

Introduction - Binomial Process

Estimating a binomial probability or a proportion p using classical statistics

In many problems, we need to determine a binomial probability (e.g. probability of a flood in a certain week of the year), or a proportion (e.g. the proportion of components that are made to a certain tolerance). To estimate the probability or proportion p you will have had some trials n , of which s were successes. This section describes three methods:

[Binomial distribution method](#)

The crudest method, not recommended, but explained so you know why to avoid it.

[Normal approximation to the binomial distribution method](#)

Commonly used. It offers some improvement over the binomial method, but still cannot be applied when $s = 0$ or n , and gives incorrect results at extremes.

[Mid- \$p\$ cumulative confidence construction](#)

The best method that works for all values of s and n . It is also [closely aligned](#) to Bayesian results. Useful when we don't know if the Binomial outcome is present.
