Health and Climate Change in Iberian Peninsula: is food missing in the equation?

Saúde e Alterações Climáticas na Península Ibérica: está a alimentação fora da equação?

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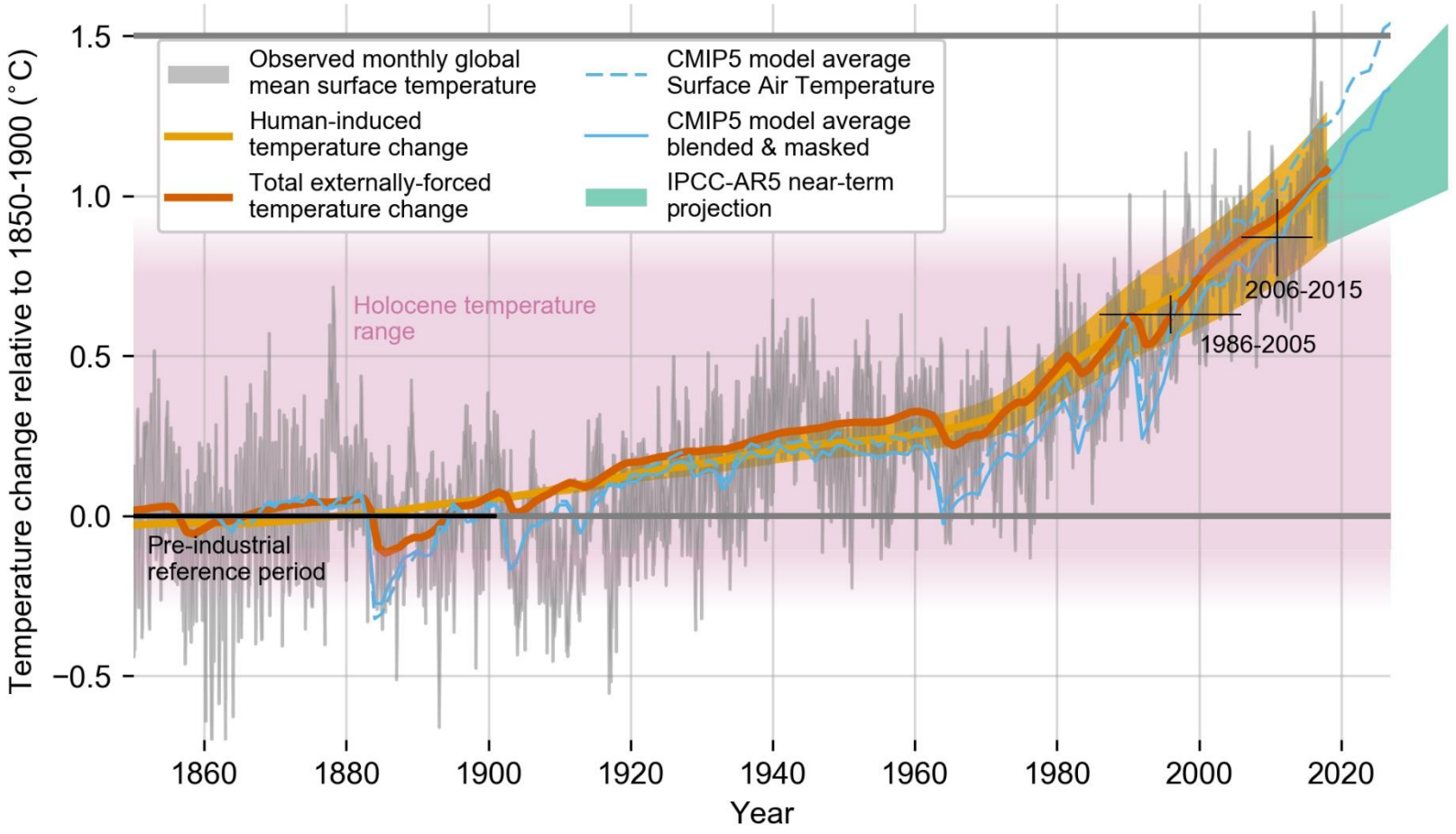
Outline

- Climate change: what is changing?
- Climate change: is impacting health? and food?
- Climate change & Food contaminants (Mycotoxins)
- Consequences for Iberian Peninsula
- Mitigation and adaptation strategies

