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NUCLEAIRE CONTROLE

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Impact of climate change on installations

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Jolien Berlamont

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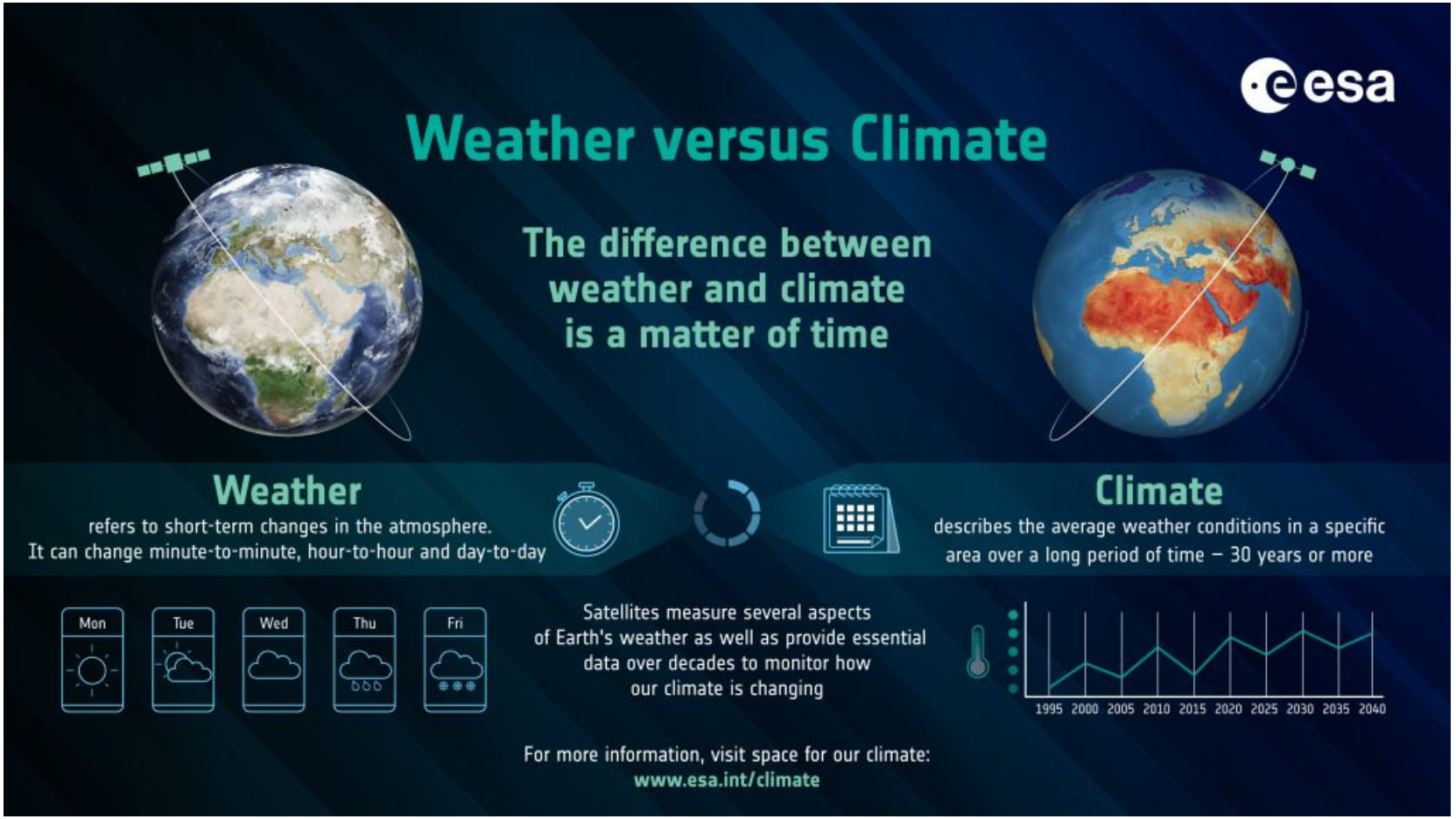
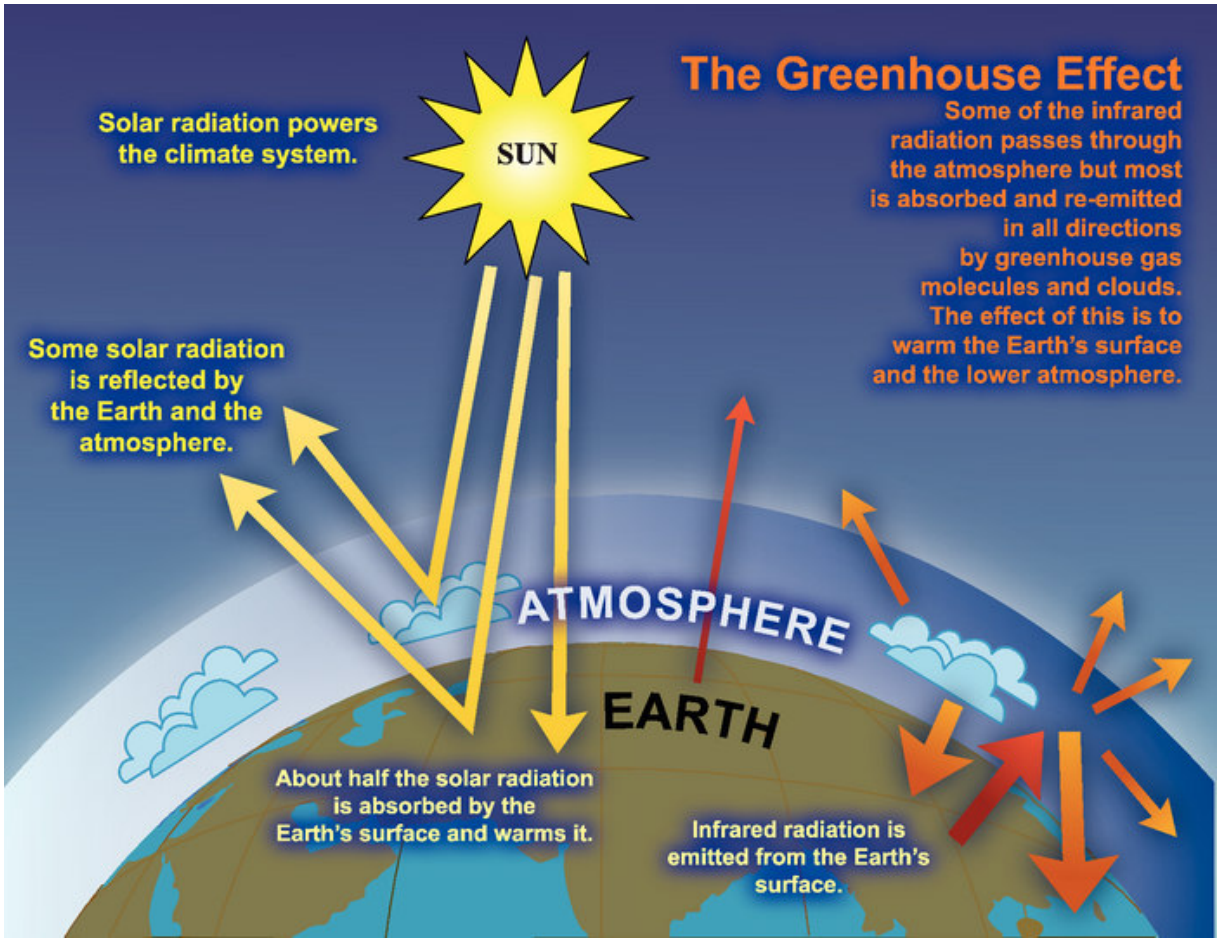
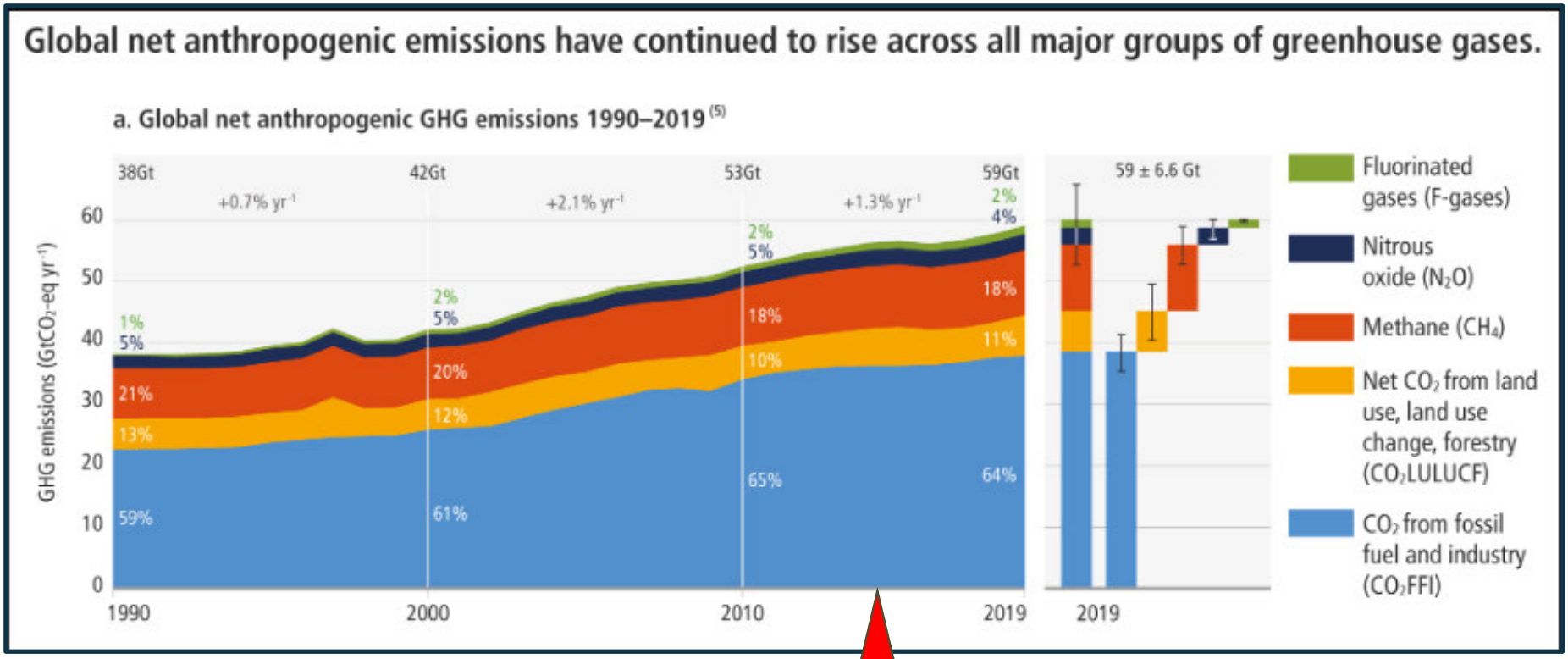




