High-resolution dynamic downscaling of future climate over key cities in west and East Africa

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This paper discusses results of the largest downscaling experiment ever conducted for Africa. The experiment was conducted in order to gain more insight into the regional climate futures of West and East Africa with focus on African major cities.

The currently observed strong seasonal rainfall cycle in Dar es Salaam will not change significantly. However, the individual ensemble members indicate that significant increases in rainfall totals during the period of “long rains” are plausible. Daily mean temperatures increase in the order of 1.5 to 2°C is projected by the ensemble average and most ensemble members. The projections for Addis Ababa show very similar results.

For Ouagadougou, some ensemble members project significant increases in rainfall, whilst others project much drier summers. Temperature increases in the order of 1.5 to 2°C are projected by the ensemble average and most ensemble members, with relatively large increases projected for winter and smaller increases projected for summer.

Douala experiences a wet, tropical monsoonal climate. The rainfall regime will not change significantly regarding its seasonal cycle, but significant reductions in the summer monsoonal rainfall, in the order of 50 mm per month, are projected by the ensemble average. The projections for the future temperature do not show a homogeneous picture.

St. Louis exhibits a very dry climate and the seasonal rainfall cycle is not projected to change significantly. Quantitatively, slight rainfall increases are plausible during the boreal summer, as indicated by the ensemble average. Temperature increases in the order of 1.5 to 2°C are projected by the ensemble average.

Biography
As a visiting principal researcher at the Council for Scientific and Industrial Research, Meraka Institute, Ingo Simonis has been appointed scientific coordinator of international research and development programs. He is an accomplished leader in the field of geospatial interoperability with a proven track record in architecting and implementing geospatial technologies, standards and web services.

Ingo Simonis et al., J Earth Sci Climate Change 2013, 4:4
http://dx.doi.org/10.4172/2157-7617.S1.009

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