What you should be doing

- Assignment 2- We will discuss in lab today some of the missing concepts for questions 1 and 2. Work on it today
- Read Chapter 2 Notes
- Assignment 3 due Friday. Start it today, finish Thursday

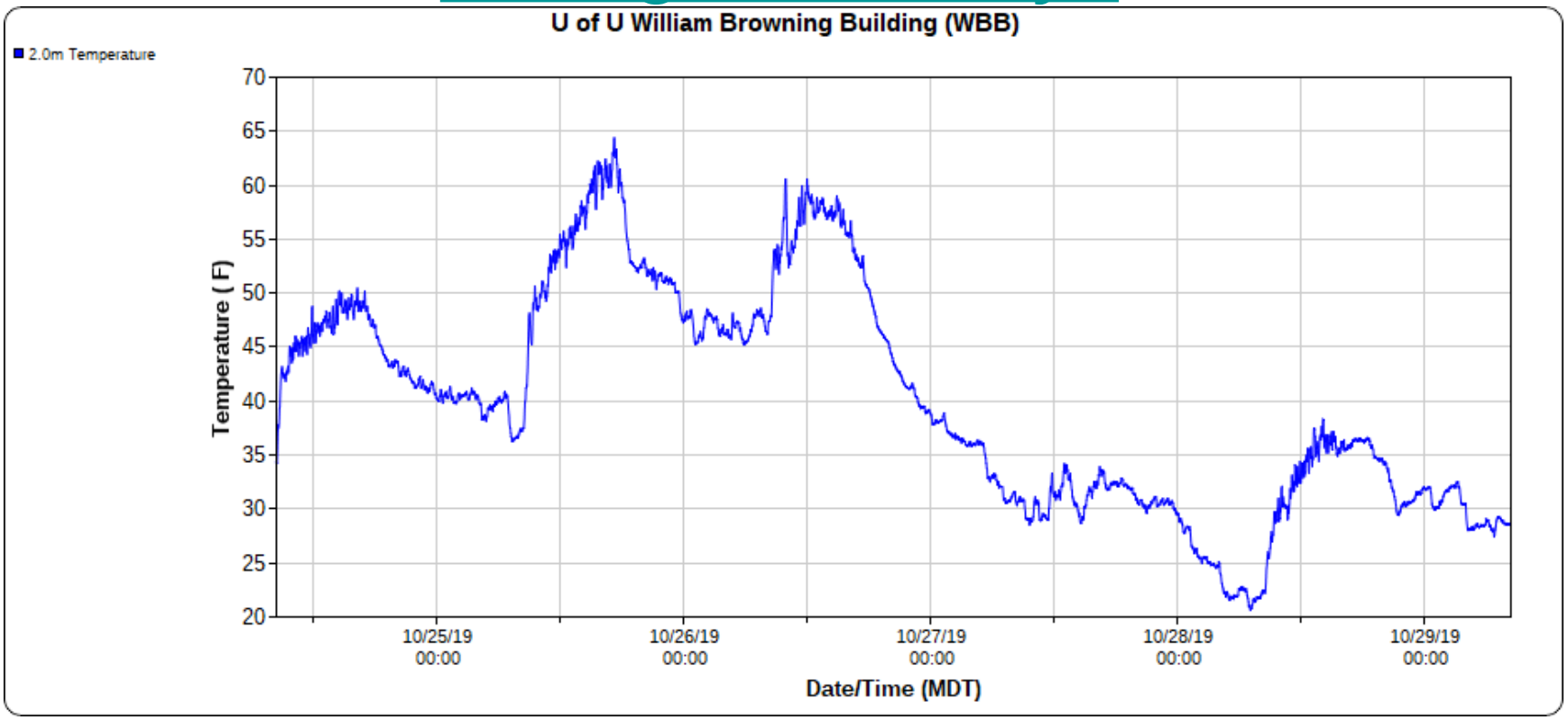
Exploratory Empirical Analyses

- Objective is to reduce the complexity (dimensionality) within a large data set
- What is a value commonly observed?
- How much variability is there among all the values?
- What are extreme cases that have been observed?

Exploring Data: What is the Objective?

