

Topics (T)

Understanding and Predicting the Climate Change for our Planet (1)

Author: Dr. Rasmus Benestad

Norwegian Meteorological Institute, Norway

Dr. Andreas Dobler

Norwegian Meteorological Institute, Norway

Dr. Cristian Lussana

Norwegian Meteorological Institute, Norway

SATELLITE OBSERVATIONS PROVIDE A GLOBAL PICTURE OF GLOBAL CHANGES IN 24-HR
RAINFALL**Abstract**

We expect that a global climate change will alter the global hydrological cycle as well as incurring global warming, based on our understanding of physics. Hence, it is expected that the global rainfall patterns also will change. Satellite-borne instruments provide a unique global picture of the earth, and we present an analysis of space-based rainfall measurements which indicate that the global surface area with 24-hr rainfall has declined since 1998. This finding is also seen in state-of-the-art reanalyses, which too rely strongly on satellite observations through assimilation. To understand whether this trend is real and physical, or merely due to inhomogeneities, we analysed simulations from global climate models to check whether they reproduced this trend in reduced 24-hr precipitation global surface area, as they are not influenced by the introduction of new observing systems over time and make computations based on first physical principles.