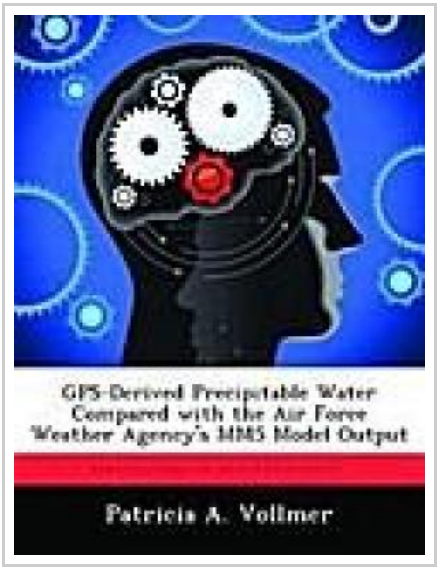

GPS-Derived Precipitable Water Compared with the Air Force Weather Agency's MM5 Model Output

By Patricia A. Vollmer

Bibliioscholar Okt 2012, 2012. Taschenbuch. Book Condition: Neu. 246x189x7 mm. This item is printed on demand - Print on Demand Neuware - Current moisture initialization sources lack the spatial and temporal resolution required for mesoscale moisture forecast accuracy critical for military operations. The Global Positioning System (GPS) satellite constellation provides an opportunity to extract accurate moisture observations based on the refraction of the GPS signal through the troposphere. GPS-derived precipitable water (PW) from two research areas was independently compared with the Air Force Weather Agency's (AFWA's) MM5 PW model output. Results were concurrent with similar studies comparing GPS-derived PW with numerical weather models. The mean correlation between the GPS-derived PW values and MM5 output in CONUS was 92.5%, while in Alaska it was 72.8%. Mean model biases between the two data sets were -1.22 mm in CONUS and 0.69 mm in Alaska, where a positive bias signifies the GPS network having higher PW values. Mean root mean square errors were 4.36 mm in CONUS and 2.76 mm in Alaska. In addition, comparisons were made between moist and dry locations as well as inland and coastal locations, and a special study was done comparing GPS receiver site elevation and standard deviation....

Reviews

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