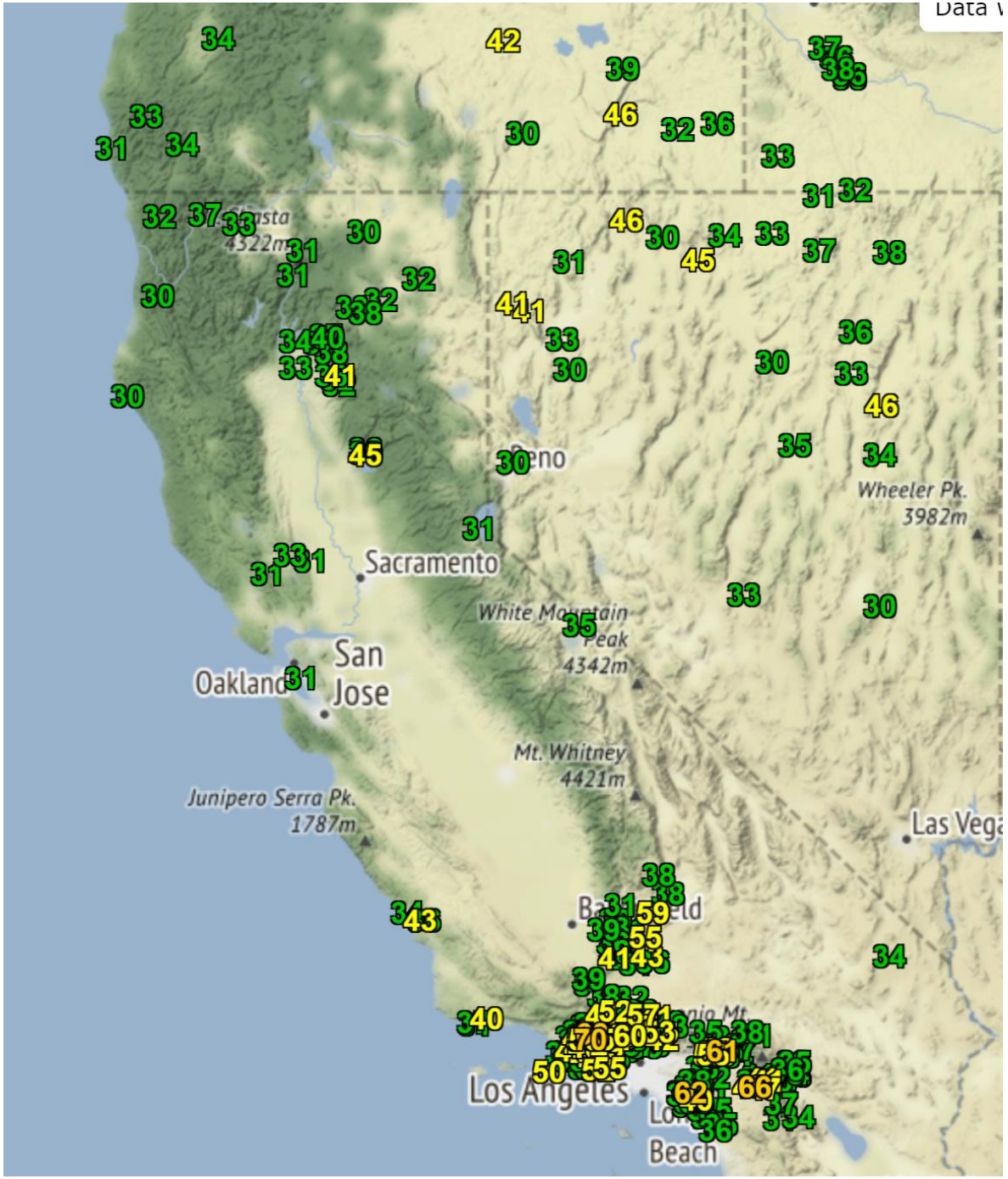
- Summarizing some of the typical characteristics of the data
- How often are critical thresholds for specific applications reached?
  - Road temperature below freezing point
  - Hot, dry, windy conditions potentially leading to wildfires
- Approach to be used will depend on what is considered important to know to address the objective

Conditions on Campus during last 5 days



		10-29		10-28		10-27		10-26		10-25	
		Max/ Time	Min/ Time	Max/ Time	Min/ Time	Max/ Time	Min/ Time	Max/ Time	Min/ Time	Max/ Time	Min/ Time
MTMET **U of U Mountain Met Lab**	UUNET 4996 ft	**31** 3:15	**27** 6:56	**37** 14:30	**18** 07:52	**37** 01:36	**26** 21:27	**61** 13:45	**36** 00:00	**62** 15:44	**34** 04:35
WBB **U of U William Browning Buildi**	UUNET 4806 ft	**33** 3:12	**27** 6:49	**38** 14:11	**21** 07:07	**39** 00:01	**29** 09:40	**61** 09:56	**39** 23:37	**64** 17:17	**36** 07:22