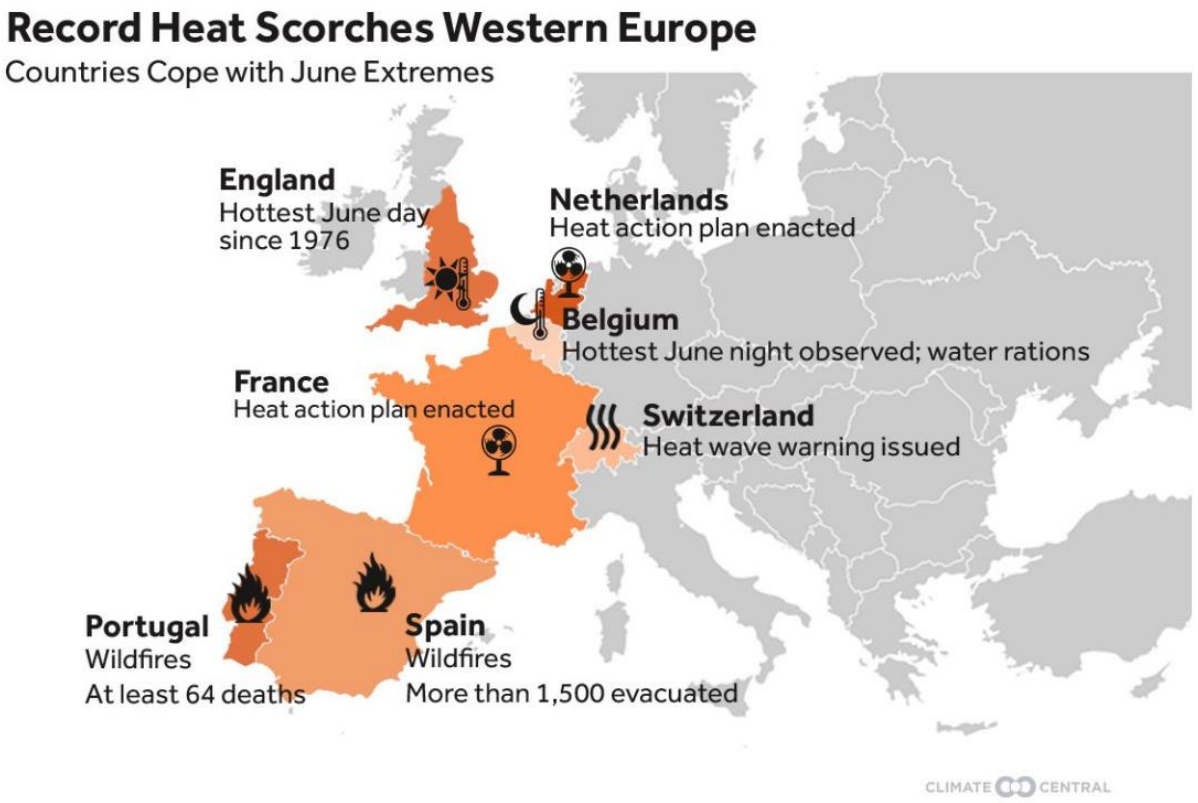
Climate change – what is changing?



Evolution of global mean surface temperature (GMST) over the period of instrumental observations

IPCC, 2018: Global Warming of 1.5°C.

Climate change & extreme events & health



World Weather Attribution (WWA), June 2017

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Population exposure to particulate-matter and related mortality due to the Portuguese wildfires in October 2017 driven by storm Ophelia

