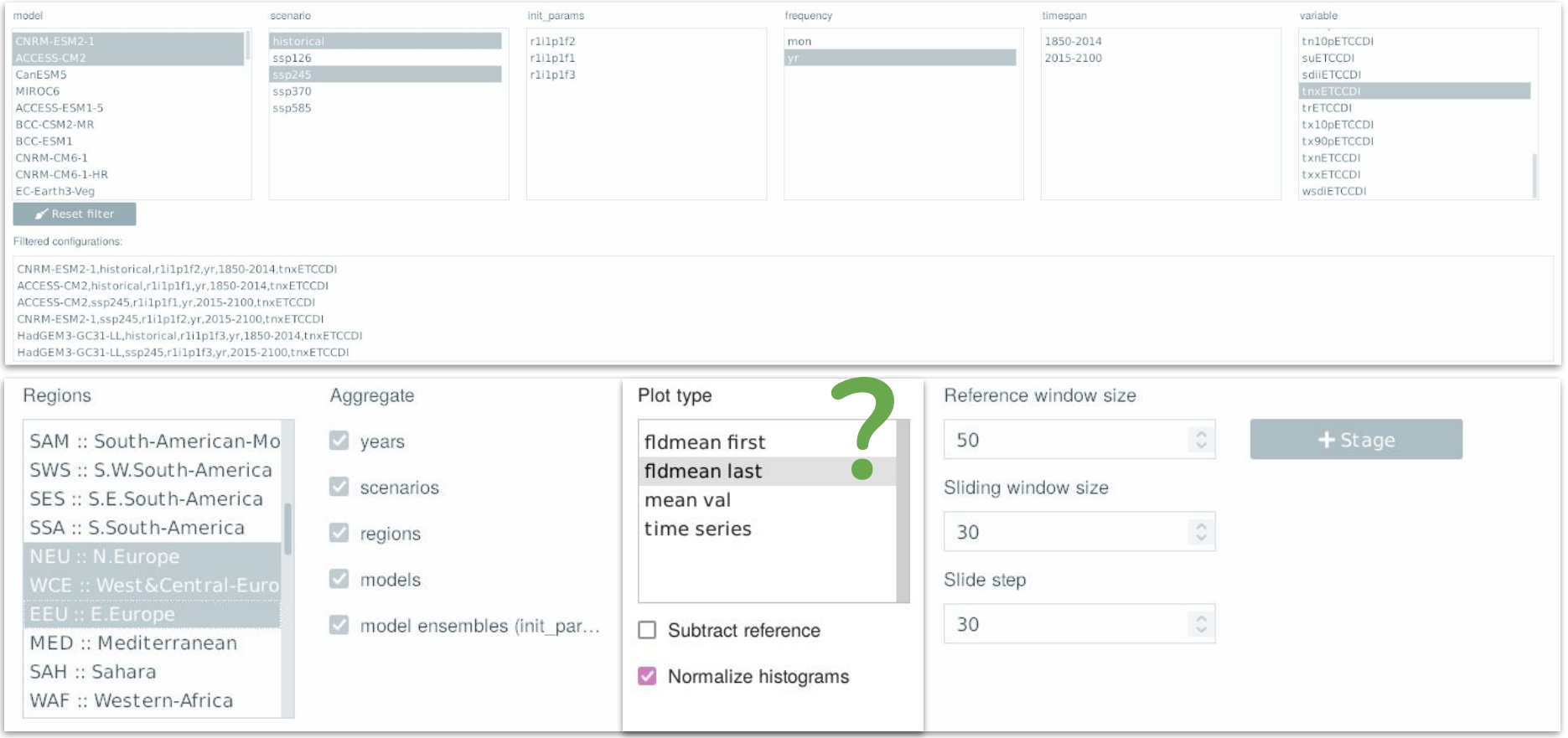
Unstage

Rebuild



Index description: Annual Maximum of Daily Minimum Temperature
Regions: NEU, WCE, EEU

What are the other plot types?



