

Frequency of a 100 Year Flood

Frequency of a 100-Year Flood

By Definition

Probability of a 100-year flood occurring in a given year = $1/100$

Therefore

Probability of a 100-year flood Not occurring in a given year = $(1 - 1/100)$

Probability of a 100-year flood Not occurring in 30 years = $(1 - 1/100)^{30} = 0.7397$

Therefore

Probability of a 100-year flood occurring at least once in the next 30 years = $1 - 0.7397 = \underline{26\%}$

Many Californians have a false sense of safety from floods, the result of incomplete information. Current flood threats are higher than commonly thought; the term “100-year flood,” for example, is misleading. It does not denote a flood that will occur only once every 100 years, as is commonly believed. Rather, it is the flood elevation (or flow) that has a one-percent chance of being equaled or exceeded each year. “Over the lifetime of a 30-year mortgage, there is a 26-percent chance of being flooded by a 100-year flood.”