Heat waves and heat stress in Schleswig Holtstein : a high resolution internet forecasting application

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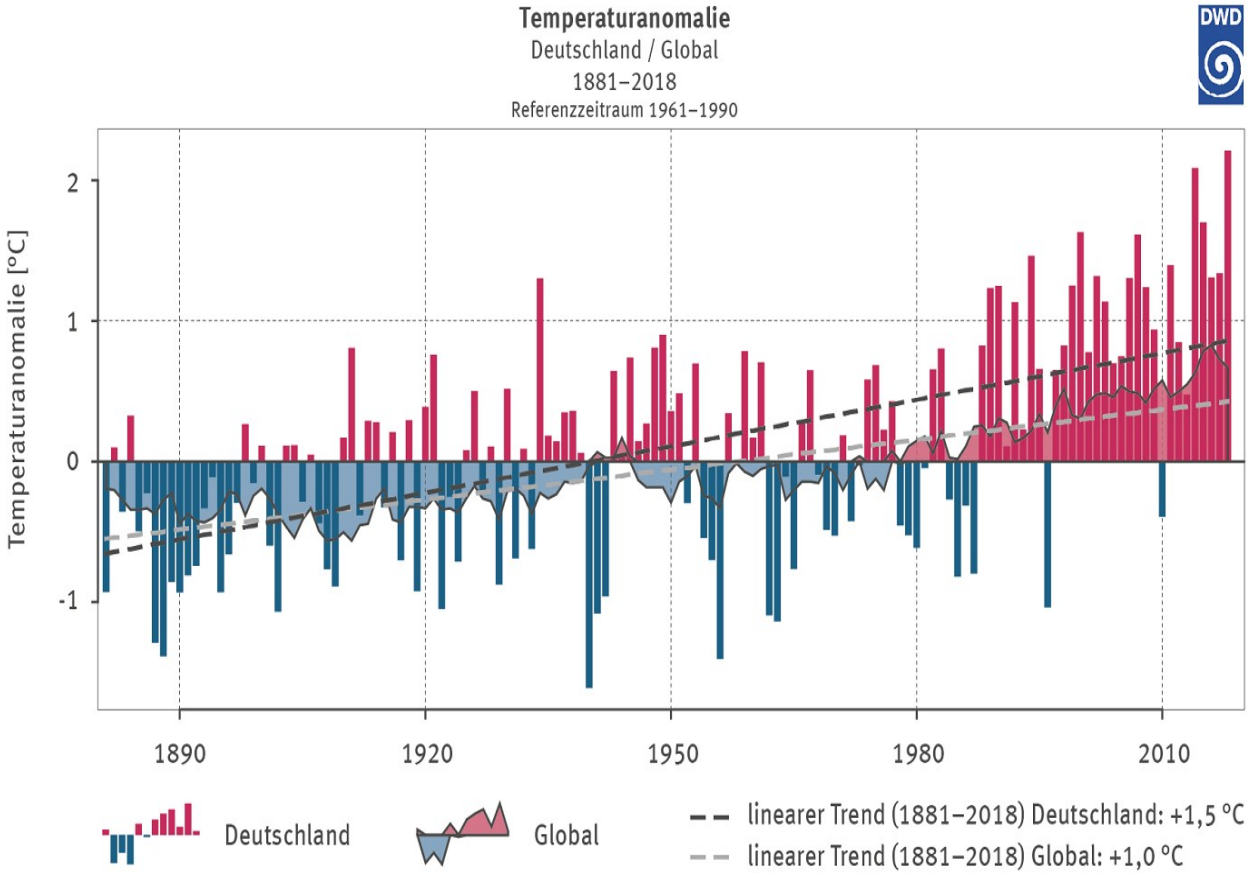
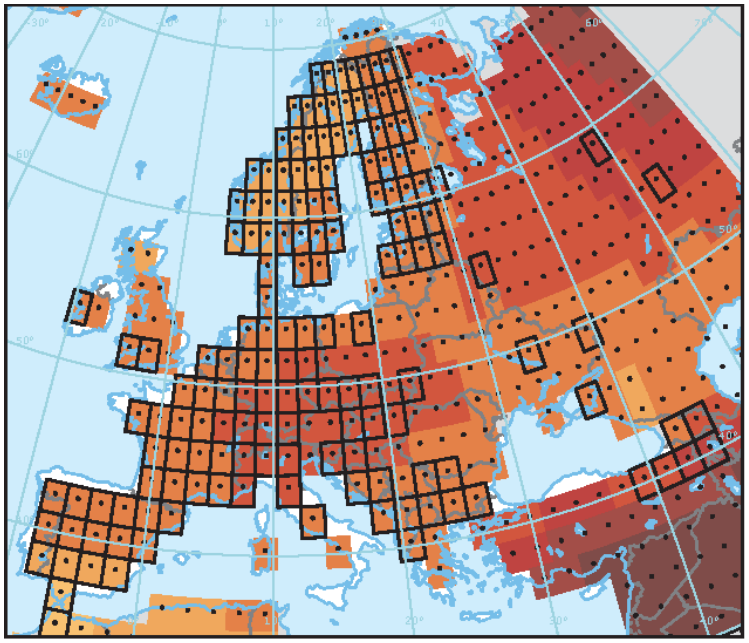
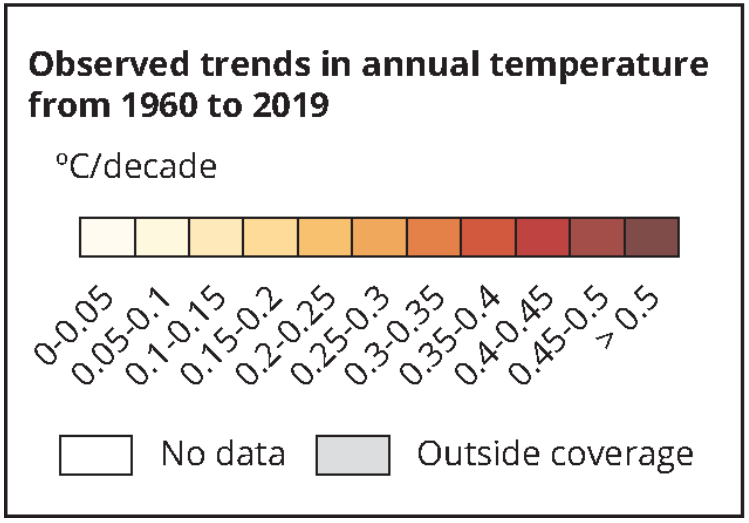
General context : a warming climate since 1880



