



Climate Change and Regulatory Climate Zones for Biocontrol in the EU

Promoting Sustainable Agriculture in a Changing Climate

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Introduction

Climate change is reshaping the world we live in and altering the way we farm. Global climate change signifies long-term alterations in worldwide weather patterns, featuring rising global temperatures, shifting rainfall patterns, and extreme weather events.

These seasonal and long-term changes are poised to impact crops, invasive species distribution, and population dynamics, as well as the activity and abundance of natural enemies. Species extinction and the efficacy of crop protection technologies are also at stake.

In this new reality, sustainable farming practices are crucial and require a new **climate-smart** approach to biocontrol regulation.



Understanding Climate Change

Climate change is not uniform; impacting regions worldwide to varying degrees. Some areas experience more pronounced warming, while others witness shifts in rainfall patterns, resulting in a complex and heterogeneous distribution of climate change effects across the globe. This variability underscores the importance of understanding and addressing climate change on a global scale to mitigate its far-reaching consequences.

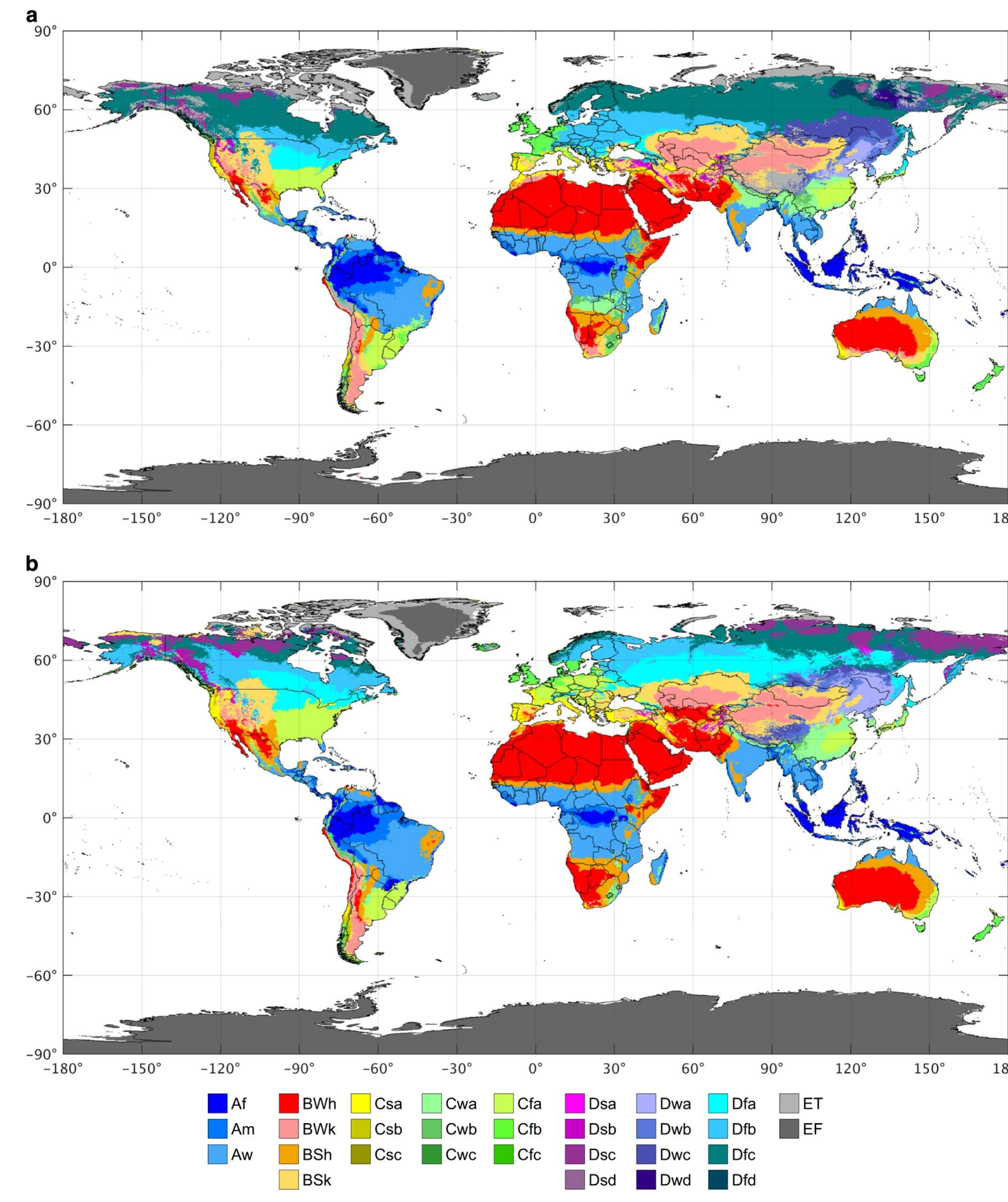


Figure 3. Köppen-Geiger map (a) 1980–2016 (b) 2071–2100

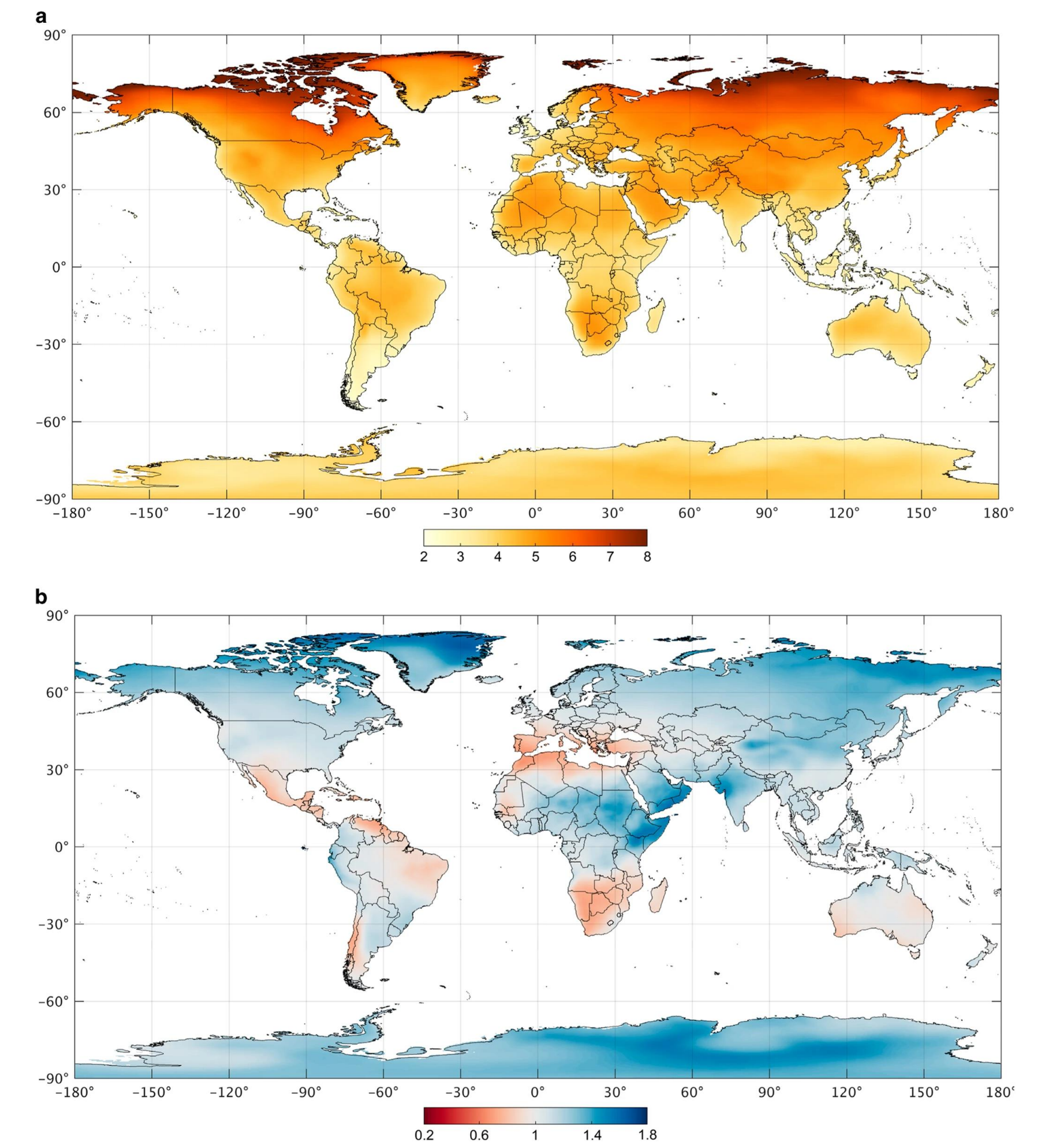


Figure 4. Changes between 1980–2016 and 2071–2100 in mean air temperature (a) and precipitation (b)

Regulatory Climate Zones

The regulatory climate zones are based on their unique climate and natural vegetation characteristics. EPPO climatic zones are developed for:

Cross-Border Data Sharing: Data on product efficacy and crop safety can be shared when agro-climatic conditions align.

Harmonized Evaluation: EPPO climatic zones standardize evaluation processes.

Mutual Recognition: These zones promote mutual recognition of data.

Tailored Solutions: Climate-based zoning allows tailored product use for specific regions.

Informed Decisions: Zones provide essential information for farmer and regulator decision-making.

