Global Precipitation Data Sets: Sources, Methods, Applications and Caveats

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Time series of global gridded fields (analyses) of precipitation are vital to monitoring, predicting and understanding climate processes and variations. Data sets of such analyses have been available since the mid-1990s, and have been used to verify climate model predictions and projections, to monitor precipitation variations associated with phenomena such as the El Niño/Southern Oscillation, and to improve understanding of the impact of volcanic eruptions and changing atmospheric composition on the global hydrological cycle. More recently, these data sets have provided the basis for statistical reconstructions of large scale precipitation anomalies back to 1900. These reconstructions are being used to investigate variability in the hydrological cycle over longer time spans, and to assess climate model simulations of 20th Century climate. In this presentation, we will examine the state of the art in global precipitation analysis, identify shortcomings of currently available data sets, and describe ongoing research into improved products.