

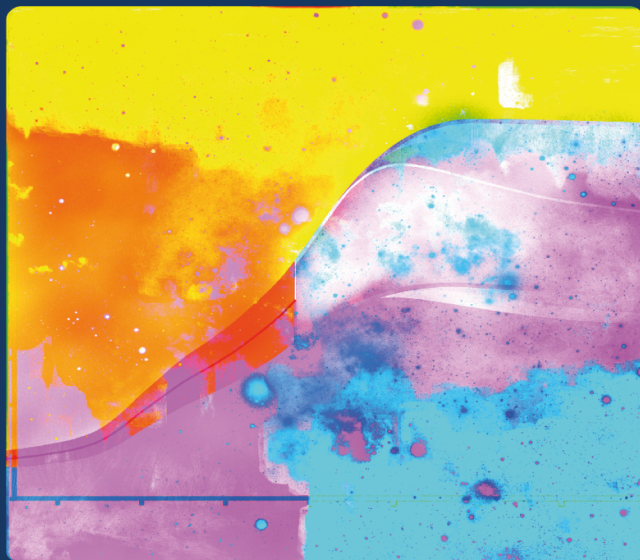


ipcc
INTERGOVERNMENTAL PANEL ON climate change

WMO UNEP

Global Warming of 1.5°C

An IPCC Special Report on the impacts of global warming of 1.5 °C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.