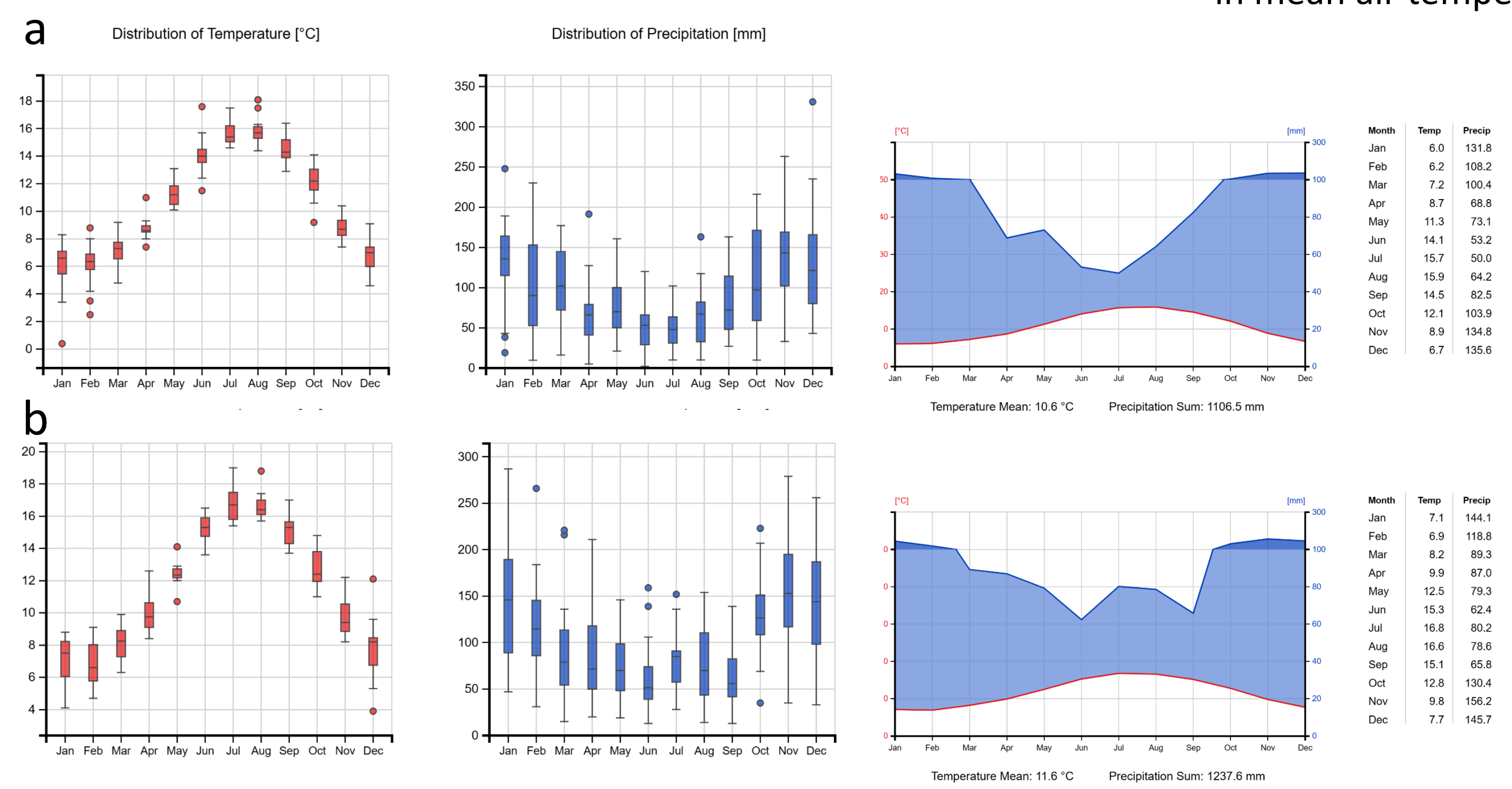


Figure 5. Brest, France, Climate