

## SNOWFALL TRENDS IN BOSTON

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Snowfall records for Boston dating back to 1871 were examined for possible short and/or long term trends. (See Figure 1). A trend is defined as two or more years in which the seasonal snowfall has either increased or decreased from the previous year.

The mean seasonal snowfall has decreased from 43.8 inches during the 1871/72 to 1935/36 season to be 42.1 inches during the 1937/37 to 1975/76 season. The average snowfall deviation from season to season is 12.9 inches.

Some interesting trends were noted looking over this data from the 1871/72 season to the 1976/77 season. 104 years of trend data was obtained from this period. It was found that during this period, 35% of the time there was no trend from the previous to the next season's snowfalls. However 48% of the time there was a two year trend. But only 17% of the time was a three year trend found. See Table 1.

We can now examine a subset of the data consisting of two and three year trends, since all three year trends must begin as two year trends. There were 31 classes in this subset. The last two winter seasons had consecutive increases in the

seasonal snowfall establishing a two year trend. Therefore the winter of 1977/78 has a 19% (6/31) chance of exceeding last winter's snowfall of 58.5 inches to establish a three year trend. This may be compared with the 17% chance for any given year being part of a three year trend. Looking over the snowfall records dating back to 1871/72 season to the 1976/77 season there were 20 times when a snowfall of 58 inches or more occurred. This has a climatological frequency of (20/106) or 19%.

We therefore have two separate climatological indications that the probability of having a snowfall of more than 58 inches this winter (1977/78) in Boston is only 17-19%.

TABLE I

	No Trend	2 Year Trend	3 Year Trend	Total
No. Per Trend Class	36	25	6	67
No. of Years per Trend Case	36 years	50 years	18 years	104 years
Percent of Years in Each Trend Case	35 %	48 %	17 %	100 %