An idealised model of the natural greenhouse effect.
*(IPCC AR4, '***Climate Change 2007: Working Group I: The Physical Science Basis,** *FAQ 1.3, Figure 1.)*

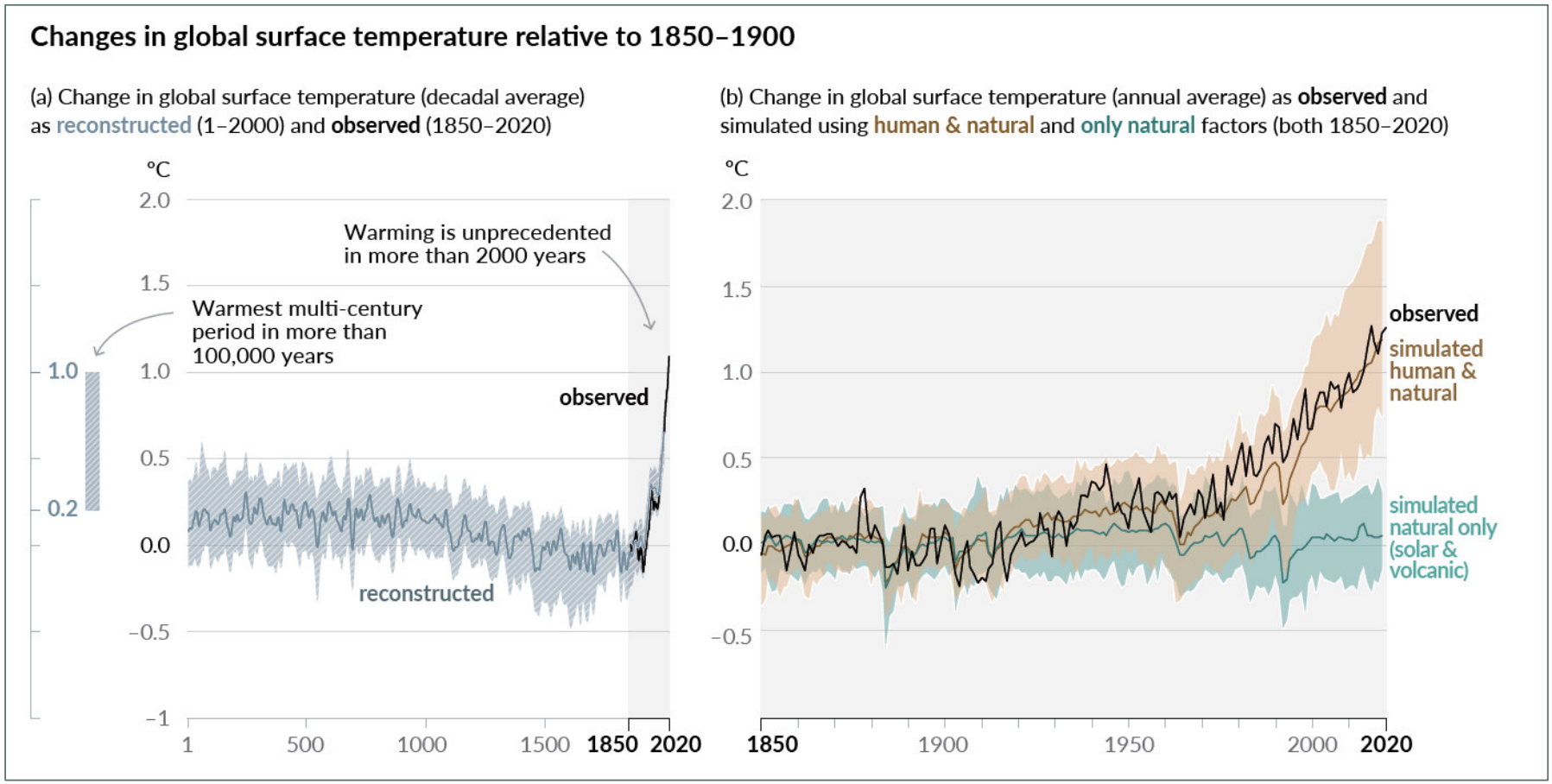
Greenhouse Gas Emissions



Source: IPCC AR6 WG III, Figure SPM.1 – panel a: Global net anthropogenic GHG emissi (GtCO2-eq yr-1) 1990–2019.

Accords de Paris (2015)

What is climate change ?



Source: Figure SPM.1 in IPCC, 2021: Summary for Policymakers. In: *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [Masson-Delmotteet al.]. Cdoi: 10.1017/9781009157896.001 .]

Observed climate trends in Belgium

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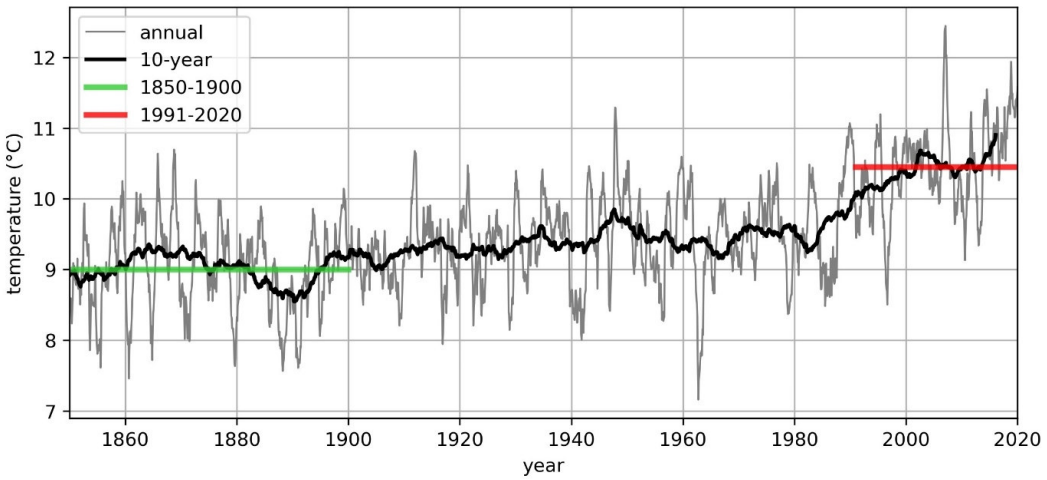
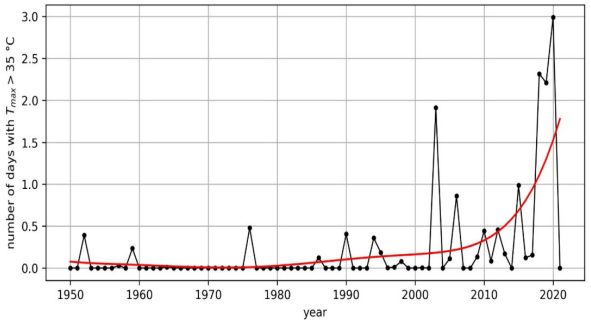
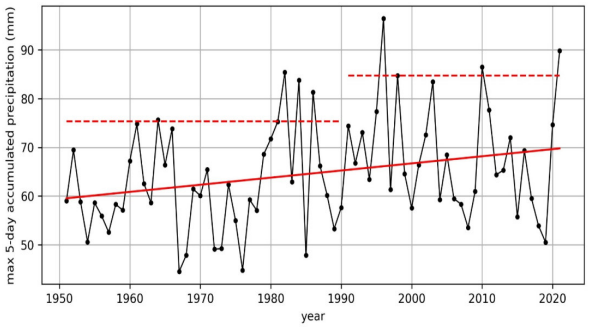
Increasing mean-annual air temperature





