

Step 2 wind field question

A Step 1 field is constructed from available observations (surface and upper air). If the user does not want extrapolation of surface wind data to occur, the extrapolation can be turned off in the Options screen. Alternatively extrapolation can be turned on and the selection made between “always extrapolate” or “Extrapolate if surface/upper air distance $>$ RMIN2” where RMIN2 might be a few km. Biases defined on the Initial Guess screen determine the relative weighting of the extrapolated winds and the sonde/TAPM profile in the Step 1 field. All of this is fairly obvious.

In the Step 2 screen, ignoring RMIN which should be small, if all the other R values are set very small (say less than grid resolution), the Calmet output will be the Step 1 field (no further modification by observations). Larger R values lead to interpolation between the Step 1 field and observations. The feature that is less than obvious (or intuitive) is that, if surface wind extrapolation was used in the construction of Step 1, then the Step 2 process will take the extrapolated profiles (ignoring biases) and use these as “observed profiles” at each surface station.

Is this intentional? If so, please explain reasoning.