European Environment Agency



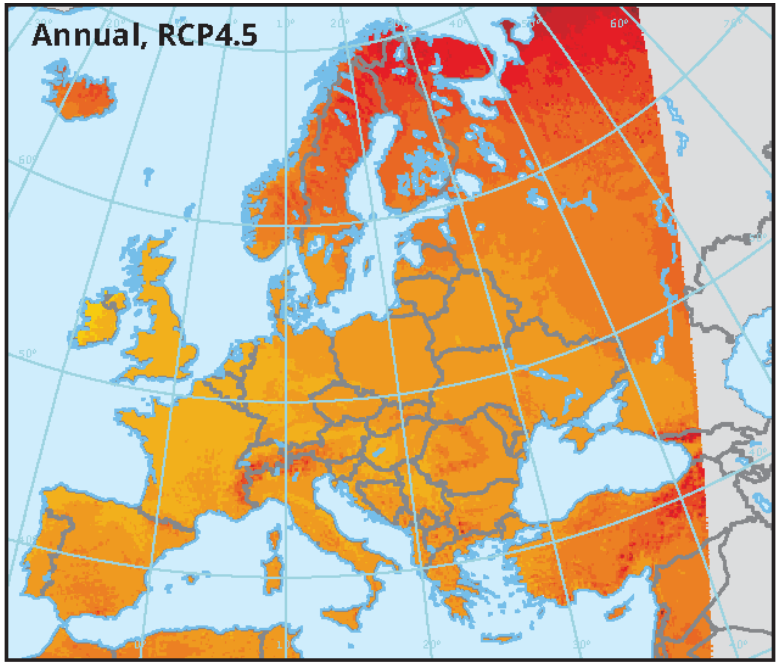
Reference data: ©ESRI

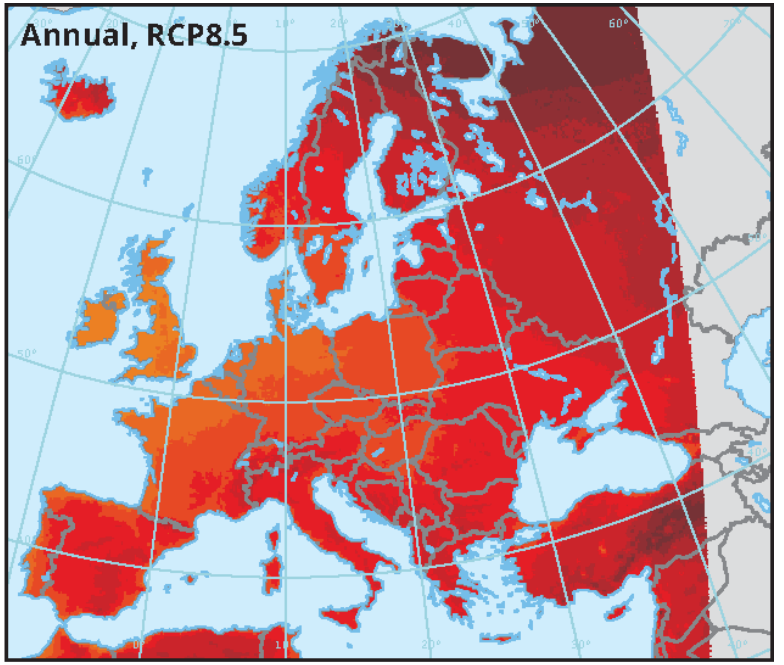


https://www.eea.europa.eu/data-and-maps/indicators/global-and-european-temperature-10

General context : up to 5°C warmer in 2100

European Environment Agency





Projected changes in annual temperature for the forcing scenarios RCP4.5 and RCP8.5

°C

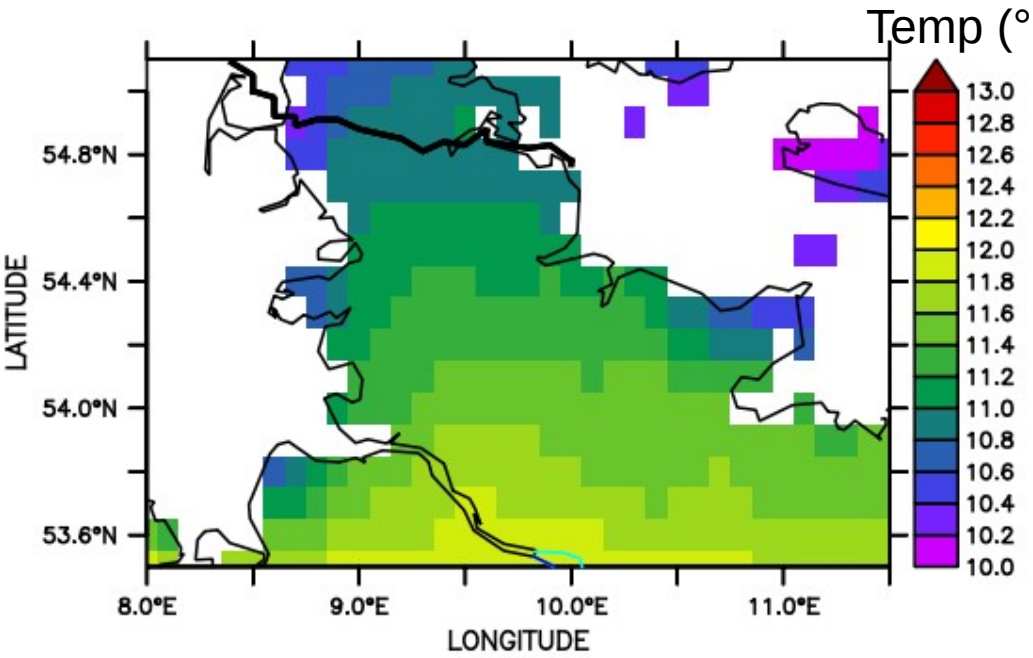
1.5 to 2 | 2 to 2.5 | 2.5 to 3 | 3 to 3.5 | 3.5 to 4 | 4 to 4.5 | 4.5 to 5 | 5 to 5.5 | 5.5 to 6 | >6

Outside coverage

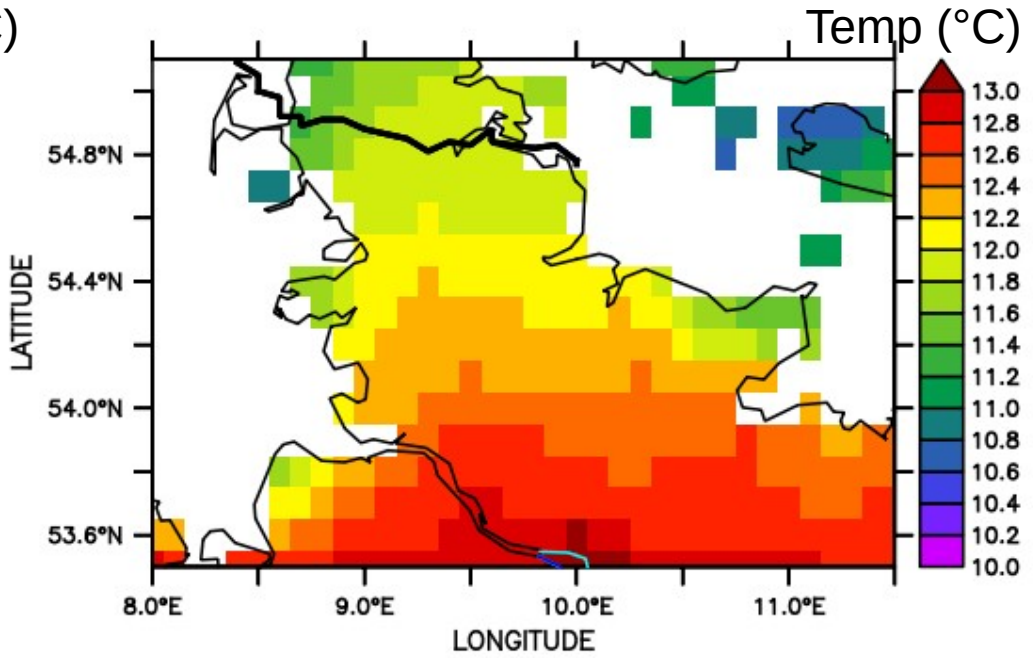
0 500 1 000 1 500 km

https://www.eea.europa.eu/data-and-maps/indicators/global-and-european-temperature-10

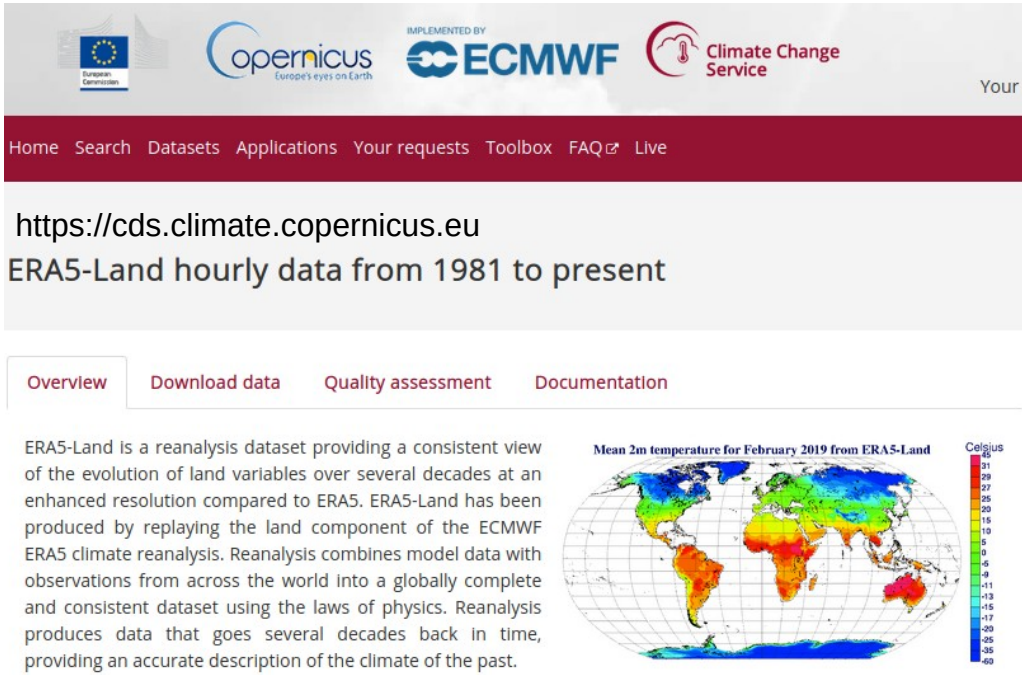
Regional aspects in SH: temperature increase by 1°C since 1980