Increasing extreme heat

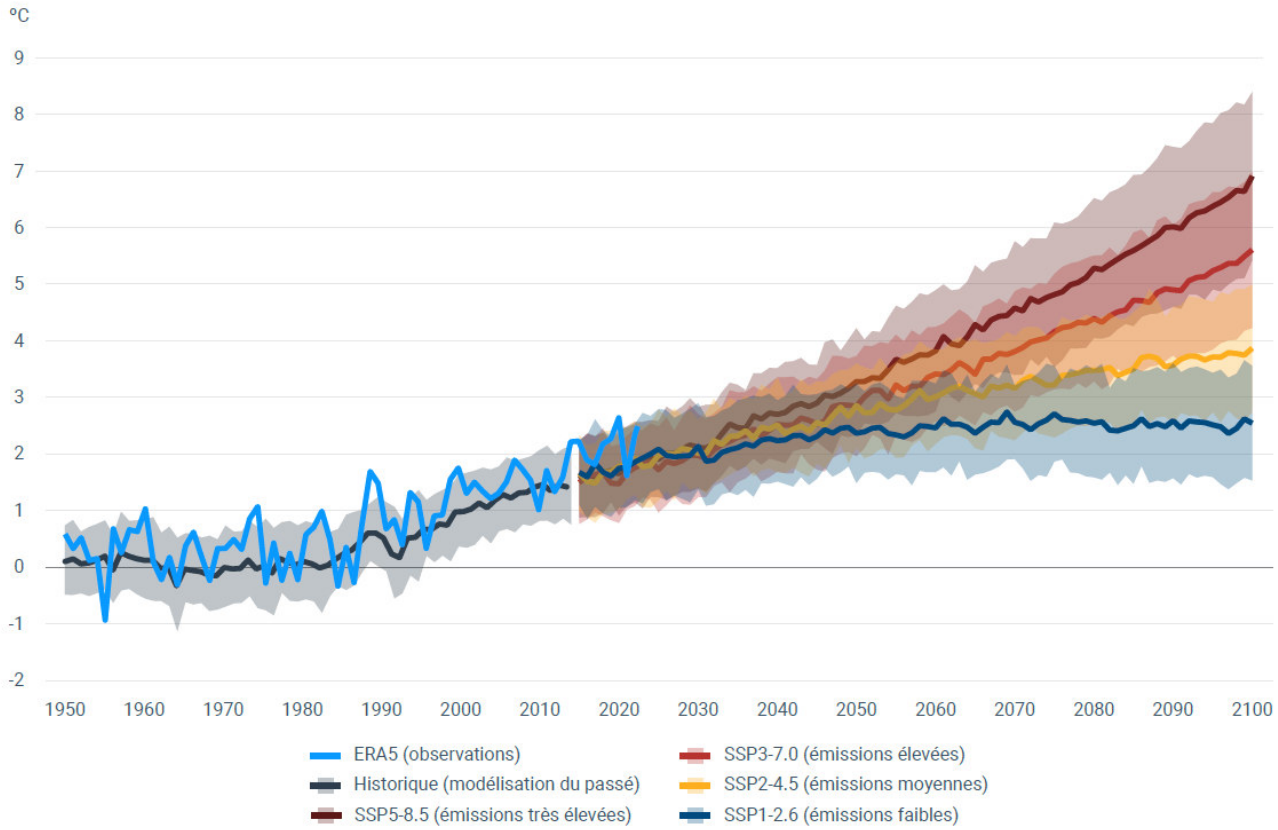


Increasing extreme precipitation

Source: Copradapt project (2024) : Climate adaptation and building products: Exploratory research for the Belgian market

vito ICEDD

Climate Projections 2000 – 2100 for Europe



Temperature evolution according to four climate scenarios

Source: AEE (2024), European Climate Risk assessment », ISSN 1977-8449. https://www.eea.europa.eu/publications/european-climate-risk-assessment

Climatic Impact-Drivers (CIDs)

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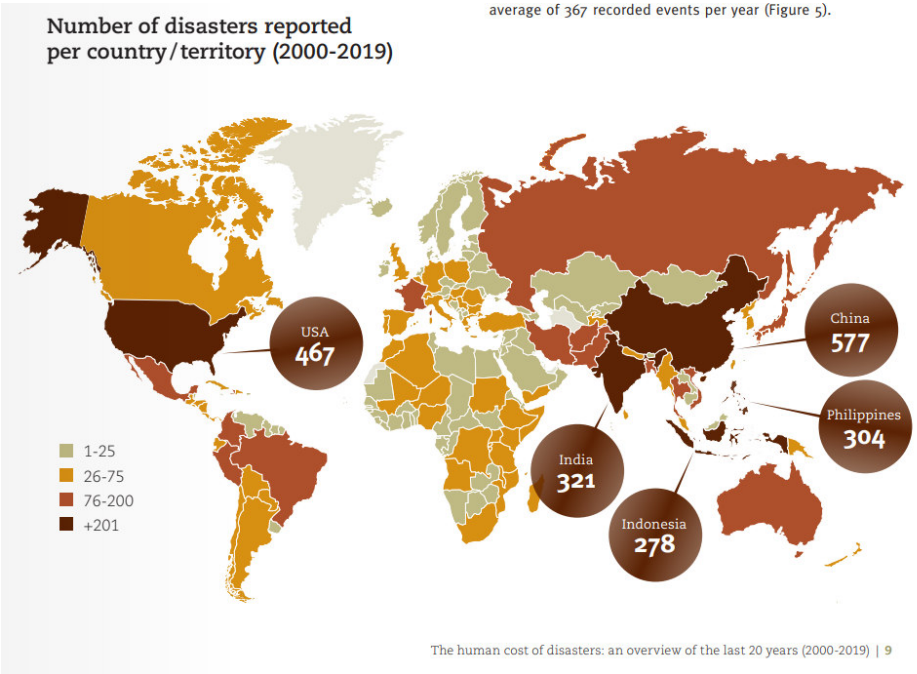