Max Winds in past 24 hours > 30 mph

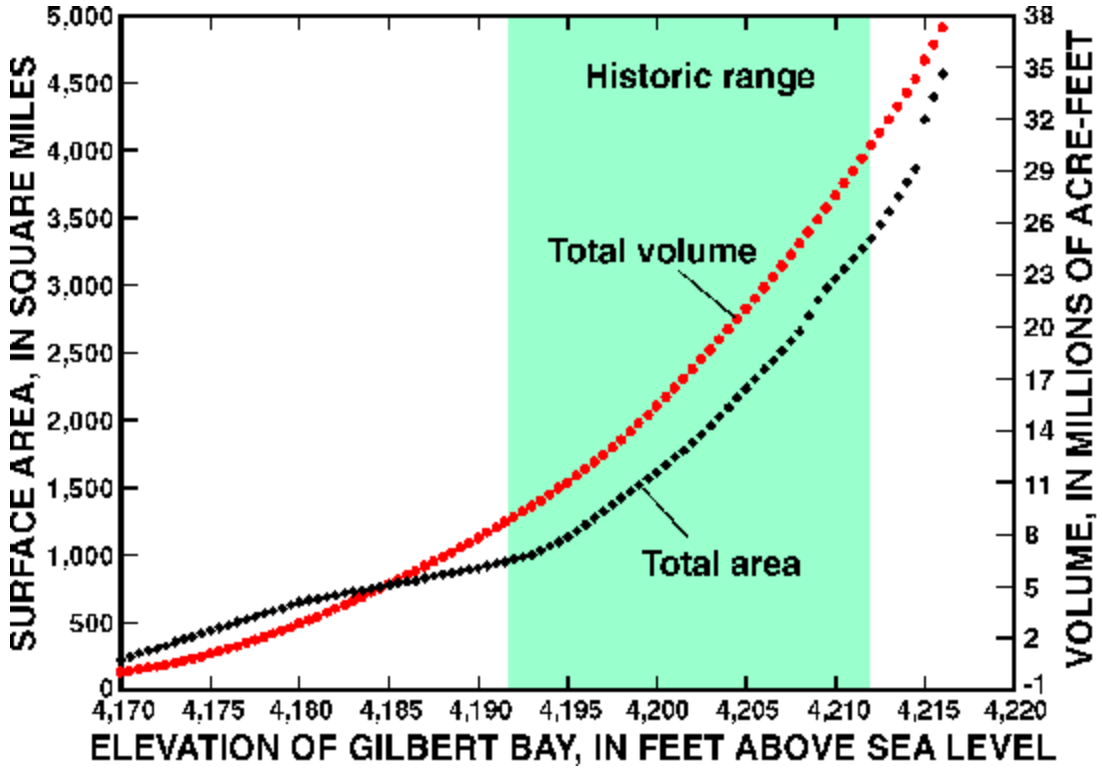


Great Salt Lake
October 15, 2019

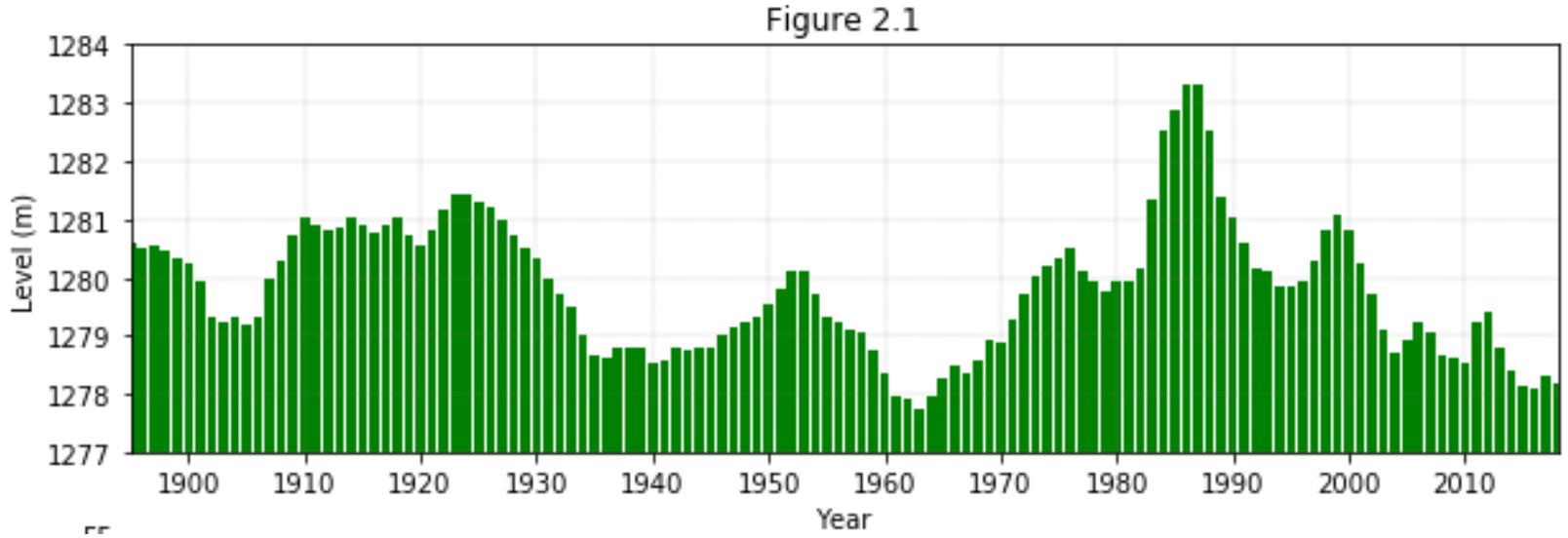
