

Climate Change 2022

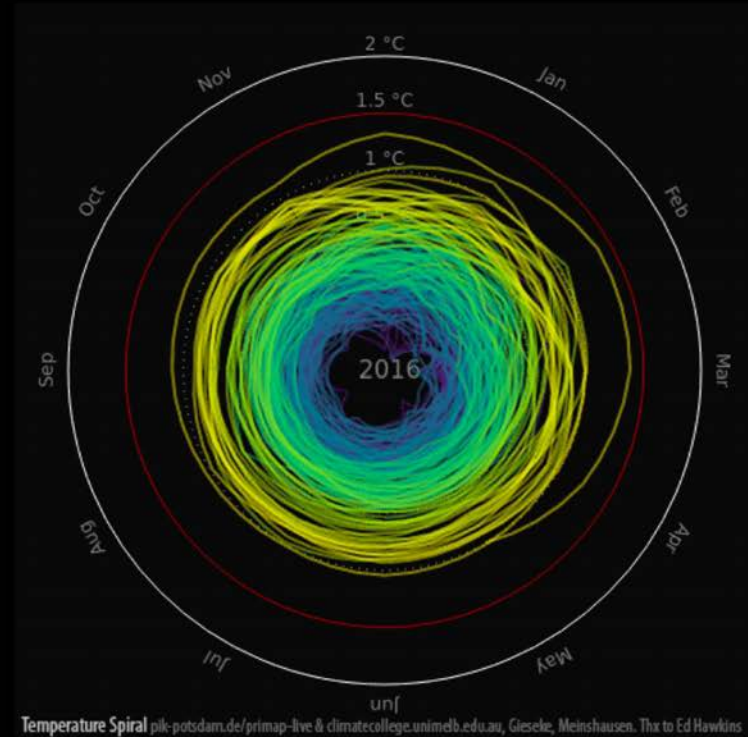
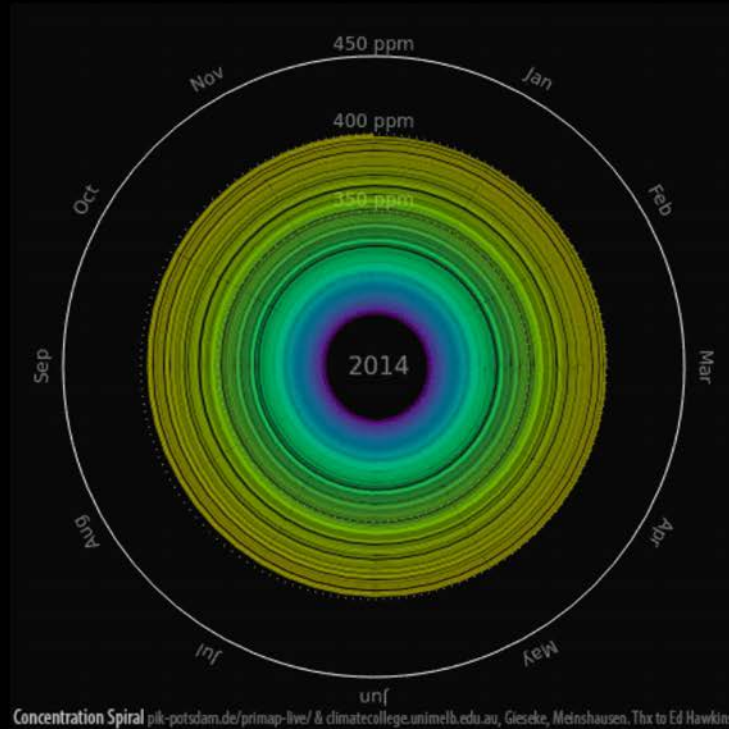
Impacts, Adaptation and Vulnerability ... and Coffee

Jean-Pascal van Ypersele (UCLouvain)

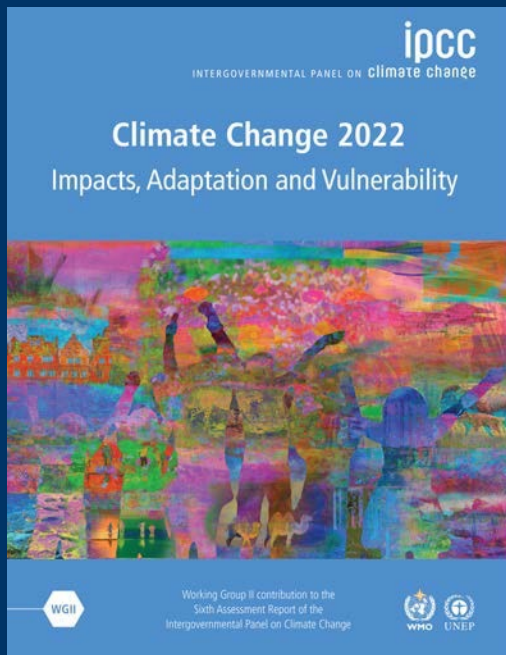
Based on a presentation by the co-Chairs of IPCC Working Group II



CO₂ Concentration and Temperature spirals



CO₂ Concentration since 1850 and Global Mean Temperature in °C relative to 1850 – 1900
Graph: Ed Hawkins (Climate Lab Book) – Data: HadCRUT4 global temperature dataset
Animation available on <http://openclimatedata.net/climate-spirals/concentration-temperature/>



“ The scientific evidence is unequivocal: climate change is a threat to human well-being and the health of the planet.

