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Impact of different global warming scenarios on regional climate in Africa

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The global temperature rise is expected to modify the regional climate in Africa and consequently the socio-economic conditions for the living people. Therefore, regional climate change information is needed by decision-makers and stakeholders to undertake measures for adaptation to prevent potential negative consequences. This paper analysis the regional climate change information for Africa under 1.5°C, 2°C and 3°C global warming scenarios. For this investigation an ensemble of ten different GCM-RCM simulations conducted in the framework of the COordinated Downscaling EXperiment for Africa was used. The identification of 30-years periods for 1.5°C, 2°C and 3°C global warming referring to pre-industrial times was made by application of the method developed within the project IMPACT2C (Vautard et al., 2014).

In our presentation we will discuss temperature and rainfall based climate indices assigned to the sectors agriculture, health and infrastructure for selected climate regions. We specifically focus our rainfall related analyses on indices characterizing the rainy season(s) hence providing baseline information for the agriculture and energy management planning. The work revealed substantial differences between 1.5°C/2°C and 3°C global warming scenarios and the resulting regional climate change in Africa. In summary all sectors such as health, agriculture and infrastructure will be affected in all global warming scenarios in different strengths.