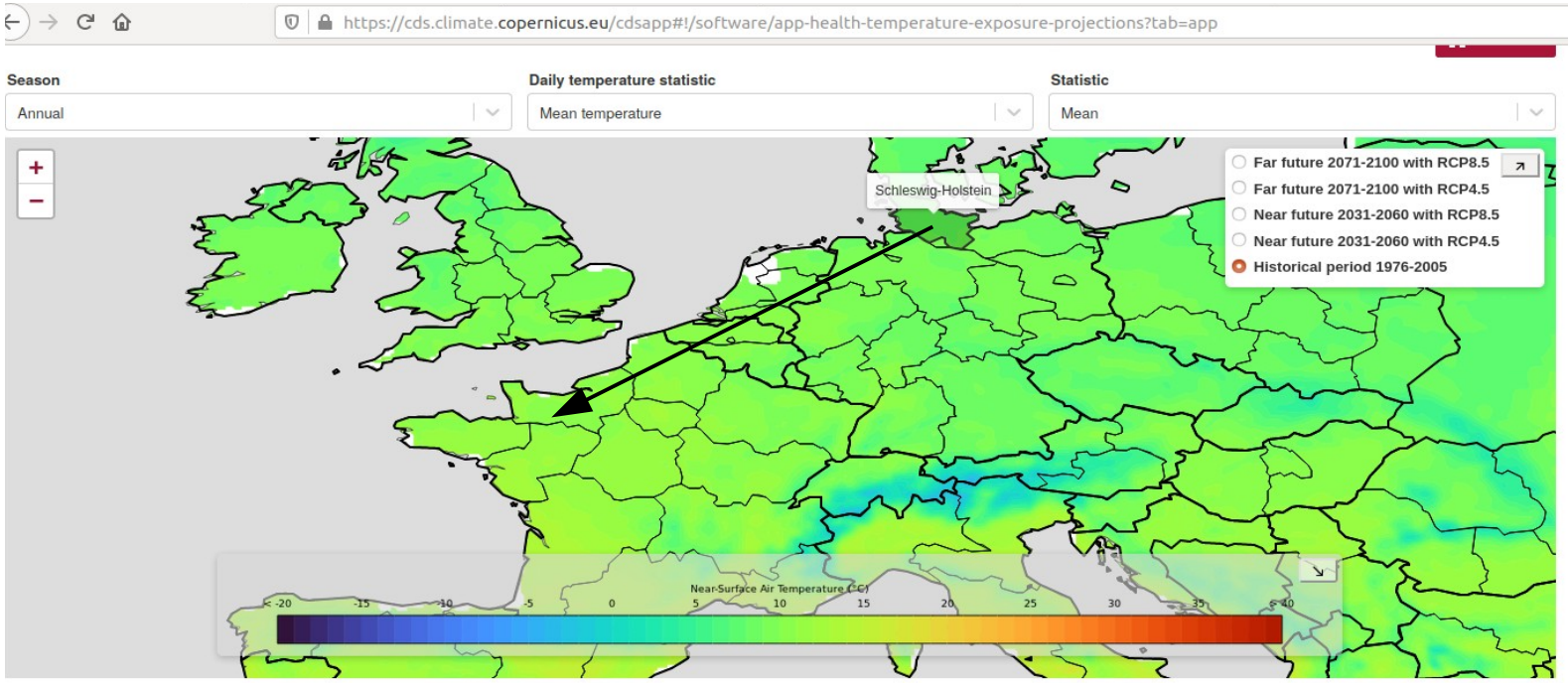
mean 1981 – 1990

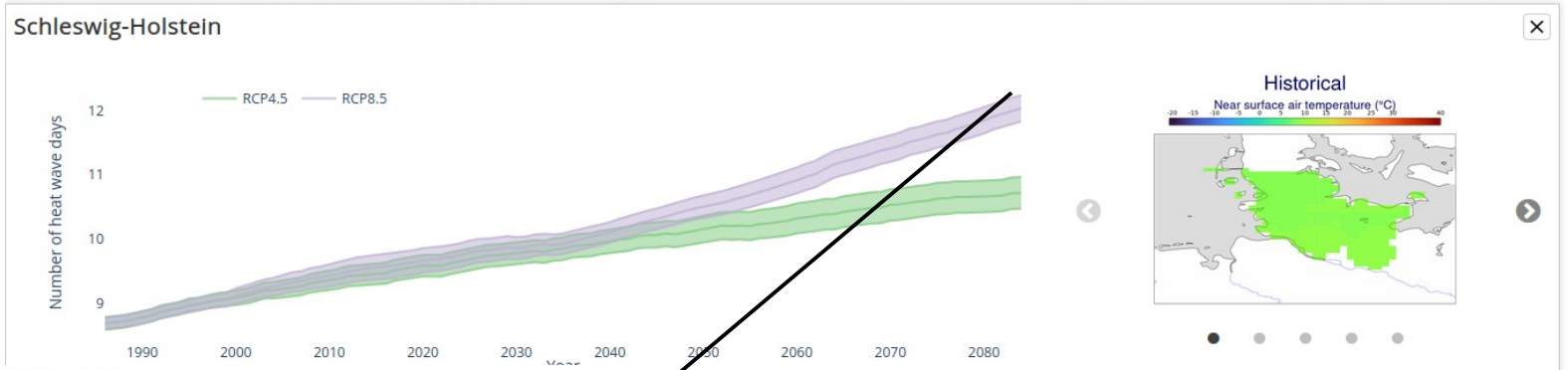


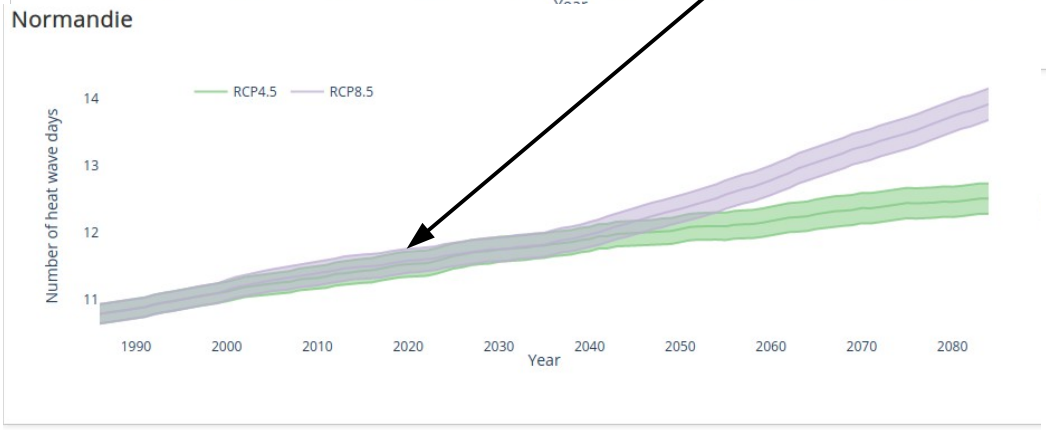
mean 2010-2019



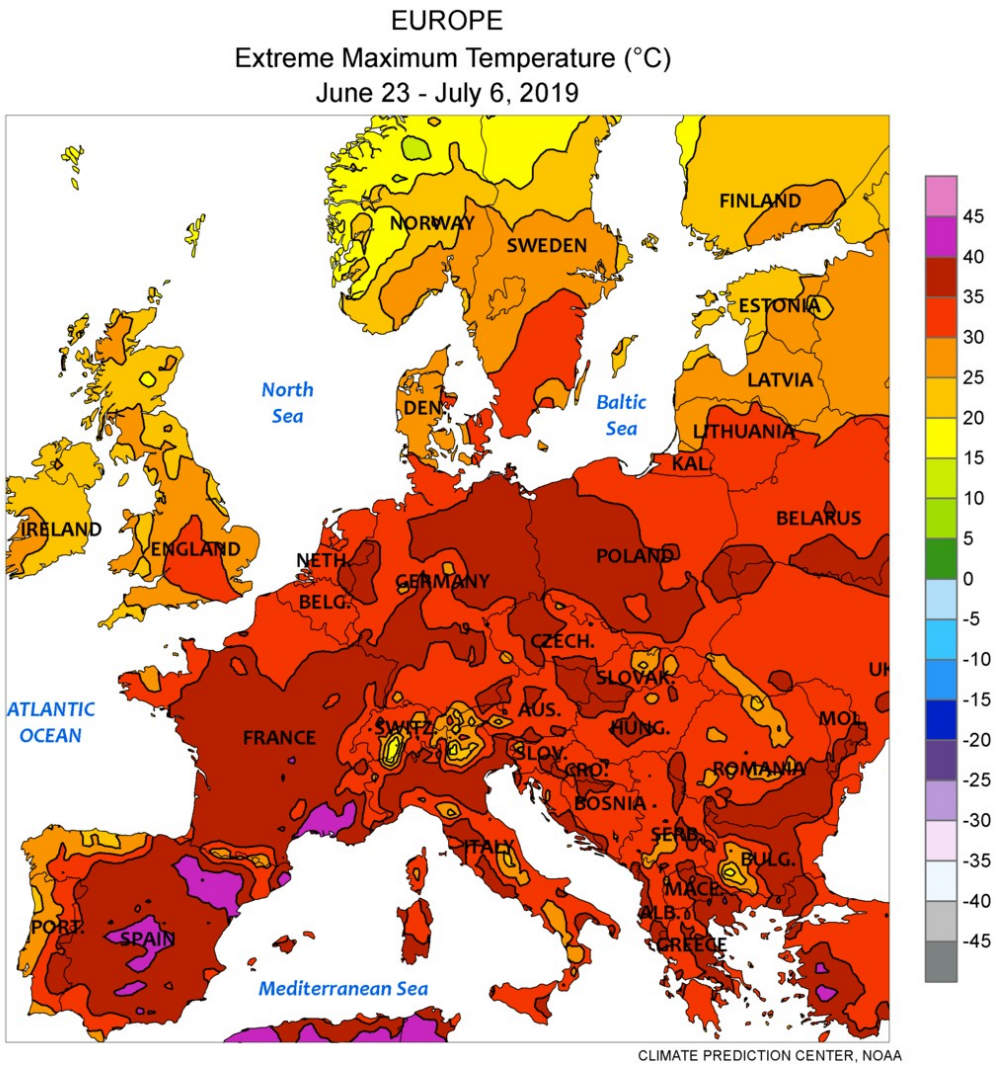
