

Reply

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In his comments on the relationship between total precipitable water and surface dew point, Schwarz illustrates the great difficulty of applying semi-empirical relationships derived from time and space averaged climatological data to individual stations and synoptic situations. Due to the stochastic nature of weather events, empirical relations developed for meteorological purposes can usually yield satisfactory results only for the same time and space domain considered for the derivation of those relations. Thus, it is not surprising that the surface dew point is a poor predictor and that the λ values derived from seasonal and latitudinal mean moisture profiles (Smith, 1967) are inadequate for San Antonio, Tex., during various months of the year. It was originally intended that these λ values be

used only to obtain estimates of the latitudinal average values of total precipitable water from corresponding latitudinal average values of surface dewpoint.

Although it was stated that more characteristic λ values may be derived for individual stations, it is apparent from Schwarz's results that λ should in many cases be allowed to vary with respect to time and the synoptic situation. For those stations and conditions where a significant correlation does not exist between surface dew point and total precipitable water, the predicting equation is, of course, useless.

REFERENCE

Smith, W. L., 1967: Note on the relationship between total precipitable water and surface dew point. *J. Appl. Meteor.*, **5**, 726-727.