



Mesoscale Assimilation of Tmi Rainfall Data with 4dvar: Sensitivity Studies

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BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 30 pages. Dimensions: 9.7in. x 7.4in. x 0.1in. Sensitivity studies are performed on the assimilation of TRMM (Tropical Rainfall Measurement Mission) Microwave Imager (TMI) derived rainfall data into a mesoscale model using a four-dimensional variational data assimilation (4DVAR) technique. A series of numerical experiments is conducted to evaluate the impact of TMI rainfall data on the numerical simulation of Hurricane Bonnie (1998). The results indicate that rainfall data assimilation is sensitive to the error characteristics of the data and the inclusion of physics in the adjoint and forward models. In addition, assimilating the rainfall data alone is helpful for producing a more realistic eye and rain bands in the hurricane but does not ensure improvements in hurricane intensity forecasts. Further study indicated that it is necessary to incorporate TMI rainfall data together with other types of data such as wind data into the model, in which case the inclusion of the rainfall data further improves the intensity forecast of the hurricane. This implies that proper constraints may be needed for rainfall assimilation. This item ships from La Vergne, TN. Paperback.

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