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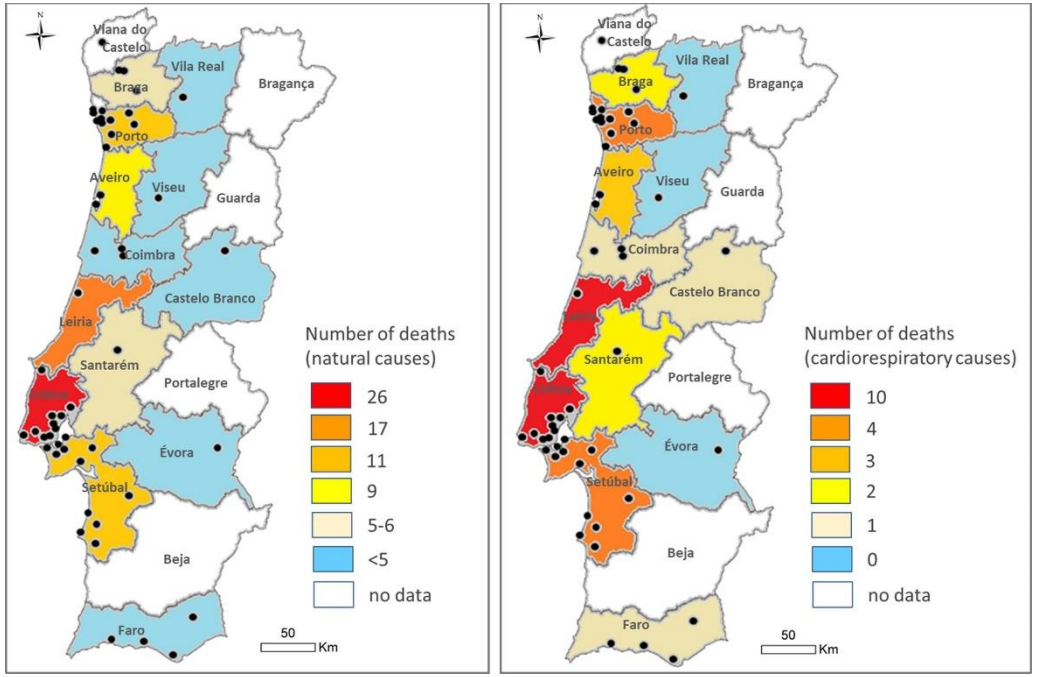
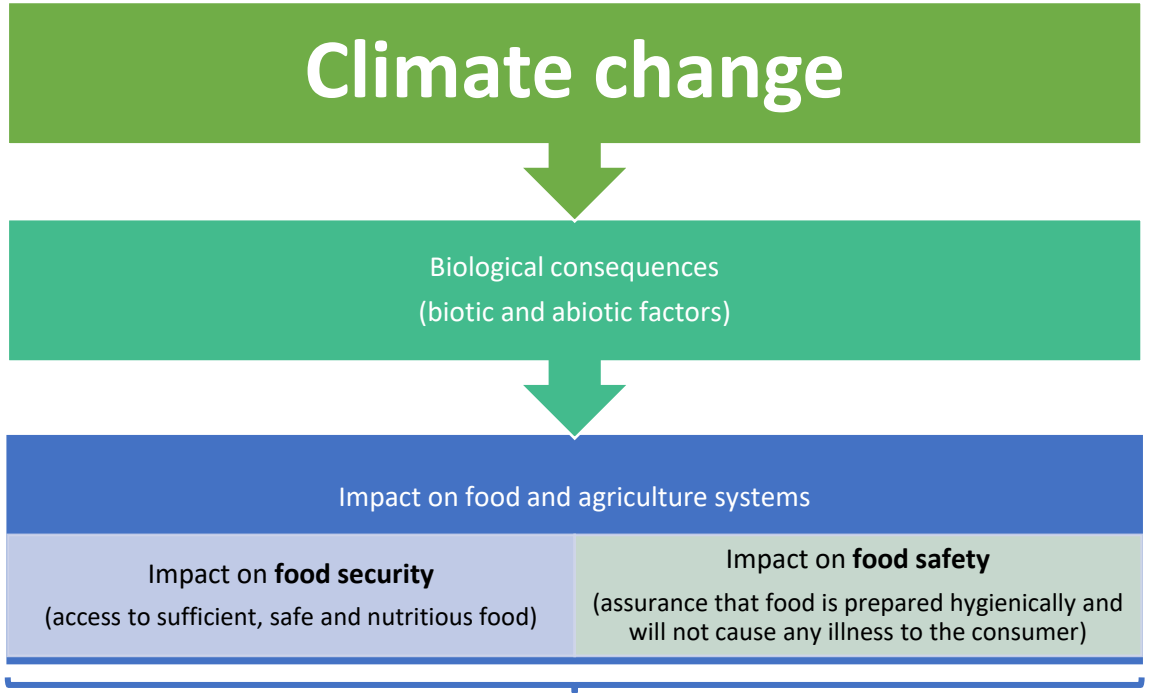


(Left) Number of natural deaths attributable to PM_{10} from the wildfires of October 2017 in Portugal; additional information in SMI.
(Right) Number of cardiorespiratory deaths attributable to PM_{10} from the wildfires of October 2017 in Portugal

