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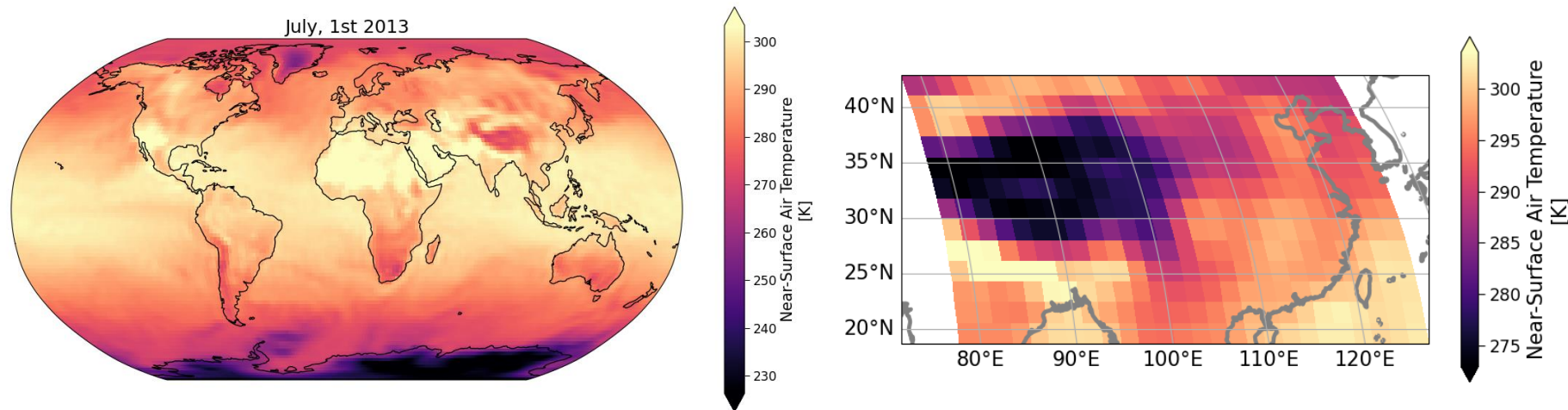
Heatwaves and Land Surface Albedo/Urbanization in China

zuniceratops_ska_staccato



Climatematch
Academy

We are studying Heatwaves in China during a time period of rapid urbanization (1981-2015)



- We are investigating heatwaves using data from CMIP6
- We proposed to use surface albedo as our “proxy” for urbanization

We hypothesize that decreases in surface albedo...

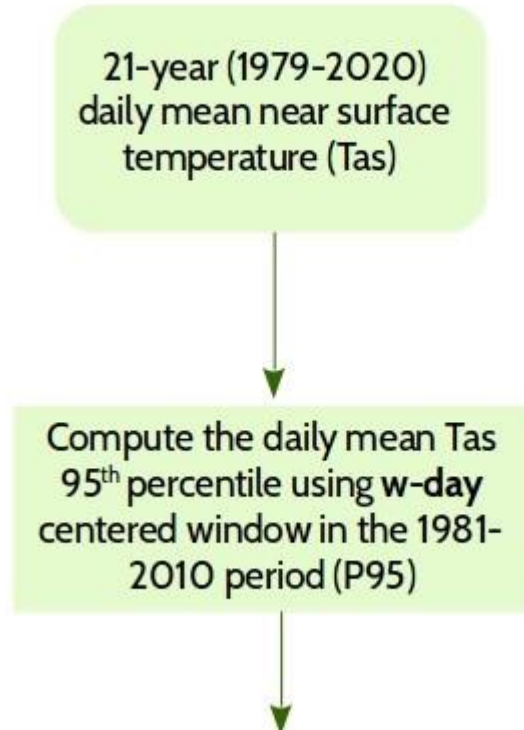
- Heatwaves are intensified in urban areas with reduction in Land Surface Albedo compared to non-urban areas



