Frequency distribution and cumulative frequency

Homework 3

Construct temporary pile cap

Cumulative frequency

- **Cumulative frequency analysis** is the analysis of the frequency of occurrence of values of a phenomenon (e.g: water level) less than a reference value. The phenomenon may be time- or space-dependent

- Cumulative frequency is also called *frequency of non-exceedance*.

Cumulative frequency

- Cumulative frequency analysis is performed to obtain insight into how often a certain phenomenon (feature) is below a certain value. This may help in describing or explaining a situation in which the phenomenon is involved, or in planning interventions, for example in flood protection.

- This statistical technique can be used to see how likely an event like a flood is going to happen again in the future, based on how often it happened in the past. It can be adapted to bring in things like climate change causing wetter winters and drier summers.

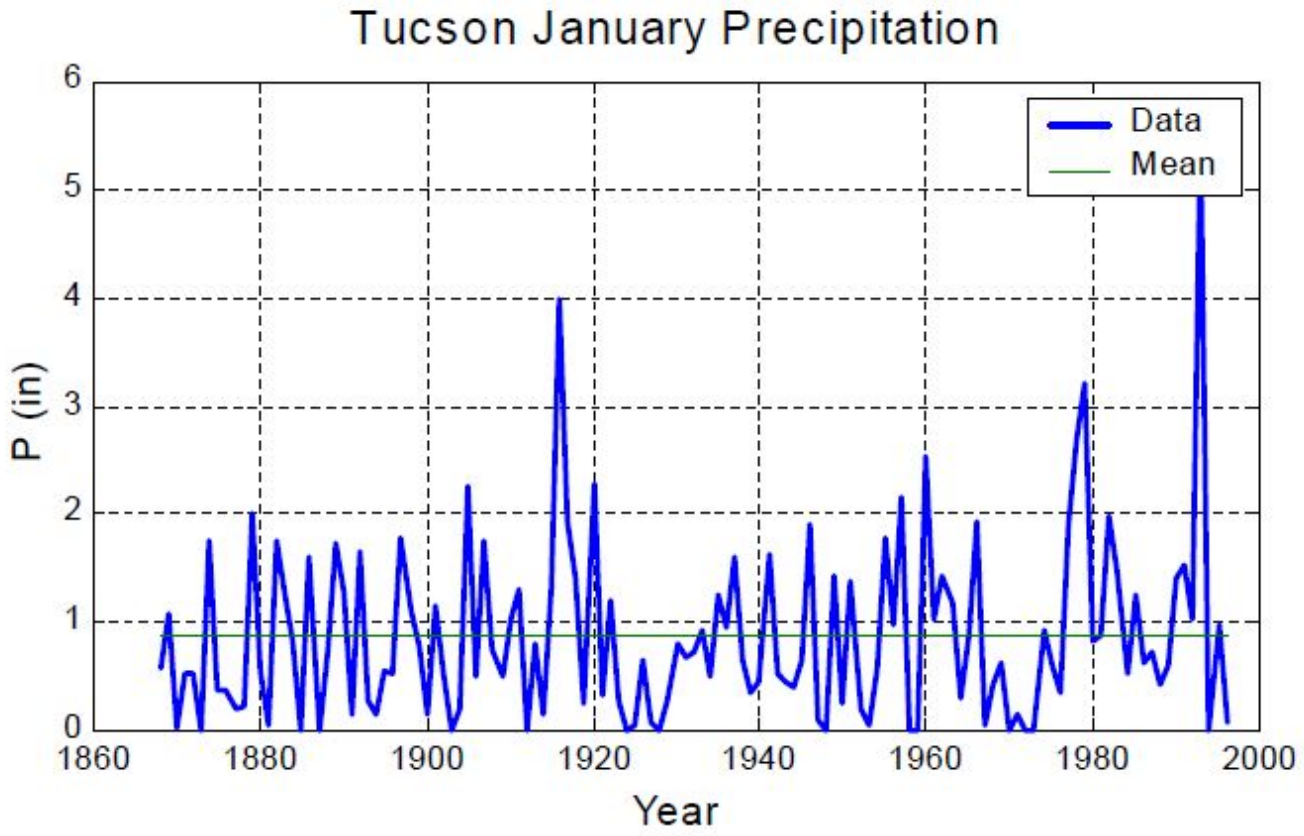
Cumulative frequency

Why would you want to use a cumulative frequency distribution? There are a couple of main reasons:

- You want to check that your math is correct. By adding up all of the numbers and comparing it to your sample size you know you've included all your data. For example if your sample size was 44 in this case, you'd know by the cumulative frequency distribution that you're missing one piece of data.