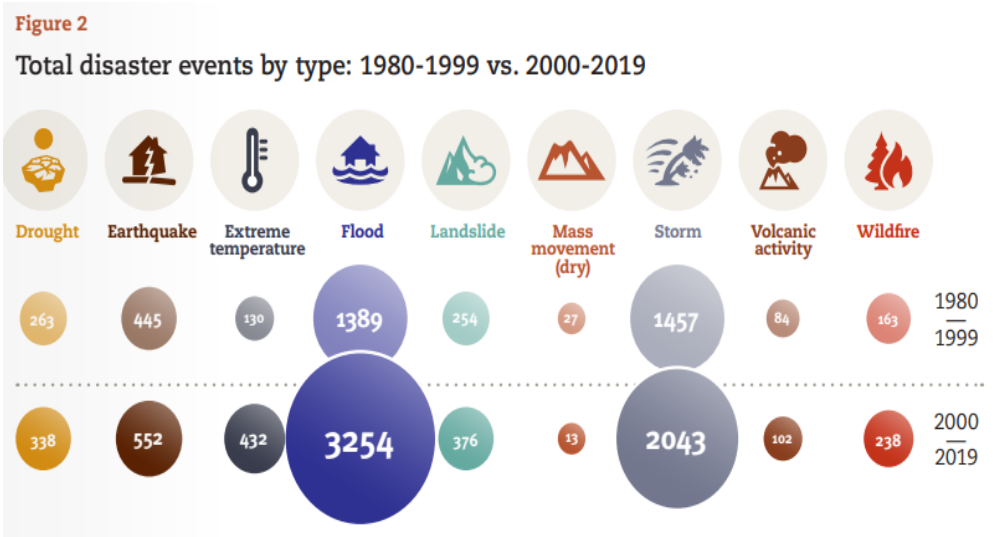

Belgium: 41 disasters

Period: 2002 to 2023

Extreme temperature	Flood	Storm
14	**11**	**12**
Cold: 3	**Riverine flood: 5**	**Extra-tropical storm: 10**
Heatwaves: 11	**Flash flood: 1**	**Severe weather: 2**
	General: 5	**Thunderstorm: 3**

Source: EM-DAT, CRED / UCLouvain, Brussels, Belgium

Source: CRED(2024). **The human cost of disasters: an overview of the last 20 years (2000-2019).** Centre for Research on the Epidemiology of Disasters (CRED), United Nations Office for Disaster Risk Reduction (UNDRR) https://The human cost of disasters: an overview of the last 20 years (2000-2019) | UNDRR

Impacts on Classe IIA facilities

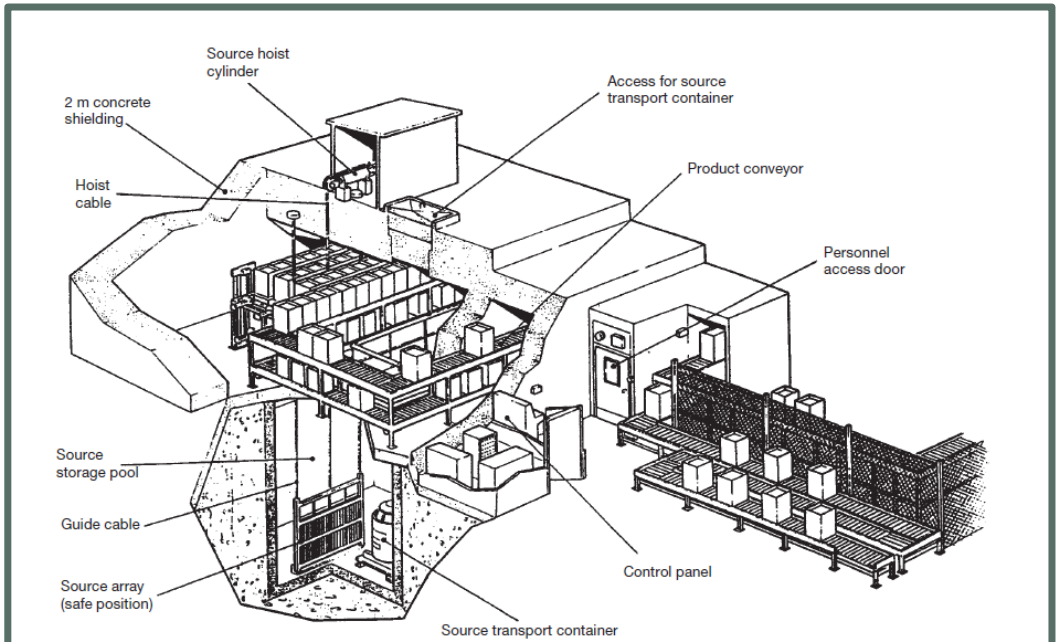

FIG. 3. Category IV gamma irradiation facility: Panoramic wet source storage irradiator.

Impacts on Classe IIA facilities

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Technical installations

– piped:
- water supply,
- heating,
- cooling,
- air conditioning,
- ventilation.

– electrical: electric cables

– data:
- IT network,
- monitoring equipment.