Other plot types: Mean value


```
{
 "input_query": {
  "variable": [
   "tnxETCCDI"
  ],
  "model": [
```


Unstage

Rebuild

Regions

GIC :: Greenland/Iceland
NWN :: N.W.North-America
NEN :: N.E.North-America
WNA :: W.North-America
CNA :: C.North-America
ENA :: E.North-America
NCA :: N.Central-America
SCA :: S.Central-America
CAR :: Caribbean
NWS :: N.W.South-America

Aggregate

- [x] years
- [x] scenarios
- [x] regions
- [x] models
- [x] model ensembles (init_par…

Plot type

fldmean first
fldmean last
mean val
time series

- [ ] Subtract reference
- [x] Normalize histograms

Reference window size: 50

Sliding window size: 30

Slide step: 30

+ Stage

0

Index description: Annual Maximum of Daily Minimum Temperature
Regions: GIC, NWN, NEN, WNA, CNA, ENA, NCA, SCA, CAR, NWS, NSA, NES, SAM, SWS, SES, SSA, NEU, WCE, EEU, MED, SAH, WAF, CAF, NEAF, SEAF, WSAF, ESAF, MDG, RAR, WSB, ESB, RFE, WCA, ECA, TIB, EAS, ARP, SAS, SEA, NAU, CAU, EAU, SAU, NZ

