Outreach Event on the Role and Activities of the Intergovernmental Panel on Climate Change (IPCC) SUDAN KHARTOUM, 12 – 13 August 2018

Overview of the IPCC Fifth Assessment Report and its Key messages on : The physical science basis of climate change

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Climate & weather

Weather is the state of the atmosphere at a particular time.

The climate represents the synthesis of weather conditions in a given area, characterized by the statistics of the meteorological elements in that area over a long-term (decades and more).





- The temperature has 0.85°C increased by over 1850 - 2012
- Warming of the climate system is unequivocal

Top panel: annual mean values. Bottom panel: decadal mean values. Source: IPCC (2013): AR5

Observed change in surface temperature 1901–2012



Sudan : ~ 0.8 to 1°C over 1901-2012



Source: IPCC (2013): AR5



WMO Statement on the State of the Global Climate in 2017





- The amounts of snow and • ice have diminished.
- Glaciers have continued to ulletshrink almost worldwide.

IDCC

UNEP

WMO





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- Precipitation in eastern Africa shows a high degree of temporal and spatial variability (Rosell and Holmer, 2007; Hession and Moore, 2011).
- Over the last 3 decades rainfall has decreased over eastern Africa between March and May/June (Williams and Funk (2011) and Funk et al. (2008).

Observed changes in extreme temperature events

(a) Cold Nights



(b) Cold Days



(c) Warm Nights



0

Trend (days per decade)

12

8

INTERGOV

-12

-8



Human influence on the climate system is clear, and recent anthropogenic emissions of greenhouse gases are the highest in history



Future changes of temperature

CMIP5: 2081-2100 RCP4.5: 2016-2035 ∆ Temperature - DJF 42 ∆ Temperature - JJA 42 (°C per °C global mean change) 0 0.25 0.5 0.75 1.25 1.5 1.75 2 Source: GIEC (AR5) (°C) -1-0.75-0.5-0.25 0 0.250.50.75 1 1.5 2 2.5 3.5 4.5 5.5 idcc



The 1981–2000 time mean of the annual minimum of TN (TNn, top panel) and maximum of TX (TXx, bottom panel) for HadEX2 and the CMIP5 multimodel ensemble median. Sillmann et al.(2013) : Climate extremes indices in CMIP5



Future changes of precipitation

RCP 8.5: 2081-2100



Source: GIEC (AR5)



Future changes of precipitation



Maps of precipitation changes in 2081–2100 with respect to 1986–2005 in the RCP8.5 scenario. For each point, the 25th, 50th and 75th percentiles of the distribution of the CMIP5 ensemble are shown.







The 1981–2000 time means of the annual R95p, RX5day and CDD for HadEX2 and the CMIP5 multimodel ensemble median. Sillmann et al.(2013) : Climate extremes indices in CMIP5



Future changes: Drought



Principaux risques et apports potentiels de l'atténuation et l'adaptation (Afrique)



Linked to SDGs





Achievements: 2013/2014 Fifth Assessment Report



Key messages

Human influence on the climate system is clear

The more we disrupt our climate, the more we risk severe, pervasive and irreversible impacts

We have the means to limit climate change and build a more prosperous, sustainable future



شكرا على الاهتمام Thank you for your attention





RCP8.5

Future changes of precipitation



Maps of precipitation changes in 2081–2100 with respect to 1986–2005 in the RCP8.5 scenario. For each point, the 25th, 50th and 75th percentiles of the distribution of the CMIP5 ensemble are shown.





Comparisons between RCP scenarios and SRES radiative forcings (in w/m-2) Source: S. Planton (in http://education.meteofrance.fr)





How the IPCC prepares its reports?



Scoping





Government and Expert Review - 2nd Order Draft

The 2nd draft of the report and 1st draft of the Summary for Policymakers (SPM) is reviewed by governments and experts



Authors prepare final drafts of the report and SPM which are sent to governments



Approval of Outline

The Panel then approves the outline



Expert Review -1st Order Draft

Authors prepare a 1st draft which is reviewed by experts



Government review of final draft SPM

Governments review the final draft SPM in preparation for its approval



Nomination of authors

Governments and observer organizations nominate experts as authors



Bureaux select authors



Approval & acceptance of report

Working Group/Panel approves SPMs and accepts reports





Antropogenic forcings are *extremely likely* the cause of warming



Sources of emissions

Energy production remains the primary driver of GHG emissions



24% Agriculture, forests and other land uses

21% Industry **14%** Transport 6.4% Building Sector

2010 GHG emissions

AR5 WGIII SPM

The window for action is rapidly closing

72% of our carbon budget compatible with a 2°C goal already used and continued emissions at current levels will exhaust the budget within the next 15-30 years



Potential Impacts of Climate Change



AR5 WGII SPM

ar6

Working Group I Outline

Chapter 1: Framing, context, methods Chapter 2: Changing state of the climate system Chapter 3: Human influence on the climate system Chapter 4: Future global climate: scenario-based projections and near-term information Chapter 5: Global carbon and other biogeochemical cycles and feedbacks Chapter 6: Short-lived climate forcers Chapter 7: The Earth's energy budget, climate feedbacks, and climate sensitivity Chapter 8: Water cycle changes Chapter 9: Ocean, cryosphere, and sea level change Chapter 10: Linking global to regional climate change Chapter 11: Weather and climate extreme events in a changing climate Chapter 12: Climate change information for regional impact and for risk assessment