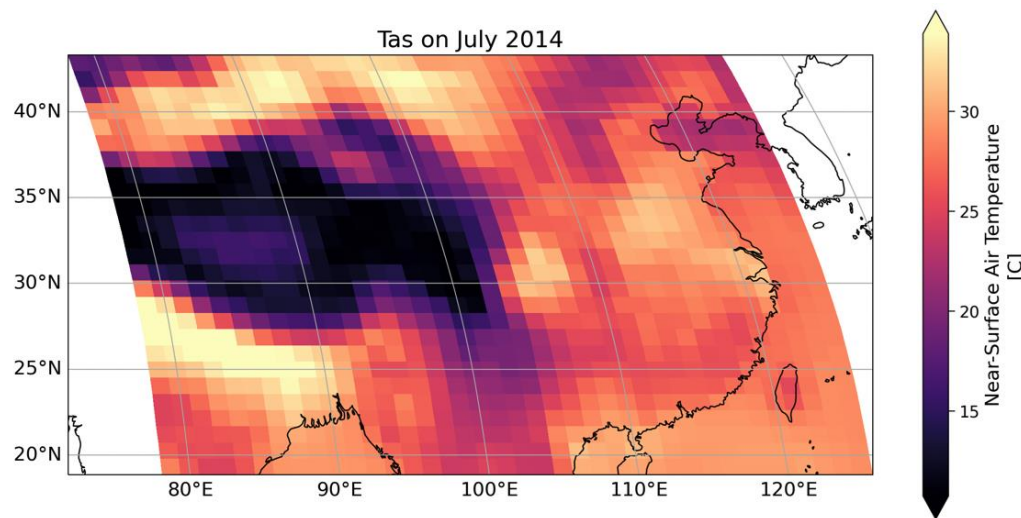
Using the CMIP6 Data To detect heatwaves

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- We used the flowchart from the project notebook to guide our process
- Unfortunately, we only made it to the end of step 2 of this flowchart!



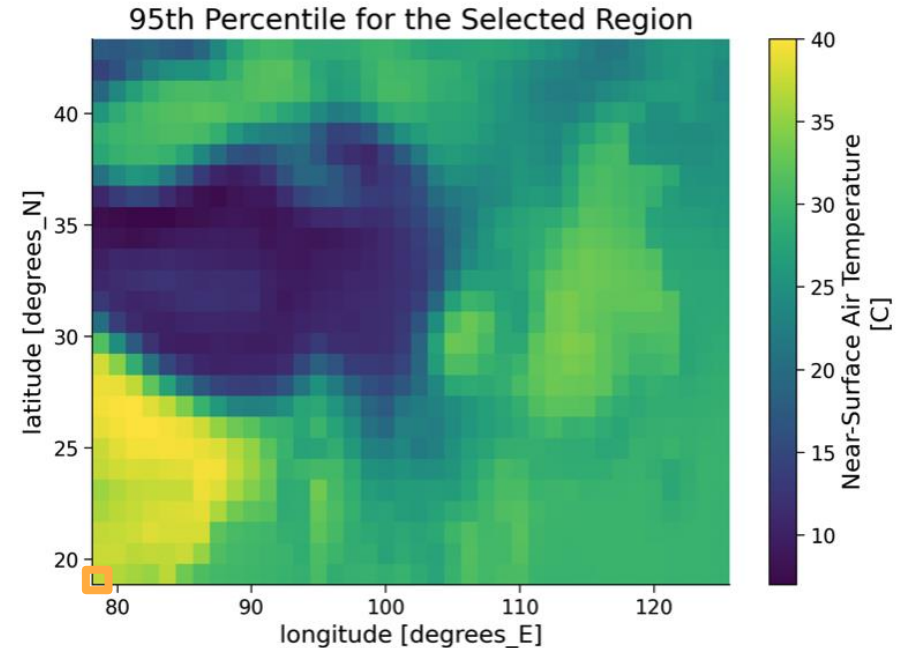
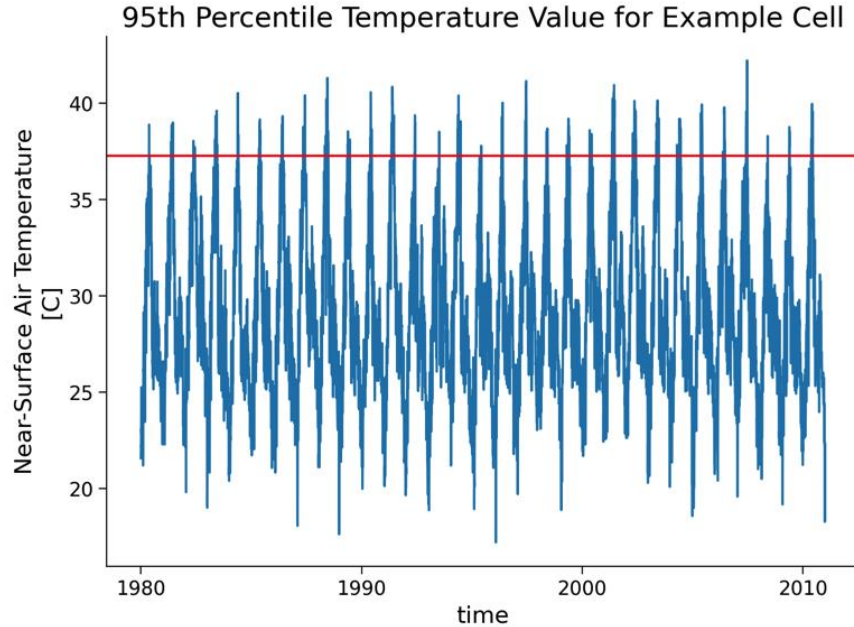
Step 1: daily mean surface temperature (tas) over the region of interest