Great Salt Lake
Octrober 8, 2000

Great Salt Lake

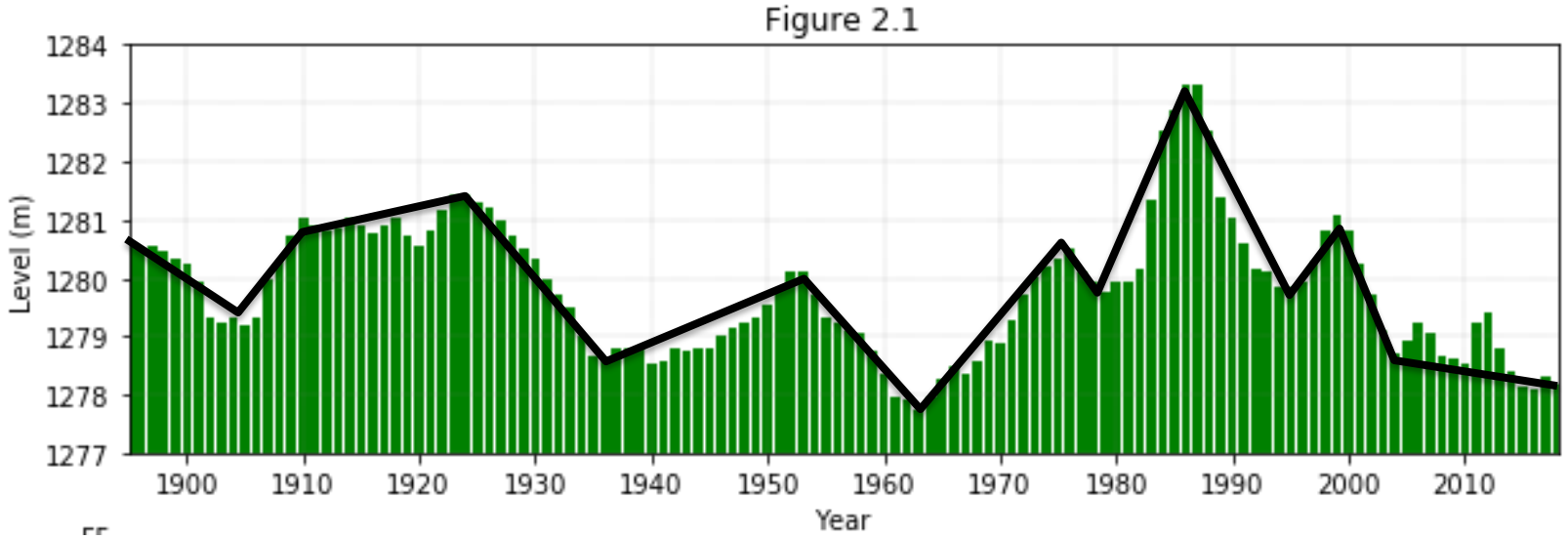
- http://ut.water.usgs.gov/greatsaltlake/elevations/