Other plot types: Mean value


```
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  "model": [
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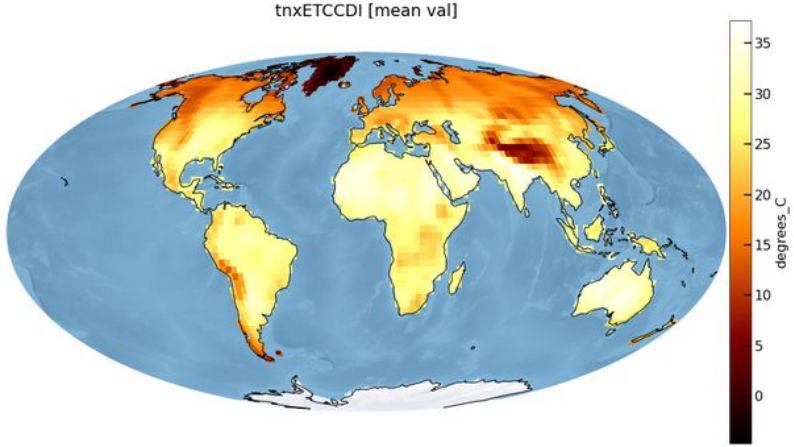
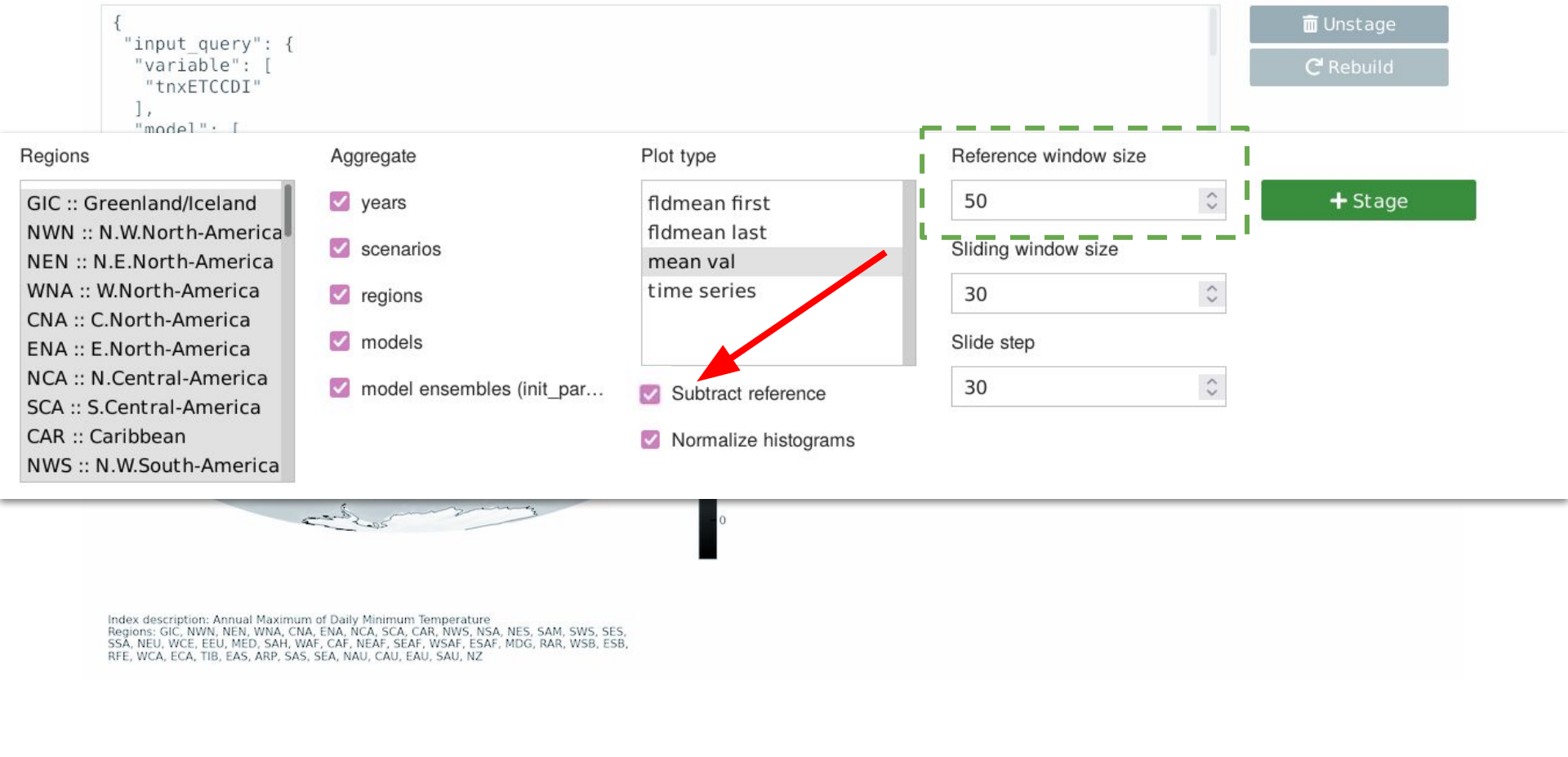
Unstage

Rebuild



Index description: Annual Maximum of Daily Minimum Temperature
Regions: GIC, NWN, NEN, WNA, CNA, ENA, NCA, SCA, CAR, NWS, NSA, NES, SAM, SWS, SES, SSA, NEU, WCE, EEU, MED, SAH, WAF, CAF, NEAF, SEAF, WSAF, ESAF, MDG, RAR, WSB, ESB, RFE, WCA, ECA, TIB, EAS, ARP, SAS, SEA, NAU, CAU, EAU, SAU, NZ

Other plot types: Mean value



Other plot types: Mean value

Subtract reference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"slide_step": 30,
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"subtract_reference": true,
"regions": [
 "GIC",
 "NWN",
 "NEN",
```
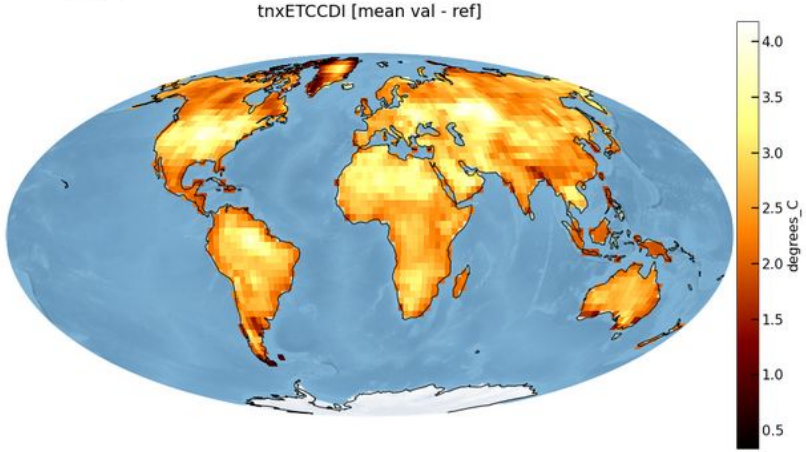


