Reducing the risks from extreme heat in India

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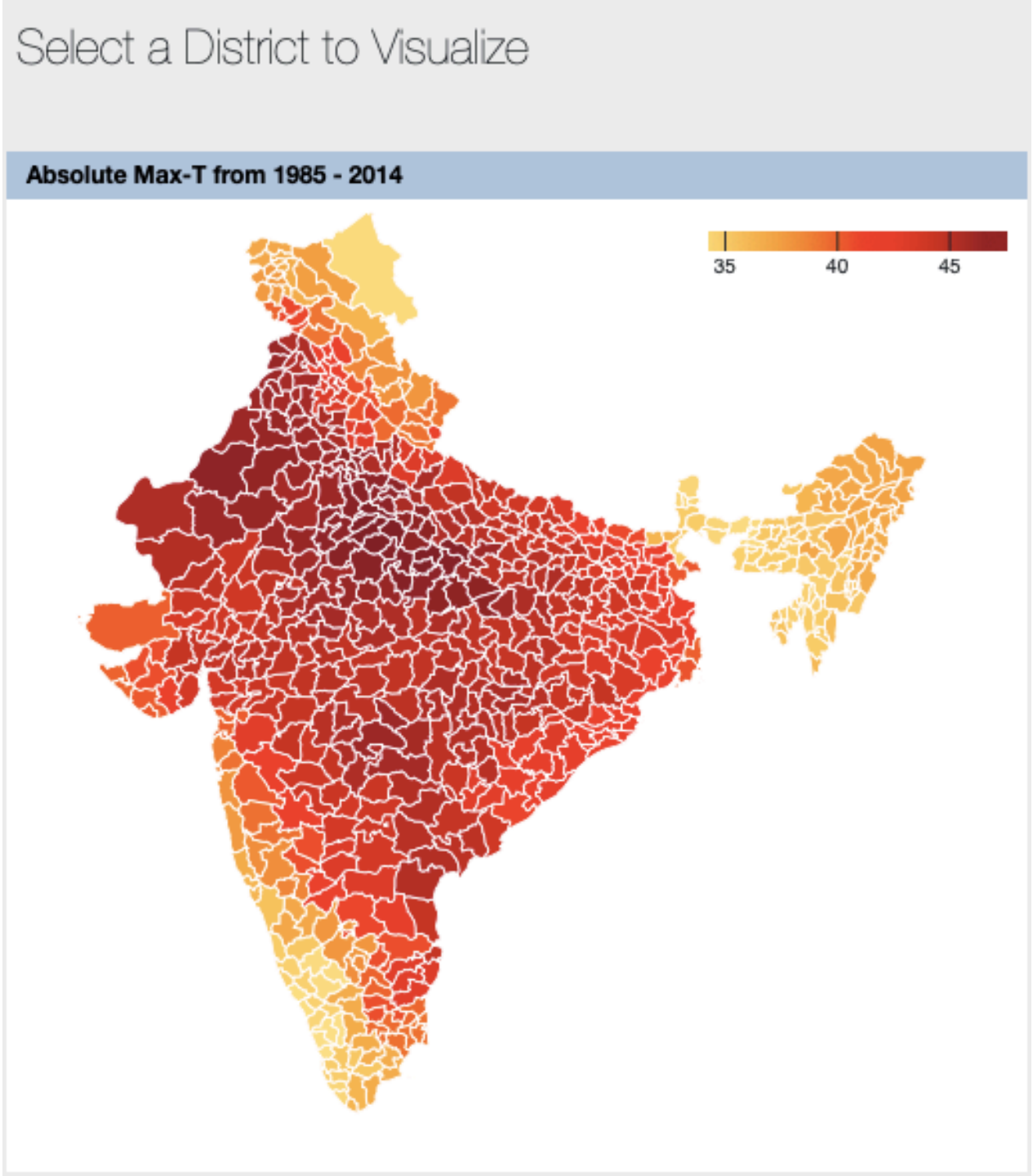
Fundamental elements to designing effective heat interventions

- Integrate temperature and health information for ‘local’ risk assessments
- Translate epidemiologic analysis into public health action
- Incorporate contextually relevant factors in heat vulnerability assessments

This is the demonstration of the daily district-level temperature [data portal]



Select a district (Pune, Maharashtra shown here) and daily Max Temp for 1985 displayed on the screen

