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Section: ENGR112-0001, Section 2

1. For the Huron River data, what would you name each of the three columns (i.e., what does each column represent)? Year, month, and average discharge.
2. According to the USGS database website (<https://waterdata.usgs.gov/nwis/uv?04174500>), what is the unit of discharge for the Huron River dataset? Cubic feet per second.
3. For many of the datapoints in the Moore River dataset, the quality code is 10. What does this mean? (You may copy the text from the specifications). This means according to the provided document that, “The record set is the best available given the technologies, techniques and monitoring objectives at the time of classification.”
4. In the Moore River dataset, all the datapoints share the same interpolation type. What is the interpolation type code number and what does it mean? (You may copy the text from the specifications). According to the provided document, 603 (the number that all the points have) means Aggregated Means - Constant until next time stamp

The interval main time stamp is stored at the beginning of the interval. The mean is representative until the next time stamp.

1. According to the header in the CSV file for the Moore River dataset, what is the unit of discharge? Cubic meter per second.
2. We want to plot the river discharges in cubic meters per second [m3/sec]. What conversion factor would you use to convert the units for the two river discharge datasets to cubic meters per second? .0283
3. Paste the image of your plot here. Make sure your axes are labeled and with units indicated (where necessary) and the plot has a legend with lines correctly labeled.

Chart, line chart

Description automatically generated

1. What is the peak discharge for the Huron River and during which month?

25.9539 cubic meters per second, in March

1. What is the peak discharge for the Moore River and during which month?

6.9798 cubic meters per second, in August.

1. Why is the peak discharge different for the two rivers. Talk about how the values are different and how the months in which the peaks occur are different. Consider what factors go into the discharge rate and how these factors are different in Michigan vs. Western Australia (see the slides showing the aerial views of the sites for ideas).

The peak discharge is different for the two rivers because they are different rivers. They don’t have the same source, width, depth, flow rate, or any other defining characteristics across their lengths. The Huron is a much bigger river, with an higher average flow rate. The rivers are also in different hemispheres, which makes their seasons happen about six months offset from one another. This causes the spike in the Huron to be during our spring, while the spike for the Moore is in our summer (relative to the US). The area around the Moore also appears to get significantly less rain than the area around the Huron, likely causing the plants and wildlife around the Moore to utilize the river more, lowering the discharge rate.