SH climate in 50 years may feel like Normandie in France now



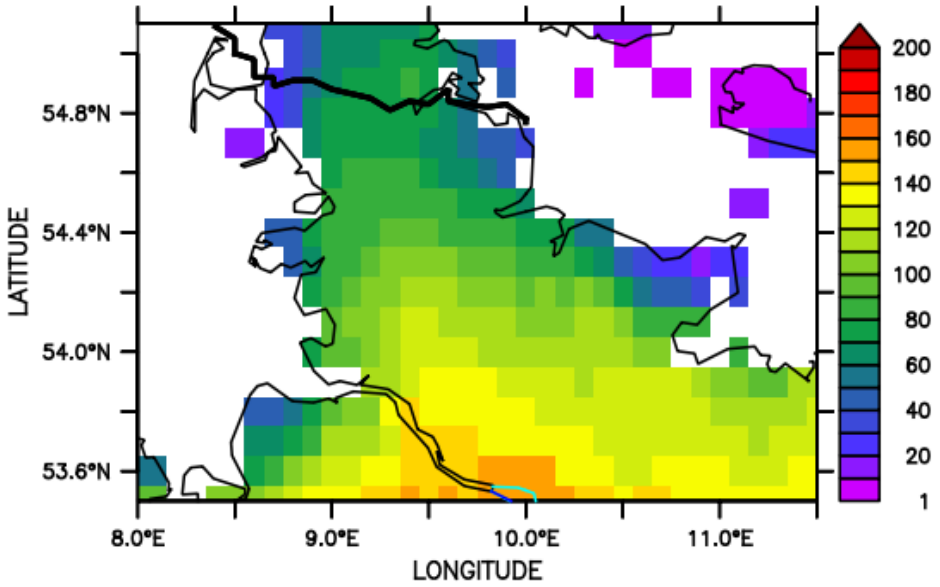




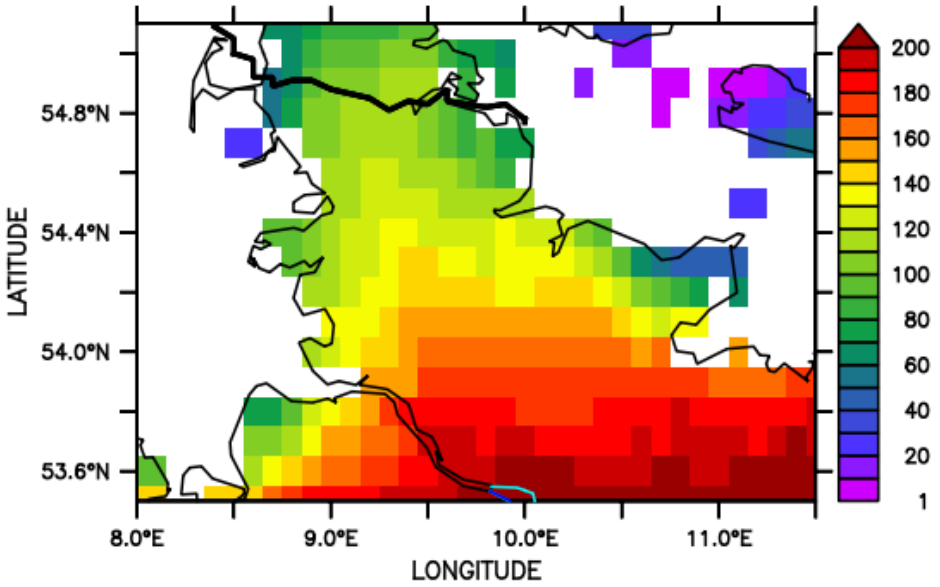
General context : heat waves occur more often and longer