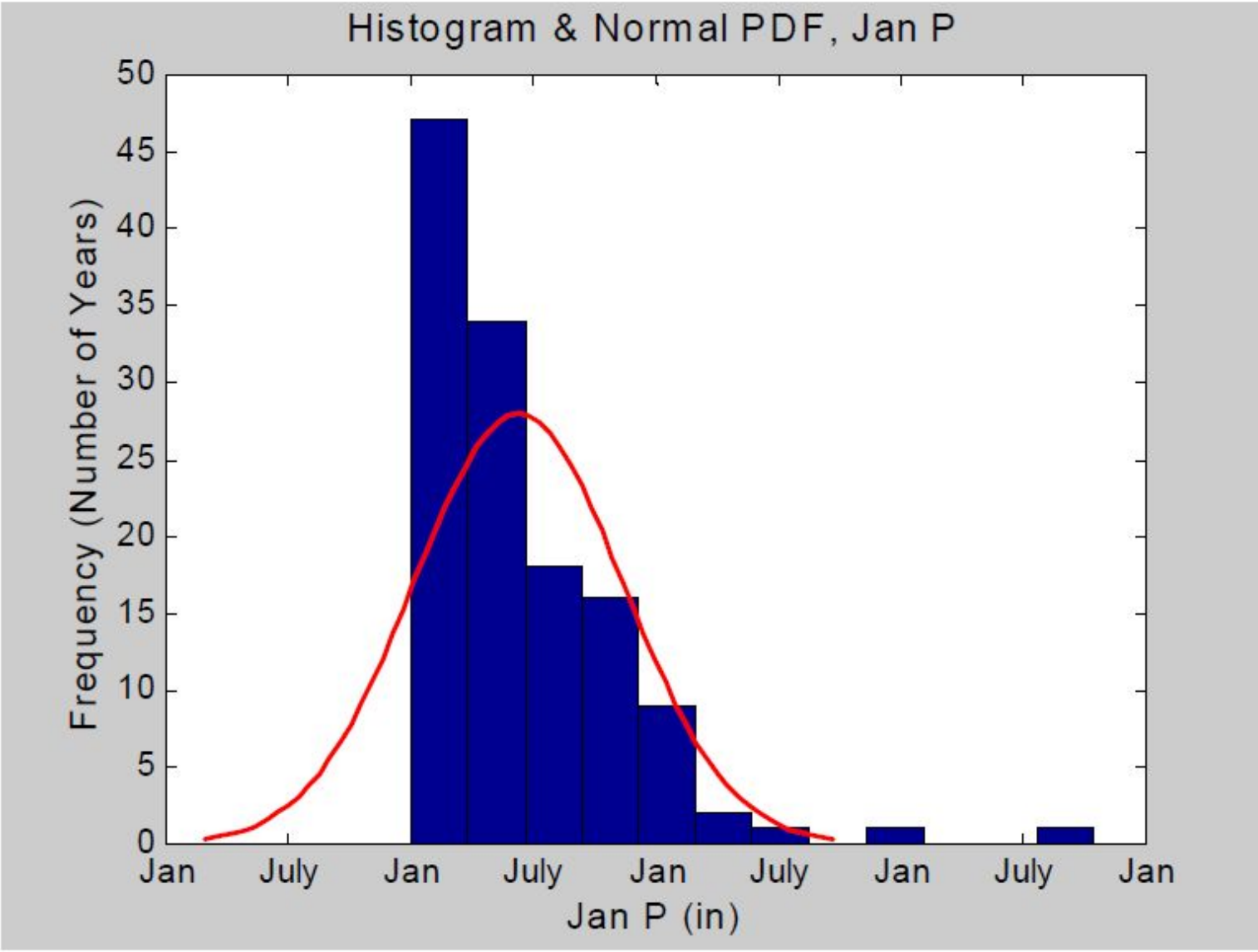
- You're interested in studying a phenomenon to find out a "more" or "less" question.

Time Series



A time series is a set of observations ordered in time, observed at a discrete set of evenly spaced time intervals: x_t at times t =1,2,..., N , where N is the length of the time series.

Probability distributions: Histogram plots



Cumulative frequency distribution plot