Great Salt Lake Level

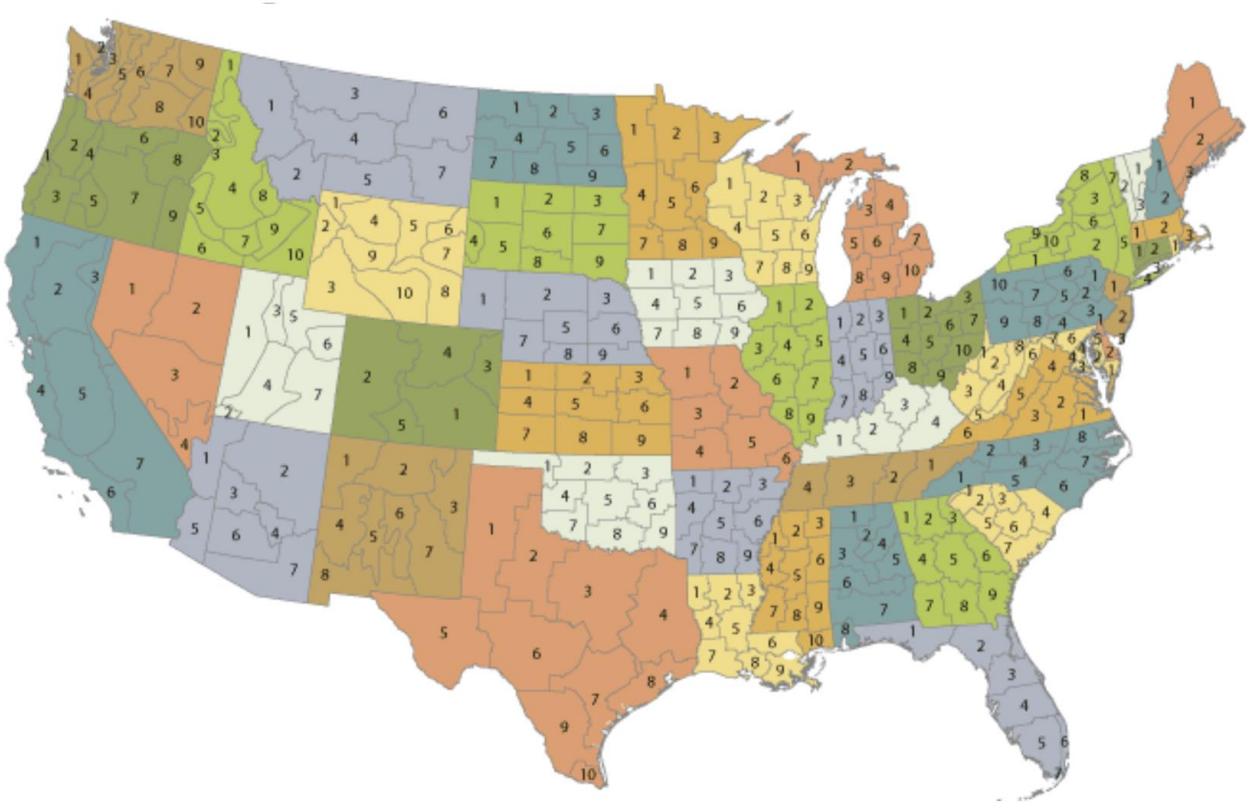


Great Salt Lake Level

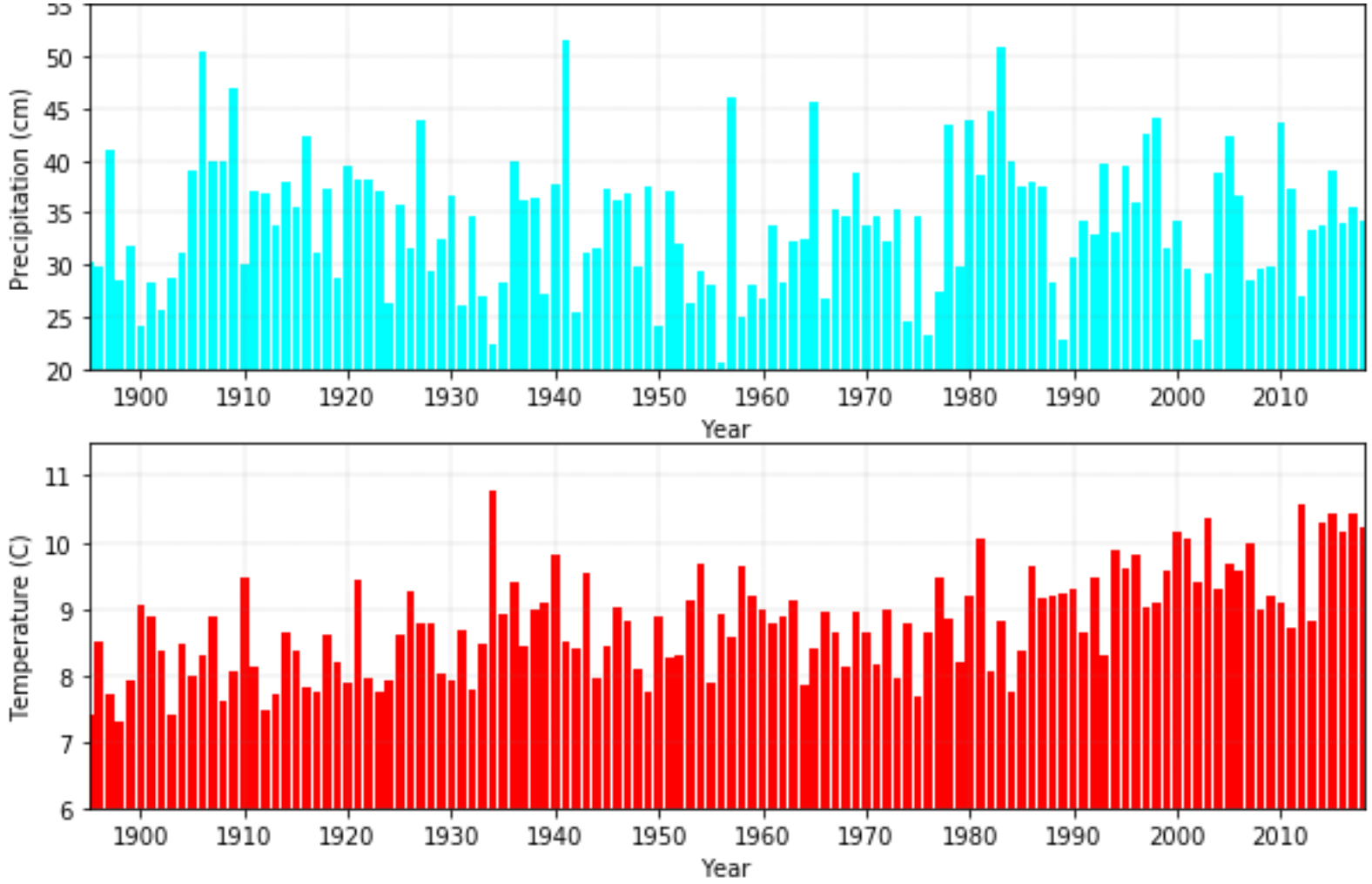