Regional aspects in SH : maximal temperature



1980 – 1990

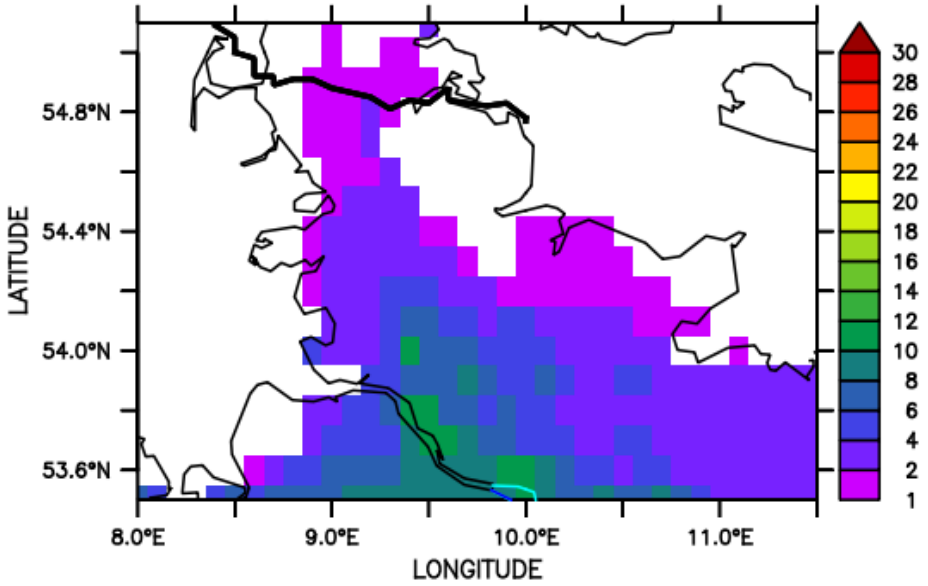


2009 – 2019

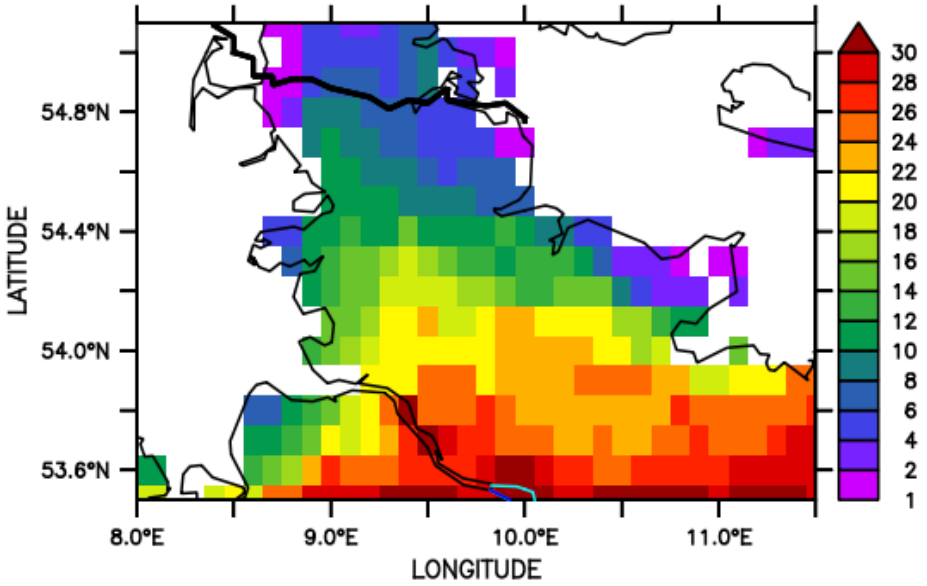
Number of day where temperature > 25°C

Number of day where temperature > 30 °C

1980 – 1990



2009 – 2019

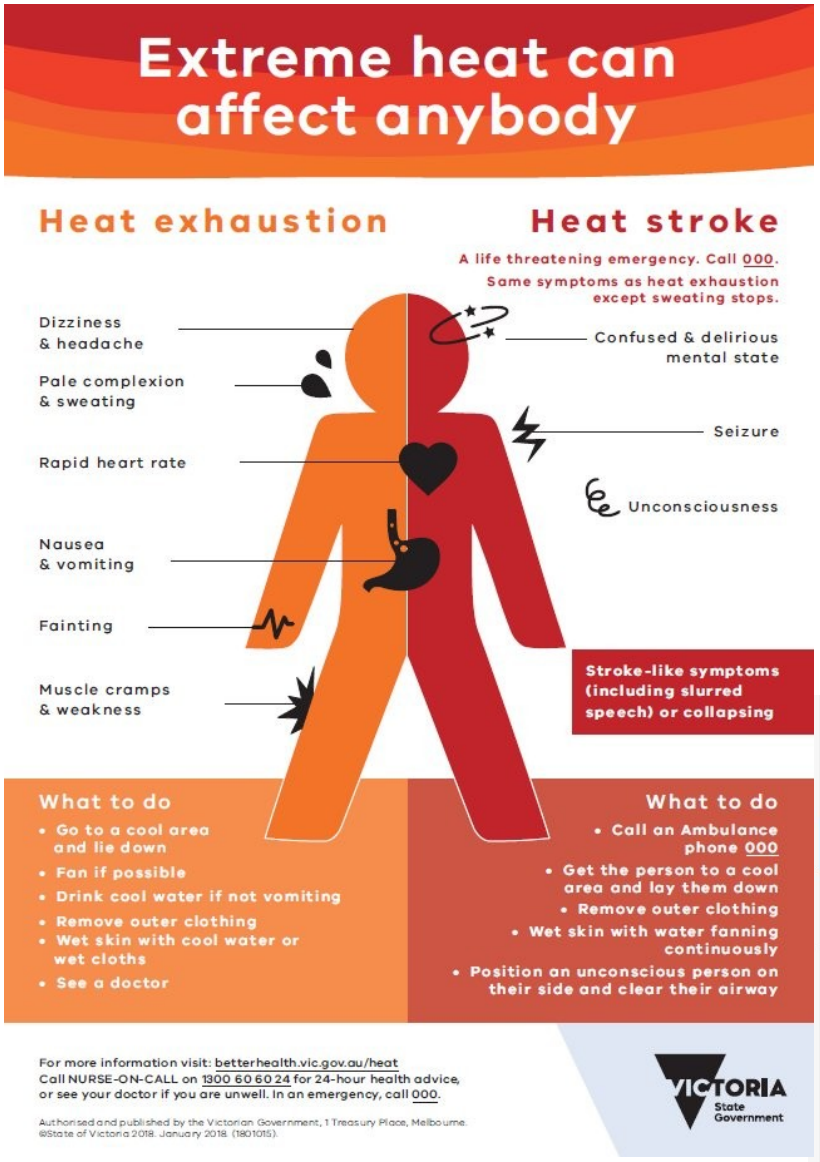


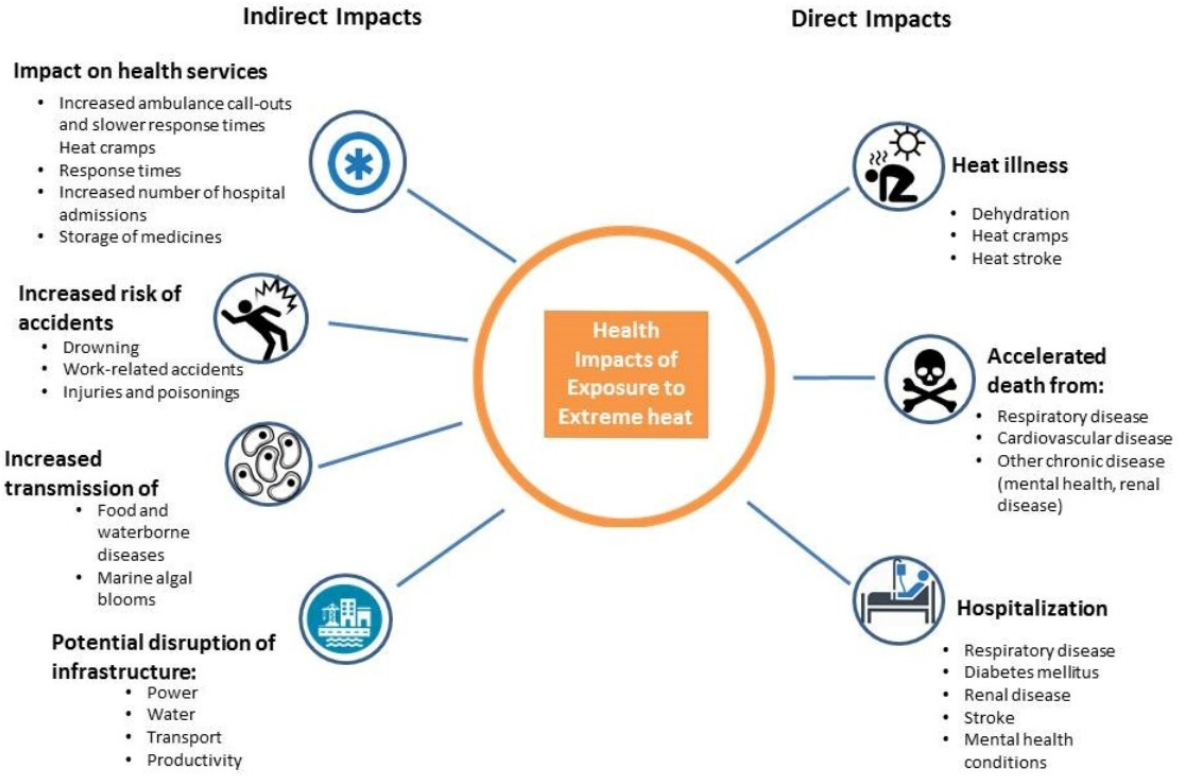
Hitzewelle rollt auf uns zu: DRK gibt Tipps zu Schutz und Hilfe

Jun 26, 2019 | Erste Hilfe, News

HANNOVER. In den kommenden Tagen werden in Deutschland Hitze-Rekorde erwartet. „Die hohen Temperaturen bergen erhebliche gesundheitliche Risiken. Ein Hitzschlag kann sogar lebensbedrohlich werden", warnt der Landesasrzt des DRK-Landesverbandes Niedersachsen e. V., Prof. Dr. med. Wolfgang Koppert. Der Notfallmediziner gibt Tipps, wie man in einer solchen Situation richtig hilft:

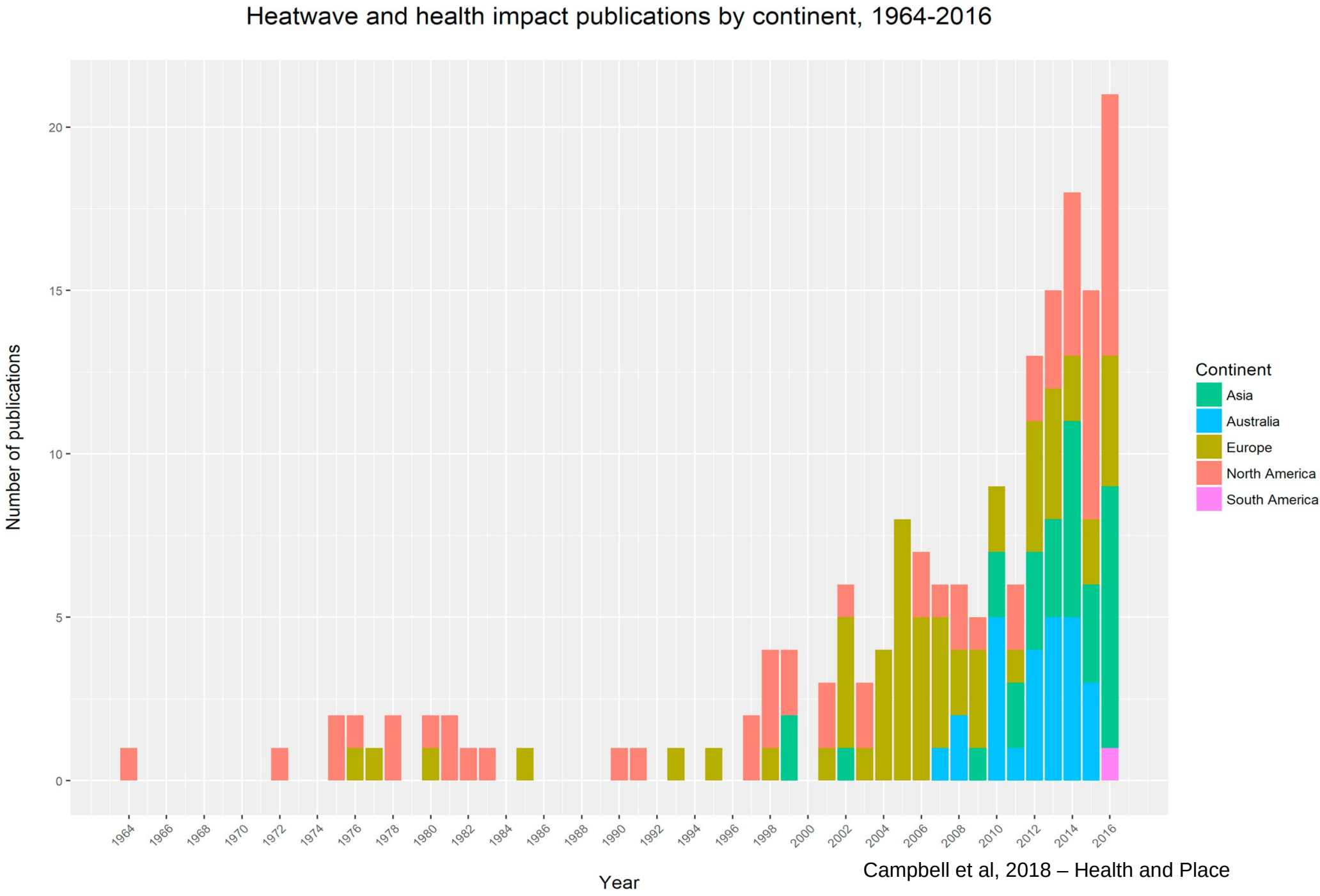
“Extreme heat” strongly impacts health





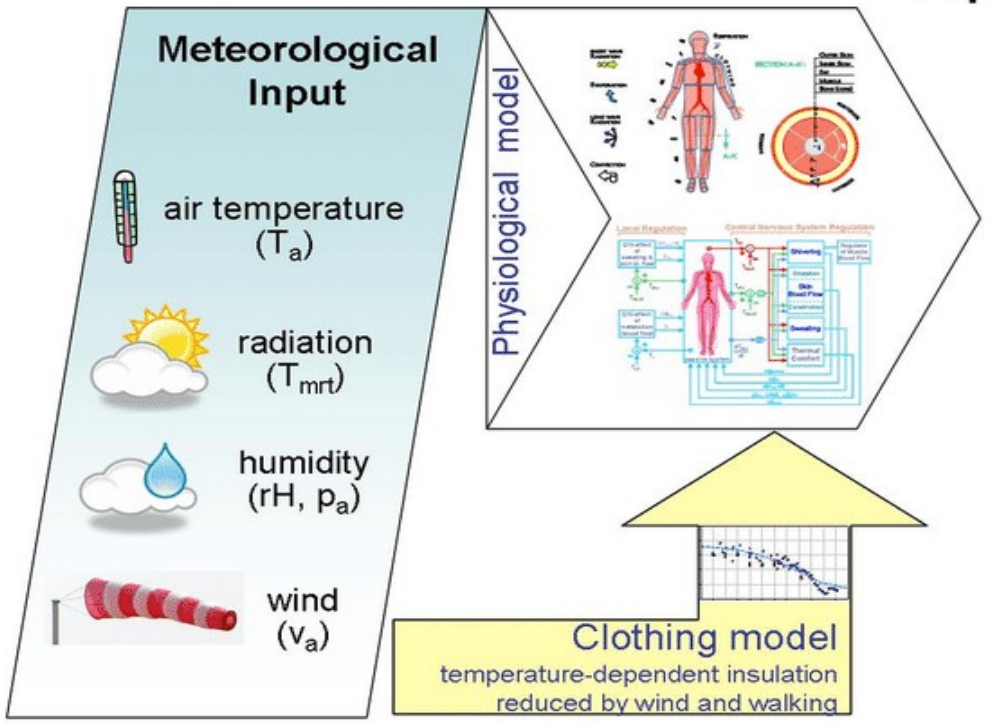
https://www.euro.who.int/en/health-topics/environment-and-health/Climate-change