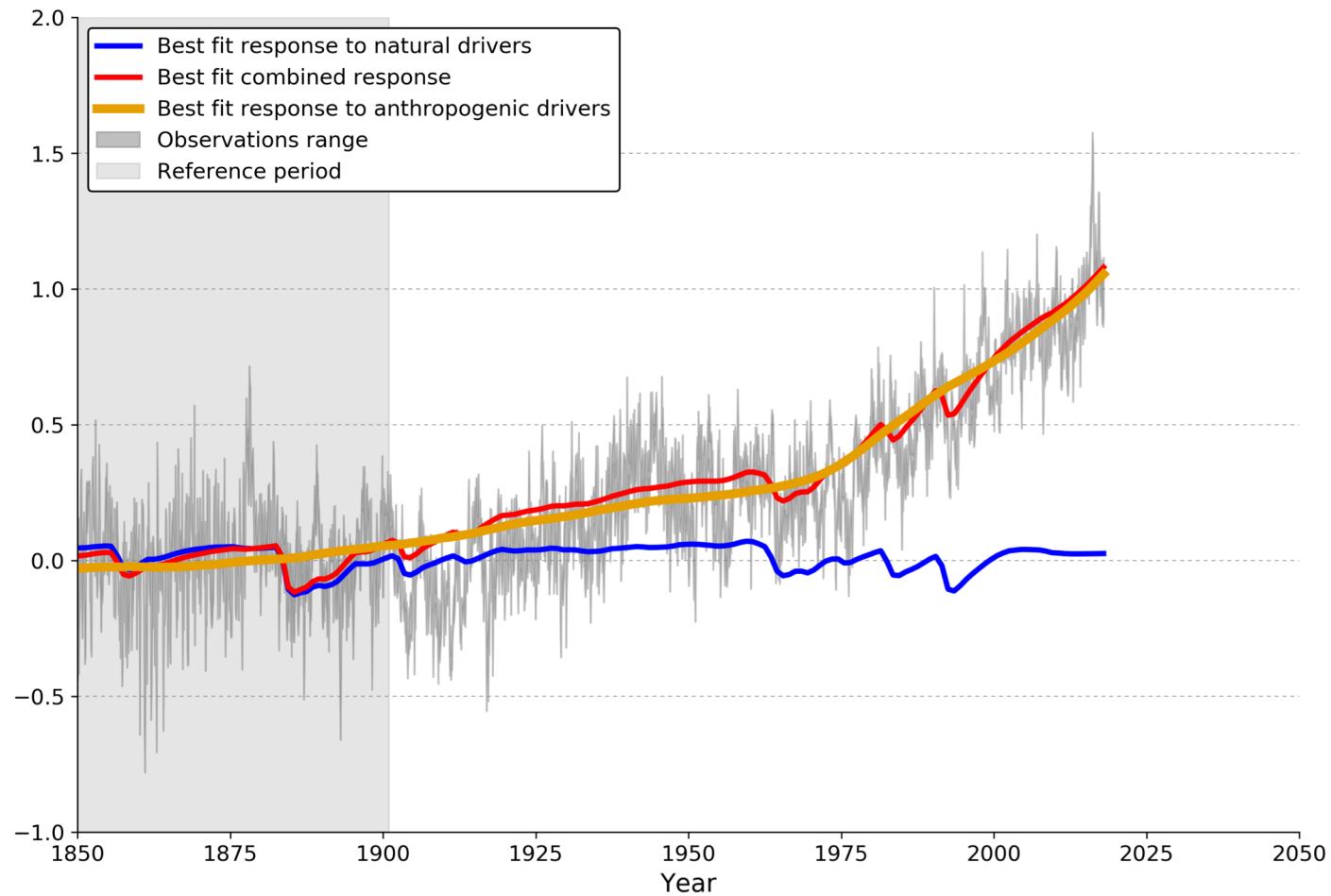


Itaim Paulista in a 1.5 °C warmer world: Implications for the Sustainable Development Goals (SDGs)

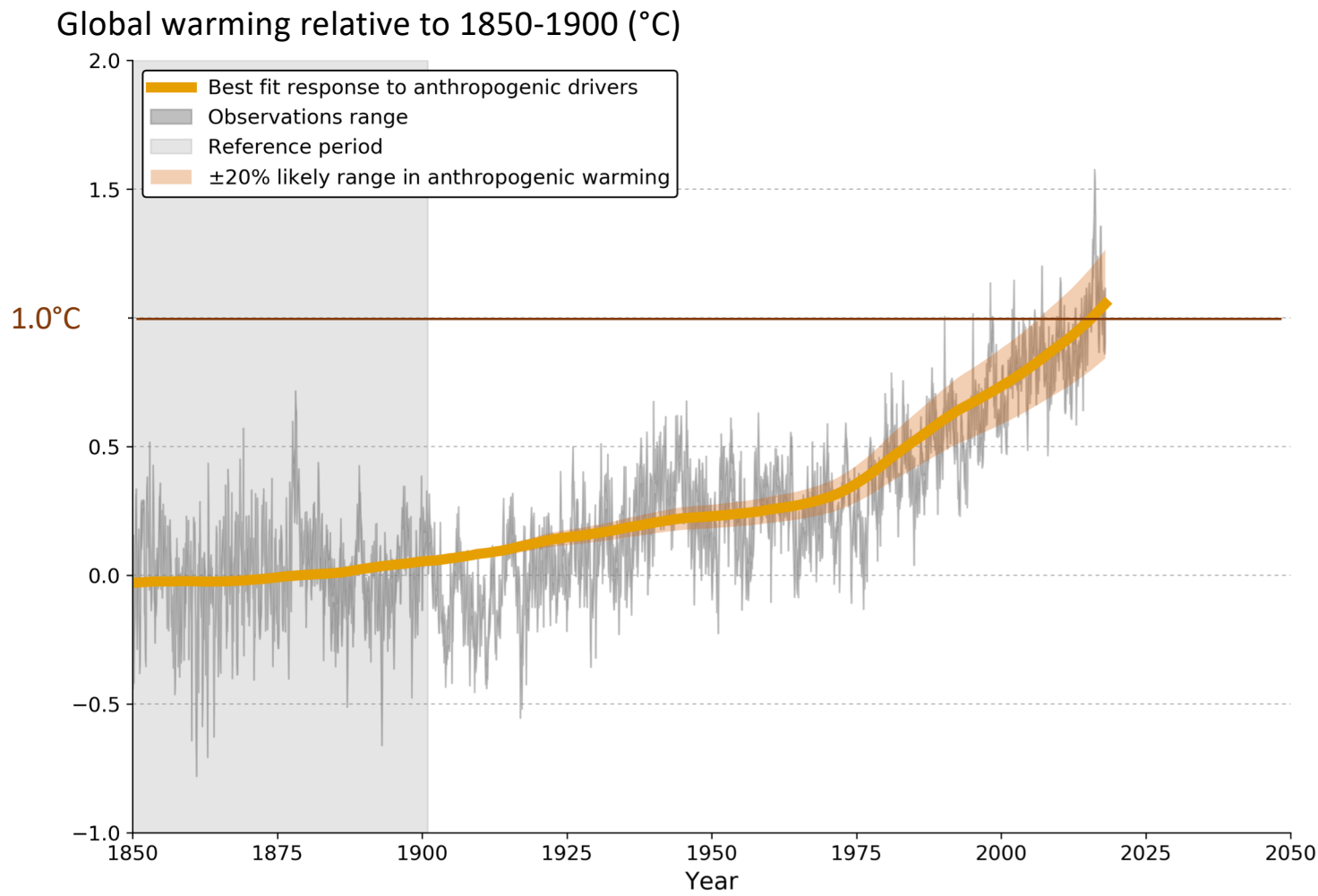
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Estimating the *magnitude* of anthropogenic and natural contributions to global temperature change from observations