Class: Cfb (a) 1960–1980 (b) 2000–2019

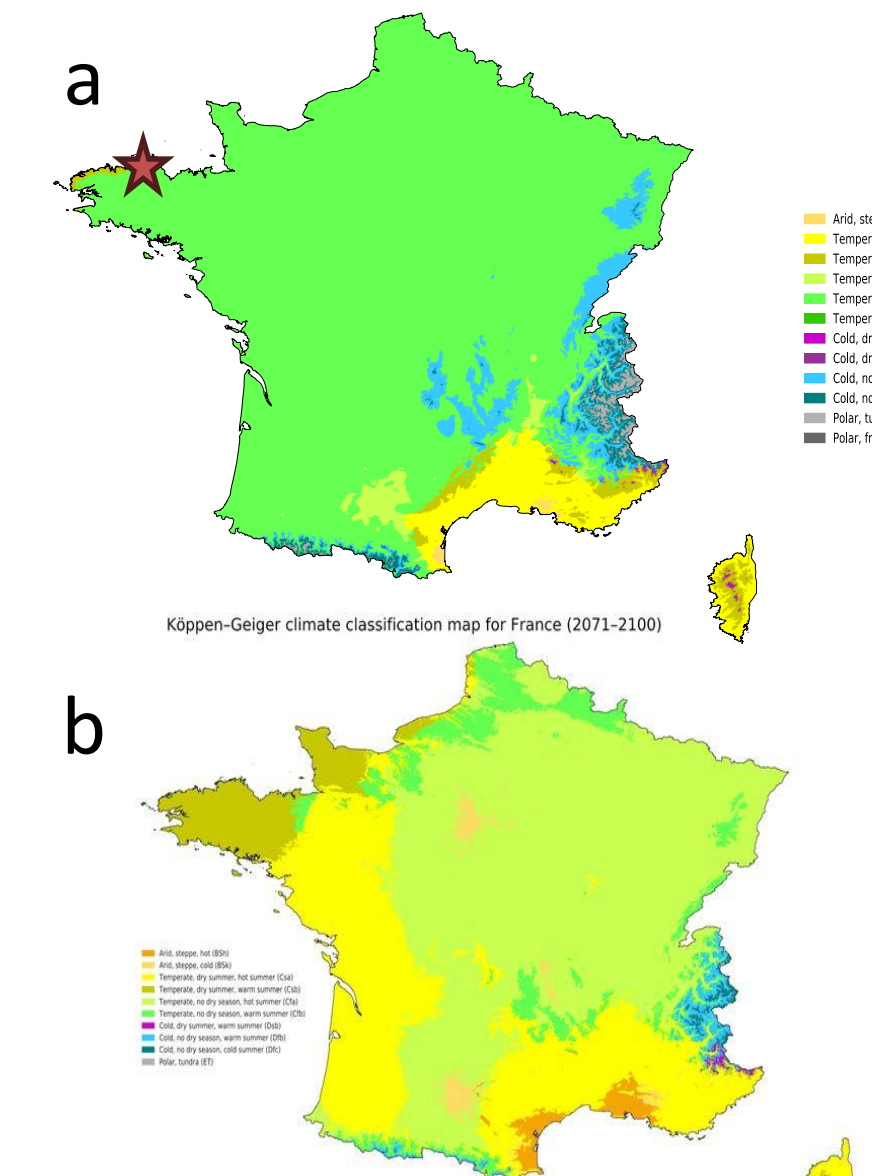