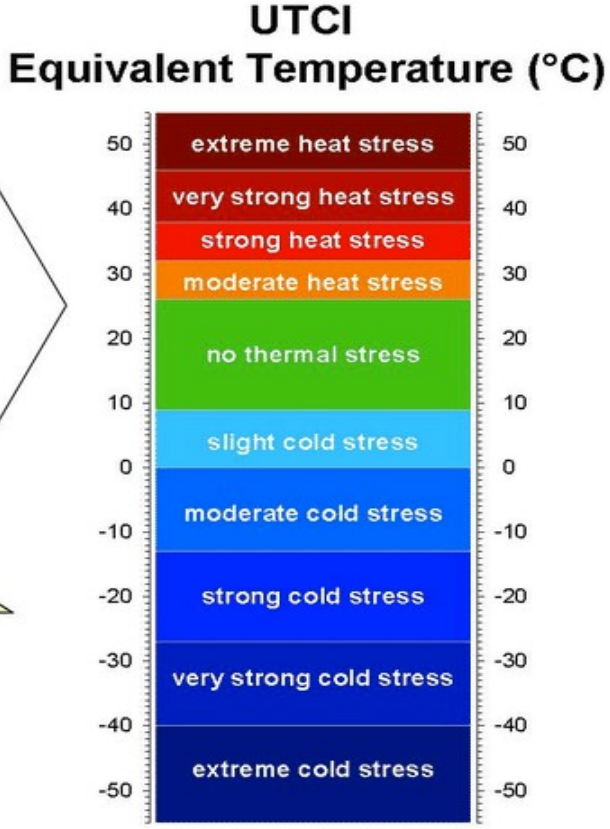
... and it is a growing concern



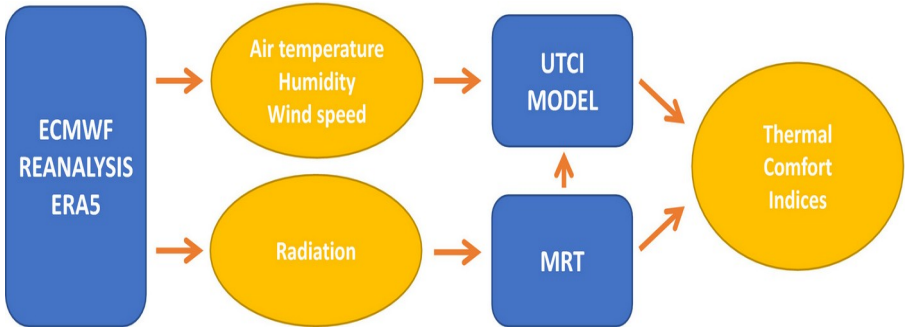
Campbell et al, 2018 – Health and Place

A quantification tool : the Universal Thermal Comfort Index

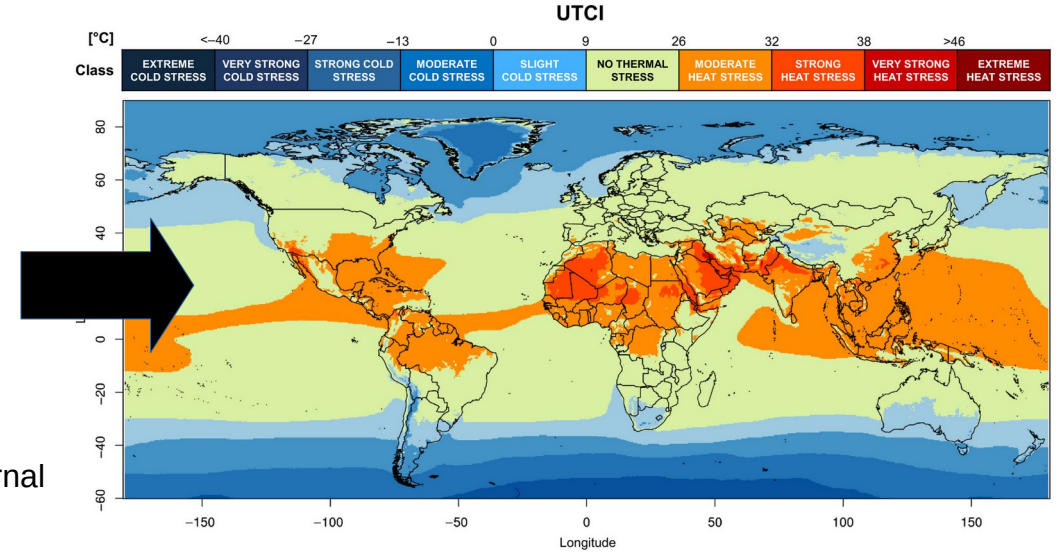




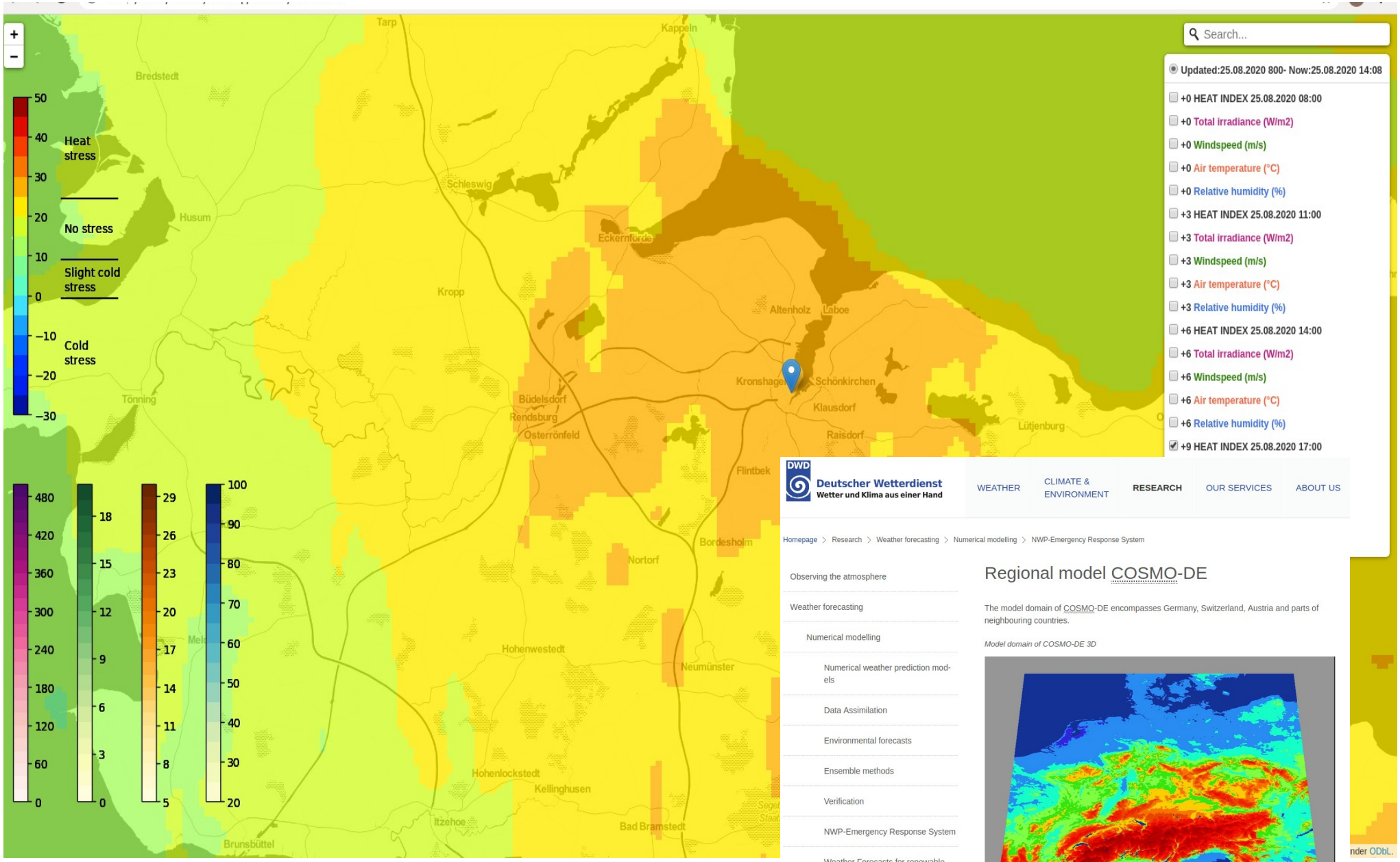
Bröde et al., 2011 – conference paper



DiNapoli et al., 2020 – Geoscience Data Journal



https://climcomfort.pythonanywhere.com



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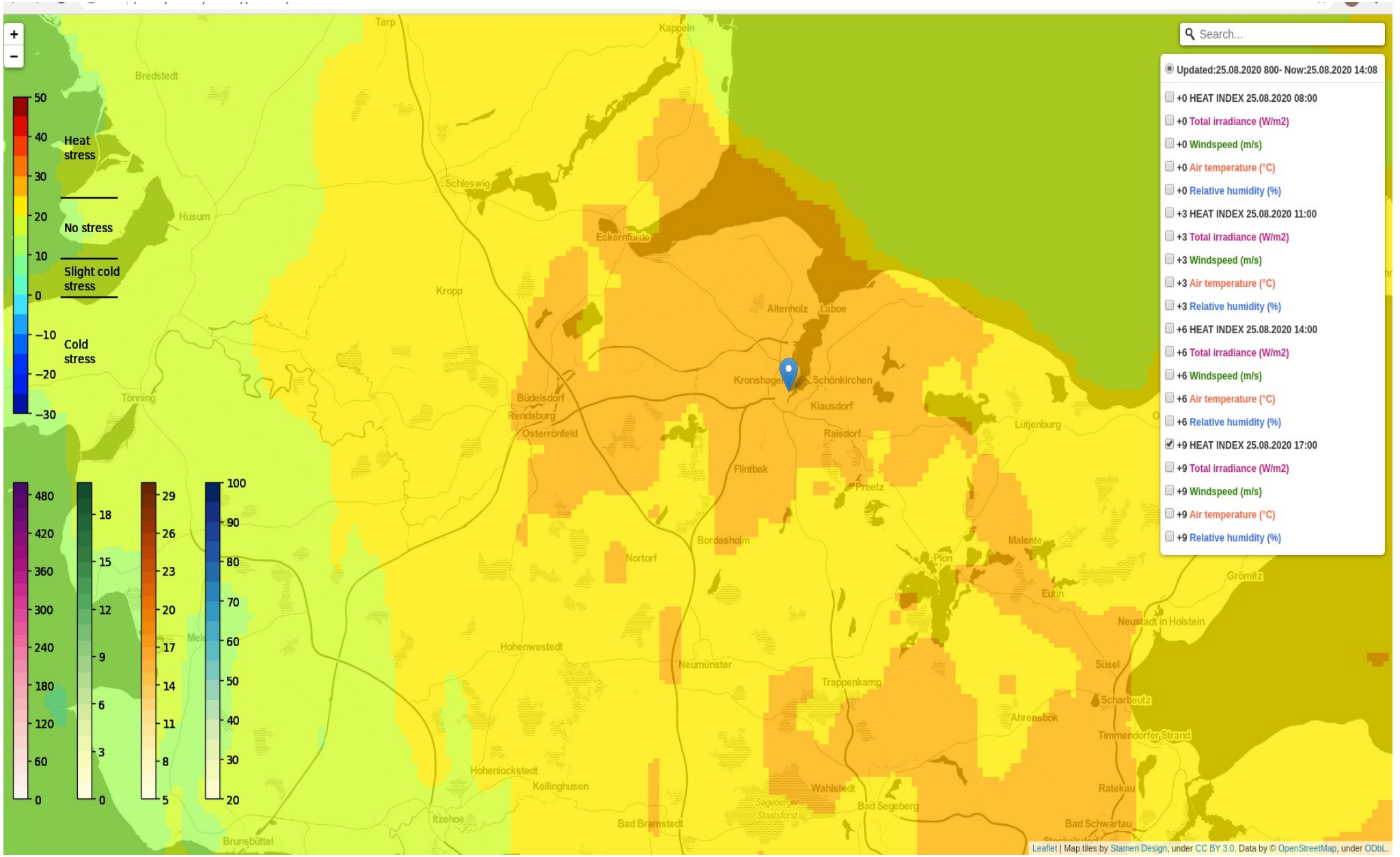