Select a District to Visualize

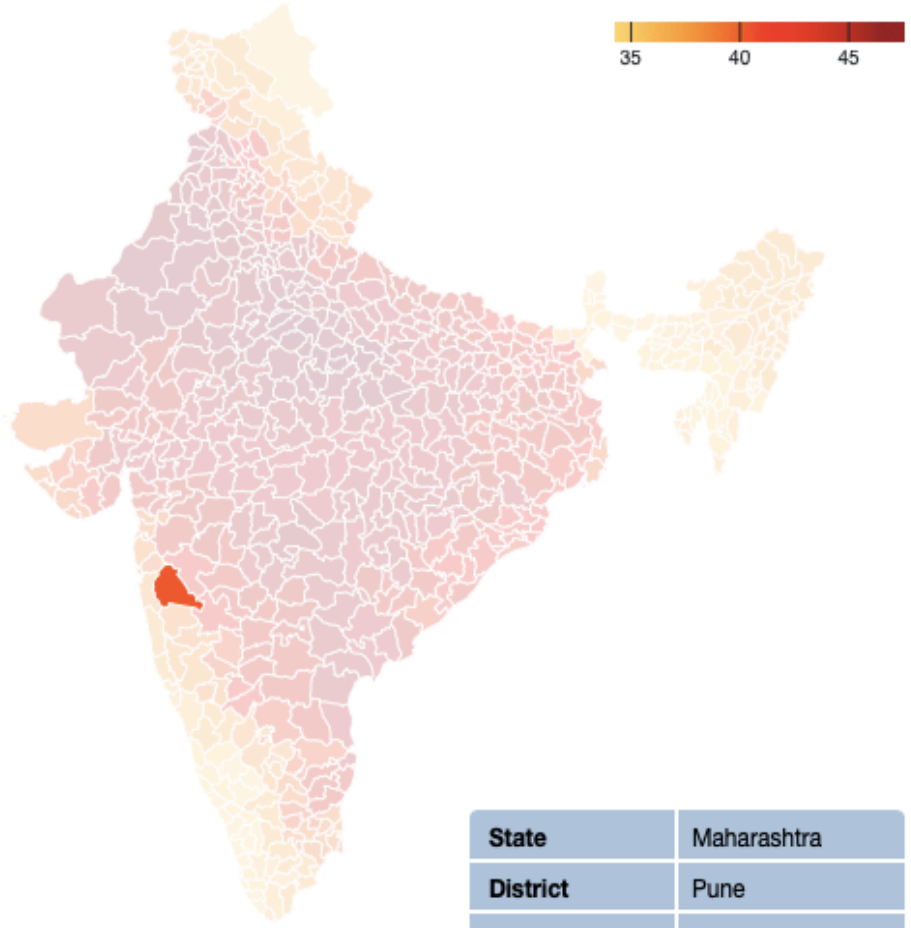
Indicator

Daily Maximum Temperature

Year

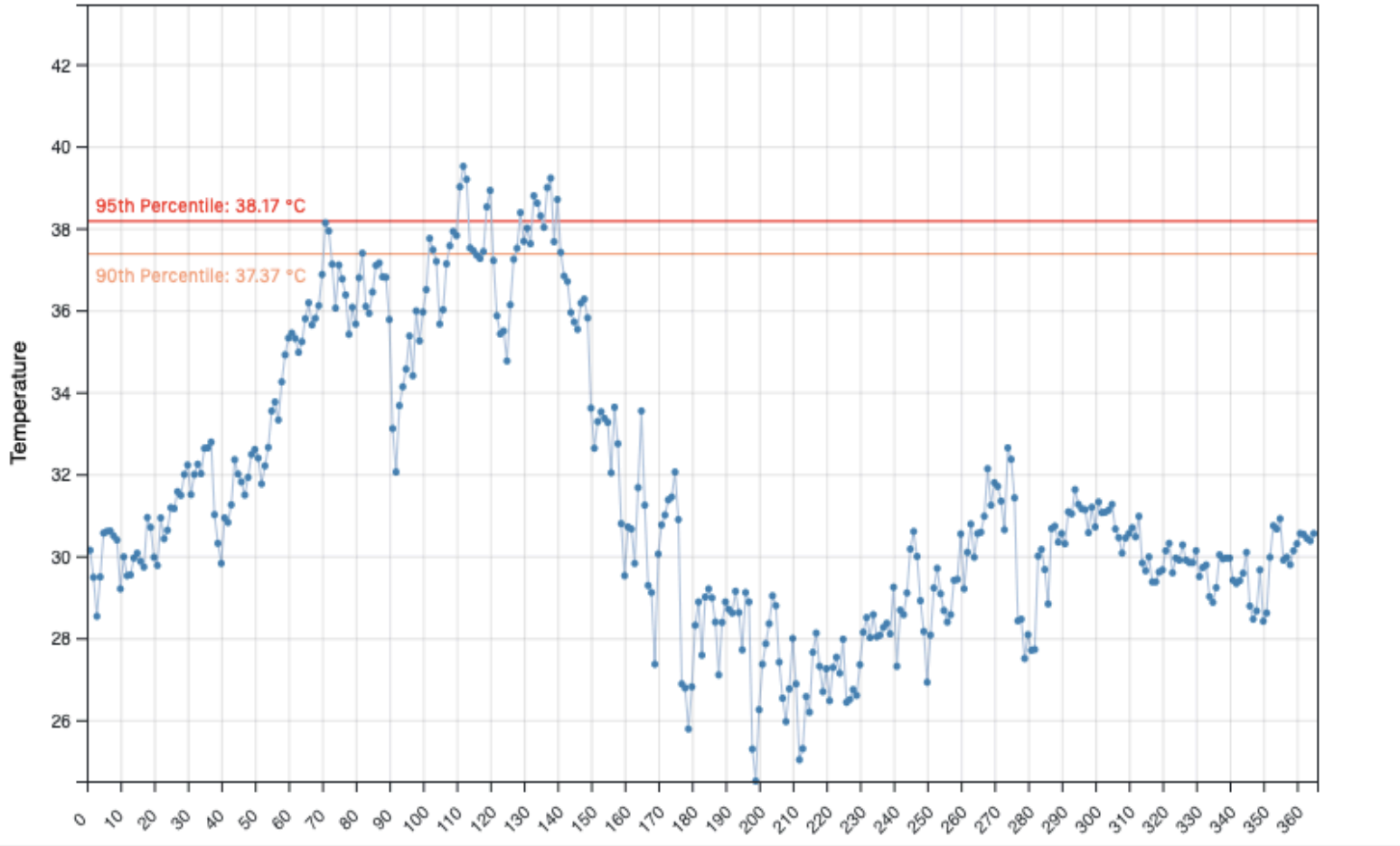
1985

Absolute Max-T from 1985 - 2014