Figure 6. Köppen-Geiger map (a) 1980–2016 (b) 2071–2100

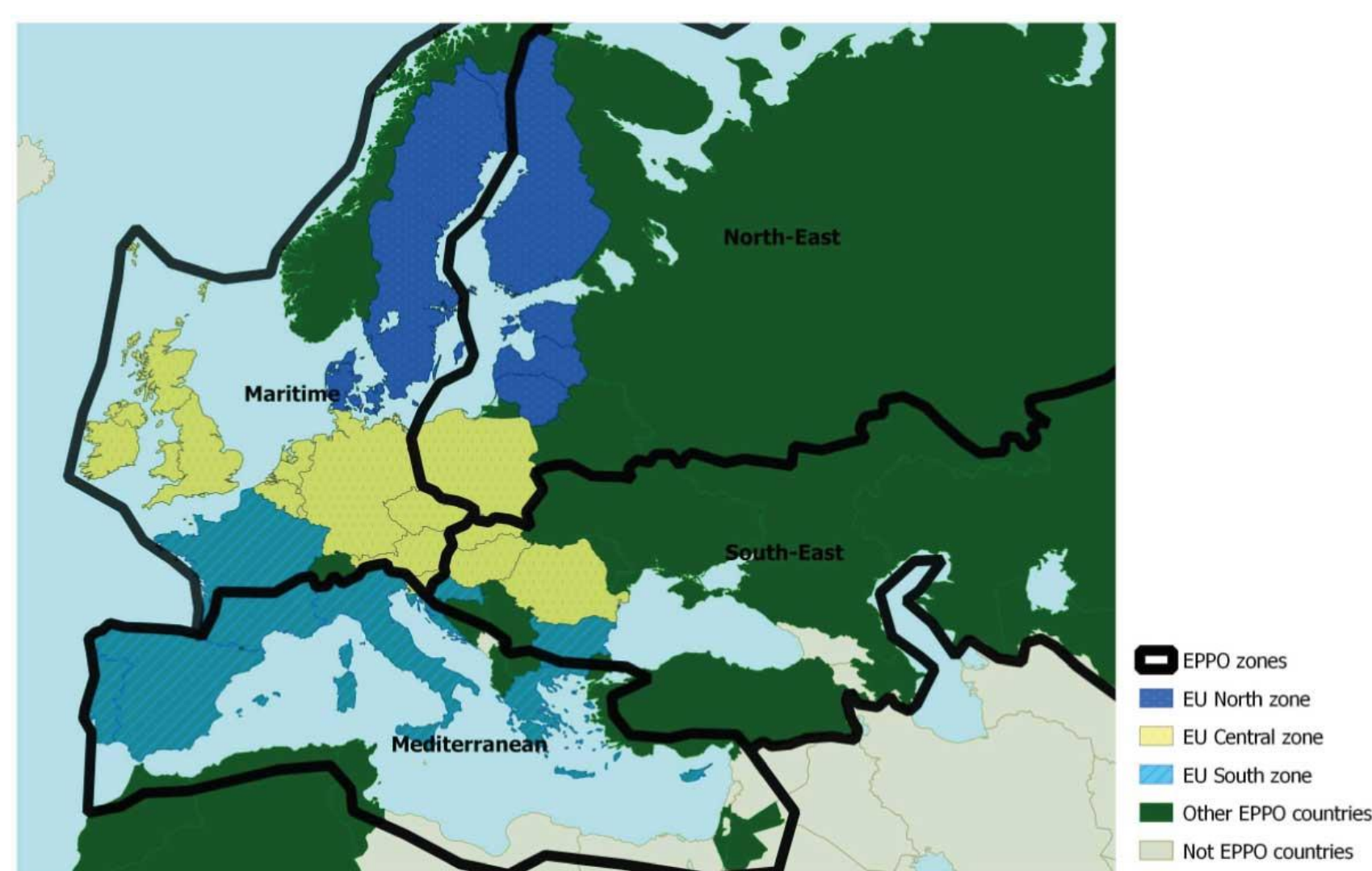
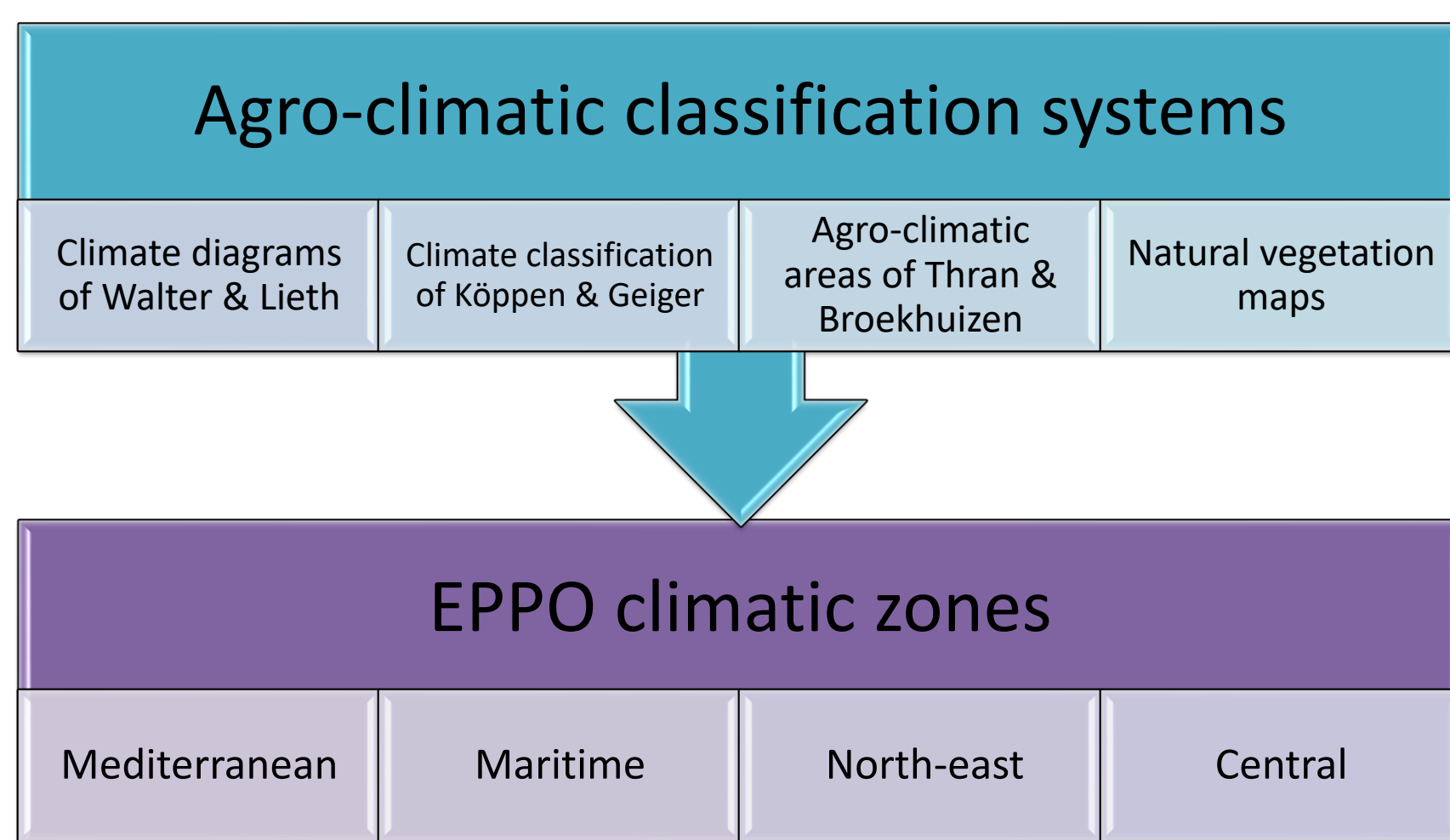


