

1086-00-1315

Thomas M. Smith* (tom.smith@noaa.gov), 5825 University Research CT, Suite 4001, College Park, MD 20740, and **Samuel Shen, Phillip Arkin** and **Li Ren**. *Precipitation Reconstructions from Historical and Modern Data*.

Statistics from recent satellite-based precipitation analyses are used with historical data to reconstruct monthly precipitation anomalies beginning 1900. Statistics include spatial covariance and correlations with other variables. Historical data used include gauge data over land and some islands, and historical analyses of sea-surface temperature and sea-level pressure which are correlated with precipitation on long time scales. Reconstructions are particularly important for analysis of oceanic variations where there are no direct historical measurements. Large-scale long-term changes in the ocean-area reconstructions are qualitatively consistent with changes in physically-based coupled climate models that include changes in greenhouse gases and aerosols, indicating increasing global precipitation over the 20th Century. Error estimates for the reconstructions indicate that global changes over the 20th Century are slightly larger than the uncertainty. (Received September 21, 2012)