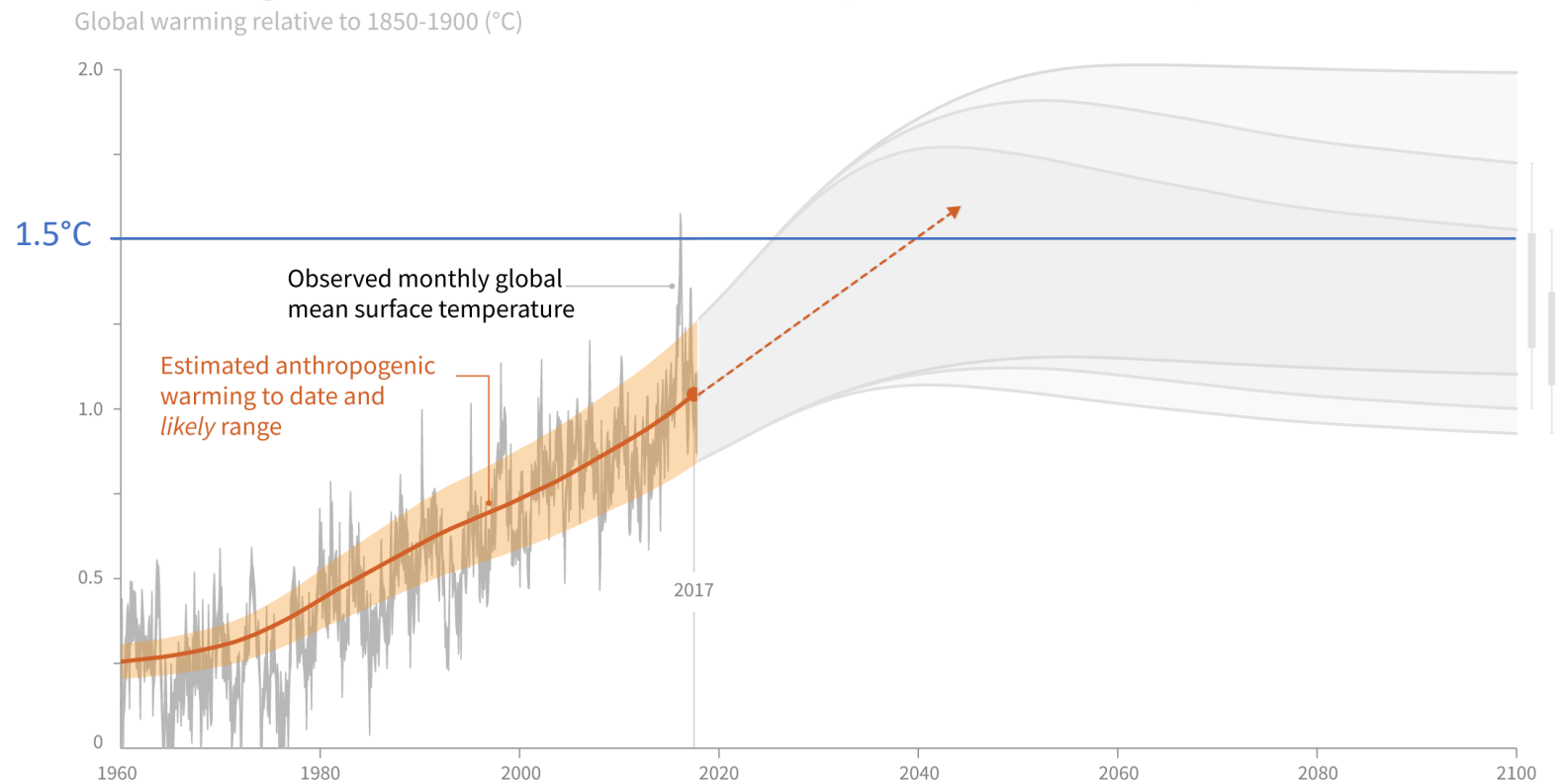
Global warming relative to 1850-1900 (°C)



Anthropogenic global warming has reached 1°C, with a *likely* range of 0.8 to 1.2°C, and is increasing at 0.2°C per decade