Climate Division Data

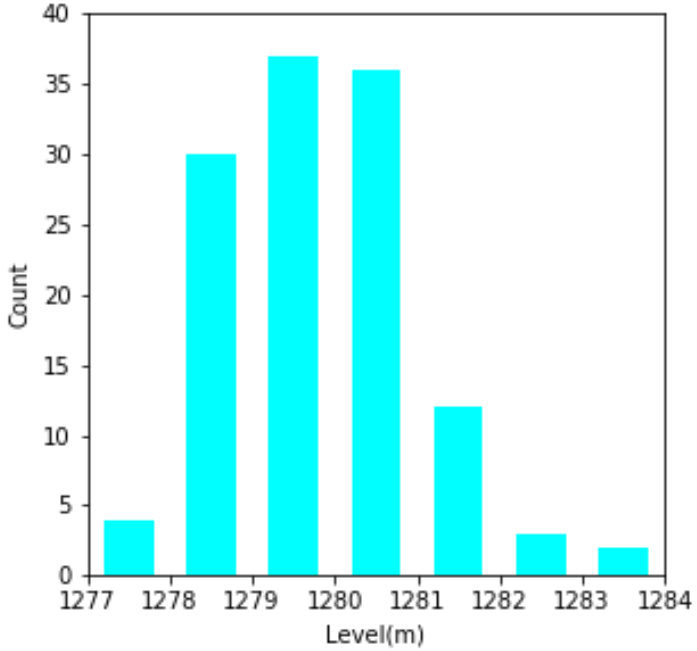
- https://www.ncdc.noaa.gov/monitoring-references/maps/us-climate-divisions.php