- We started by creating an xarray object that contains the data from the region of interest that we picked out from 1981-2010

Step 2: Find the 95th percentile of temperature

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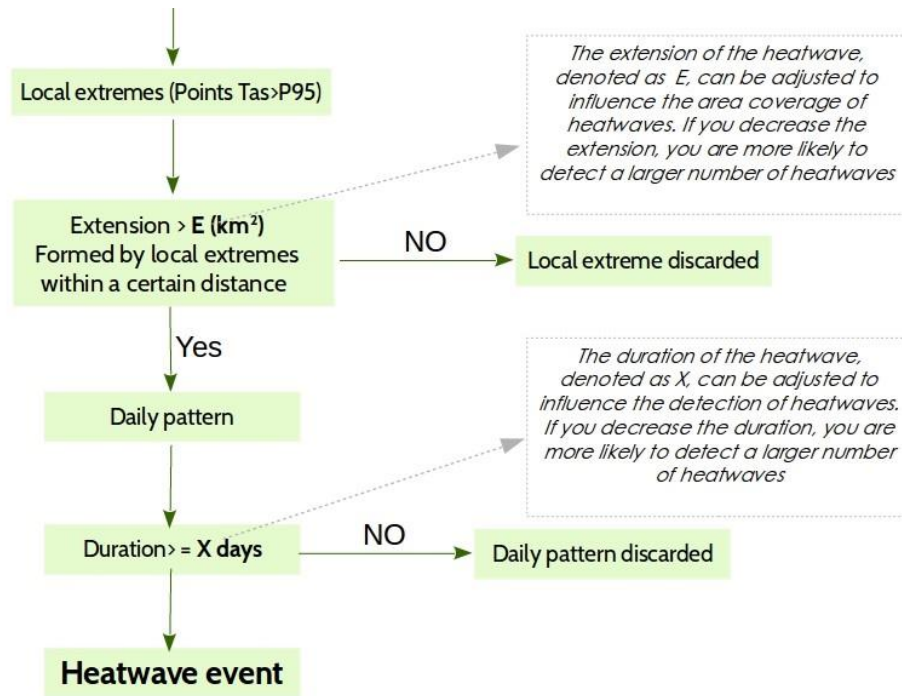