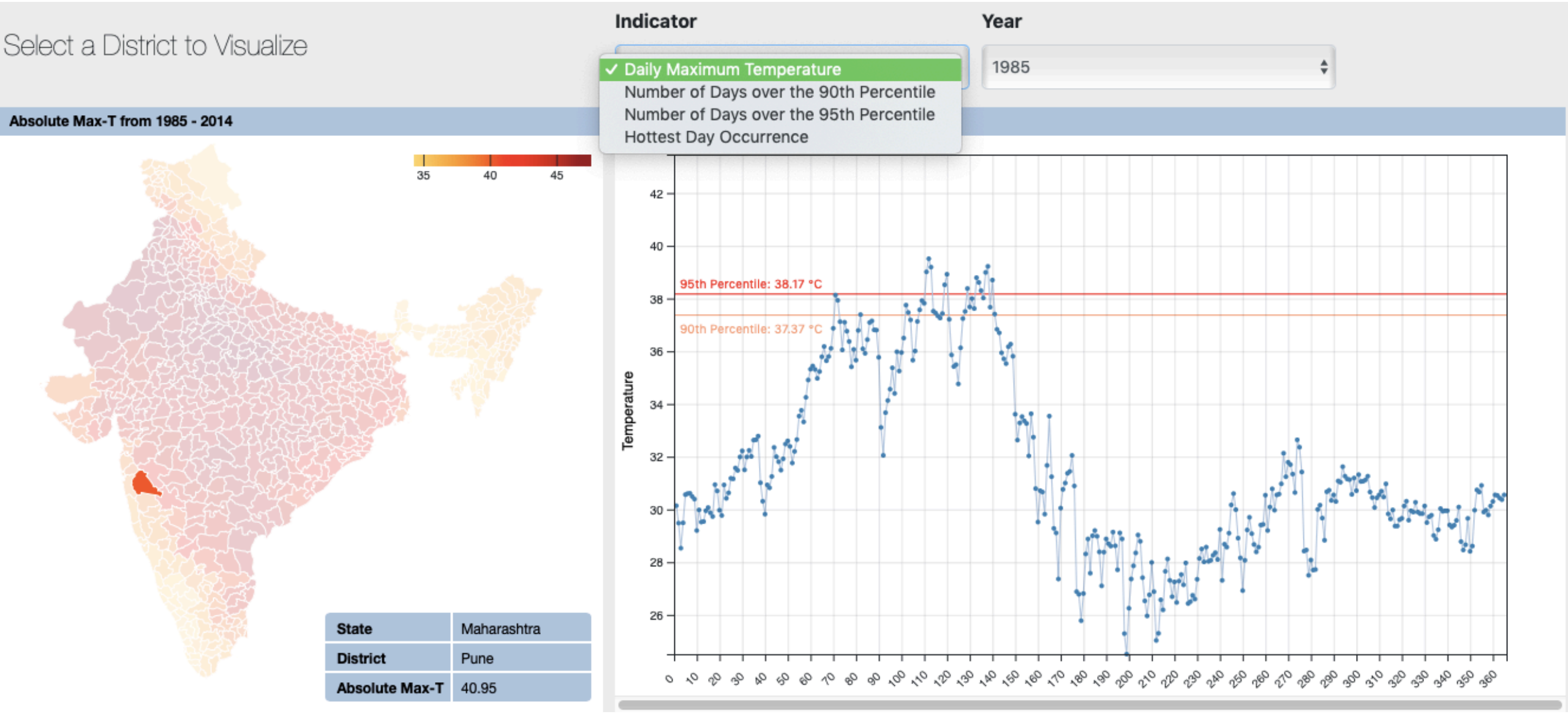


State	Maharashtra
District	Pune
Absolute Max-T	40.95

Daily Maximum Temperatures for 1985



For the same district and year, there are four