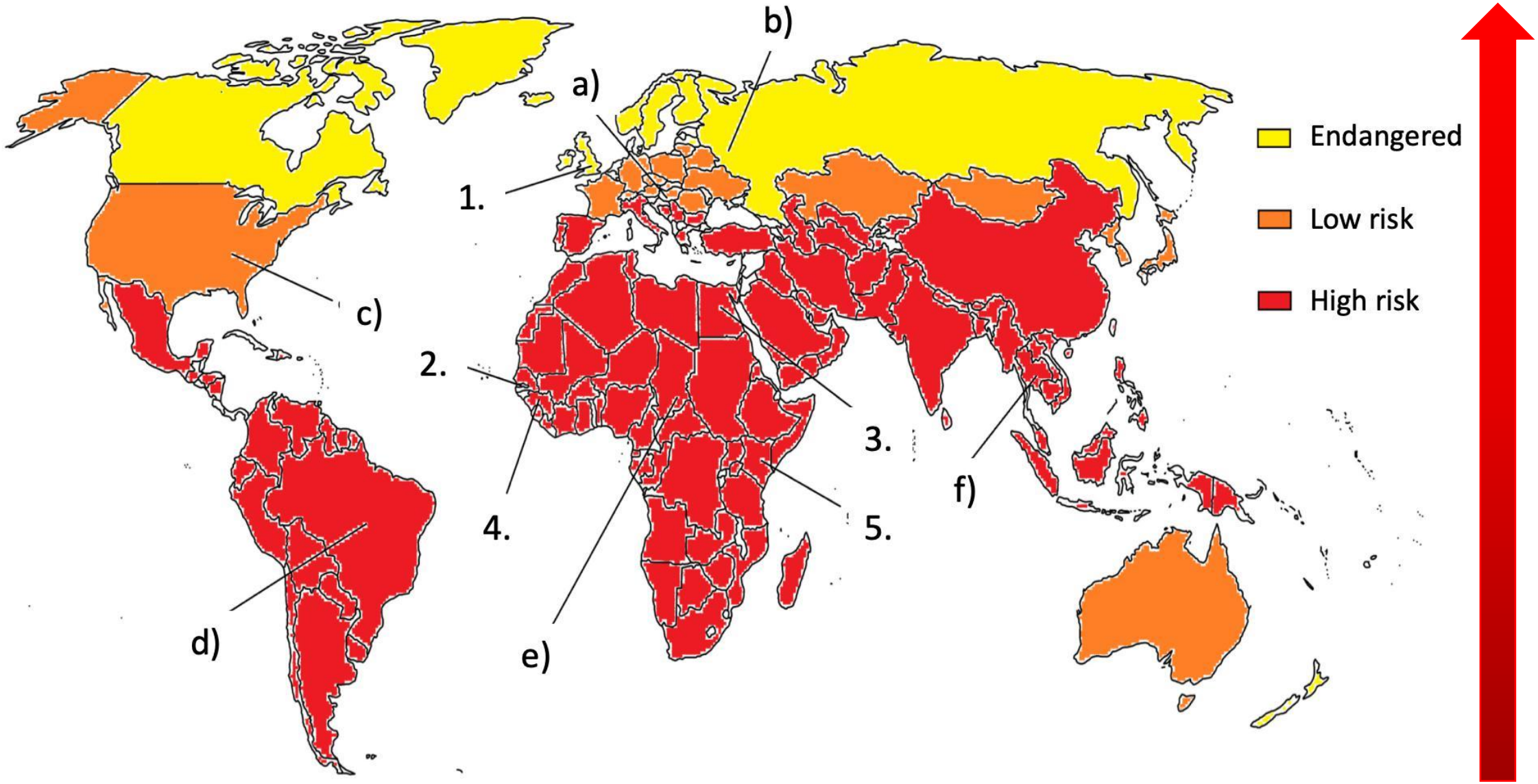
Climate change – different health impacts



