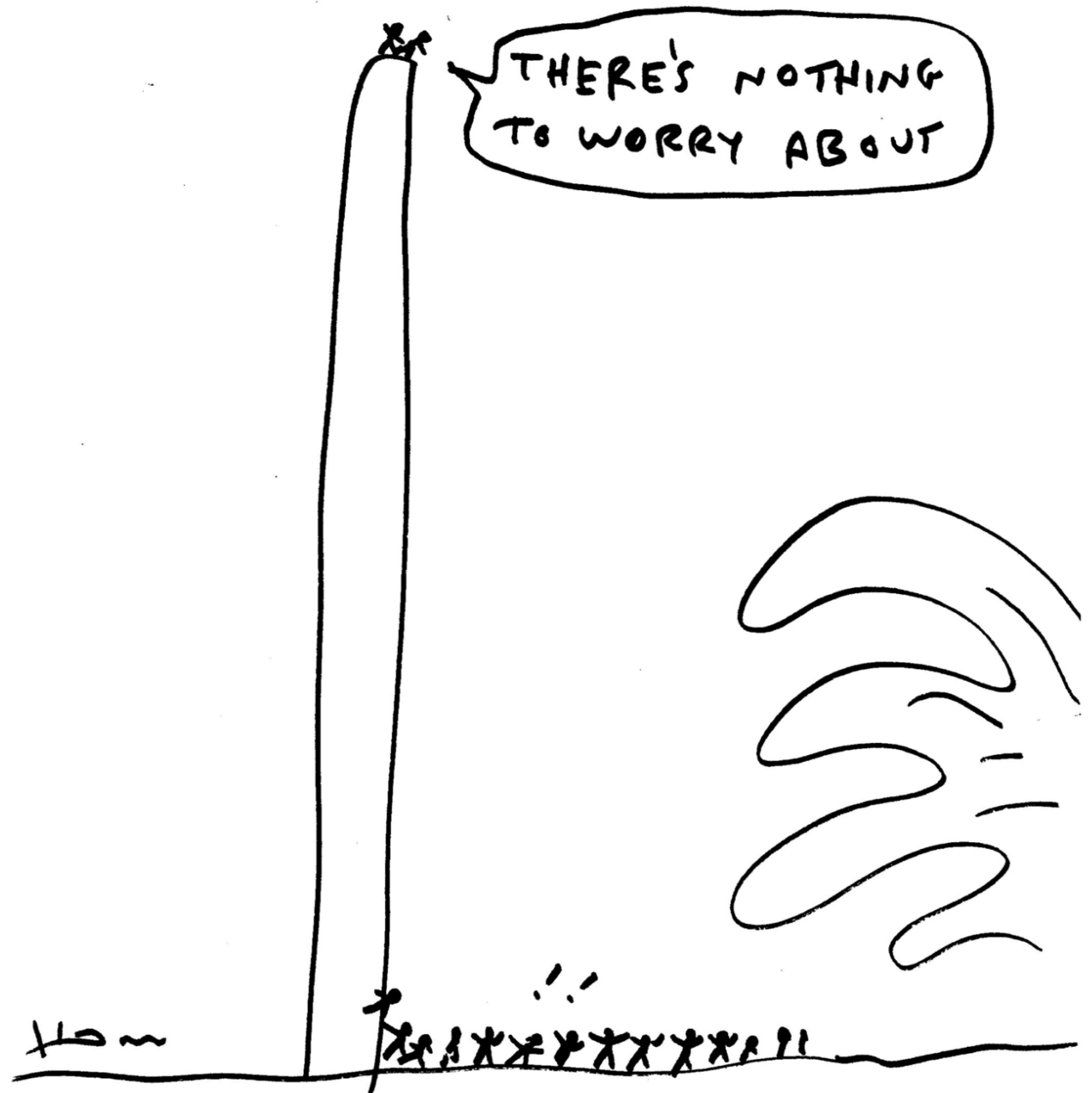


# Climate change

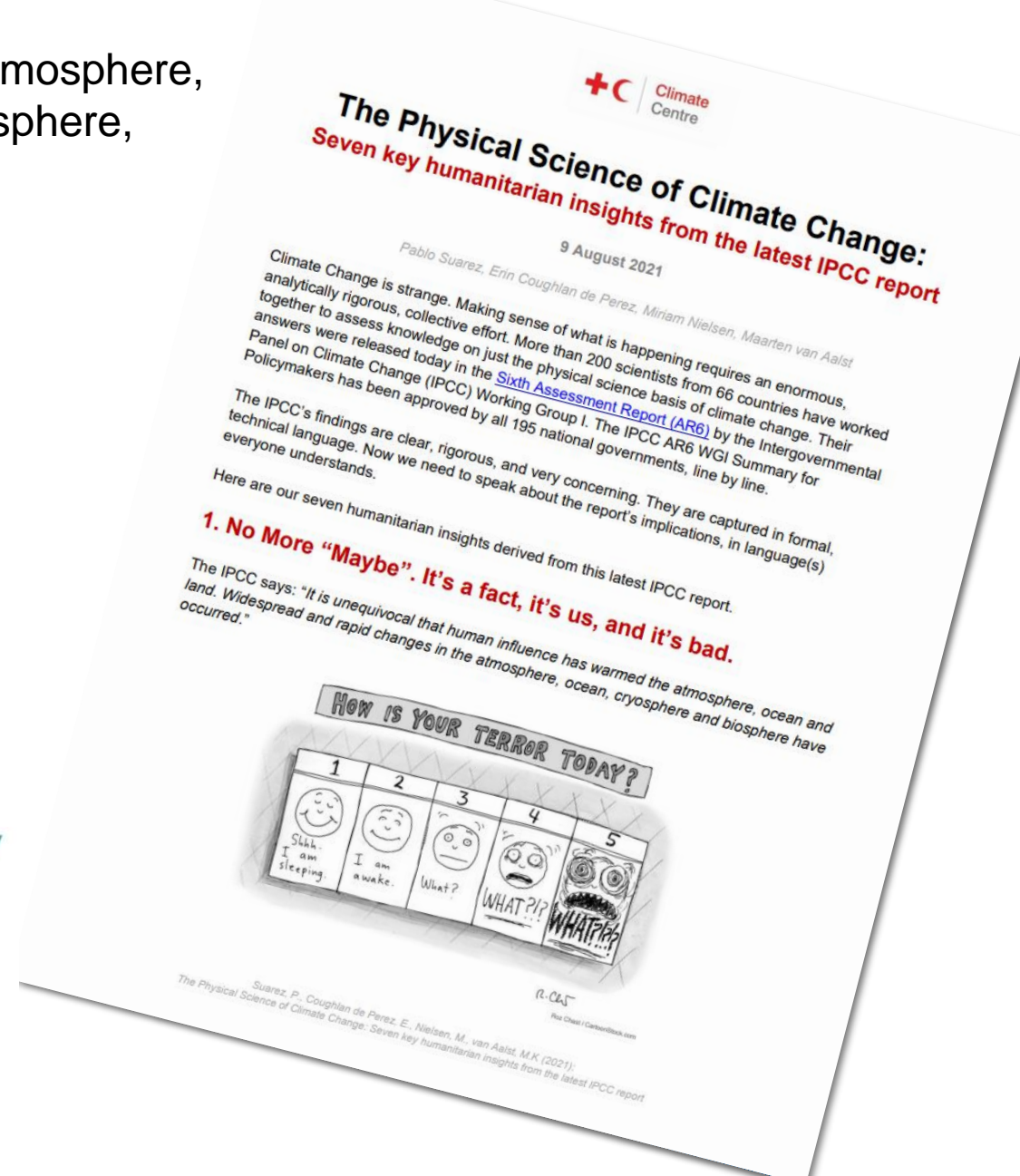