different heat metrics displayed



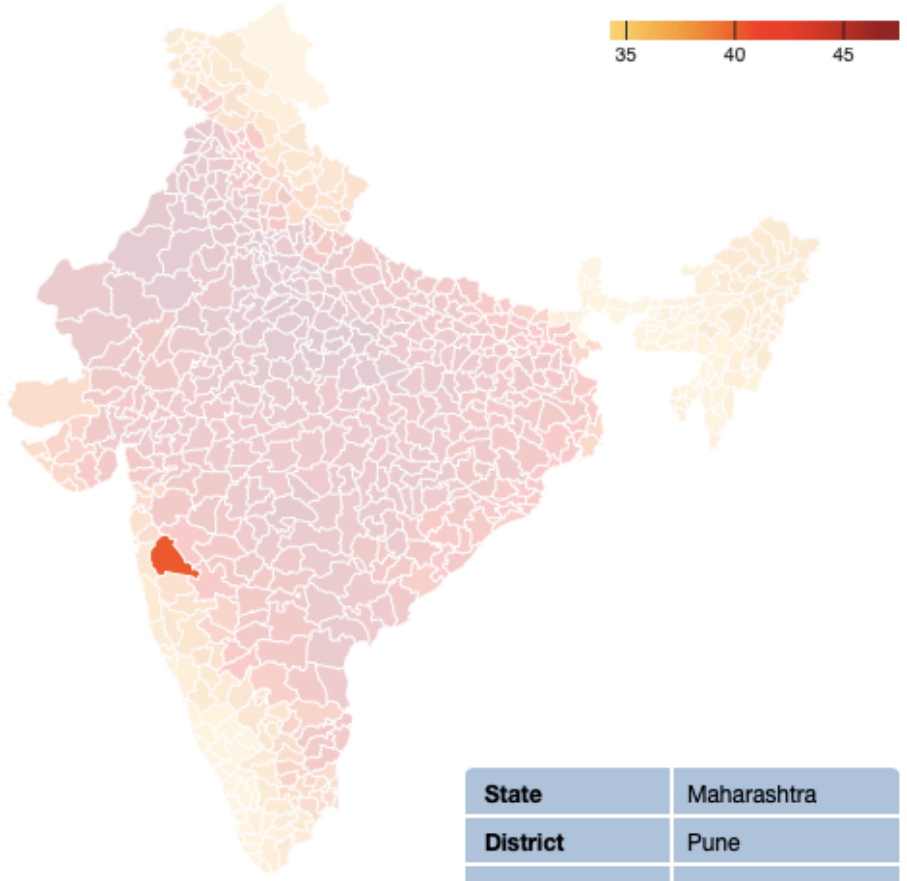
For Pune, this graphic displays the number of days daily Max Temp was above the 95th percentile (using 1985-2014 data)

