Hurricanes - this will blow you away !
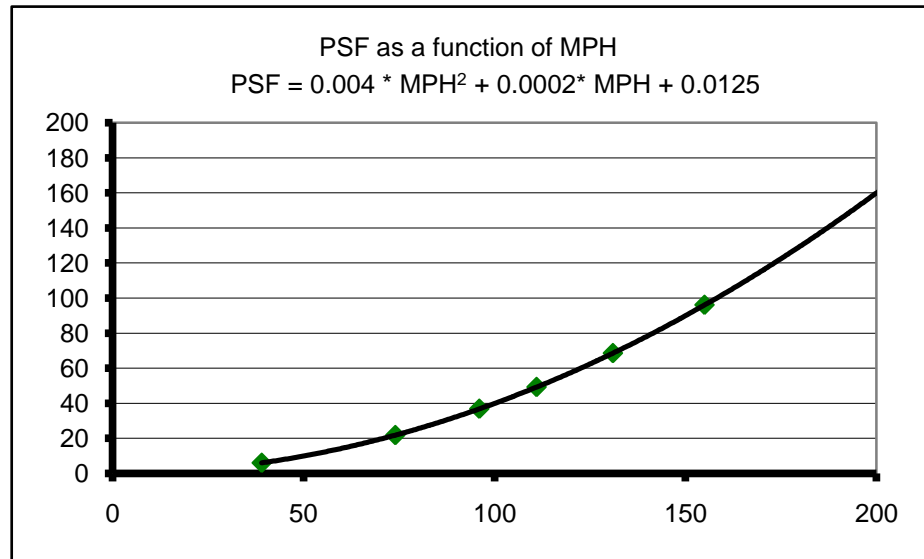
DATA

MPH	PSF
39	6.1
74	21.9
96	36.9
111	49.3
131	68.6
155	96.1

PSF as a function of MPH

$$PSF = 0.004 * MPH^2 + 0.0002* MPH + 0.0125$$

1.   The data is shown in the scatter plot. A quadratic function was found that models the data well.

2.   Ahren's formula is the first term of this model.
     The table (right) shows the difference between
     Ahren's formula and the model found above.

MPH	Ahren's Model	My Model
74	21.904	21.9313
96	36.864	36.8957

3.   The last two terms of Ahren's model does not effectively change much in the results. Since these are only estimates anyway, approximations to one decimal place are certainly good enough.

4.   varie

5.
MPH	Ahren's Model
100	40
200	160

6.
MPH	Ahren's Model
112	50.176
137	75.076

These values can be approximated from the graph, solved from the quadratic, or found using solver in Excel.

7.   As the wind speed doubles the pressure quadruples. The reason is because of the quadratic model. Multiplying the independent variable by 2 results in 2^2 times the dependent variable.