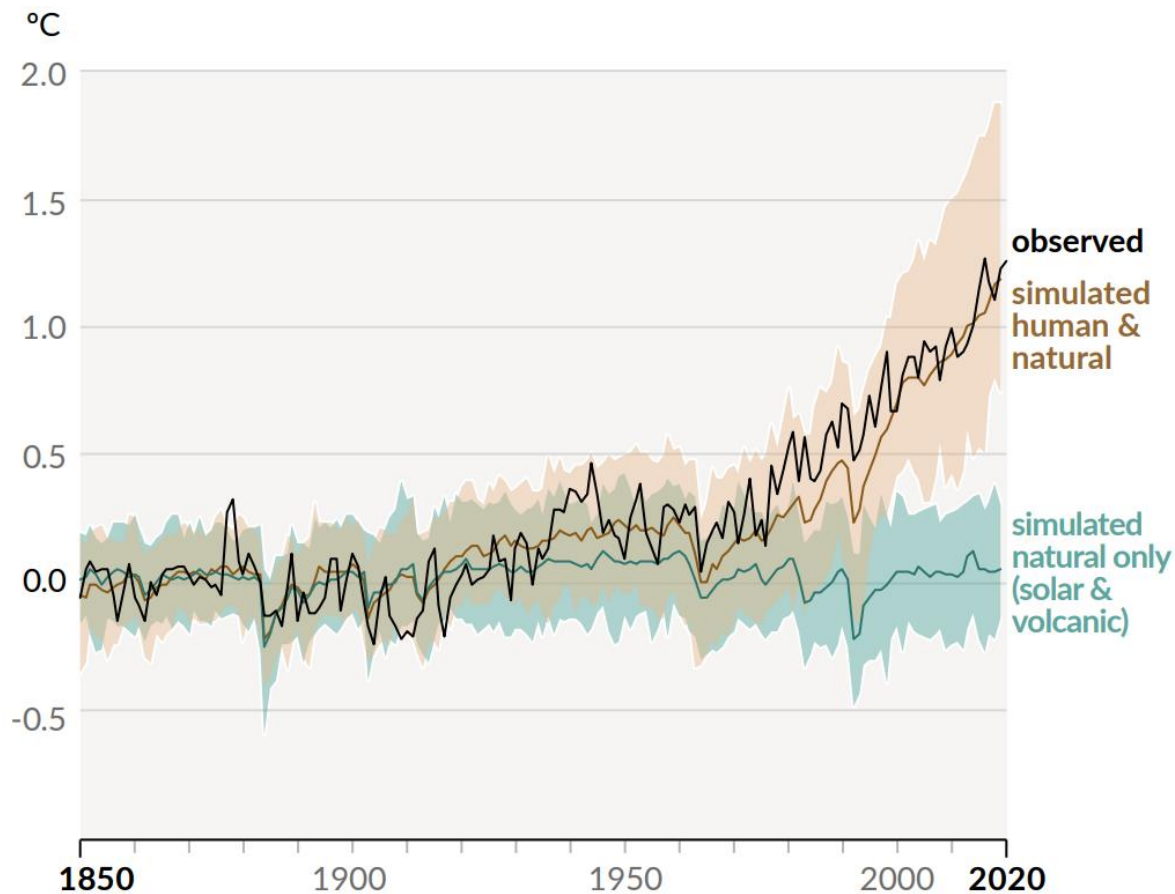
## - science and impacts



