

# Plans and outlooks of Working Group I of IPCC for the 6<sup>th</sup> Assessment Report cycle (AR6): regional climate change

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# Context for the assessment of regional climate change

- ❖ Assessment of climate science to support the post-COP21 decision making process for low carbon and climate resilient development pathway
- ❖ Last IPCC Plenary decision for the AR6 : consider modalities for addressing and enhancing the treatment of regional issues
- ❖ Integration accross Working Group I (Physical science basis) and Working Group II (vulnerability, impacts, adaptation and risk analysis studies)
- ❖ Opportunity for effective collaboration with CORDEX along the AR6 cycle :

*New emerging science*

*Needs from potential end-users and stakeholders*

*Scoping of reports*

*Calls for nominations : regional experts*

# Outline of AR5 (WGI)

Introduction

**Chapter 1**

Observations and paleoclimate Information

**Chapters 2, 3, 4, 5**

Process understanding : *carbon and BGC, clouds-aerosols*

**Chapters 6, 7**

From forcing to attribution of climate change

**Chapters 8, 9, 10**

Future climate change and predictability

**Chapters 11, 12**

Integration : sea level, climate phenomena

**Chapters 13, 14**

WGI Atlas of global and regional climate projections

WGII regional annex : 10 chapters

# Working Group I bureau and Technical Support Unit

Technical Support Unit @ Paris Saclay University, France

Anna Pirani (head of TSU)

Wilfran Moufouma-Okia (head of science)

Clotilde Péan (project manager)

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Nourredine Yassaa

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# Special and methodological reports

- ❖ In the context of the Paris Agreement, special report **in 2018** 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*)

➔ Regional dimensions

- ❖ Methodological report on greenhouse gas inventories for early **2019**
- ❖ Special report on climate change and oceans and the cryosphere

➔ Coastal areas, regional components of sea level change

- ❖ Special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems, (*considering challenges and opportunities both for adaptation and mitigation*)

➔ Regional dimensions

# Preliminary considerations for the AR6

- ❖ Scoping in spring-summer 2017 and outline for approval in autumn 2017
- ❖ Approval of the Synthesis report as soon as possible in 2022
- ❖ Approval of WGI *end of 2020 - beginning of 2021*
- ❖ Sequence of reports : WGI-WGIII-WGII
- ❖ Involve more authors from DC and EIT
- ❖ Structure of WGI ?