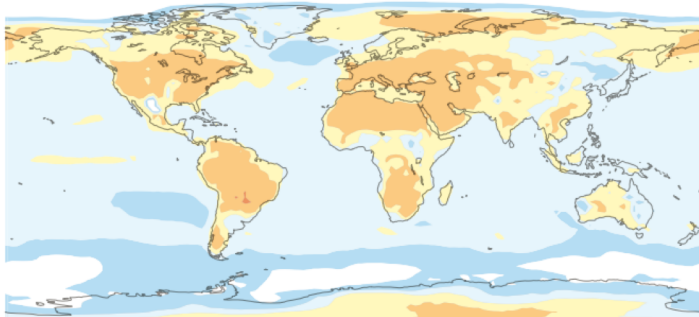
Global warming is *likely* to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate



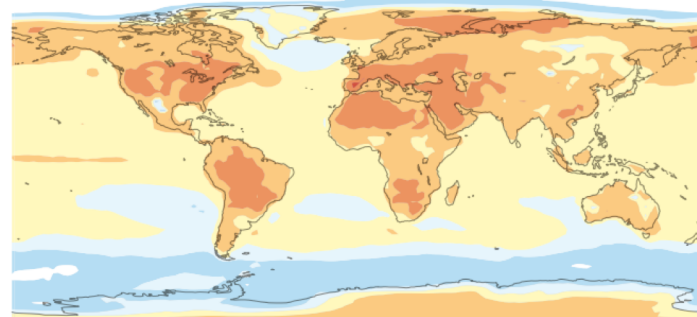
FAQ3.1: Impact of 1.5°C and 2.0°C global warming

Temperature rise is not uniform across the world. Some regions will experience greater increases in the temperature of hot days and cold nights than others.

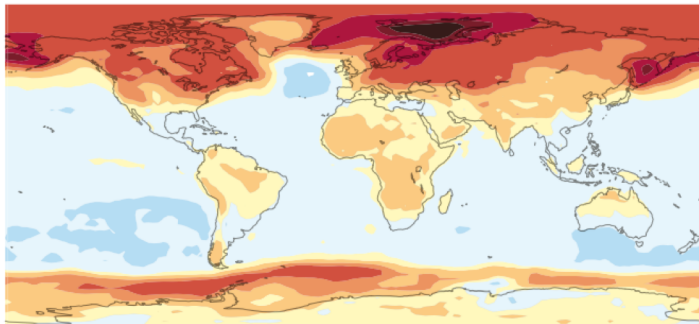
+ 1.5°C: Change in average temperature of hottest days



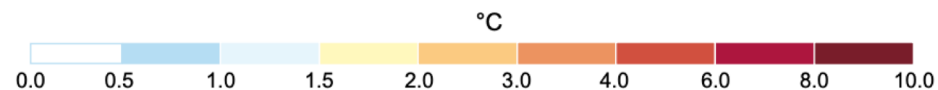
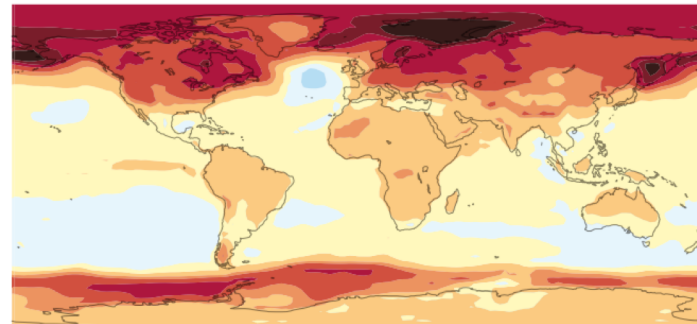
+ 2.0°C: Change in average temperature of hottest days



+ 1.5°C: Change in average temperature of coldest nights



+ 2.0°C: Change in average temperature of coldest nights



AQ 3.1, Figure 1 | Temperature change is not uniform across the globe. Projected changes are shown for the average temperature of the annual hottest day (top) and the annual coldest night (bottom) with 1.5°C of global warming (left) and 2°C of global warming (right) compared to pre-industrial levels.

What 1.5 C means to different localities of the Global South ?