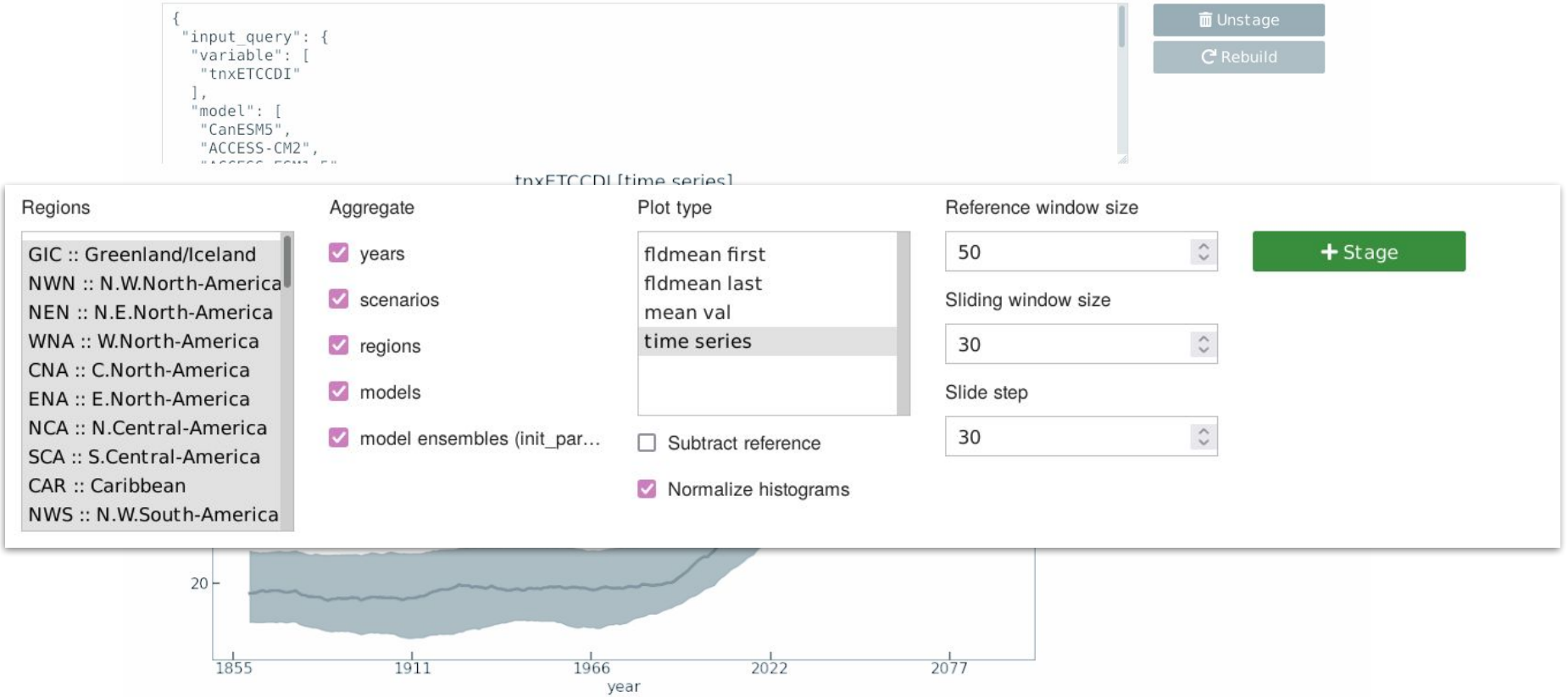
Unstage

Rebuild



Index description: Annual Maximum of Daily Minimum Temperature
Regions: GIC, NWN, NEN, WNA, CNA, ENA, NCA, SCA, CAR, NWS, NSA, NES, SAM, SWS, SES, SSA, NEU, WCE, EEU, MED, SAH, WAF, CAF, NEAF, SEAF, WSAF, ESAF, MDG, RAR, WSB, ESB, RFE, WCA, ECA, TIB, EAS, ARP, SAS, SEA, NAU, CAU, EAU, SAU, NZ