The definition of “what is a heatwave” depends on duration and extent, but temperature-wise, the threshold is for the temperature to be above this historical 95th percentile

Using the CMIP6 Data to detect heatwaves

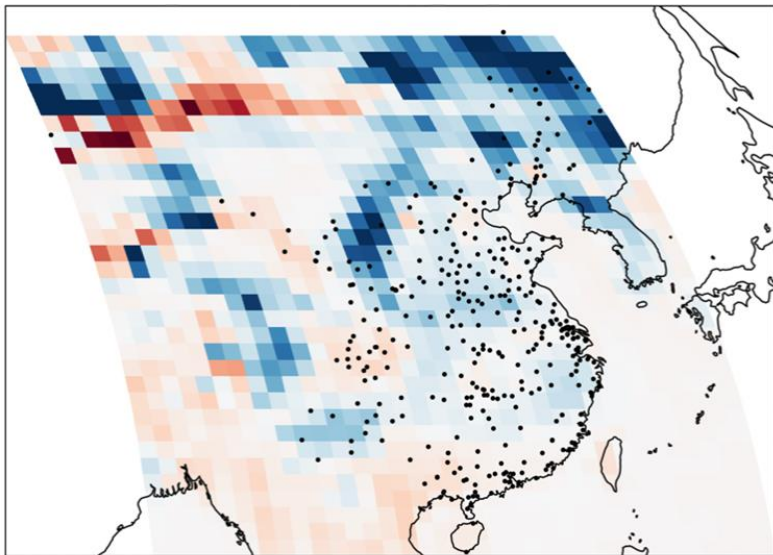
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- Our next step is to implement the rest of the flowchart!
- After we have heatwave data, we plan to check the correlation with changes in land surface albedo

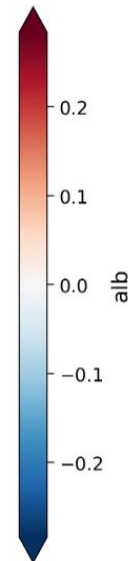
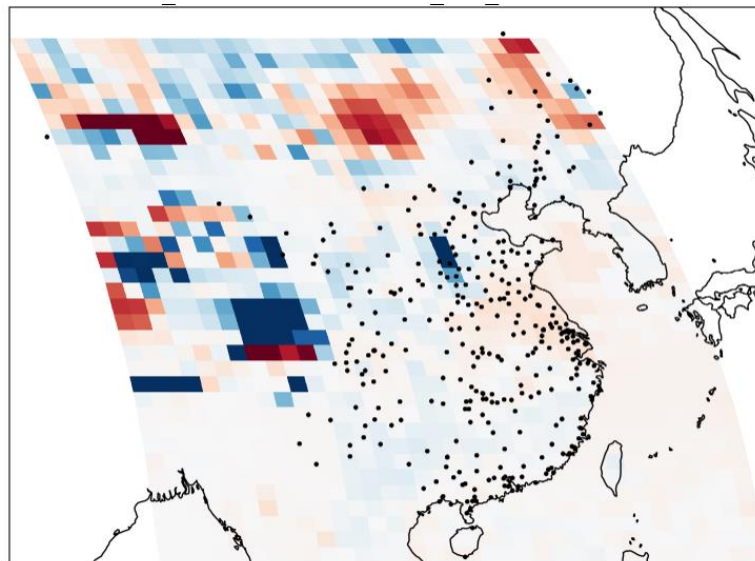


Highly urbanized areas have lower albedo now

2015 - 1850



2015 - 1981



Conclusion

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We were not able to obtain heatwave metrics

Probably, high resolution data are required for assessing the effects of urbanization and LSA changes on Heatwaves.