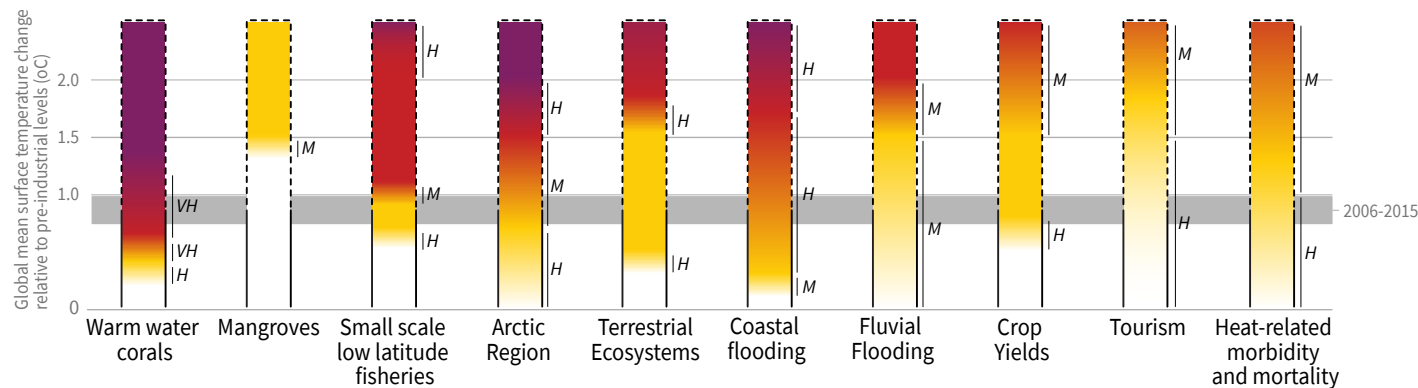
- The 1.5 C warmer world at current trends is expected for 2040 it is not experienced homogenously on the ground in different localities in the world.
- The regional variation in the warming experience at 1.5°C is large
 - For the Arctic, 1.5 C means 7 C warming by ~2040.
 - For the Amazonia Region, 1.5 C means a warming up to 4C [limit that is a way above the ‘socially accepted’]
- Depending on the temperature dataset considered, 20–40% of the global human population live in regions that, by the decade 2006–2015, had already experienced warming of more than 1.5°C above pre-industrial in at least one season (medium confidence)
- Some regions have already experienced a 1.5°C warming, with impacts on food and water security, health and other components of sustainable development (medium evidence, medium agreement)
- Each 1°C increase could reduce work productivity by 1 to 3% for people working outdoors or without air conditioning, typically the poorer segments of the workforce and urban areas (Park et al., 2015).

Asymmetries associated with the conditions of a 1.5°C warmer world

- 1. Differential contributions to the problem:** the observation that the benefits from industrialization have been unevenly distributed and those who benefited most historically also have contributed most to the current climate problem and so bear greater responsibility (Shue, 2013; McKinnon, 2015; Otto et al., 2017; Skeie et al., 2017).
- 2. Differential impact: the worst impacts tend to fall on those least responsible for the problem, within states, between states, and between generations** (Fleurbaey et al., 2014; Shue, 2014; Ionesco et al., 2016).
- 3. Capacity to shape solutions and response strategies, such that the worst-affected states, groups, and individuals are not always well represented** (Robinson and Shine, 2018).
- 4. Future response capacity:** some states, groups, and places are at risk of being left behind as the world progresses to a low-carbon economy (Fleurbaey et al., 2014; Shue, 2014; Humphreys, 2017).

How the level of global warming affects impacts and/or risks associated with Reasons for Concern