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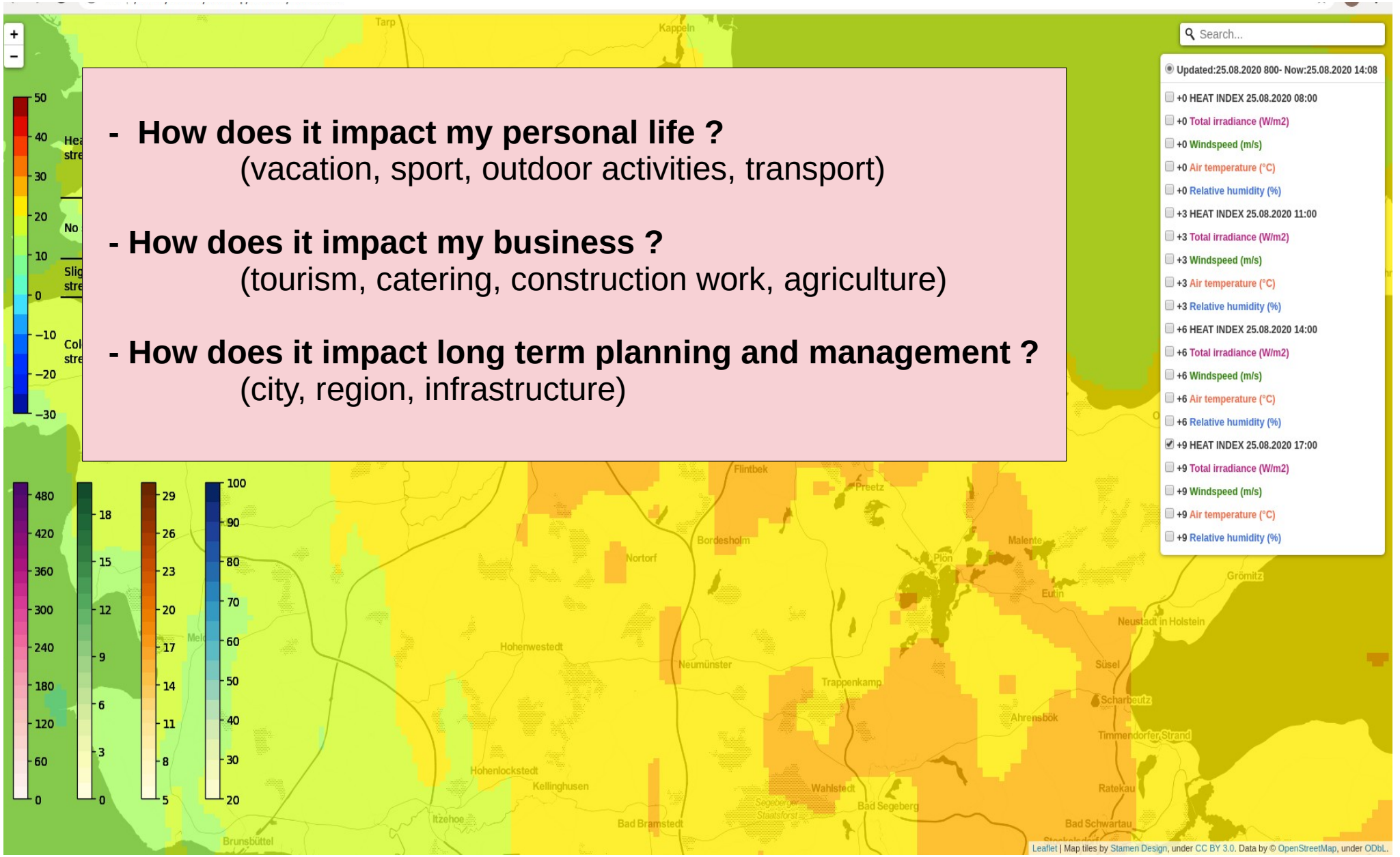

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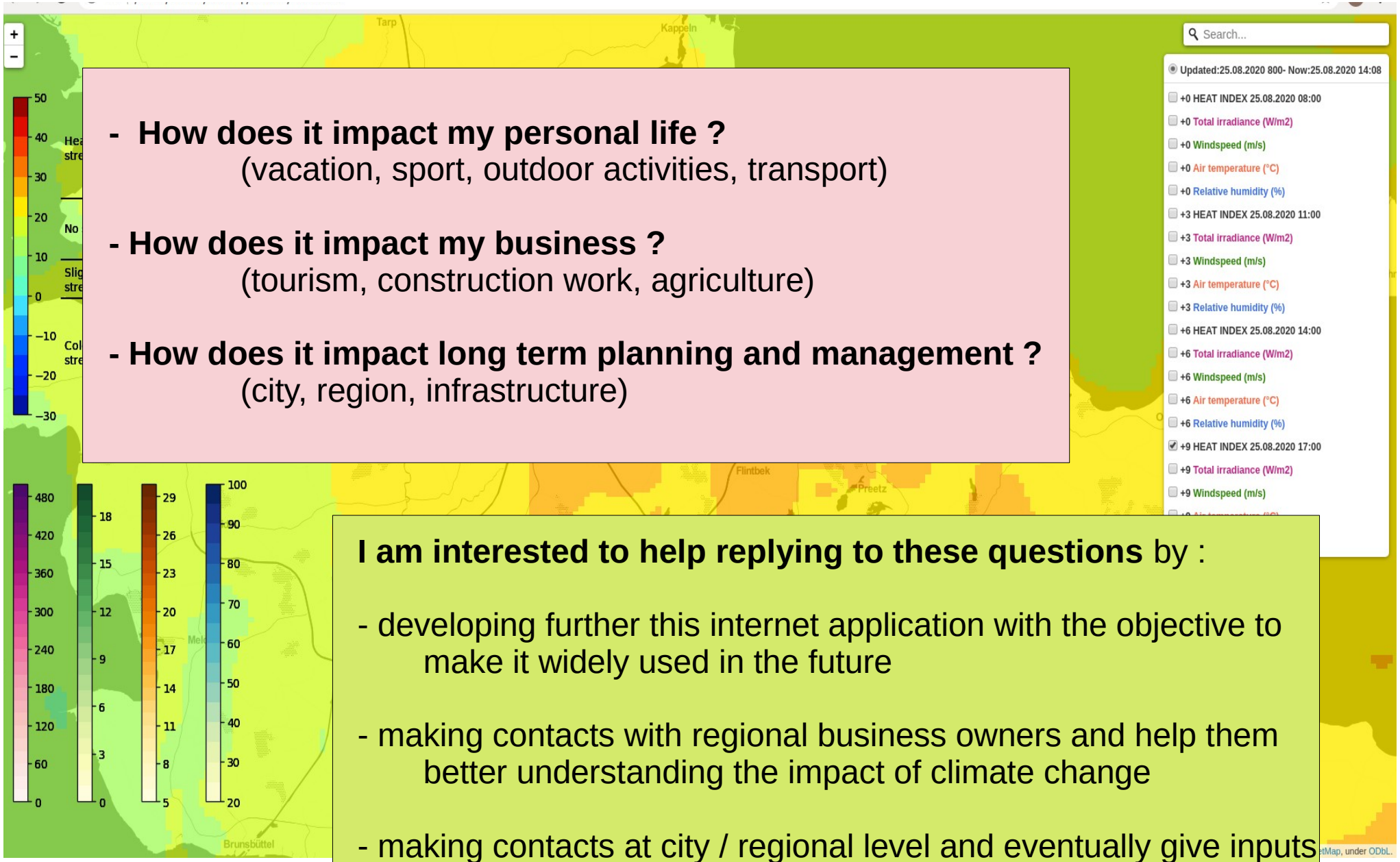

- **How does it impact my personal life ?**
  (vacation, sport, outdoor activities, transport)

- **How does it impact my business ?**
  (tourism, construction work, agriculture)

- **How does it impact long term planning and management ?**
  (city, region, infrastructure)

I am interested to help replying to these questions by :

- developing further this internet application with the objective to make it widely used in the future

- making contacts with regional business owners and help them better understanding the impact of climate change

- making contacts at city / regional level and eventually give inputs based on my expertise in climate science

Take-home messages

- Temperature are increasing in Europe and in Germany

- Heat waves (HW) will occur more often and be longer

- During an HW, temperature can reach more than 35°C during several days

- Very warm temperatures have negative impacts on health and can create a physiological “**heat stress**” (especially if associated with high humidity and low wind speeds)

- The risk of suffering from a “heat stress” **forces us to adapt** our daily activities :
  - privately
  - professional

Thanks to my strong background in climate sciences and data analysis, I am looking forward to **help optimizing these adaptations**

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