Hameed "Ham" Khan/CartoonStock.com

# IPCC – the ‘key reference’ on climate change (AR6 2021)

- “It is ***unequivocal*** that **human influence** has warmed the atmosphere, ocean and land. Widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred”
- “**Human influence** has warmed the climate at a rate that is unprecedented in at least the last 2000 years”



# IPCC AR6

- IPCC AR6:  
'Climate change is contributing  
to humanitarian crises'



# The earth is getting warmer – what does it mean?



**Rising temperatures, heat waves**



**Sea level rise**



**Melting ice**



**Ocean acidification**



**Changing rainfall patterns**



**Changes in extreme events**

**Scientists very sure**

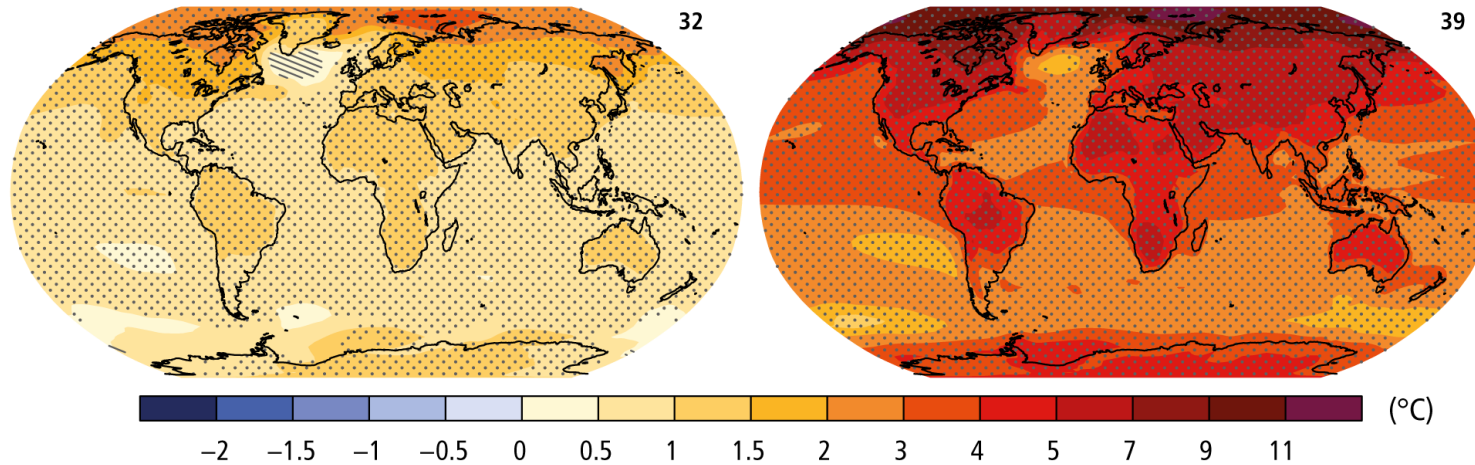
**Less clear,  
and regional differences**