Impacts and risks for selected natural, managed and human systems



Confidence level for transition: L=Low, M=Medium, H=High and VH=Very high

Source: IPCC Special Report on Global Warming of 1.5°C

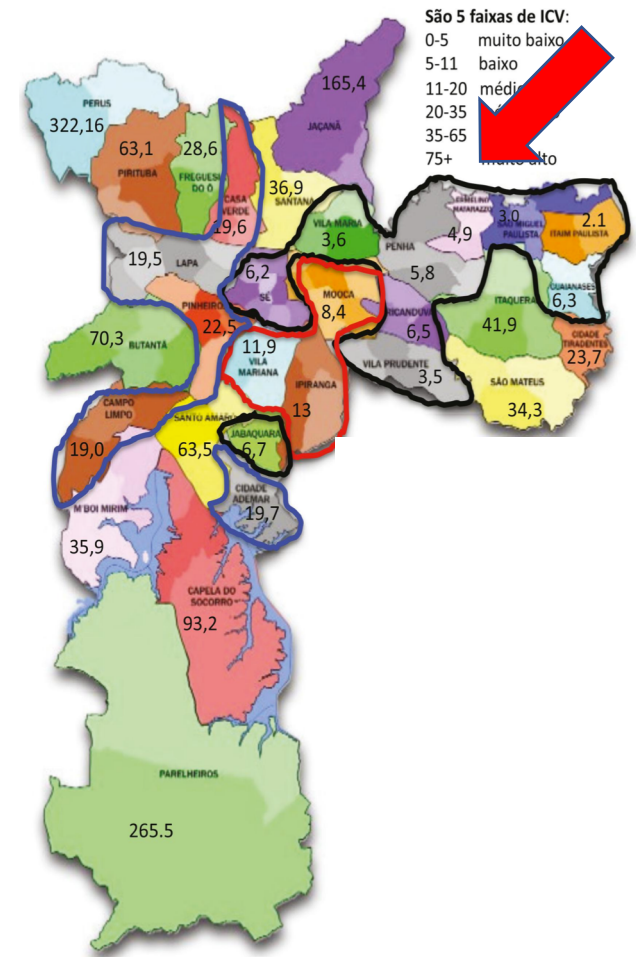
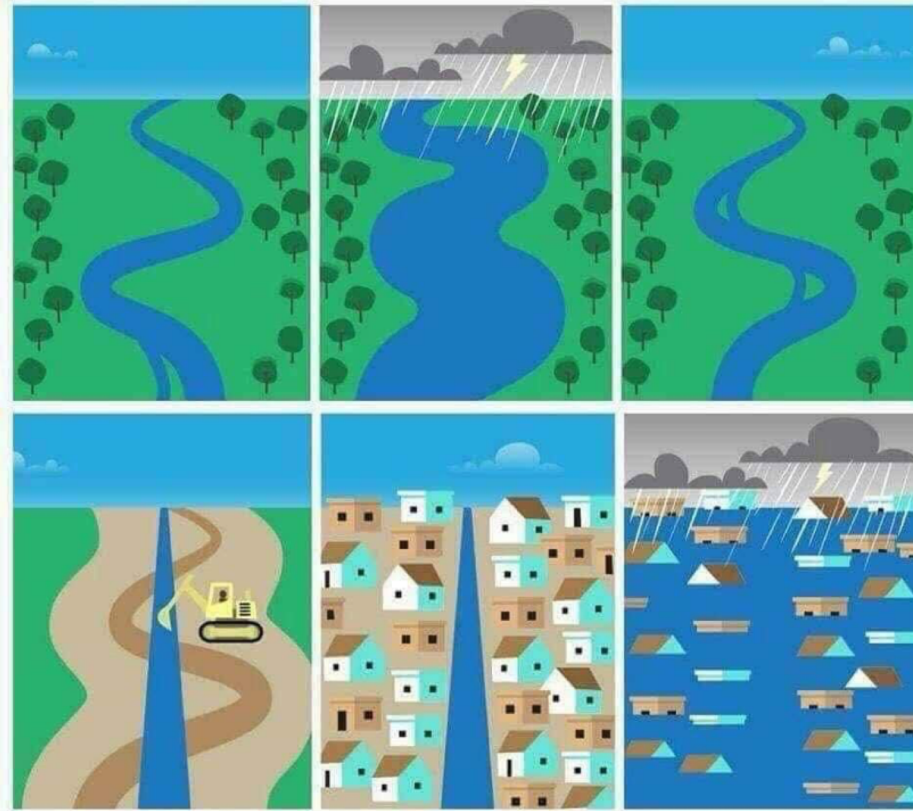
The number of exceptionally hot days are expected to increase the most in the tropics, where interannual temperature variability is lowest; extreme heatwaves are thus projected to emerge earliest in these regions, and they are expected to already become widespread there at 1.5°C global warming (high confidence).

Itaim Paulista means small stone in Tupi

- ***High population density with*** ~ 240 mil habitants (only Vila Curuça has 150 mil habitants) and poverty incidence.
- Very low vegetation cover
- Highly but poorly urbanized
- Pollution of (litter) and sewage in streams
- Precarious housing built on floodplain and removal of riparian forests
- Incidence of dispersal diseases by insect agents (dengue, yellow fever) associated with ecosystem change.
- Incidence of diarrheal, mainly in children and elderly and pregnant women associated with poor sewage treatment and polluted water.
- Incidence of cardio-respiratory diseases associated with air pollution and heat islands of the built environment
- Absence of governance (Municipal and State)

