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The ClimaProof Downscaling Tool

WITH FUNDING FROM
 **AUSTRIAN
DEVELOPMENT
COOPERATION**



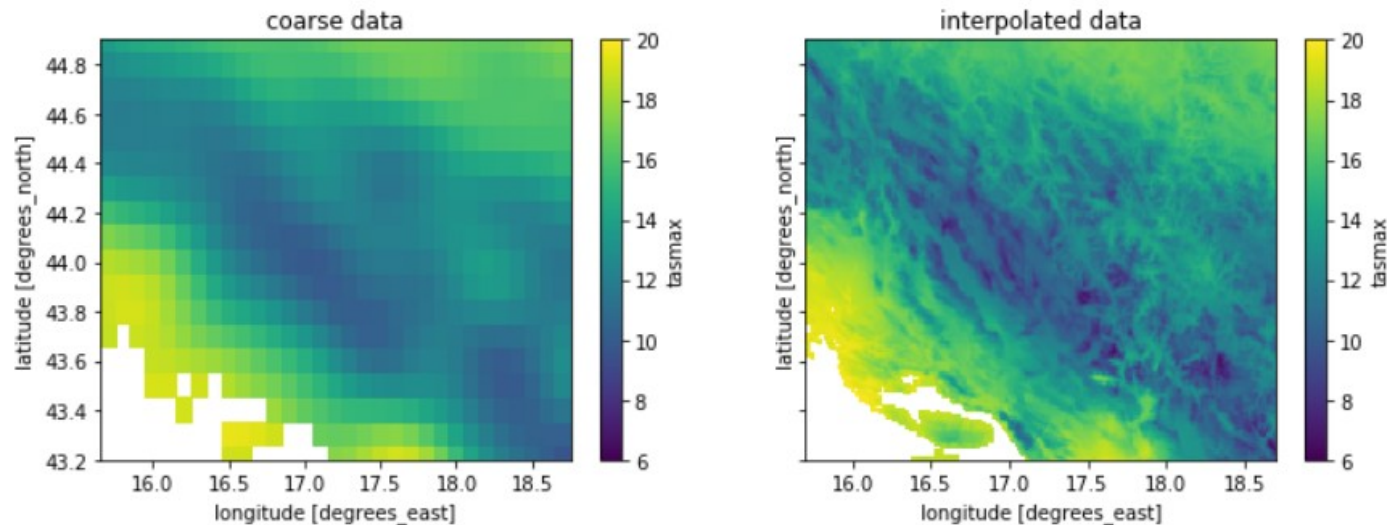
National Workshops

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The ClimaProof Downscaling Tool

- For applications that need a higher horizontal resolution
- Easy-to-use tool to **downscale model and observational data** from default (0.1°) to high resolution (0.01°)



The ClimaProof Downscaling Tool



Features of the tool are:

- Selection of the area of interest by country or latitude and longitude
- Selection of the data that should be downscaled
 - Gridded observations
 - Climate model data
- Save downscaled data as a netCDF file

The ClimaProof Downscaling Tool



Interpolation method

- Subtract 30-year mean vertical gradient (monthly basis)
- Interpolate residuals with bilinear or patch algorithm (ESMF)
- Datapoints at coasts are interpolated with nearest neighbour interpolation
- Height dependency is added back to the residuals to get the final field

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Required input data

- Gridded data at 0.1° resolution (model or observations)
 - Coarse topography file (0.1°)
 - High resolution topography file (0.01°)
- all data is available via the CCCA Data Centre
<https://data.ccca.ac.at/group/climaproof>

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Variable:

Data Type:

Latitude (Format: [MIN, MAX])

Longitude (Format: [MIN, MAX])

Country

Start year:

End year:

Regridding method:

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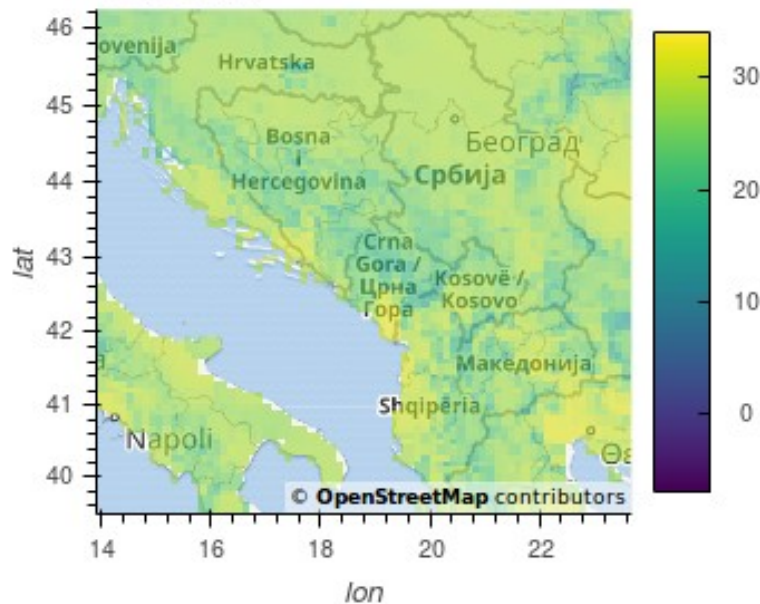
Season:

JJA

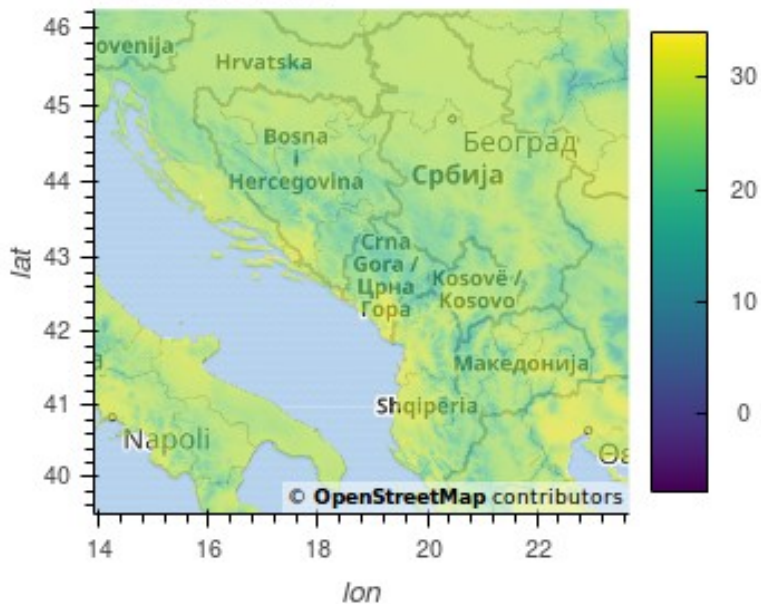
season: JJA



Coarse data



Downscaled data



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The downscaling algorithm is computationally
very expensive!



→ if a memory error occurs please select a
smaller domain or a shorter time frame

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Download and installation

- Download the tool from the BOKU-Met GitHub repository:
<https://github.com/boku-met/climaproof-tools>
- Follow the instructions in your User Guide
 - For Linux users: if you already downloaded and installed the Model Selection Tool, you can directly start the Downscaling Tool.
 - For Windows users Docker is required to run the tool!

The ClimaProof Downscaling Tool



Running the tool

- Windows (using Docker):

```
docker network create cproof
```

```
docker build --rm --network=cproof -t climaproof/tools
```

```
docker run -t -i -p 5100:5100 -v  
LOCAL_PATH_TO_DATA:/data climaproof/tools -  
network=cproof
```

Open the browser and go to <http://127.0.0.1:5100/dst>

- Linux:

```
bokeh serve --show dst
```