# Expected *future change* this century compared to the period 1986-2005

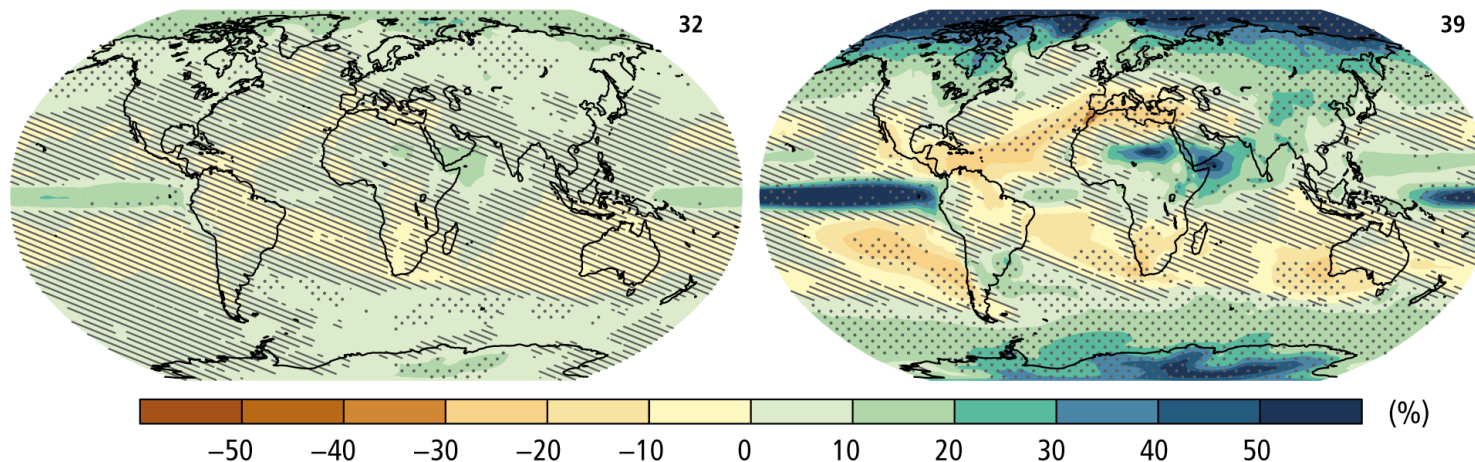
**Low scenario** – if humans cause  
**less** climate change

**High scenario** – if humans continue  
**to cause more** climate change

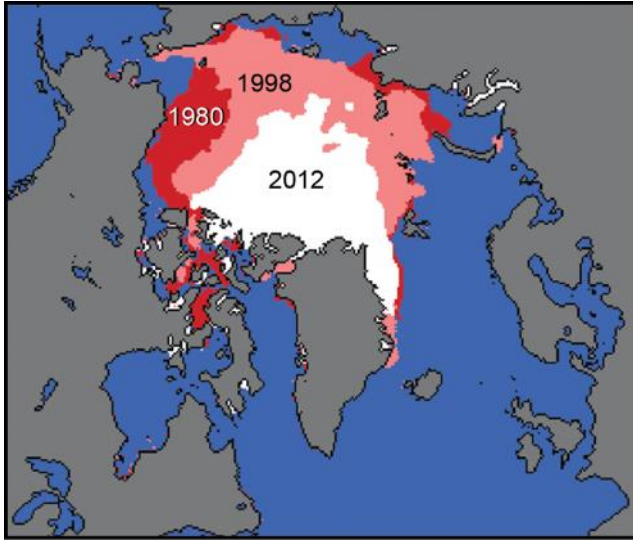
(a) Change in average surface temperature (1986–2005 to 2081–2100)



