

Weather and Climate Analyses Using the New NVAP-MEaSURES Global Water Vapor Dataset

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ABSTRACT

The NASA Water Vapor Project (NVAP) dataset is a global (land and ocean) water vapor dataset created by merging multiple sources of observed atmospheric water vapor to form a global data base of total and layered precipitable water vapor. Under the NASA Making Earth Science Data Records for Research Environments (MEaSURES) program, NVAP has been reprocessed and extended. The NVAP-MEaSURES (NVAP-M) dataset features multiple production streams geared towards varied user needs, and biases in the original dataset caused by algorithm and input changes were removed by relying on peer reviewed algorithms and inputs. This extension increases NVAP's 14-year coverage to include 22 years (1988-2009) of data. The resulting data set provides new information on the seasonal and interannual variability of water vapor at both global and regional scales (Fig. 1). The availability of both total and layered precipitable water also allows for the study of water vapor at various levels of the atmosphere. NVAP-M continues the NVAP legacy wide-ranging uses, from studies of weather features, regional circulations, to assimilation into and validation of climate models.

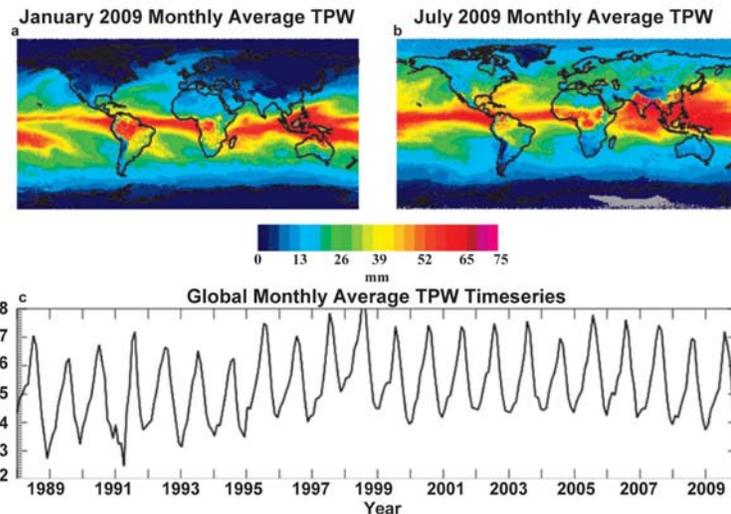


Fig. 1 Seasonal and interannual variability from NVAP-M Climate: monthly average total precipitable water (TPW) for (a) January and (b) July 2009. (c) The time series of global monthly average TPW.

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