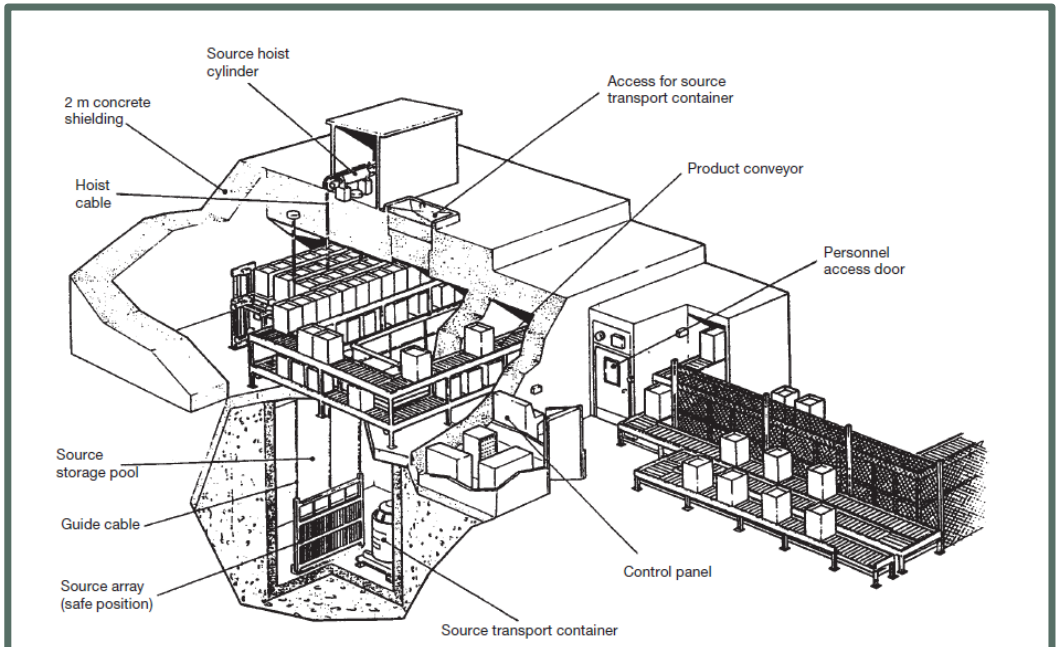
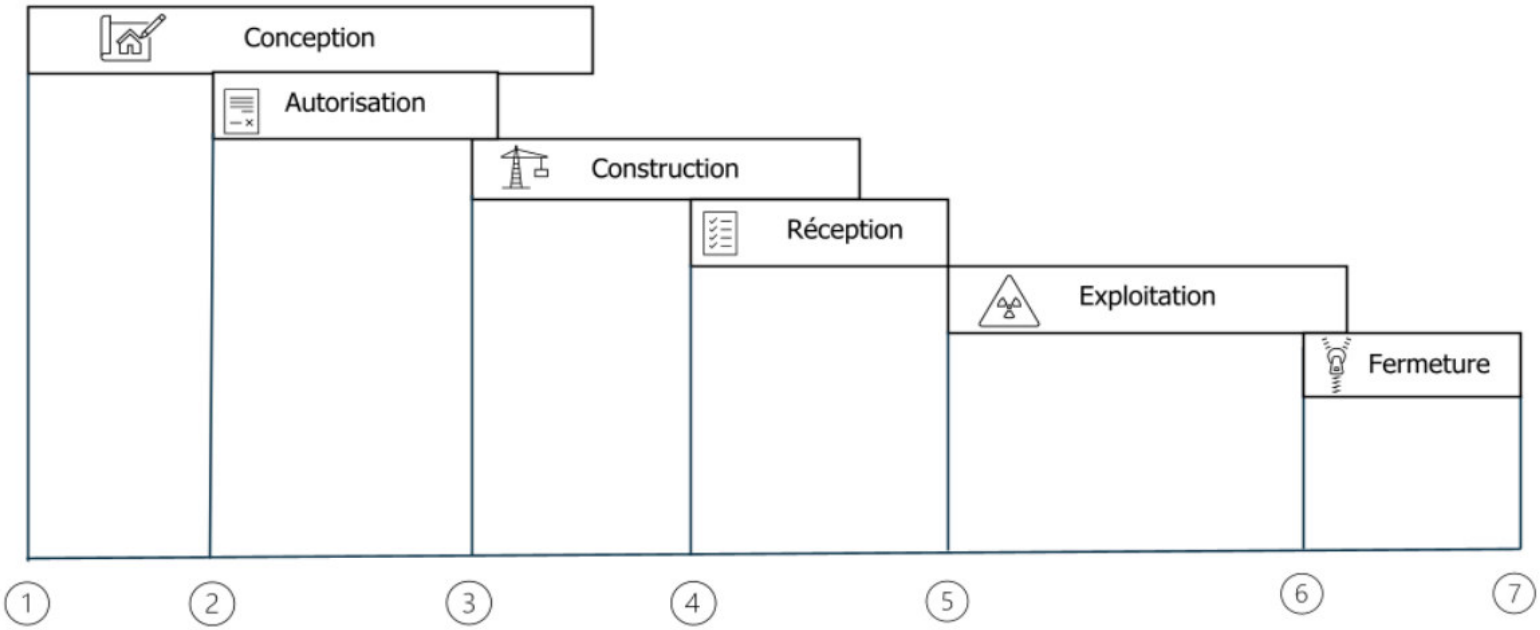


FIG. 3. Category IV gamma irradiation facility: Panoramic wet source storage irradiator.

