



EAG-GS 2014 Outreach Program to Africa



Lecture Abstract: Climate Change and its impact on the African continent

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Global warming poses a growing threat to the health, economic prospects, as well as food security and water resources of billions of people. Global mean surface temperature rises as a function of increasing global Greenhouse gases in the atmosphere: fossil fuel emissions primarily as well as net land use change emissions. The atmospheric concentrations of carbon dioxide (CO₂) and other Greenhouse gases have increased to unprecedented levels in at least the last 800,000 years. These greenhouse gas emissions are rising more rapidly than predicted and the world is warming more quickly in response.

The latest report from the U.N. Intergovernmental Panel on Climate Change (IPCC) concluded that the global warming is being felt everywhere with catastrophic effects such as accelerating sea level rise, droughts, floods, storms and heat waves. Africa is likely to be the continent most vulnerable to this climate change. Evidences of warming over land regions across Africa, consistent with anthropogenic climate change, have increased. Projections show that in many African countries and regions, agricultural production, food security and water stress would likely be severely compromised by climate change and variability.

Mean annual temperature rise relative to that of the late 20th Century is likely to exceed 2° C over Africa by the end of this century. Under high emission scenarios, mean annual temperatures may even reach 3 to 6° C. Furthermore a reduction in precipitation is likely over Northern Africa and the south-western parts of South Africa by the end of the 21st Century. However, projected rainfall changes over sub-Saharan Africa remain uncertain.

Understanding recent changes in the climate system results from combining observations, studies of feedback processes, and model simulations. This lecture will first present the lines of evidences of the present-day global warming. In a second time, it will focus on observation of changes of the climate system over the African continent and on their impacts on the ecosystems.