Figure 2. EPPO Climatic Zones and EU Authorisation Zones

Challenges and Solutions

Challenges to biocontrol products in the face of climate change include:

- Emerging Pests and Diseases
- Pest and Disease Migration
- Shifts in Pest Dynamics
- Mismatch Between Pests and Natural Enemies
- Environmental Stressors
- Temperature-Dependent Biocontrol
- Host Plant Responses

Addressing climate-induced emerging threats requires adaptable biocontrol regulations.

Vital steps to promote effective biocontrol include:

- **Adaptable Regulations:** Regulations must be adaptable to accommodate changing pest and disease patterns.
- **Flexible Climate Relevance Justification:** Using EPPO, Köppen or other relevant data to justify climate relevance provides flexibility.
- **Rapid Response and Research:** Swift action and research are critical to address emerging threats effectively.
- **Understanding Thermal Biology:** A thorough understanding of pests and biocontrol products' thermal biology is imperative.
- **Temperature Threshold Determination:** Identifying temperature thresholds for pests and biocontrol products aids in climatic relevance decisions.

All in all, in addition to **Climate-Smart Agriculture CSA** we require a **Climate-Smart Regulation**.

About us

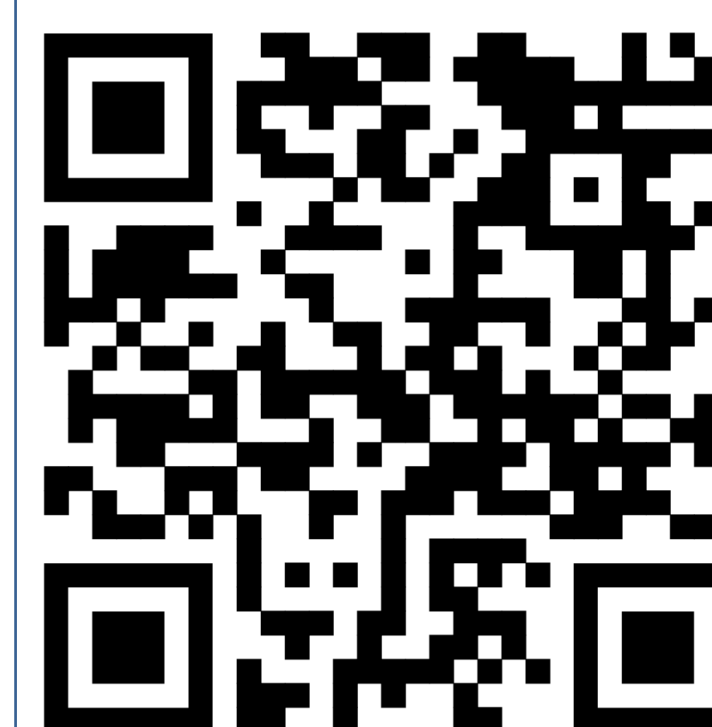
We provide specialised regulatory and scientific support for active substances and final product authorisation for the following purposes:

- Plant Protection Products
- Biocontrol Products
- Fertilizer and Biostimulants
- Biocidal Products
- Veterinary Medicines
- REACH

We have a registration and approval success rate of over 95%. We provide services in the EU, UK and Swiss regulatory zones.



- LKC Switzerland Ltd.
- LKC Chem-Regs Ltd.
- LKC UK Ltd.



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2. Bouma, E. Development of comparable agroclimatic zones. Bulletin OEPP/EPPO Bulletin 35, 233-238. (2005).
3. https://www.eppo.int/ACTIVITIES/plant_protection_products/zonal_assessments
4. <https://climatecharts.net/>