Algorithm for Calculation of the Average Frequencies Weighted for Air Traffic

Refer to the Aviation_Weather_Factor_Summary.xls file that can be downloaded from the web site.

The average frequency weighted for air traffic (AW), is the sum of F (significant wind factor), M (thunderstorm frequency factor), R (significant ceiling factor), W (significant visibility factor), AB (snow event factor), AG (freezing precipitation factor), and AQ (composite icing factor). This calculation does not include turbulence.

$$AW = F + M + R + W + AB + AG + AQ / 7 \quad \text{where,}$$

F = Significant wind factor

Significant wind factor = significant wind frequency * air traffic factor

Air traffic factor = Specific airport traffic/ Average traffic at the 68 airports

M= Thunderstorm factor

Thunderstorm factor = Station thunderstorm frequency * air traffic factor

Air traffic factor = Specific airport traffic/ Average traffic at the 68 airports

R = Significant ceiling factor

Significant ceiling factor = significant ceiling frequency * air traffic factor

Air traffic factor = Specific airport traffic/ Average traffic at the 68 airports

W = Significant visibility factor

Significant visibility factor = significant visibility frequency * air traffic factor

Air traffic factor = Specific airport traffic/ Average traffic at the 68 airports

AB = Snow event factor

Snow event factor = Snow event frequency * air traffic factor

Air traffic factor = Specific airport traffic/ Average traffic at the 68 airports

AG = Freezing Precipitation event factor

Freezing precipitation event factor = Freezing precipitation event frequency * air traffic factor.

Air traffic factor = Specific airport traffic/ Average traffic at the 68 airports

AQ = Icing factor

Icing Factor = Composite Icing factor * air traffic factor

Composite Icing Factor = score derived by sum of categories based on airmet issuances and sounding icing potential (AWC and NCAR studies).

Air traffic factor = Specific airport traffic/ Average traffic at the 68 airports