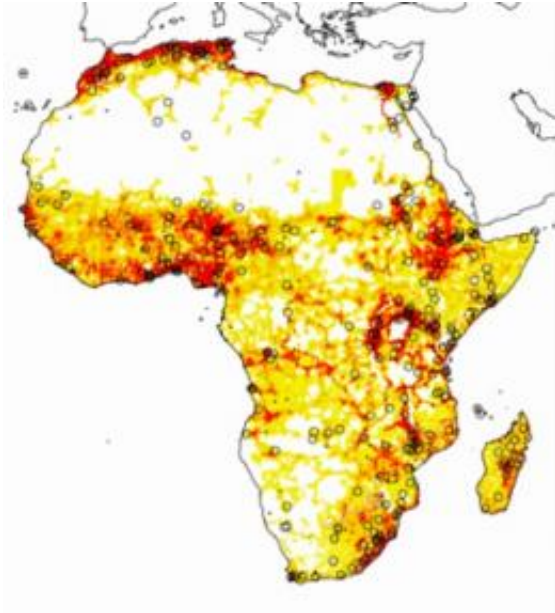


Fatal floods in Africa

December 16 2010, By Phillip F. Schewe



The yellow-to-red areas on this map of Africa show population growth over the period 1960-2000. The location of floods over the period 1985 to 2009 are denoted by dots and deadly floods by black circles. Credit: Courtesy Giuliano Di Baldassarre

When natural disasters claim human lives, it's important to determine whether the problem is geophysical or cultural. A new study shows that the large upswing in flood deaths in Africa over past decades is chiefly the result of population settlement patterns, and is not a consequence of changing climate.

Floods displaced 2.5 million people in Africa in 2009 and more than a

million in 2007. Overall African flood fatalities increased by a factor of ten from 1950 to 2009. Over 15,000 people died during the decade 2000-2009.

The [human population](#) in areas prone to flood damage also increased by a factor of ten over the same period.

Why do people live in places that flood? Historically people are drawn to riverbanks and coastlines for a number of reasons: jobs, irrigation water and easy transport.

Six scientists made a detailed study of the water discharge of African rivers over the years from 1900 to 2000 to see if the rivers themselves had changed, perhaps due to [climate change](#). They found that the amount of water coursing through the rivers hasn't changed that much.

Despite a tenfold increase in flood deaths, the consistent [river flow](#) and the tenfold increase in the population settled in flood-risk areas suggested to the new study's authors that the problem is chiefly one of human settlement patterns .

"The details of increasing flood risk in Africa were critically investigated by means of a multidisciplinary approach that combined [population dynamics](#) and climate signals," said Giuliano Di Baldassarre, one of the researchers. "To our knowledge, previous scientific studies investigated these issues separately." Di Baldassarre works in the Department of Hydroinformatics and Knowledge Management in the UNESCO office in Delft, Netherlands.

Having diagnosed the problem at the heart of African flood fatalities, the researchers have sought a remedy. Of course discouraging settlement in the risky areas is a start. But getting people to refrain from living near water is difficult. One way of lowering risk is to install a better warning

system based on satellite measurements of rainfall and, in some cases, networks of cell phone alerts.

[The new study](#), which appeared in November in the journal *Geophysical Research Letters*, points to a successful flood-fatality mitigation scheme used in India. There a storm in 1977 left 20,000 dead from flooding. After a better flood warning system was put in place, a comparably-sized storm in 1996 resulted in 1,000 fatalities, while another in 2005 left only 27 dead.

Roger Pielke, an environmental scientist at the University of Colorado in Boulder, said that the new study helps to explain the rise in flood fatalities in Africa and other developing countries around the world. The task now is to implement the needed remedies.

"Perhaps the greatest value of this paper is to indicate that there is a dubious basis for claims that human-caused climate change is leading to increased flood losses in Africa," said Pielke. "This finding is consistent with the broader literature on climate and losses. Those campaigning for action on emissions reduction should note that there are far better justifications for action than invoking disasters in poor countries."

That is not to say that some consequences of climate change won't pose dangers to people who live near water; rising sea level is one such danger. But based on this study, scientists seem assured that climate change is not responsible for increased African flooding fatalities.

Source: Inside Science News Service

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