ONJSC Precipitation Project Notes

**Extreme Precipitation**

Excel Sheets, Plots, and Results:

1. Percentile plots
   * Trend of NB station POR number of 90/95/99 percentile events: When looking at the number of 90/95/99 percentile events for the entire domain of data, and then seeing how many of each percentile event was in a year, no trend was seen
   * Trend of amounts of NB station POR of 90/95/99 percentile events: When looking at the amount of precipitation of 90/95/99 percentile events for the entire domain of data, and then seeing how many of each percentile event was in a year, no trend was seen
   * Trend of amounts of annual 99 percentile events: Essentially, we tracked the top event in a year, and a small trend was seen in the domain of 1968-2017, but nothing substantial was seen in the POR (However, there are some patterns to be looked at)
   * Furthermore, a tool was developed to find the percent change between any two chronologically forward years
2. Binned plots were not really used to see changes in extreme precipitation (too small of a sample size) – percentiles seemed to be the better option

**Quality Control**

* New Brunswick Experimental Station (1896-1968)
  + The experimental station had many missing values: to combat this, I looked at the amount of original sheets that were taken in the earlier part of the century, and compared them to the monthly totals on the websites, so if these values matched, I made all the missing values for that month zero – an excel sheet details this process and results
  + There are 46 two-day events: these events were discarded, because after manually going through the data file, all multi-day events the events were smaller than the largest daily event each year, meaning that for Plot 3, these results did not matter
  + To remedy these events so that the entire POR could be used for the percentile plots, I used surrounding stations, and compared their original obs sheets to obtain a ratio that could be used to split the data into two days

**High-Frequency Events**

Excel Sheets, Plots, and Results:

1. Using the NB POR, I binned the events into these separate categories (table describing this is below). Using these categories, I was able to do a similar analysis with the percentiles, except this time use the bins to monitor trends in changes of higher-frequency categories (B,C, D, mainly), since there was a larger sample size. Different graphs were produced

|  |  |
| --- | --- |
| Group | Precipitation Range |
| A | 0 - 0.02 and T |
| B | 0.03 - 0.10 |
| C | 0.11 - 0.25 |
| D | 0.26 - 0.50 |
| E | 0.51 - 1.00 |
| F | 1.01 - 1.50 |
| G | 1.51 - 2.00 |
| H | 2.01 - 2.50 |
| I | 2.51 - 3.00 |
| J | 3.01 - 4.00 |
| K | 4.01 - 5.00 |
| L | 5.01 - 6.00 |
| M | 6.01 - 7.00 |
| N | 7.01+ |

The same as been done for Atlantic City Marina, Indian Mills and Sussex (all NJ stations).

Below are revised groups for

|  |  |
| --- | --- |
| Group | Precipitation Range |
| A | 0 - 0.02 and T |
| B | 0.03 - 0.10 |
| C | 0.11 - 0.25 |
| D | 0.26 - 0.50 |
| E | 0.51 - 1.00 |
| FG | 1.01 – 2.00 |
| HIJ | 2.01 – 4.00 |
| KLMN | 4.01+ |

**Next Steps**

* Quality Control on ACM and IM PORs