Select a District to Visualize

Indicator

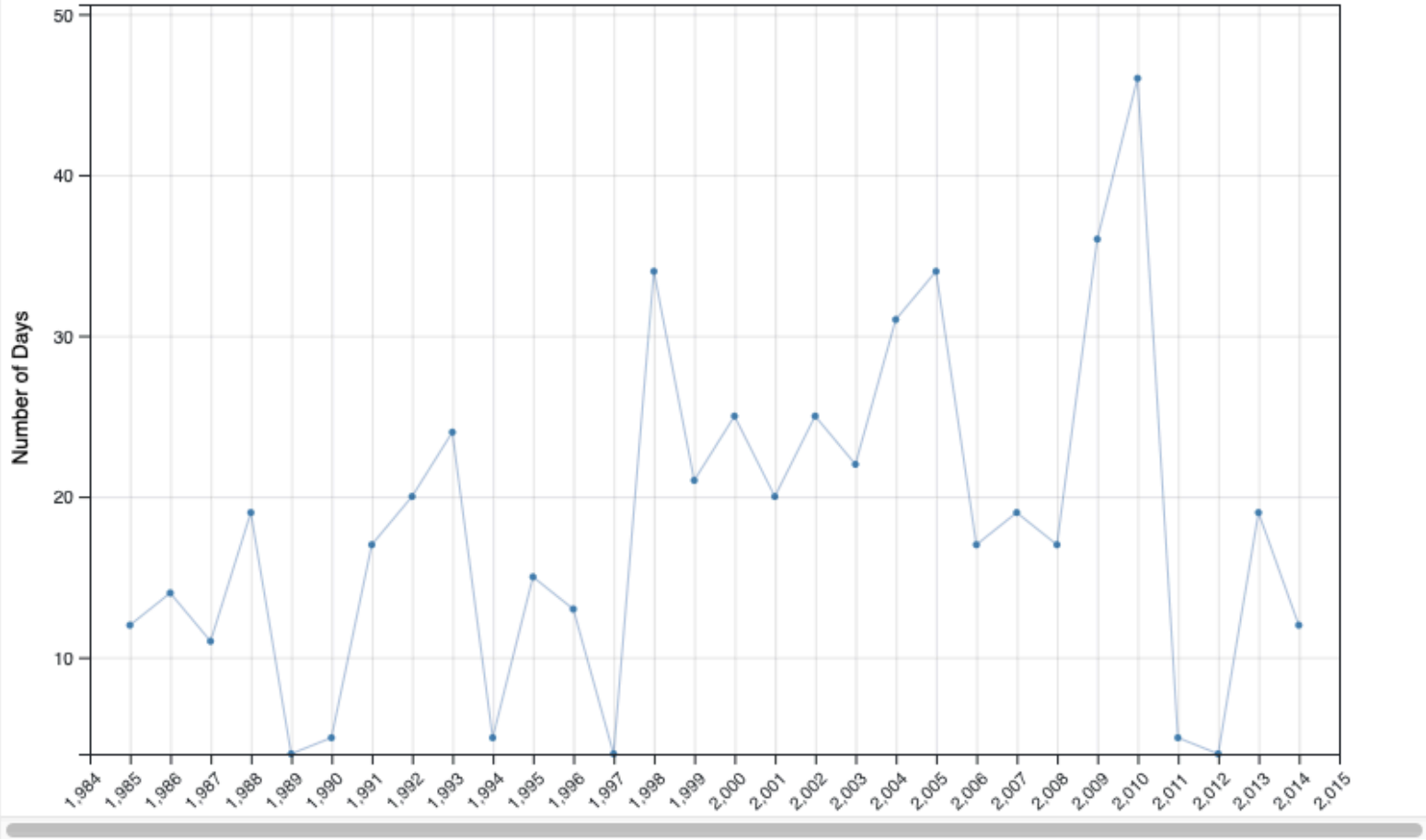
Number of Days over the 95th Percentile

Absolute Max-T from 1985 - 2014

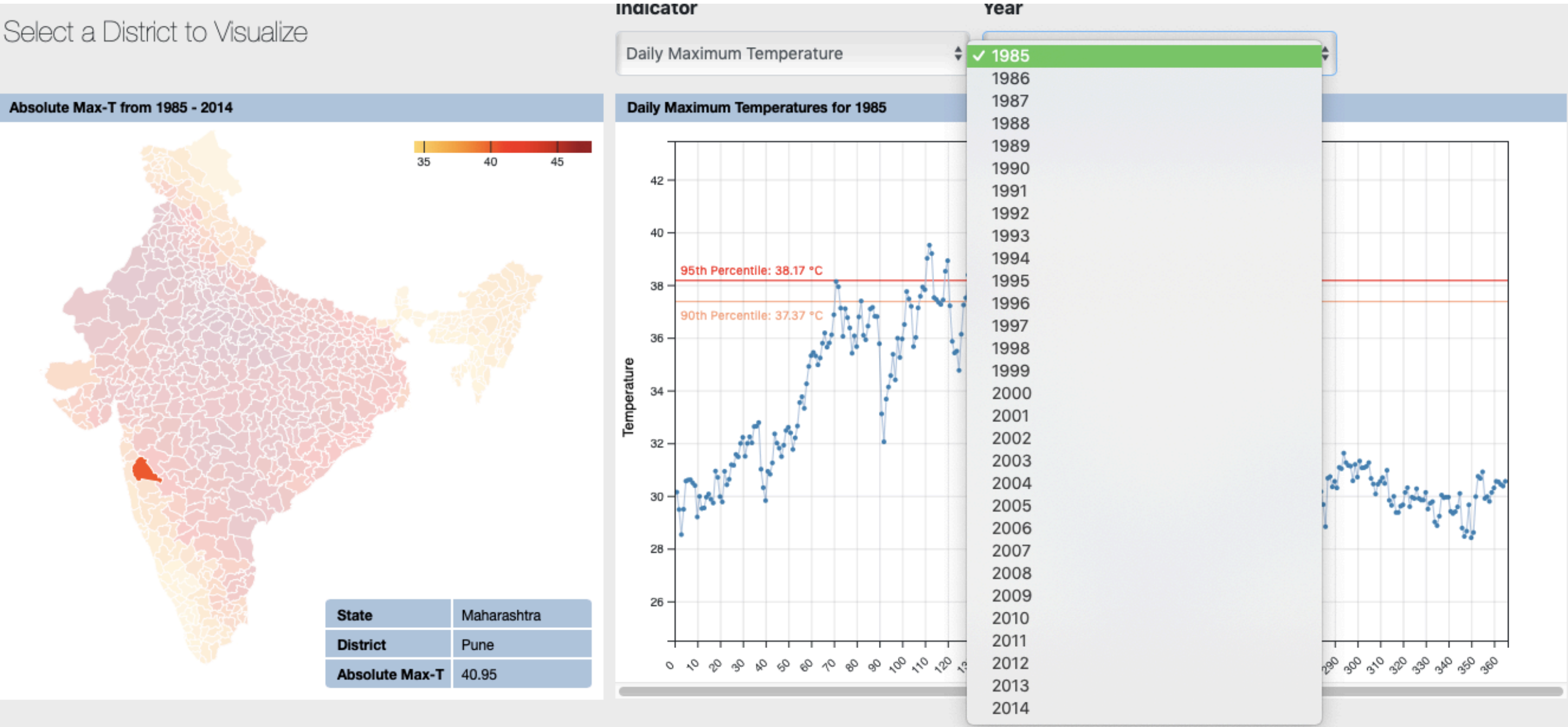


State	Maharashtra
District	Pune
Absolute Max-T	40.95

Number of Days over the 95th Percentile (38.17 °C)