IMPACT ON **PUBLIC HEALTH**

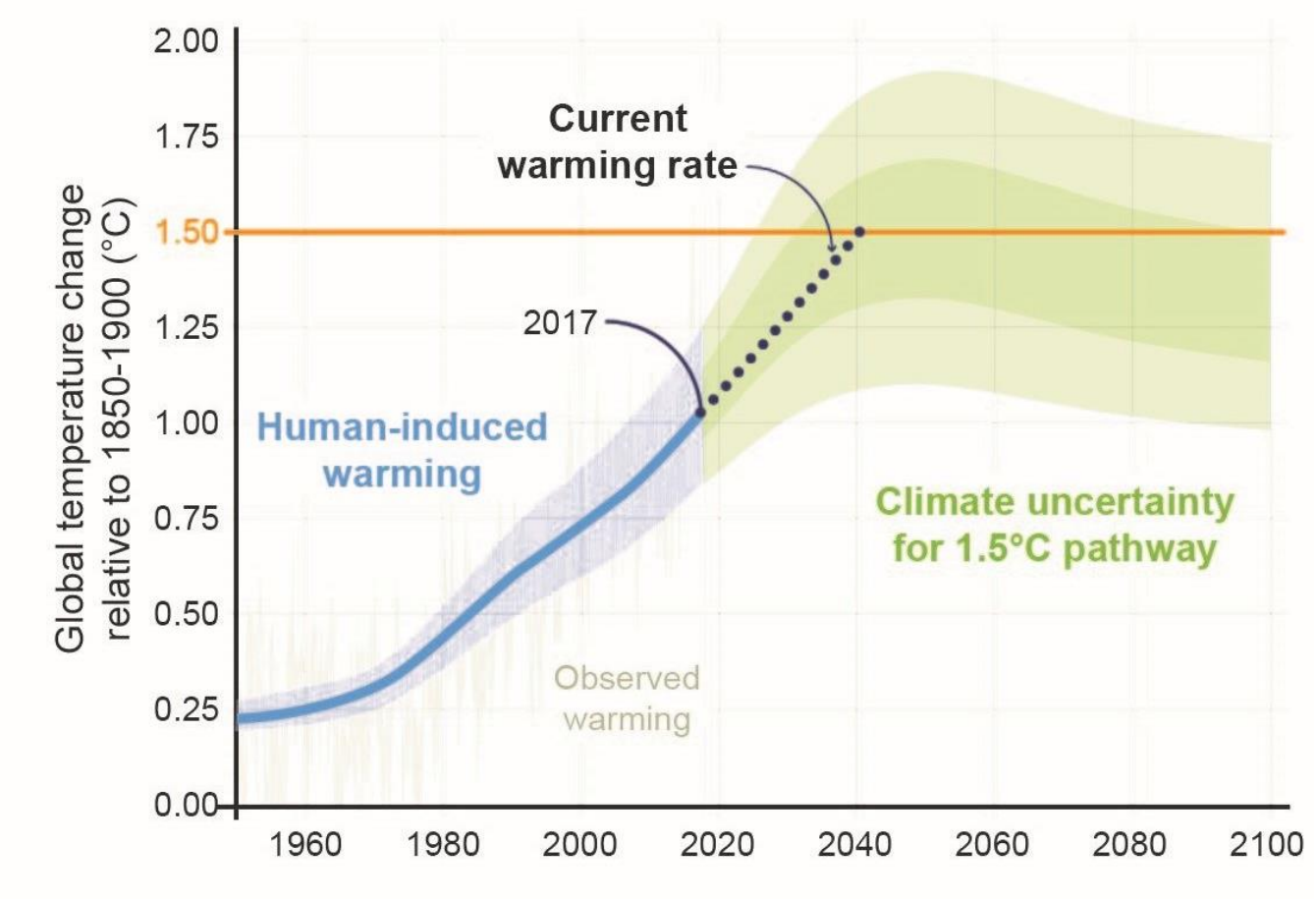
Assunção et al., 2020

- Climate change → possible food safety impacts
  - Foodborne Disease Agents (Bacteria, Viruses and Parasitic)
  - Zoonosis and animal diseases
  - **Toxicogenic Fungi and Mycotoxin Contamination**
    - Naturally occurring toxins produced by fungi, affecting humans and animals
    - Food & feed are considered the main exposure sources



Ráduly et al., 2020

How close are we to “dangerous temperatures”?



Human-induced warming reached approximately **1°C above pre-industrial levels in 2017**

At the present rate, global temperatures would reach **1.5°C around 2040**

IPCC, 2018: Global Warming of 1.5°C.

Trade-Offs between mitigation and adaptation strategies to reduce the consequences of climate change

1. Prevention of mycotoxin contamination
   - Complete prevention → is not feasible (natural contamination)
2. Surveillance and Monitoring – human, animal, food and environment
   - Detection of biomarkers/metabolites in populations → measure of exposure to toxins
3. Predictive modelling
   - Generate crucial information to manage risk by all the stakeholders, including farmers
4. Maintenance of safe food stocks
   - Food insecurity → consumption of unfit food
   - Good quality and secure storage food products
5. Good Agricultural Practices (GAP)
   - Revised GAP for problematic crops
   - Production and consumption of alternative crops
6. Public/consumers information
   - Mycotoxins are not understood by the public as an invisible threat → difficult to publicize effectively
7. Investment in scientific and technical capacities
   - Better understanding of problems and new approaches for dealing with them

https://www.chronicle.com/article/does-one-compromise-fit-all/