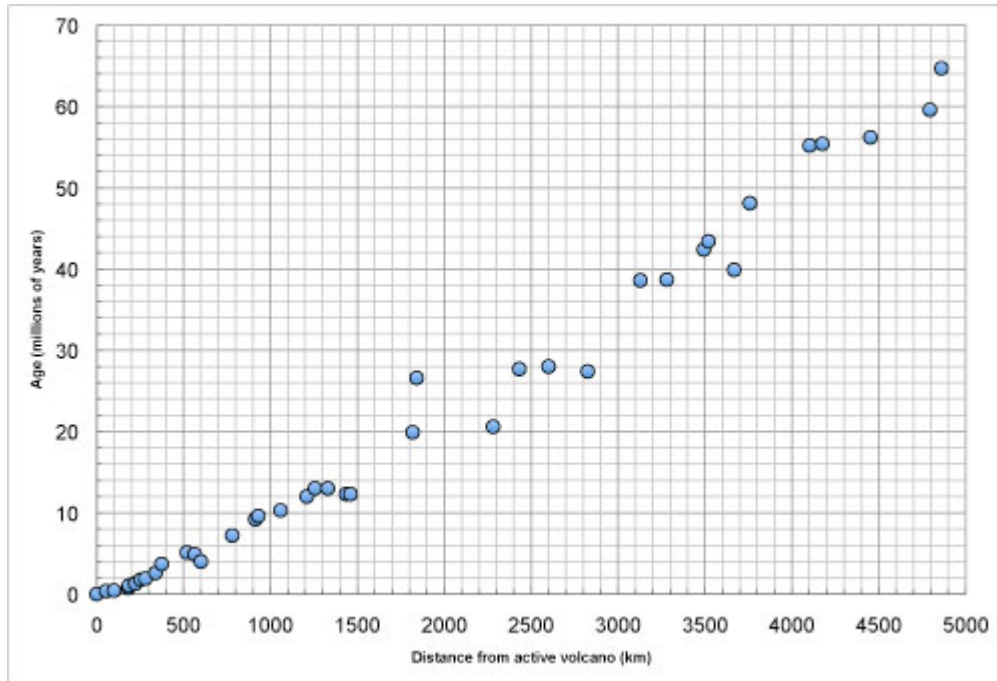


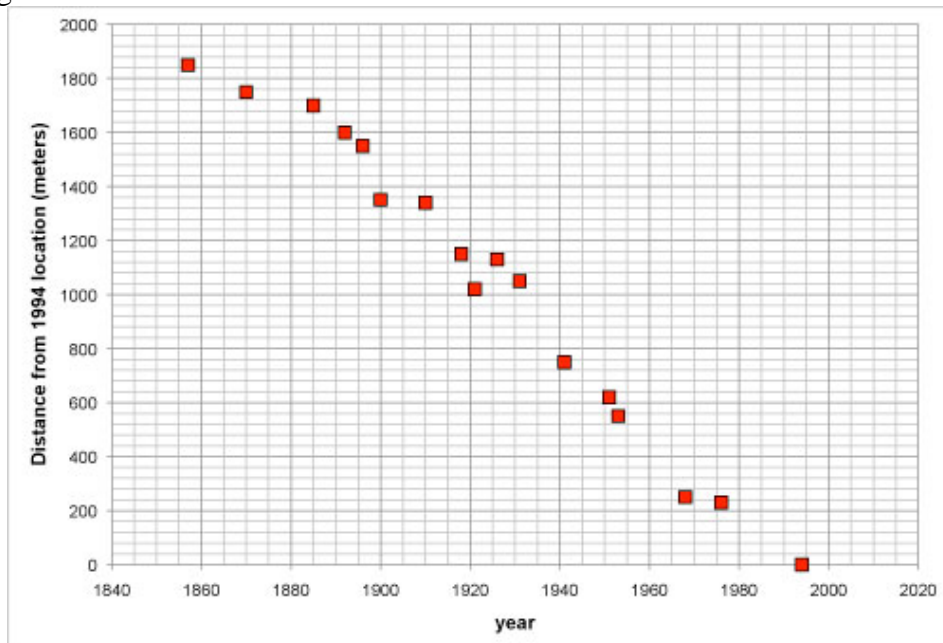
## Plate motion problem

Hawaii is a hot spot, a volcano that is generated by a fixed plume of magma. The Pacific plate moves over the hot spot and we can use the location of a volcano through time to determine the rate at which the Pacific plate moves. The graph below shows a plot of the age of volcanoes vs. location relative to Kilauea (the present active volcano). One way to determine average plate motions is to use the trend of the data. Construct a best-fit line for the data on the plot below for the Hawaiian hotspot.



## Glacial Retreat problem

Global climate change has affected mountain glaciers all over the world. At Nisqually Glacier on Mount Rainier in Washington State, scientists have measured the retreat of the glacier from 1858 through 1994. The data from 1858-1994 is plotted on the graph below, using the location in 1994 as the 0 km point. Construct a best fit line through the data.



# Flooding problem

Many communities built on flood plains want to know whether a flood will impact their lives. Geoscientists can give inhabitants an estimate of the probability of a flood hitting an area based on past patterns. Below is a plot (on a type of graph paper called semi-log, where the x-axis is a logarithmic scale) of the probability of a river rising to a given stage (meters above normal). Construct a best fit line through the data.