Facility life expectancy

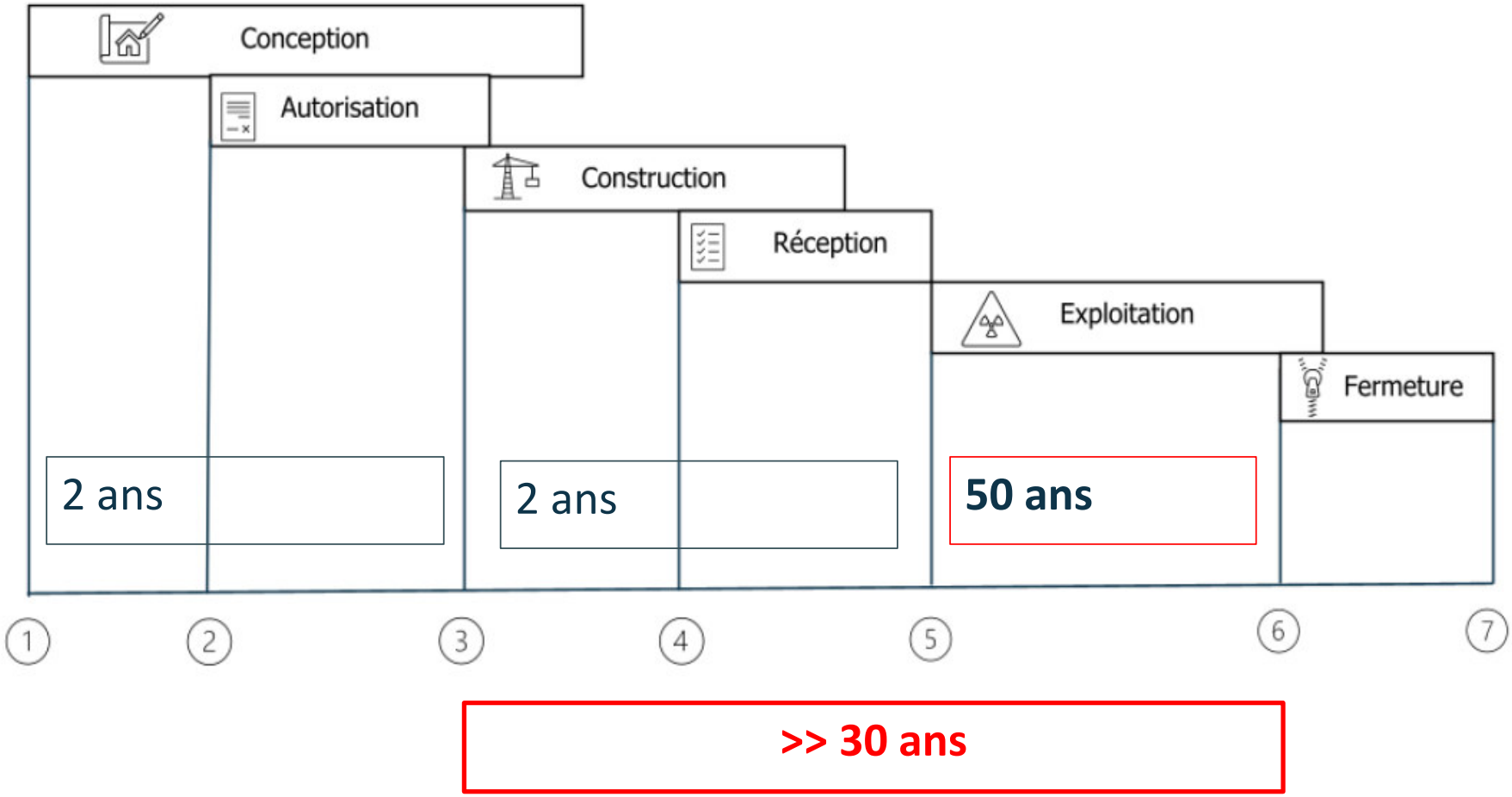
4. Phases de la vie d'une installation



La description de ces différentes phases se focalise exclusivement sur les éléments significatifs pour la sûreté nucléaire et la radioprotection et sur les interactions avec les autorités de sûreté. Dans la réalité, une multitude d'autres aspects de nature juridique et technique entrent bien évidemment en ligne de compte (ex. les permis environnementaux...).

Source: Note AFCN 01/09/2024, "Exigences de l'autorité de sûreté pour chaque phases de la vie d'une installation Classe IIA".

Facility operational phase - timing



>> 30 ans

Brainstorming

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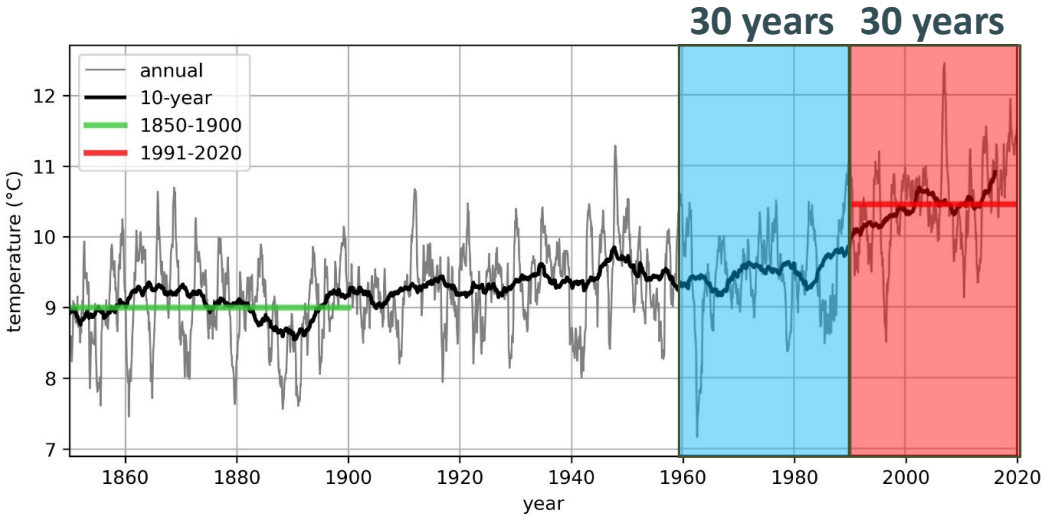
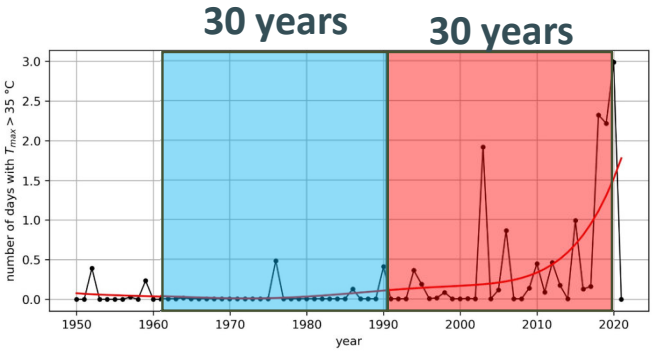
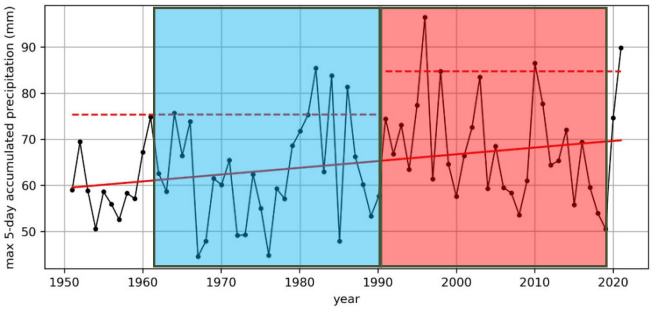