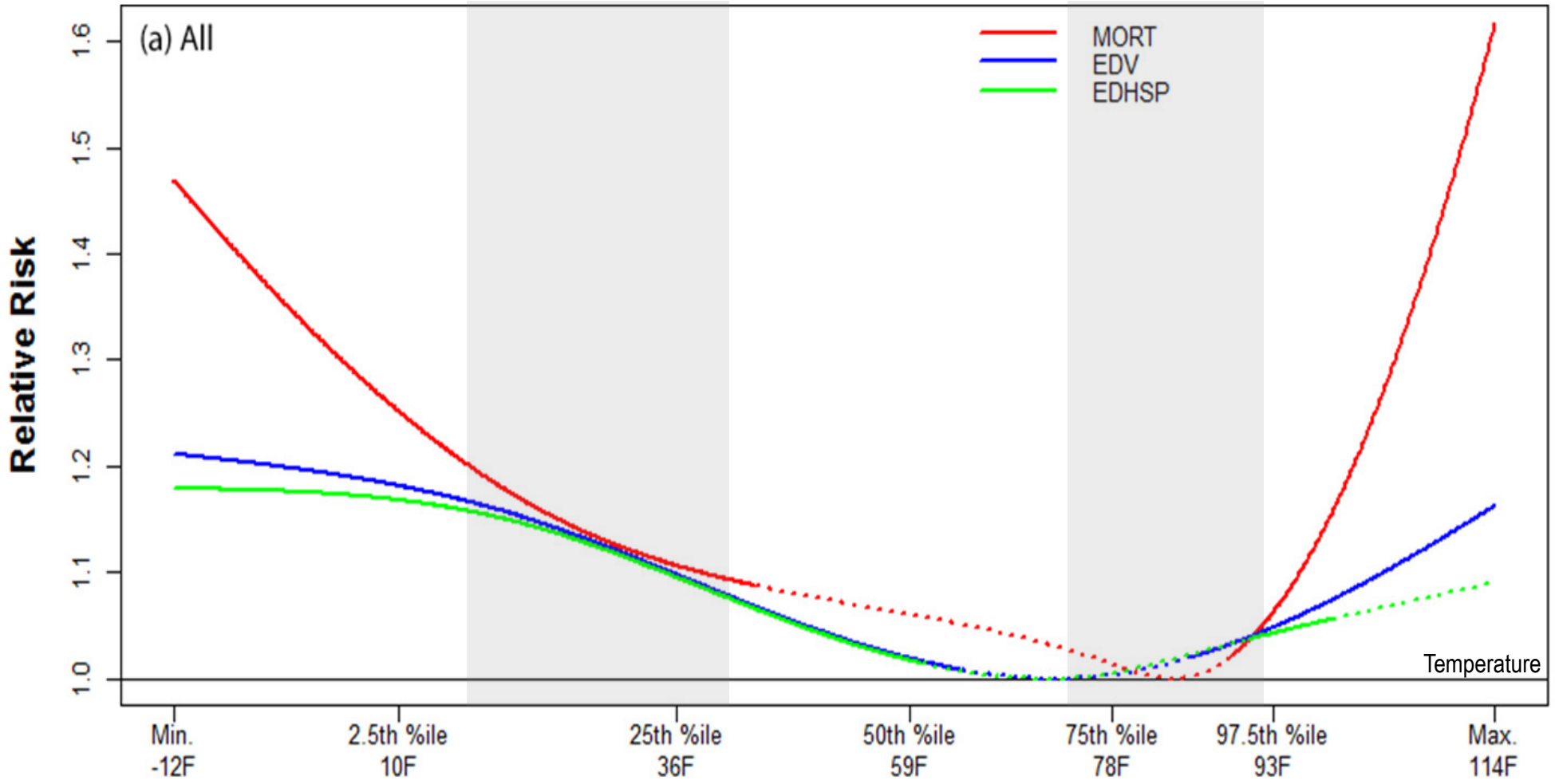
For Pune district in the state of Maharashtra, this graphic displays that the daily Maximum Temperature can be displayed for any year between 1985-2014



Translating epidemiologic modeling into public health practice

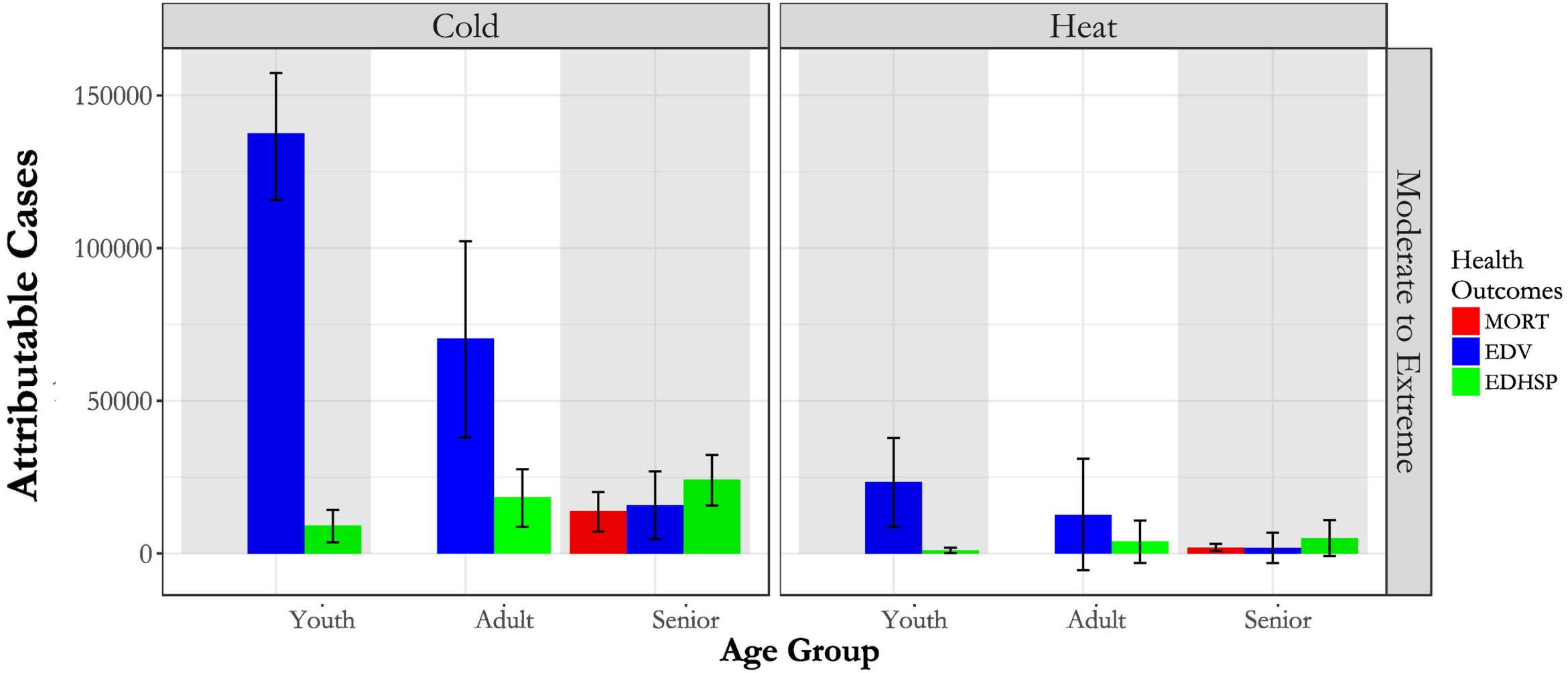
Non-linear increase in risk for unit change in temperature

