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Impacts of climate change on meningitis epidemics in the Western African Sahel: Enhanced threats or part of the solution?

Abdelkrim Ben Mohamed, Aminath Kelani and Eric Adehossi Omar
Universite Abdou Moumouni, Niger

According to WHO, potentially 400 million people are exposed to bacteria *Neisseria meningitidis* within the meningitis "belt" of West Africa, resulting in 25000 to 250000 victims every year. The meningitis epidemics in this area occur almost exclusively during the local dry season thus suggesting a strong link between climate, environment and meningitis. A number of authors clearly established that under ongoing climate variability, the starting of meningitis epidemics coincide with the occurrence of large dust events within the area, and cease with the arrival of monsoon rains, synonym of the local humid season. However, it is still not clear what could be the underlying physical mechanisms in both cases, and if climatic factors can be used to predict these epidemics. On the other hand, and according to IPCC AR4, the Sahel is one of the four regions in the World where precipitation decreased during the last century, so detection and attribution of climate change in this area might be another way to look for explanation of links between meningitis epidemics and climate and environment in the Sahel, as far as the starting mechanism is concerned. Furthermore, geo-engineering being among the solutions to some aspects of climate change, it might also be part of the solution to modulate future meningitis epidemics in the Sahel. The aim of this paper is to address these issues as well as some feasibility aspects.

Biography

Abdelkrim Ben Mohamed has completed Doctorat de 3eme Cycle degree in Nuclear Physics and Doctor of Science degree in Atmospheric Science, respectively in 1975 from University Louis Pasteur (Strasbourg, France), and 1988 from University of Niamey (Niger). He was Director of the Institute of Radio-isotopes (Université Abdou Moumouni, Niamey, Niger), Chairman of the Scientific Advisory Committee of the African Center of Meteorological Applications for Development (ACMAD), visiting Scientist at the International Research Institute for Climate and Society (Columbia University N.Y.), and is currently Senior Advisor at the Office of the President of Niger for Water and Environment issues. He published in peer review journals such as *Physical Review C*, *Journal of Applied Meteorology*, *Journal of Climate and Applied Meteorology*, *Climate Change*, *Regional Environmental Change*, among others.

benmoam@yahoo.com

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