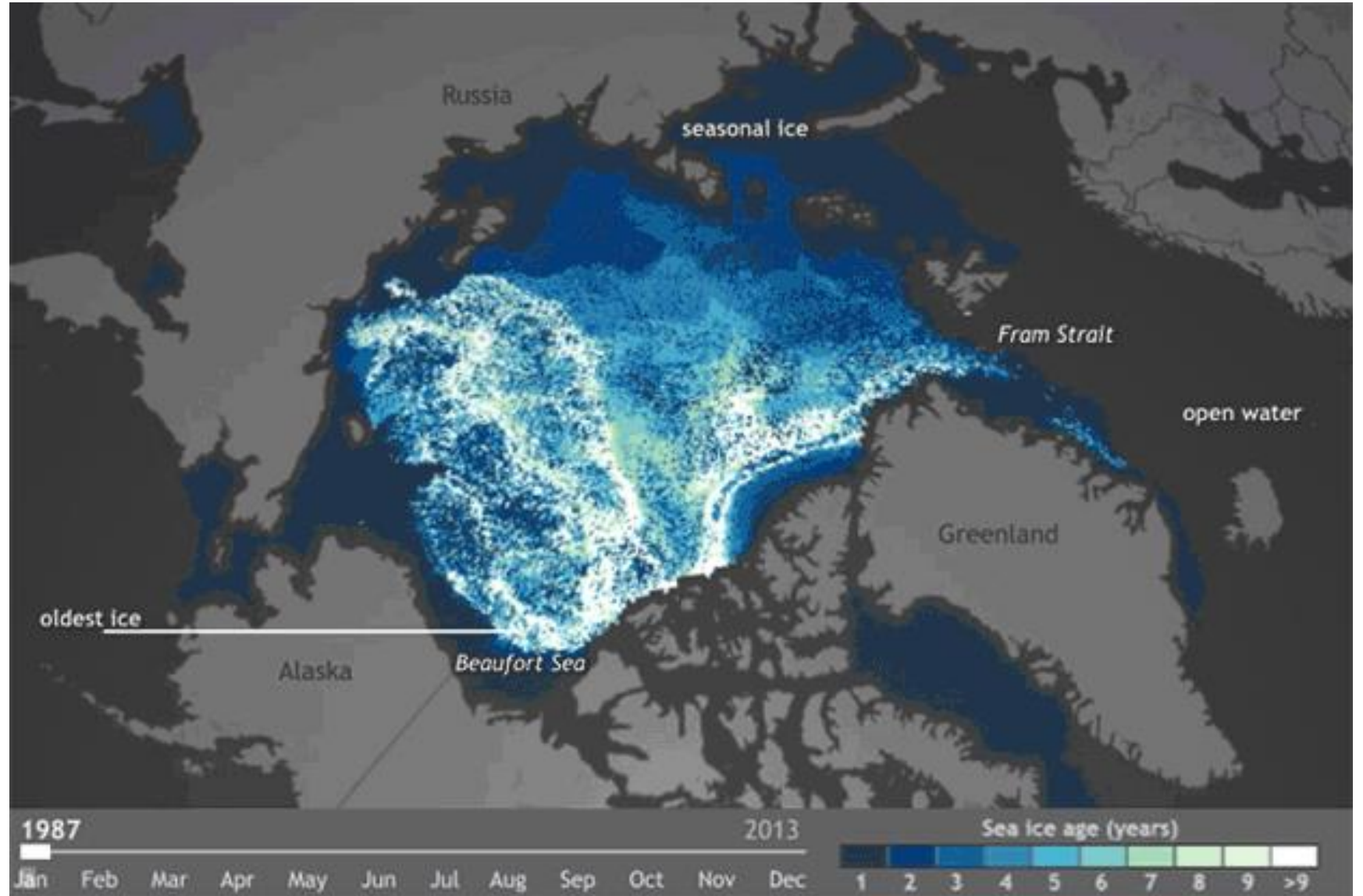
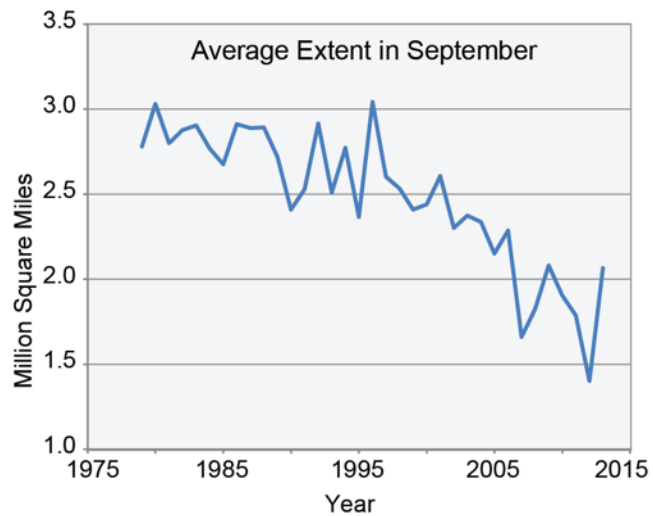
(b) Change in average precipitation (1986–2005 to 2081–2100)