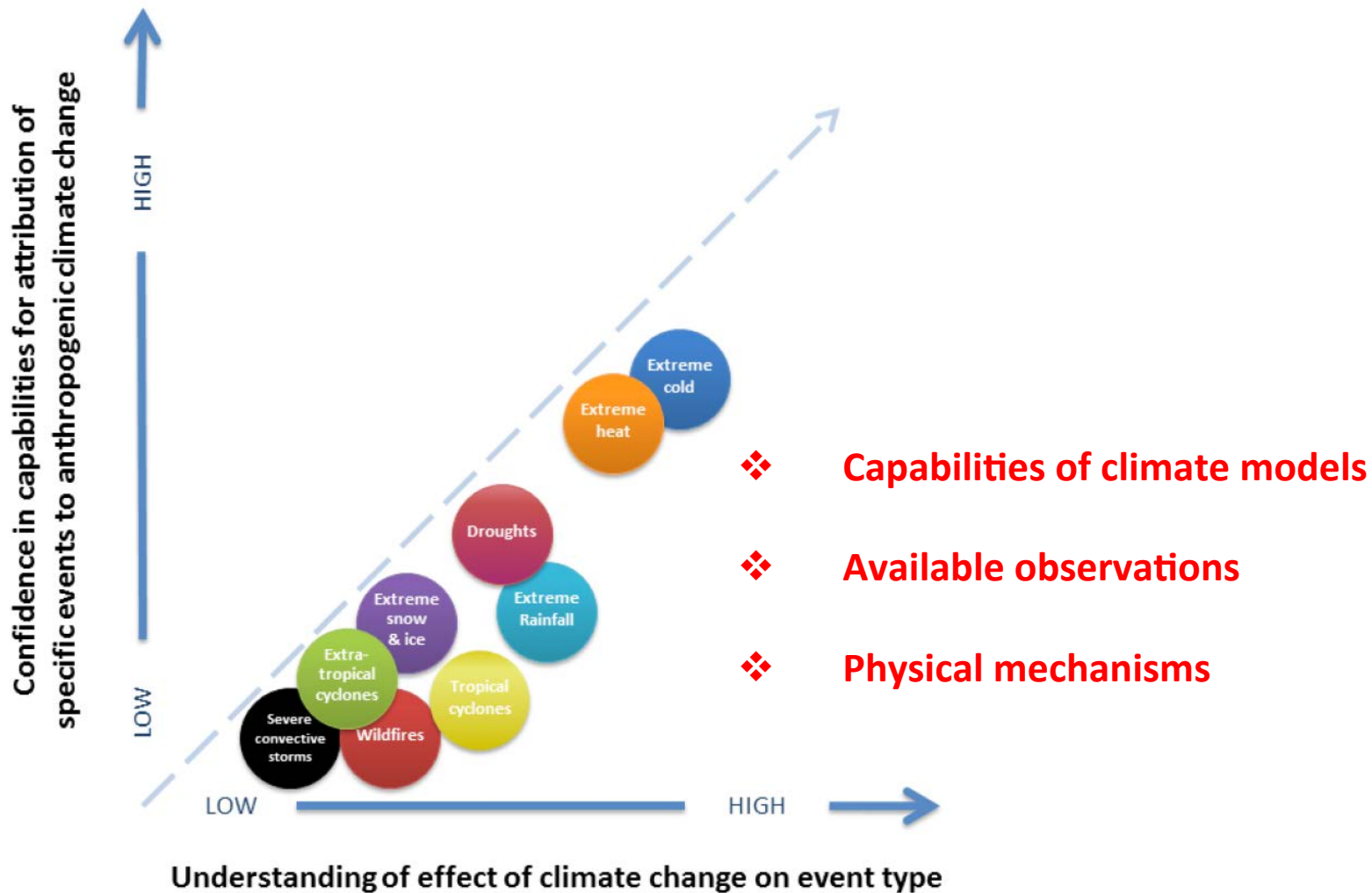
*Global to regional aspects*

*Process-based understanding*

*Extreme events including attribution*

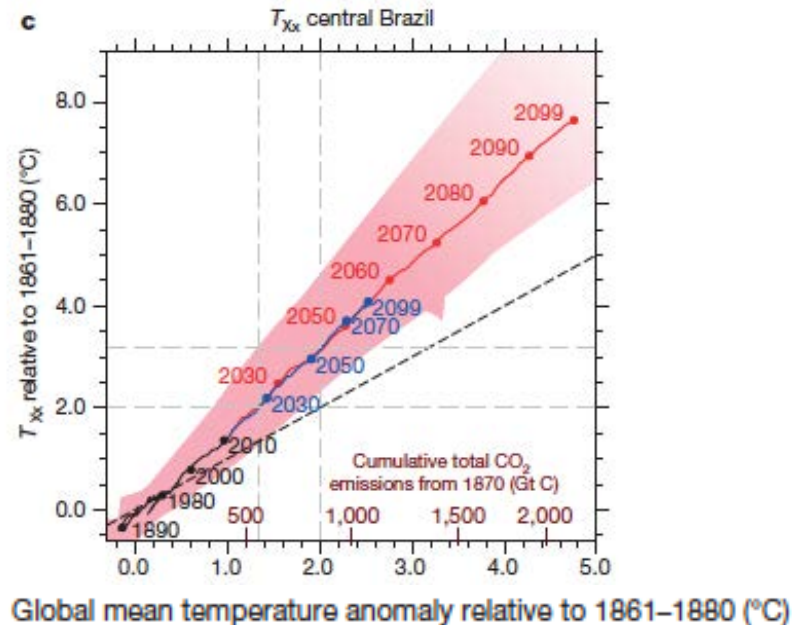
*Regional report as a new product across WGI-II-(III)?*

# State of knowledge for human influence on observed extreme events

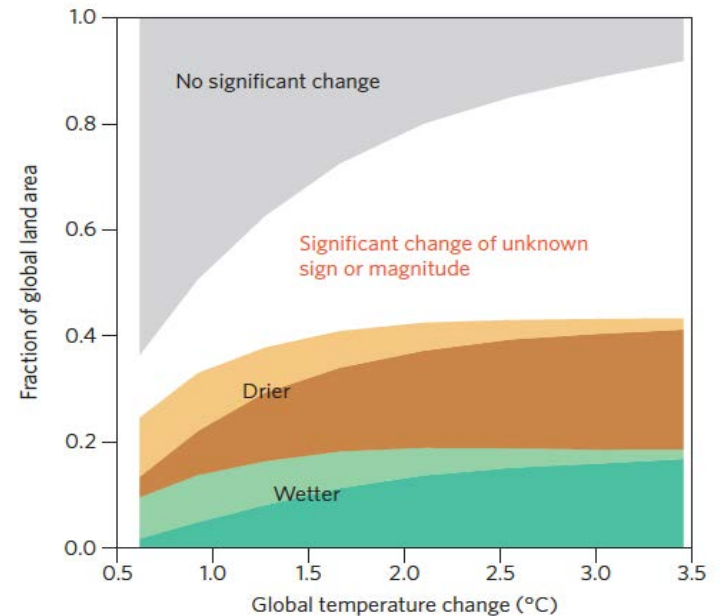


# Relating global mean metrics with regional change

Scaling between regional changes temperature extremes and changes in global mean temperature, with associated global cumulative CO<sub>2</sub> emissions targets



Fraction of global land area showing change towards drier or wetter conditions





# Outcomes of the 2015 IPCC workshop on regional climate projections and their use in impacts and risk analysis and 2016 IPCC workshop on communication

- ❖ Prepare the assessment of climate projections using multi-model, multi-method ensemble : how CMIP and CORDEX can best contribute to the AR6?
- ❖ Develop a coordinated assessment of uncertainty in climate projections along the modelling chain from climate change projections to projections of impacts and risks
- ❖ Consider stake-holder and end-user needs in scoping
- ❖ Develop communication skills of authors and involve communication experts

*IPCC expert meetings and workshops to foster coordination*

*IPCC guidance documents on good practice to facilitate the assessment process*

# Topics for discussion

- ❖ Recommendations for the IPCC AR6 to bridge the gap between science and practice using regional climate projections?
- ❖ CORDEX contributions to the AR6 : lessons learnt from downscaling CMIP5 projections, timeline for downscaling CMIP6 projections?
- ❖ Progress towards a common benchmark for exploration of uncertainty in regional projection and risk analysis?
- ❖ Complementarity of CORDEX, climate services, IPCC assessments of regional climate change?
- ❖ Future directions and priorities for regional climate projections in the context of high spatial resolution GCM projections?