Any further delay in concerted global action will miss the brief, rapidly closing window to secure a liveable future.

This report offers solutions to the world.

Global warming
has caused dangerous and
widespread disruption in nature...

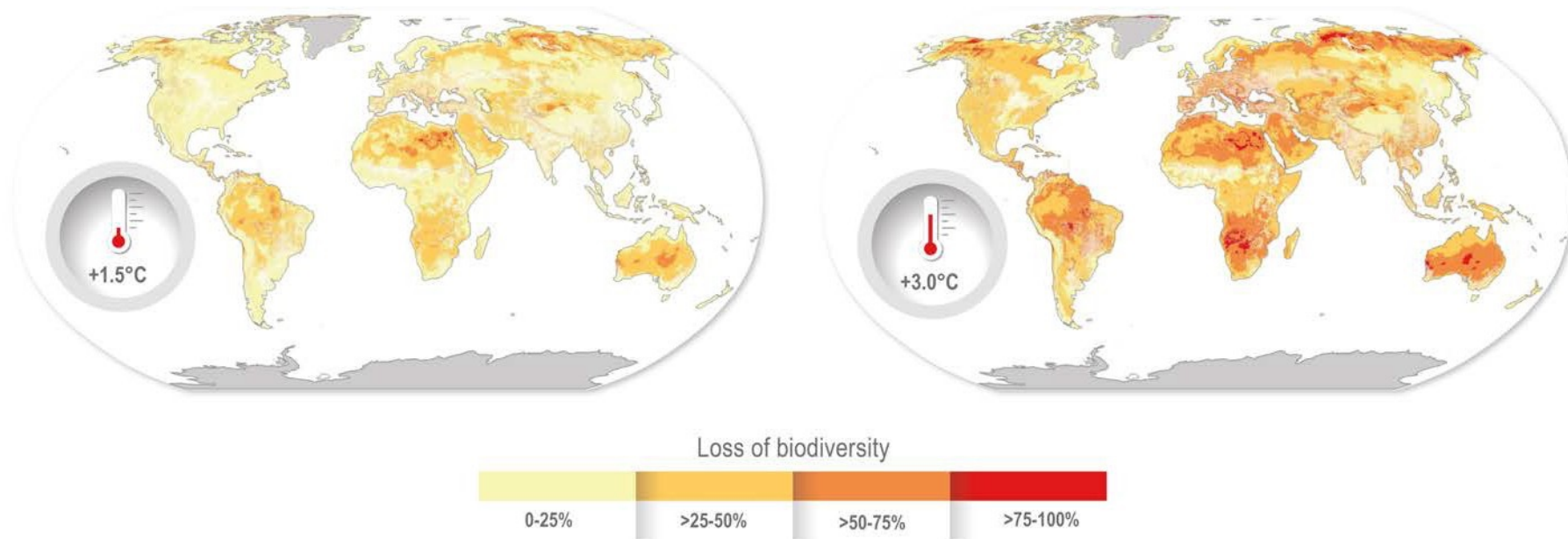
...and climate change is affecting the lives of billions of people, despite efforts to adapt.



3.3 – 3.6 billion people live in hotspots of high vulnerability to climate change.



Biodiversity loss at different warming levels



Future global climate risks



Heat stress

Exposure to heat waves will continue to increase with additional warming.



Water scarcity

At 2°C, regions relying on snowmelt could experience 20% decline in water availability for agriculture after 2050.



Food security

Climate change will increasingly undermine food security.



Flood risk

About a billion people in low-lying cities by the sea and on Small Islands at risk from sea level rise by mid-century.

Simultaneous extreme events compound risks

Multiple extreme events that compound the risks are more difficult to manage



IPCC AR6 WGII Box 5.8: Climate Adaptation and Maladaptation in Cocoa and Coffee Production

Coffee and cocoa are important crops in low latitude regions where agriculture is projected to be heavily impacted by climate change. Both crops are at risk from climate change impacts by 2050.

Chocolate and coffee are notable among foods in that their carbon footprint ranges from negative to high, as these industries include both low-input agroforestry systems that have many co-benefits, and high-input monoculture systems where crops are grown without shade, in some cases on sites that have been deforested.

IPCC AR6 WGII Box 5.8: Climate Adaptation and Maladaptation in Cocoa and Coffee Production

The choice of cropping-system will have wide-reaching consequences for climate vulnerability and climate justice. Coffee and cocoa are often a main source of income for small-scale producers who are among the most vulnerable to climate hazards.

Most of their produce is exported by large corporations and sold to relatively better-off consumers. In the context of climate justice, underlying structural inequalities (socioeconomic, ethnicity, gender, caste), marginality, and poverty help to shape the vulnerabilities of small-scale farmers to climate hazards.

(...) Adaptation needs to consider the inequalities associated with the commodity chain, and the adaptative capacity of producers as they seek to move into the more advanced processing stages of the commodity chain to realize higher returns from their exports.



There are limits to adaptation

- Even effective adaptation cannot prevent all losses and damages
- Above 1.5°C some natural solutions may no longer work.
- Above 1.5°C, lack of fresh water could mean that people living on small islands and those dependent on glaciers and snowmelt can no longer adapt.
- By 2°C it will be challenging to farm multiple staple crops in many current growing areas.

Useful links:

- www.ipcc.ch : IPCC (reports and videos)
- www.climate.be/vanyp : my slides and other documents
- www.skepticalscience.com: excellent responses to contrarians arguments
- **On Twitter: @JPvanYpersele
and @IPCC_CH**