

Figure 5.26. Adjustment chart for optimum wind inflow direction for south-eastern mountainous portion of Tennessee River basin over Chattanooga, Tennessee (Zurndorfer and others, 1986)

classification. Since the adjustment is related to the effects of terrain on convective cells within the larger-area storm, the adjustment decreases with increasing area size (Figure 5.29). This adjustment is termed the terrain stimulation factor (TSF).

A second adjustment factor is required in the mountainous eastern region in order to account for the effects of upslopes and sheltering. This second factor is referred to as the broad-scale orographic factor (BOF) and is the sum of weighted percentages of a

basin covered by first upslopes, secondary upslopes and sheltered regions as determined by using Figure 5.14. The respective weights for these three categories are 0.55, 0.10 and 0.05, obtained through regression analyses of orographic intensification factors determined for 18 basins. These factors were based on detailed evaluation of terrain effects for these basins and subjective comparisons of the mean annual precipitation to the mean annual non-orographic precipitation ratios.

For any basin in the mountainous east region, the total adjustment factor (TAF) is the sum of the TSF and the BOF. The non-orographic PMP determined from Figure 5.22, geographically adjusted to the site, is then multiplied by the TAF to obtain the total PMP.

5.3.3.4 Adjustment for PMP at interface (259 km²)

When different generalized procedures are developed to estimate PMP for ranges of area sizes, estimates for basins near the interface in area sizes may differ. These inequalities result from the differing evaluation of topography. Sample computations of PMP in the vicinity of 259 km², the interface between the methods described in sections 5.3.2 and

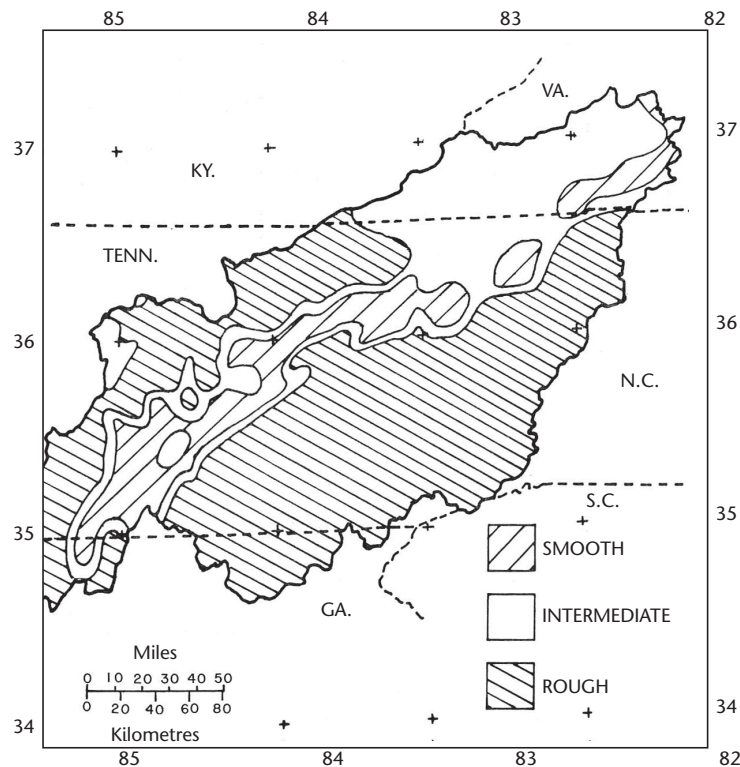


Figure 5.27. Illustration of terrain classification for the eastern Tennessee River basin (Zurndorfer and others, 1986)