Maximum stress plotted against number of elements

Maximum deflection of the beam plotted against number of elements

Stress at strain guage 1 plotted against number of elements

The maximum stress changes because as the element size decreases, the area for the force to be applied on decreases. This means that pressure, and therefore stress, also increases. To remedy this, a distributed load could be used.

The deflections and strain gauge do not suffer from the same shortcomings of the setup of the model, and because there is no need to use the smaller values of element size due to the computer that this analysis was run on, it very quickly converges.