Itaim Paulista: A non-natural environment

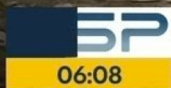
- The Zona Leste, where *Itaim Paulista* is located has the greatest deficit of trees in the São Paulo city.
- Only 6 out of the 28 regions (neighborhoods) in São Paulo city are above 1 tree per habitant
- The 20% with the lowest number of trees per habitants is located in Zona Leste of the city.
- It has developed on Tietê river banks



Source: O papel das árvores (Buckeridge 2015)

Consecutive Flooding





ÁGUA NÃO BAIXA HÁ 14 DIAS NA VILA ITAIM
Subprefeitura diz que está prestando serviços pra população





#NoNaturalDisasters

We're changing the language we use when we talk about the environment

Urbanization Trend and 1.5 °C

- The urbanization megatrend will add approximately 3 billion people to the global urban population by 2050
- ~ 70 million additional urban residents every year by ~2050
- New urban citizens will reside **in small and medium sized cities in low- and middle-income countries**
- In Latin America, a 1.5°C warming will expose households to **water poverty and increased flooding in urban settings.**
 - **increased consumption and environmental degradation and enhanced vulnerability and risk of population**
- In a 1.5°C warmer world **the risks of flooding, landslides, fire and infectious and parasitic disease** expected to be greater
- The Urban **heat islands** amplify the impacts of **heatwaves in cities** (high confidence).
- In places of high **urbanization rates** the risks will expose and amplify **poverty, exclusion, and challenge governance.**
- **Governance is complicated for the urban population currently living in informality.**
- **In the absence of innovation, the combination of urbanization and urban economic development could contribute 226 GtCO₂ in emissions by 2050**

Key findings on Urban Systems from IPCC SR 1.5C

- Global warming of 2°C is expected to pose greater risks to urban areas than global warming of 1.5°C (medium confidence).
- The extent of risk depends on human vulnerability and the effectiveness of adaptation for regions, informal settlements and infrastructure sectors (such as energy, water and transport) (high confidence).

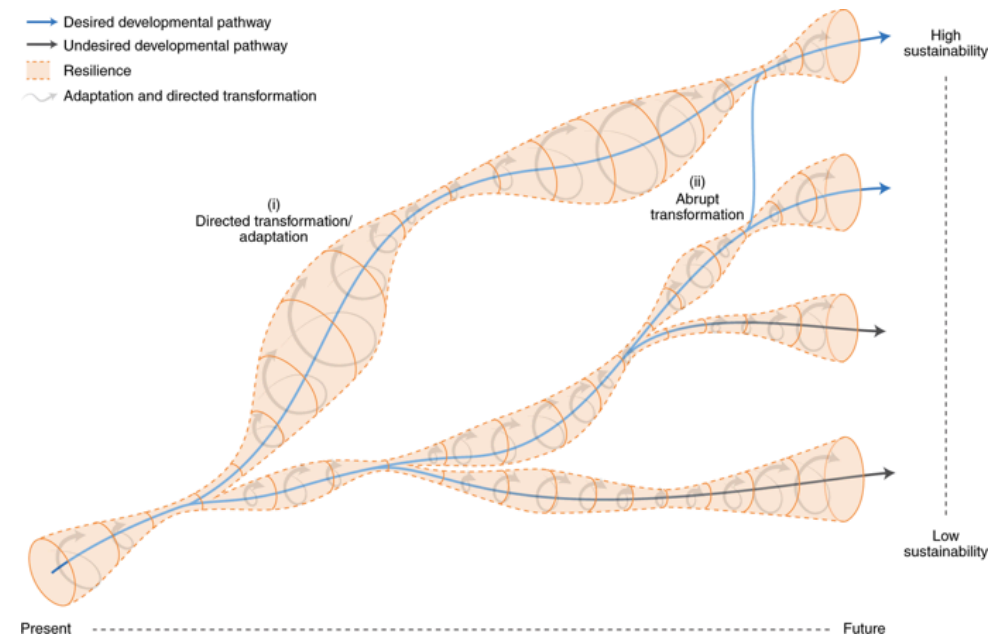
**Limiting warming to 1.5C rather than 2C
could result in 420 million fewer people being exposed to severe heatwaves**

Urban context in the Global South

- The drought exposure of urban populations in most regions would be decreased at 1.5°C (350.2 ± 158.8 million people) compared to 2°C (410.7 ± 213.5 million people)
- Heat-related extreme events, variability in precipitation and sea level rise can directly affect urban areas
- Future warming and urban expansion could lead to more extreme heat stress

URBAN Transformational Potential

- ‘Old urban agendas’, such as slum upgrading and universal water and sanitation provision
- The concentration of **economic activity, dense social networks, human resource capacity, investment in infrastructure and buildings, local scale governments, close connection to surrounding rural and natural environments, innovation** provide urban areas with **transformational potential**
- Reduce adaptation trade-offs in one sector leads to negative impacts in another sector.
- Examples include the creation of urban wetlands through flood control measures which can breed mosquitoes & Migration eroding physical and mental well-being, hence adversely affecting SDG 3 (wellbeing)
- Increased use of air conditioning enhances resilience to heat stress, yet it can result in higher energy consumption, undermining SDG 13 (Climate Action).