# Much reduced sea ice in the Arctic ocean

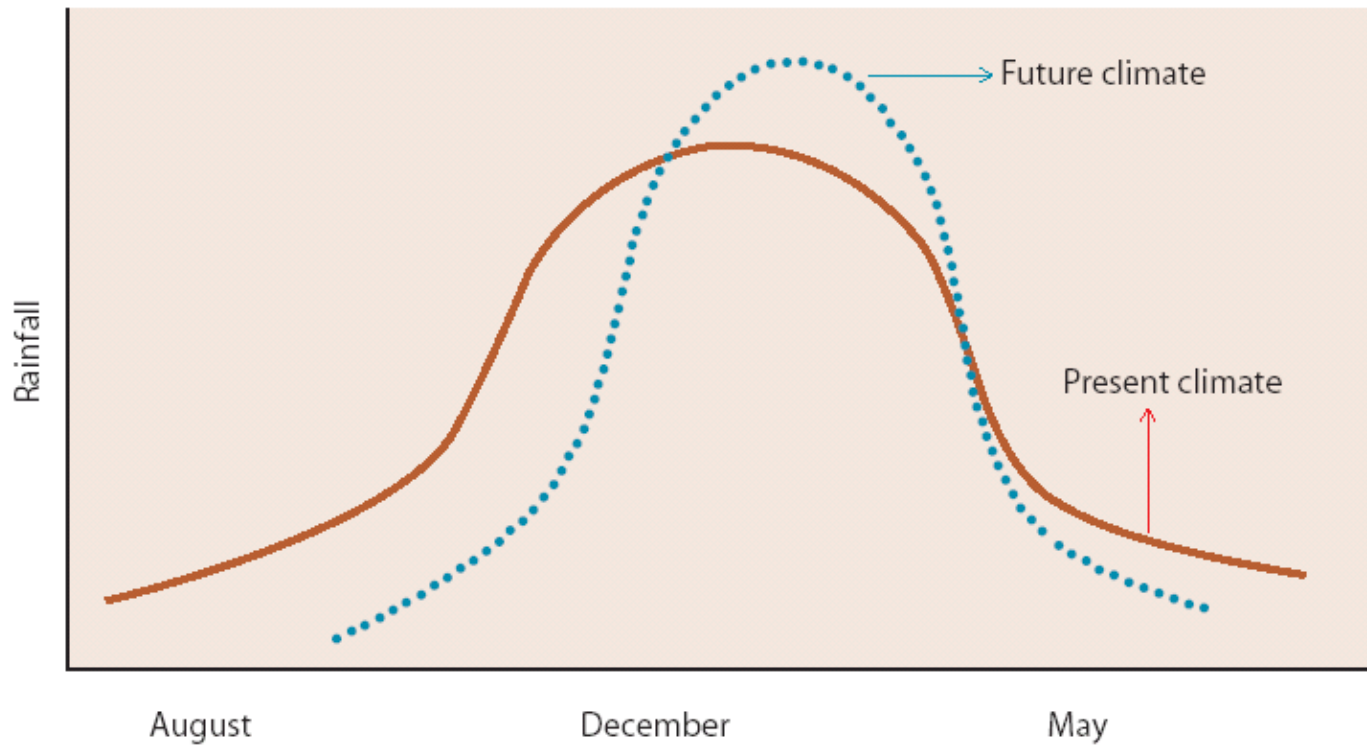


Source: GlobaleChange.gov



Source: NOAA Climate

# Shifts in seasonality *and* amount



## Example Indonesia - compared to 1961-90:

- Onset of the wet season is **10 - 20 days later**
- Onset of the dry season is **10 - 60 days earlier**
- Most of the rainfall now falls in January, when it used to fall in December
- When it rains it pours