But how useful is it for public health action?



Liu, Saha et al., 2019. Science of Total Environment

Translating epidemiologic modeling into public health practice

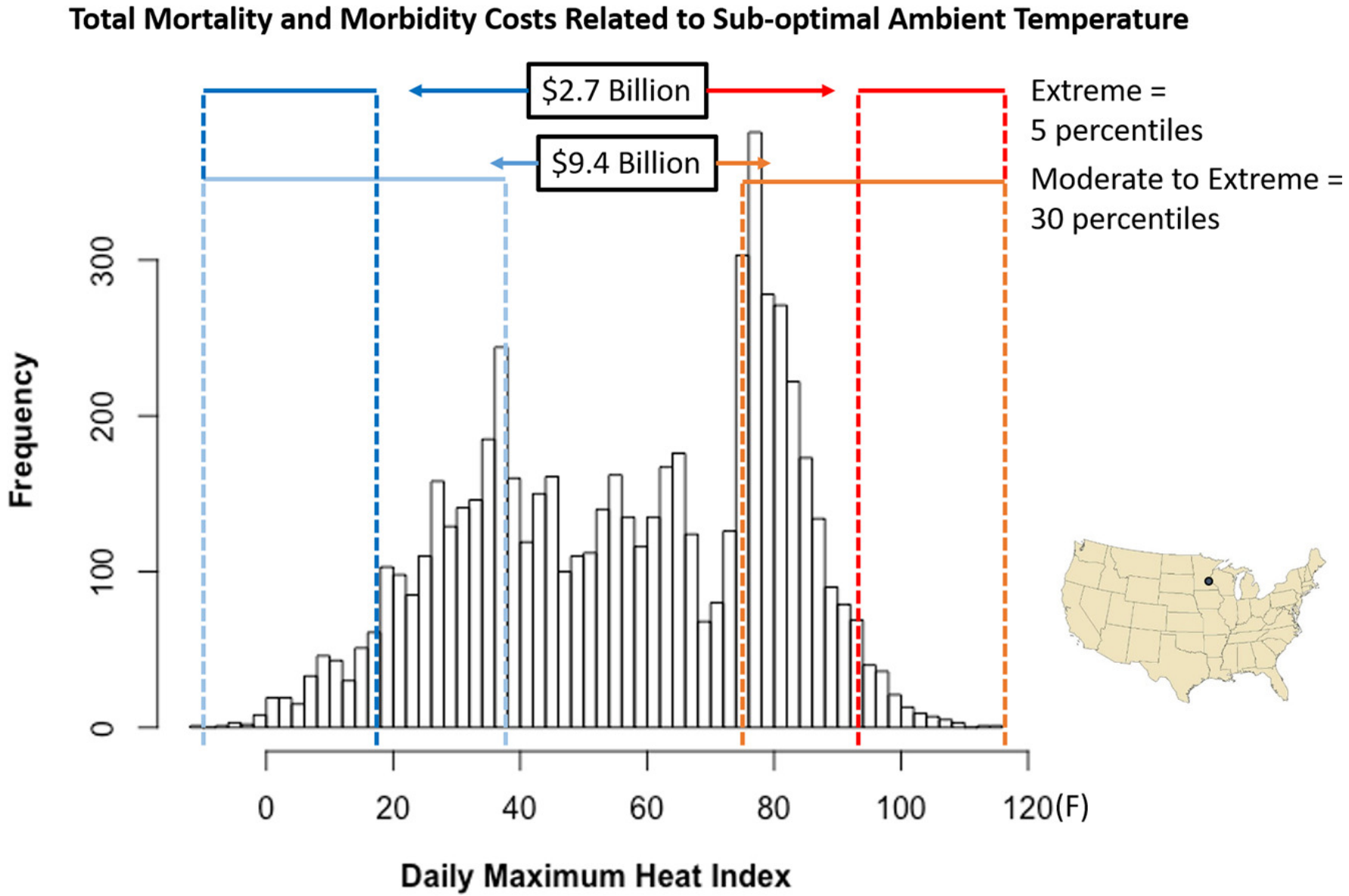


Instead of modeling health risk alone, we can instead model the excess number of cases associated with a certain range of temperature