Other plot types: Time series



Other plot types: Time series


```
{
 "input_query": {
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  ],
  "model": [
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   "ACCESS-CM2",
```
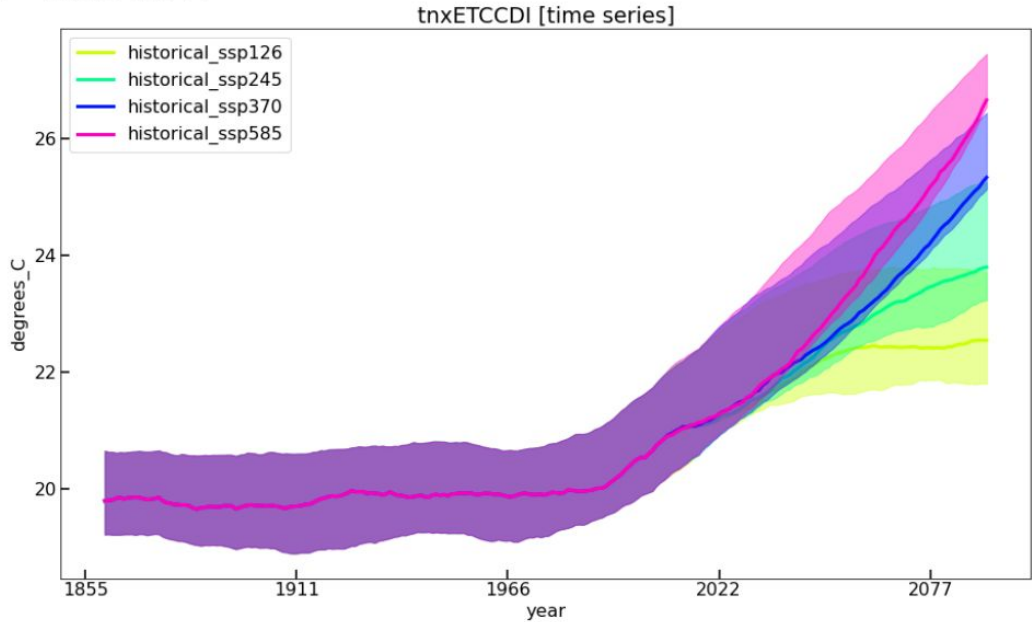


Unstage

Rebuild



Other plot types: Time series

Subtract reference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"colormap": "gist_rainbow",
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"regions": [
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 "NWN",
 "NEN",
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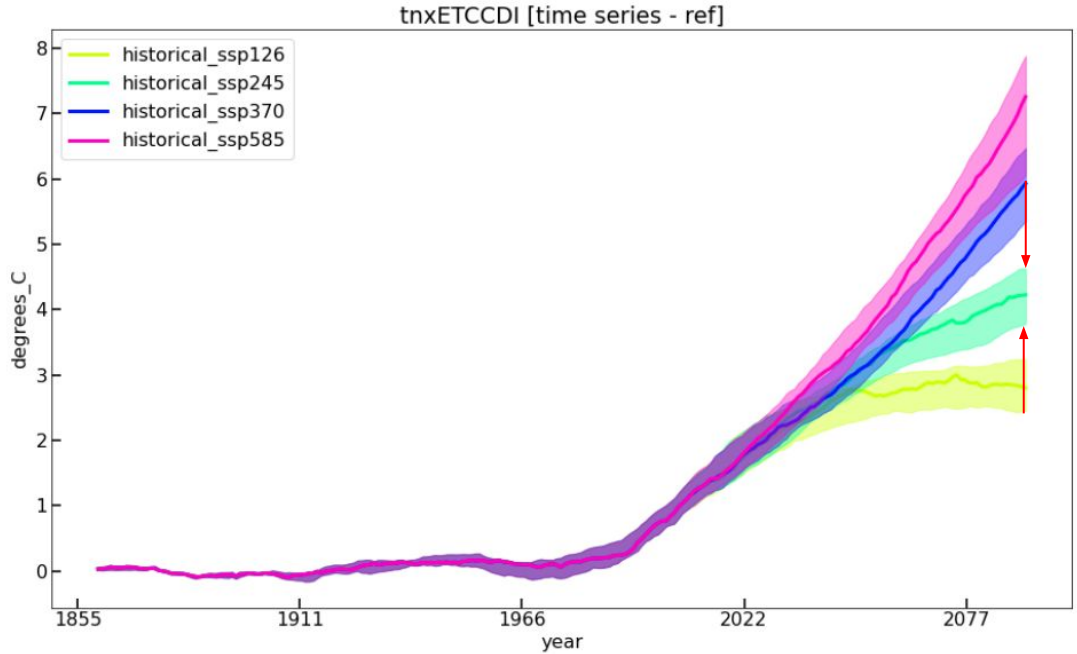
Unstage

Rebuild



Links:

User interface based on IPyWidgets inside Jupyter Notebook:
https://github.com/vindex10/cicliminds

Tools used for plotting, data processing, normalization and merging:
https://github.com/vindex10/cicliminds-lib