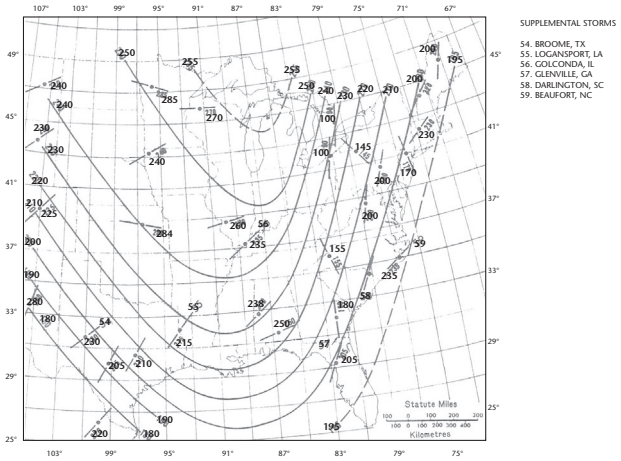

Figure 5.6. Analysis of isohyetal orientations for selected major storms in United states east of the 105th meridian adopted as recommended orientation for PMP within ±40° (Hansen and others, 1982)

be representative of a single thunderstorm or possibly a complex thunderstorm cell. These systems could be expected to occur with equal intensity at any orientation. It was determined that the maximum reduction would apply to an area of 7 770 km^2 or larger. Reductions between these two extremes were assumed to increase in a linear fashion.

5.2.7.4 Isohyet values

Within observed storms in the eastern United States, rainfall for smaller areas within a storm providing controlling values for the large-area PMP storm will be less than the corresponding storm rainfall providing PMP values for small areas (Schreiner and Riedel, 1978). Therefore, the depth–area relation for PMP should not be used to determine the isohyet values for the PMP storm. The term adopted for the depth–area relations in the PMP storm is thus a within-storm relation, since it serves to represent a relation for which one storm determines the depth of precipitation over all area sizes less than the area of the PMP storm. It is also true for this region that for areas larger than the area of the PMP storm the precipitation is less than the PMP magnitude. The term adopted for this rainfall distribution is without-storm curves, or residual precipitation. Figure 5.8 shows a schematic of these relations. The within-storm/without-storm distribution of PMP for a drainage will fall somewhere between a flat average value (uniform distribution) and the depth–area relation of PMP. Record storm rainfalls show a wide variation in DAD relations between these extremes. They all indicate a sharp decrease with area size for the maximum 6-hour rainfall. The remaining 6-hour rainfall increments may vary from showing a decrease, an increase, or no change with increasing area size. In most PMP studies, the 6-hour incremental values beyond the three greatest 6-hour increments are small enough that a uniform distribution is applied.

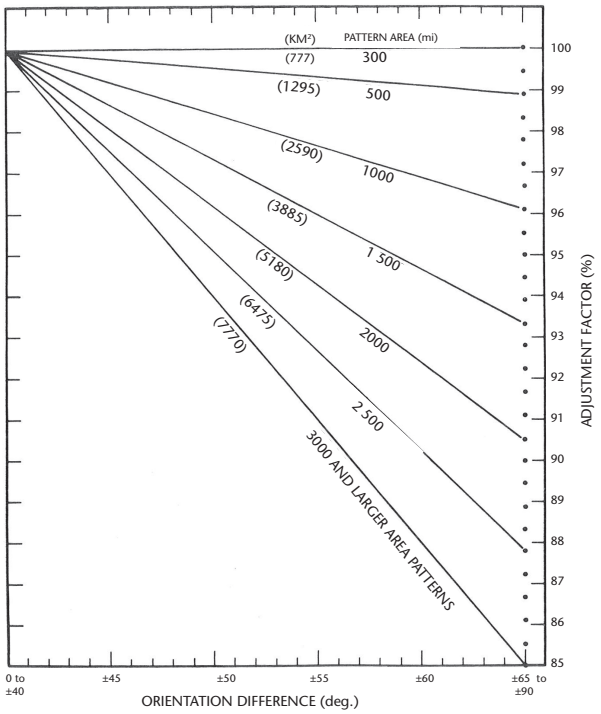

Figure 5.7. Model for determining the adjustment factor to apply to isohyet values as a result of placing the pattern in Figure 5.5 at an orientation differing from that given in Figure 5.6 by more than ±40°, for a specific location (Hansen and others, 1982)