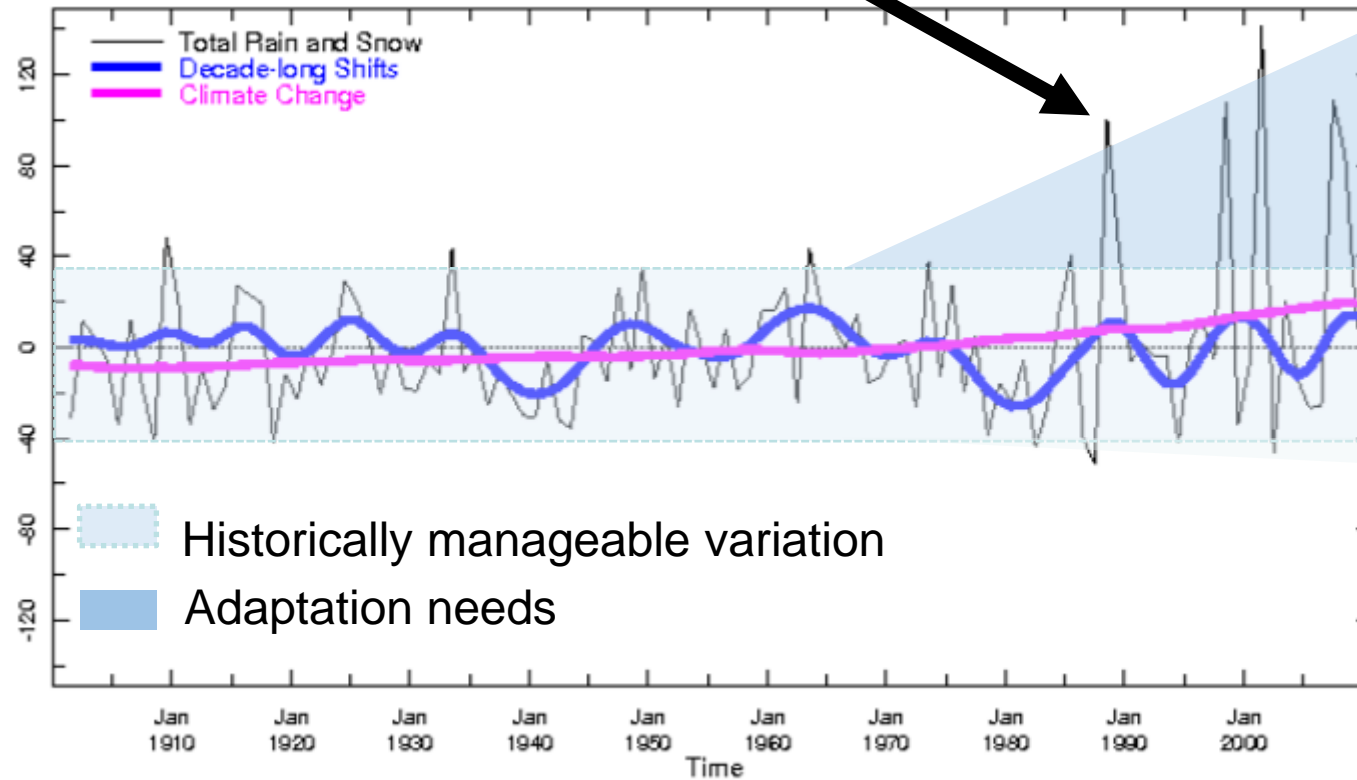
Based on Naylor et al. 2007

# More extreme events

Example: Sri Lanka

New record highs

Long term average



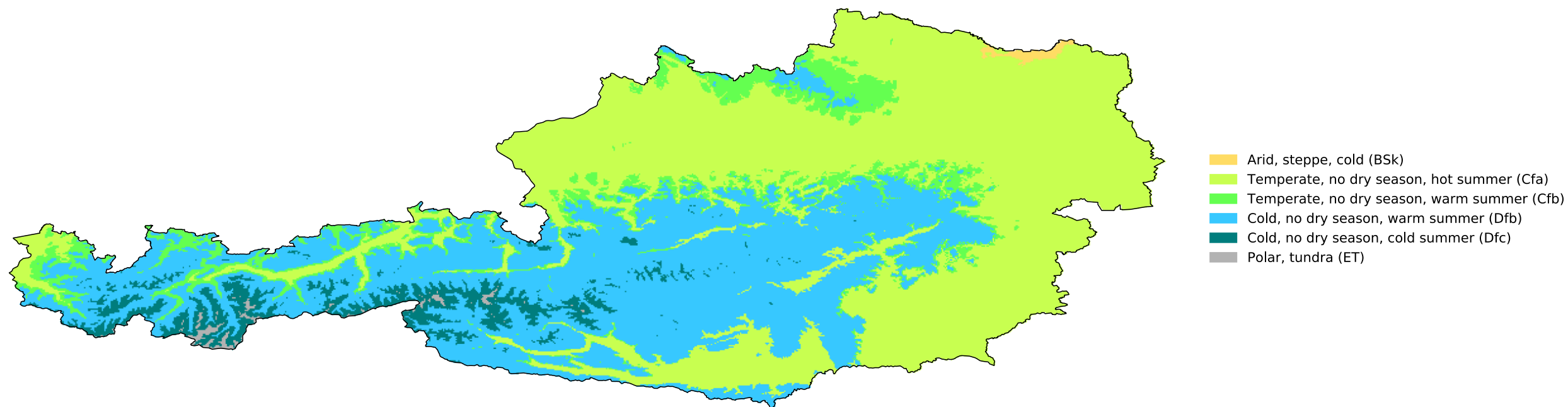
Source: IRI/IFRC Maproom

## Köppen-Geiger climate classification map for Austria (1980–2016)



Source: Beck et al.: Present and future Köppen-Geiger climate classification maps at 1-km resolution, Scientific Data 5:180214, doi:10.1038/sdata.2018.214 (2018)

## Köppen-Geiger climate classification map for Austria (2071-2100)

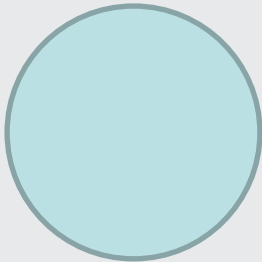


Source: Beck et al.: Present and future Köppen-Geiger climate classification maps at 1-km resolution, Scientific Data 5:180214, doi:10.1038/sdata.2018.214 (2018)

# Most disasters are weather-related



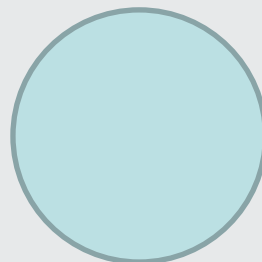
**3,751**  
**Natural hazards**  
recorded by EM-DAT  
over the last **10 years**



**are weather  
related hazards**



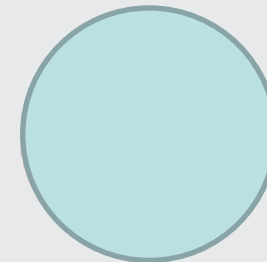
**2bn**  
Estimated **number of people**  
affected by natural hazards  
over the last **10 years**



**of people are affected by  
weather related hazards**



**us\$1,658bn**  
Estimated **cost of damages**  
in 141 countries  
over the last **10 years**



**of costs are due to  
weather related hazards**

Source: IFRC, World Disasters Report 2018

- **200 million** people dependent of humanitarian assistance per year by 2050, compared by **108 million** today
- **20 billion** USD needed annually by 2030
- We still have a chance to act