Translating epidemiologic modeling into public health practice

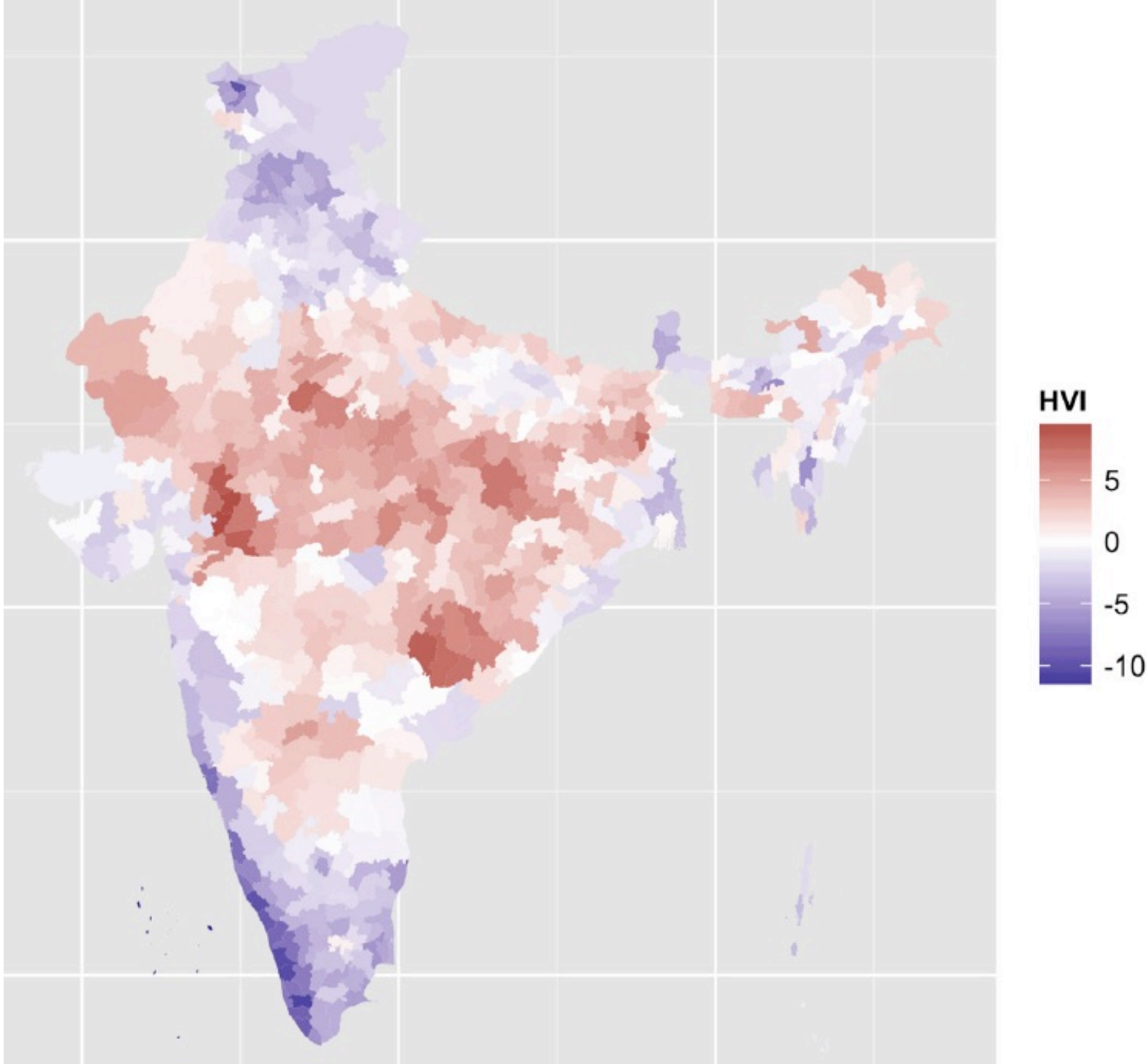
Excess cases can also be used to calculate the direct healthcare costs associated with a range of temperatures.

This could be another source of information for public health actions.



Heat Vulnerability Assessments

Variable
Elderly
Under five
Sex ratio
Scheduled castes
Scheduled tribes
Literacy
Workers
Lowest wealth quintile
Drinking water inside premises
Living in a good house
Having only mobiles
Owning radios
Owning TVs
Children (12–23 months) fully immunized
Villages having sub-center within 3 km
Vegetation fraction
Normalized difference vegetation index



Azhar, Gulrez et al. 2017, IJERPH

Summary

- Include information on emergency department visits and hospitalizations along with deaths for a more complete health risk assessment
- A stronger collaboration across agencies in sharing data
- Greater support from multi-disciplinary research – linking environmental epidemiology, economics and climate science
- Making emerging science available to decision-makers – need for efficient use of mobile technologies to make products more accessible

Thank you

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