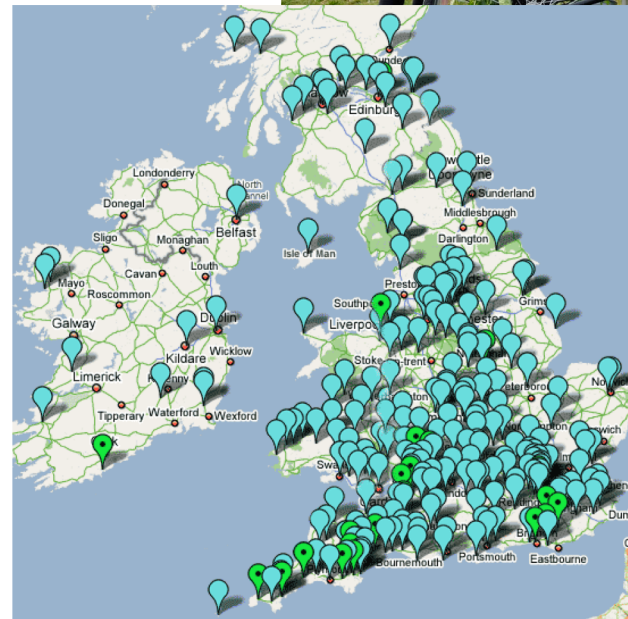
Source: Elmqvist T, Andersson E, Frantzeskaki N, McPhearson T, Olsson P, Gaffney O, Takeuchi K, Folke C (2019) Sustainability and resilience for transformation in the urban century. Nat Sustain.

Urban transformations and emerging climate-resilient development pathways

- The Itaim Paulista should revitalize its floodplain areas (*varzeas*).
- Adaptation plans can **reduce exposure** to urban flood risk and and heat stress, that will double relative to 1976–2005.
- Successful urban risk management ensuring that adaptation planning don't further marginalize poor citizens, help them to control adaptation priorities and avoid the displacing impacts onto poorer communities
- Urban governance is critical to ensuring that the necessary urban transitions deliver economic growth and equity.
- The proximity of local governments to citizens, their needs can make them powerful agents of climate action.
- Urban governance is enhanced when it involves multiple actors, supportive national governments and sub-national climate networks.
- Work by transnational networks, such as Shack/Slum Dwellers International, C40, the Global Covenant of Mayors, and the International Council for Local Environmental Initiatives
- Including combining the efforts of in-country Nationally Determined Contributions

Transition Towns (TTs)

- Type of urban transformation that have emerged mainly in high-income countries.
- The grassroots TT movement (origin in the United Kingdom) combines adaptation, mitigation and just transitions, mainly at the level of communities and small towns.
- It now has more than 1,300 registered local initiatives in more than 40 countries many of them in the United Kingdom, the United States.
- TTs are described as ‘progressive localism’ aiming to foster a ‘communitarian ecological citizenship’ that goes beyond changes in consumption and lifestyle
- They aspire to promote equitable communities resilient to the impacts of climate change, peak oil and unstable global markets; re-localization of production and consumption; and transition pathways to a post-carbon future.
- TT initiatives are too inwardly focused and geographically isolated, have difficulties in engaging marginalized, non-white, non-middle-class community members



Low Costs Initiatives

- Considering cooling that could be achieved through a combination of revised building codes, investments on reforestation in urban settings, to build more reflective roofs and urban surfaces that reduce urban heat island effects.
- Achievement of targets to reduce local air pollution and improve air quality
- The urban transport, water and energy systems use to be constructed in the next three decades to support urban populations in developing countries will have to leapfrog those built in Europe and North America in the 20th century.

- Time is now ! It is urgent!
- Local scale collective action DOES MATTERS!



This urgency and change asks us to revise our relationship to nature, that over pass monetary value – it is subjective, relational, rooted in cultural domains, that as much as for health, is only valued once it is lost!