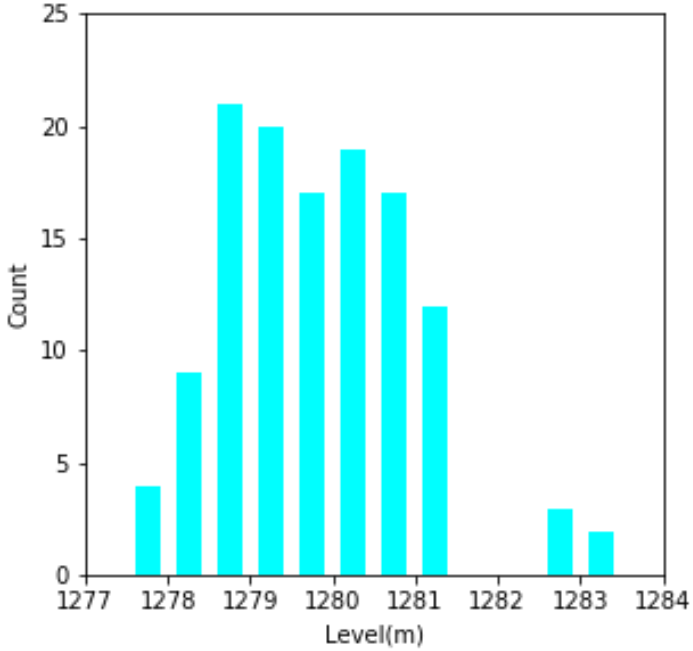


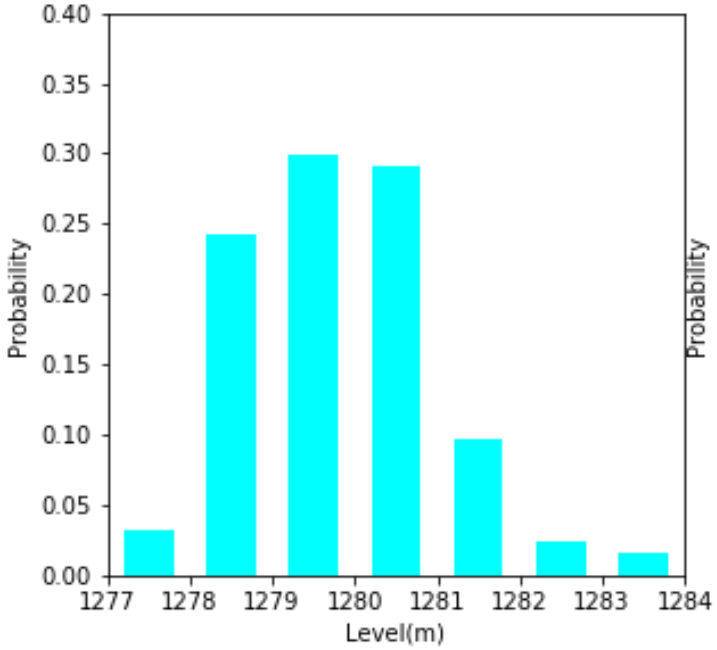
Utah Temperature & Precpitation

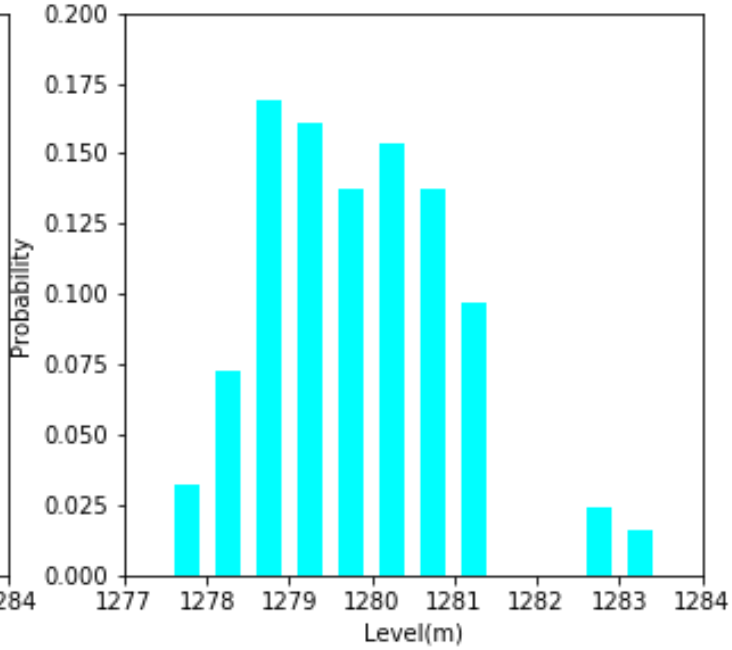


Lake Level Histograms

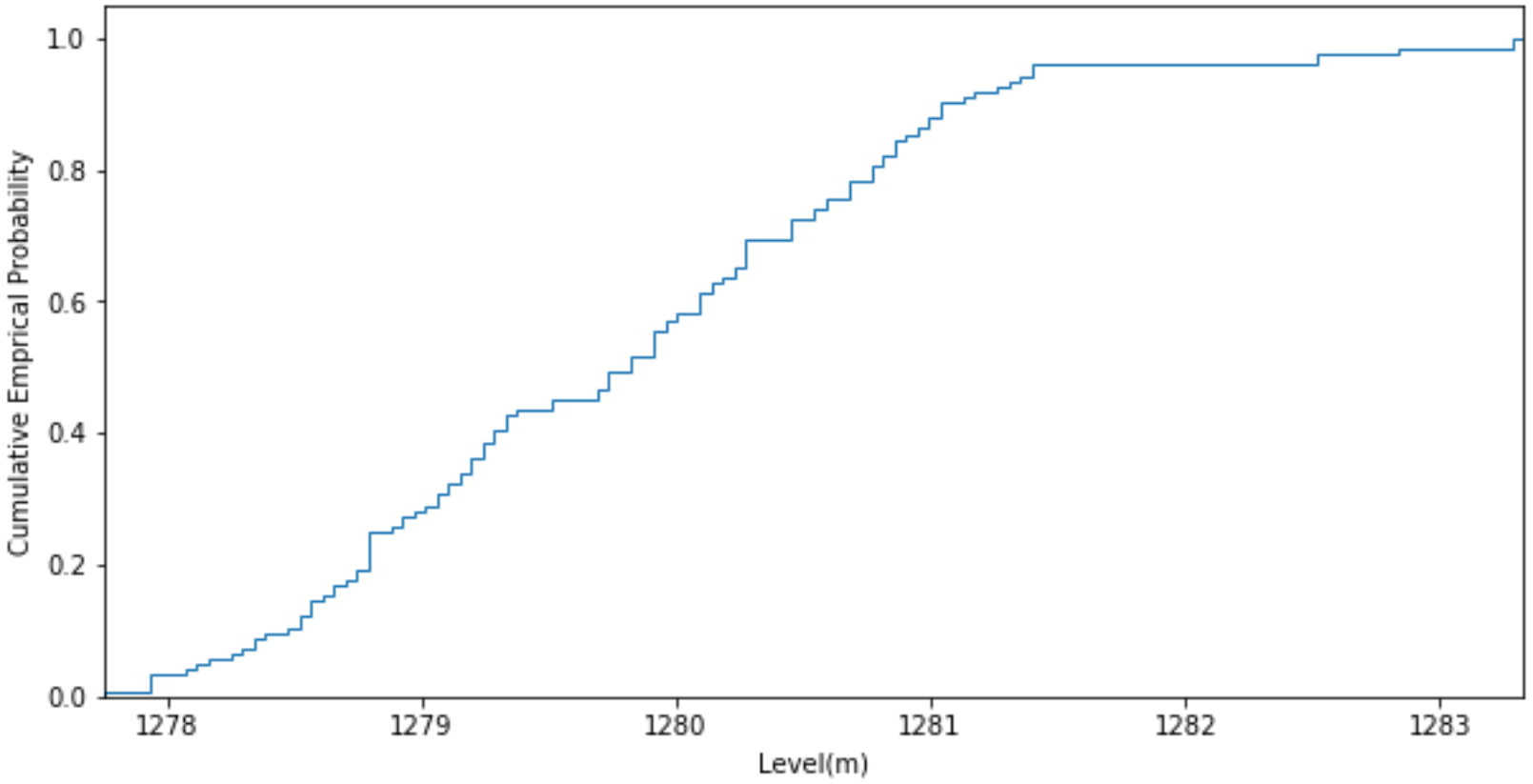