Increasing extreme heat



Increasing extreme precipitation

Climate Projections 2000 – 2100 for Europe

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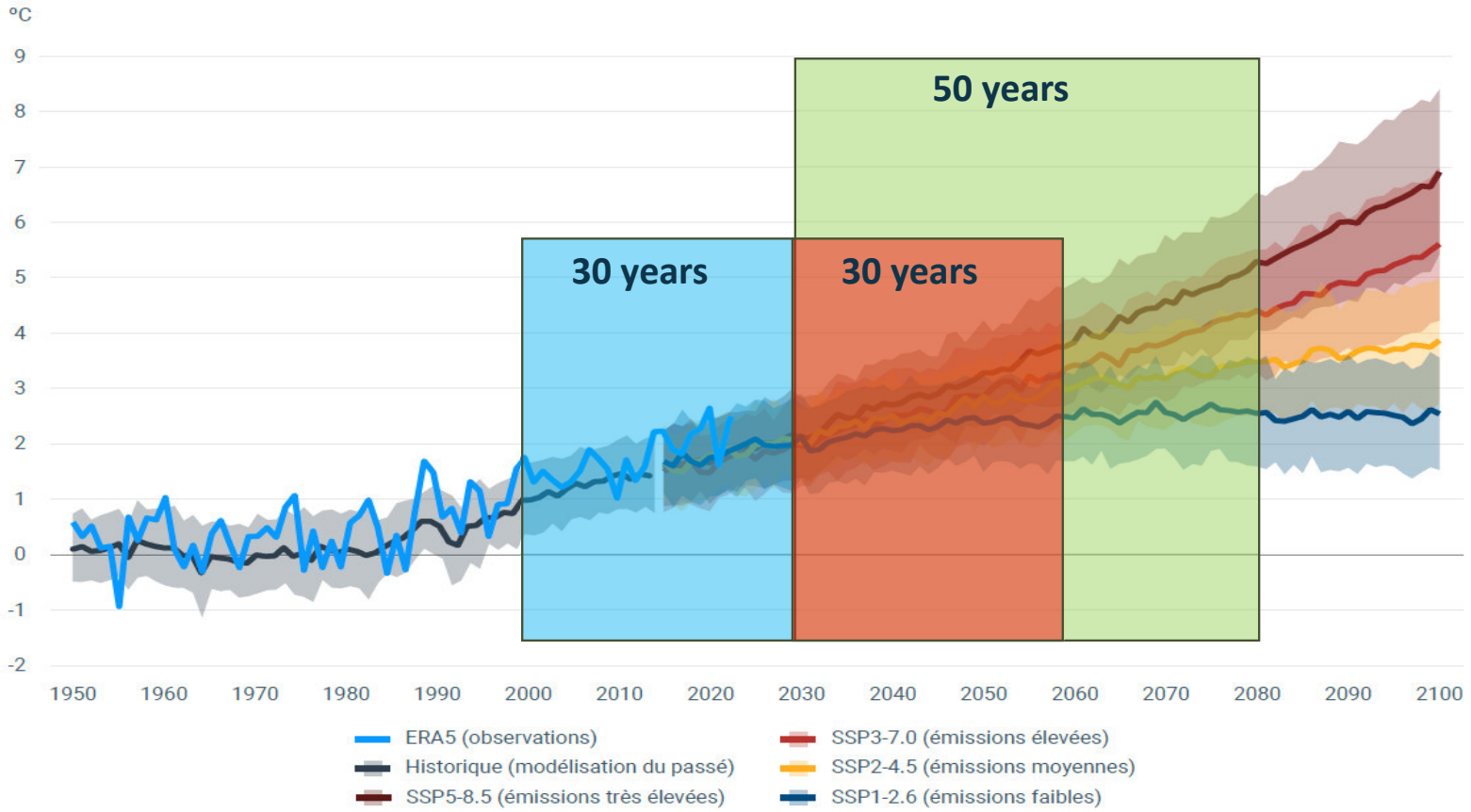
Temperature evolution according to four climate scenarios



Source: AEE (2024), European Climate Risk assessment », ISSN 1977-8449. https://www.eea.europa.eu/publications/european-climate-risk-assessment

Take Home message

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****Increasing Climate Risks: A Call to Action****

- **Adapting** to the accelerating impacts of climate change is essential.
- **Proactive planning** will be critical to effectively anticipate and manage future challenges.

****Long-term Resilience and Safety****

- It is vital to incorporate "**long-term thinking**" into the design of Class IIA installations to ensure both safety and resilience.

****Regulatory Considerations****

- **With each authorization renewal and for all new installations, FANC will assess whether climate change impacts have been integrated into the design of the facility and its safety systems.**

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Questions ?

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Thank you!