Scale Factor for Weibull Fit

From the Myspace data, we get:
$h = [h_1, h_2, ...h_n]$ - Array containing the frequencies of each observed value
$x = [x_1, x_2, ...x_n]$ - Array containing the actual data values

To get the scale factor, we use the fact that the area under the curve for both, the scaled Weibull and the histogram should be equal. This is because we are using both to model a probablility distribution. (Rather, the integral under the Weibull and the *scaled down* histogram should be equal if we use the histogram to model a probablility distribution)

Let a be the scale factor.
Therefore,

$$\begin{aligned} \int_0^{+\infty} a\text{Weibull } dx &= \text{Area Under The Histogram} \\ \Rightarrow a\int_0^{+\infty} \text{Weibull } dx &= \sum_i h[i] \\ \Rightarrow a \times 1 &= 17293 \\ \Rightarrow a &= 17293 \end{aligned}$$

Therefore, to get a plot where the Weibull has been scaled to the size of the histogram, we multiply the Weibull by $a = \sum_i h[i] = 17293$ (Which was obtained from the data).