Increases in extreme rainfall linked to global warming

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(Phys.org)—A worldwide review of global rainfall data led by the University of Adelaide has found that the intensity of the most extreme rainfall events is increasing across the globe as temperatures rise.

In the most comprehensive review of changes to extreme rainfall ever undertaken, researchers evaluated the association between extreme

rainfall and atmospheric temperatures at more than 8000 weather gauging stations around the world.

Lead author Dr Seth Westra said, "The results are that rainfall extremes are increasing on average globally. They show that there is a 7% increase in extreme rainfall intensity for every degree increase in global atmospheric temperature.

"Assuming an increase in global average temperature by 3 to 5 degrees Celsius by the end of the 21st century, this could mean very substantial increases in rainfall intensity as a result of climate change."

Dr Westra, a Senior Lecturer with the University of Adelaide's School of Civil, Environmental and Mining Engineering" and member of the Environment Institute, said trends in rainfall extremes were examined over the period from 1900 to 2009 to determine whether they were becoming more intense or occurring more frequently.

"The results show that rainfall extremes were increasing over this period, and appear to be linked to the increase in global temperature of nearly a degree which also took place over this time.

"If extreme rainfall events continue to intensify, we can expect to see floods occurring more frequently around the world," Dr Westra said.

The strongest increases occurred in the tropical countries, although some level of increase seems to be taking place at the majority of weather gauging stations.

Dr Westra said, "Most of these tropical countries are very poor and thus not well placed to adapt to the increased risk of flooding, which puts them in a larger threat of devastation."