# THE COST OF DOING NOTHING

THE HUMANITARIAN PRICE  
OF CLIMATE CHANGE AND  
HOW IT CAN BE AVOIDED

# Climate change - 'mitigation' and 'adaptation'

## Climate Change *Mitigation*:

tackling the *causes* of climate change



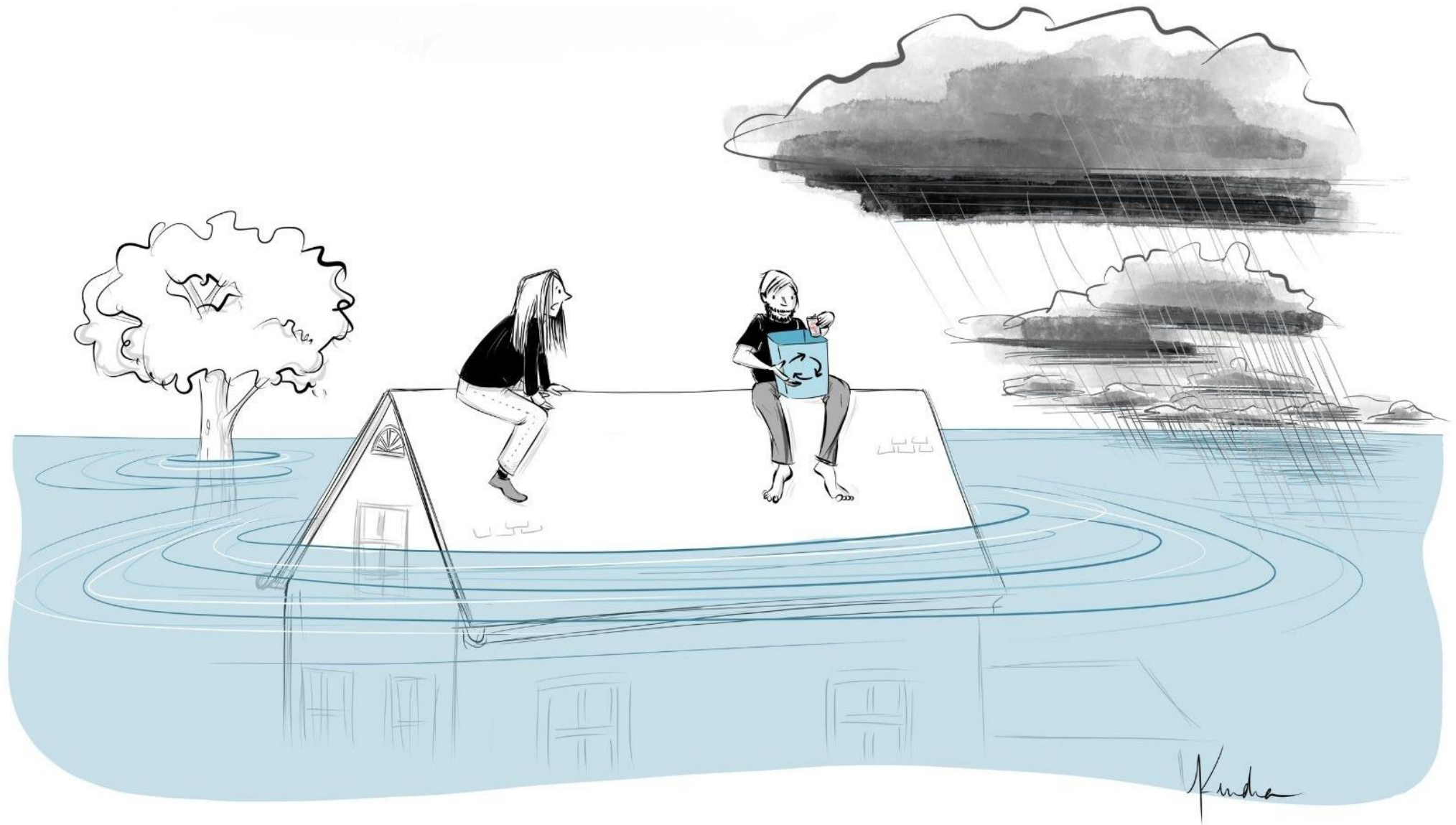
## Climate Change *Adaptation*:

preparing for *managing* the changes



win - win





“It’s not that I don’t appreciate your recycling, Leo, I’m just suggesting it’s not the only thing we should be doing right now.”

# Four key areas of action



1. It is urgent for all countries to raise climate ambition to get closer to the goals of the Paris Agreement



2. Scale up action and investment in climate adaptation solutions that address rising humanitarian needs and bring impact for the most vulnerable



3. Humanitarian actors need to apply a climate lens across their work and adapt their programming accordingly



4. Local actors are key to delivering on climate adaptation

# Vulnerability walk