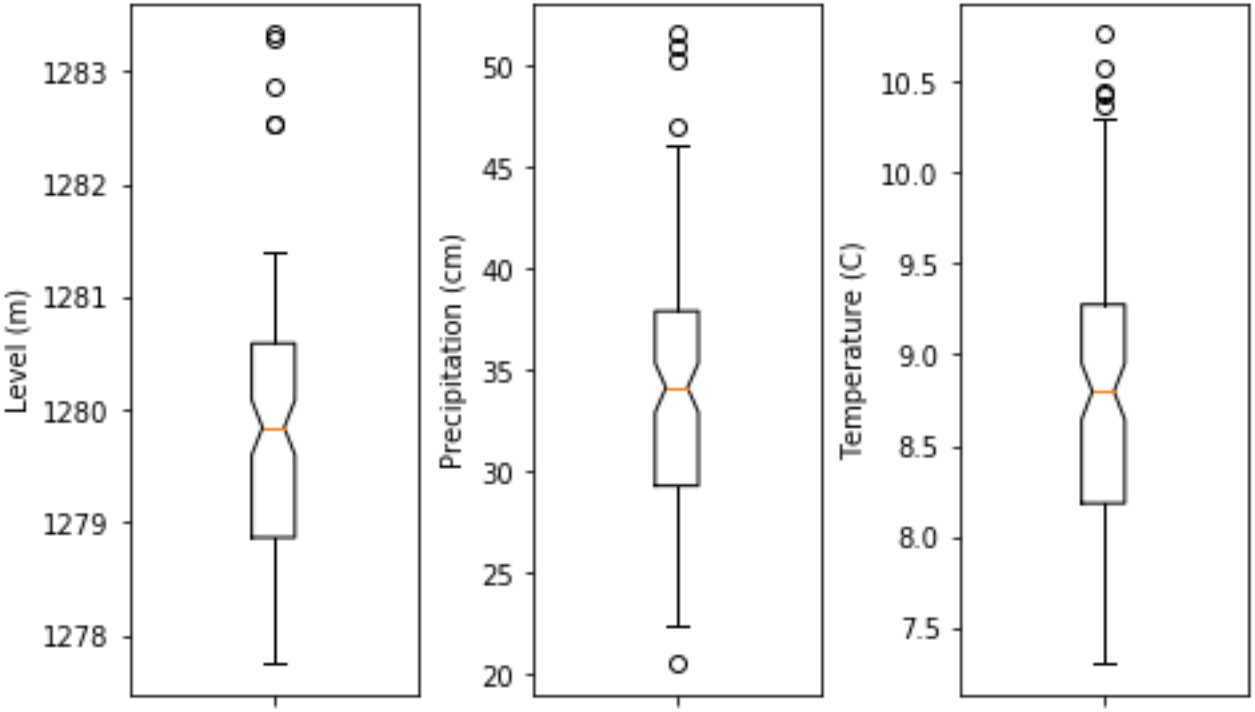




Empirical Cumulative Distribution Function Lake Level



Boxplots


Level (m)
1283
1282
1281
1280
1279
1278
Precipitation (cm)
50
45
40
35
30
25
20
Temperature (C)
10.5
10.0
9.5
9.0
8.5
8.0
7.5