Historical Flow Rates:

Analysis of data from the Water Survey of Canada Hydrometric station on the lower

Tsolum River from 1915-2020

Prepared by Norm Wiens, TRRS Director, Feb, 2020

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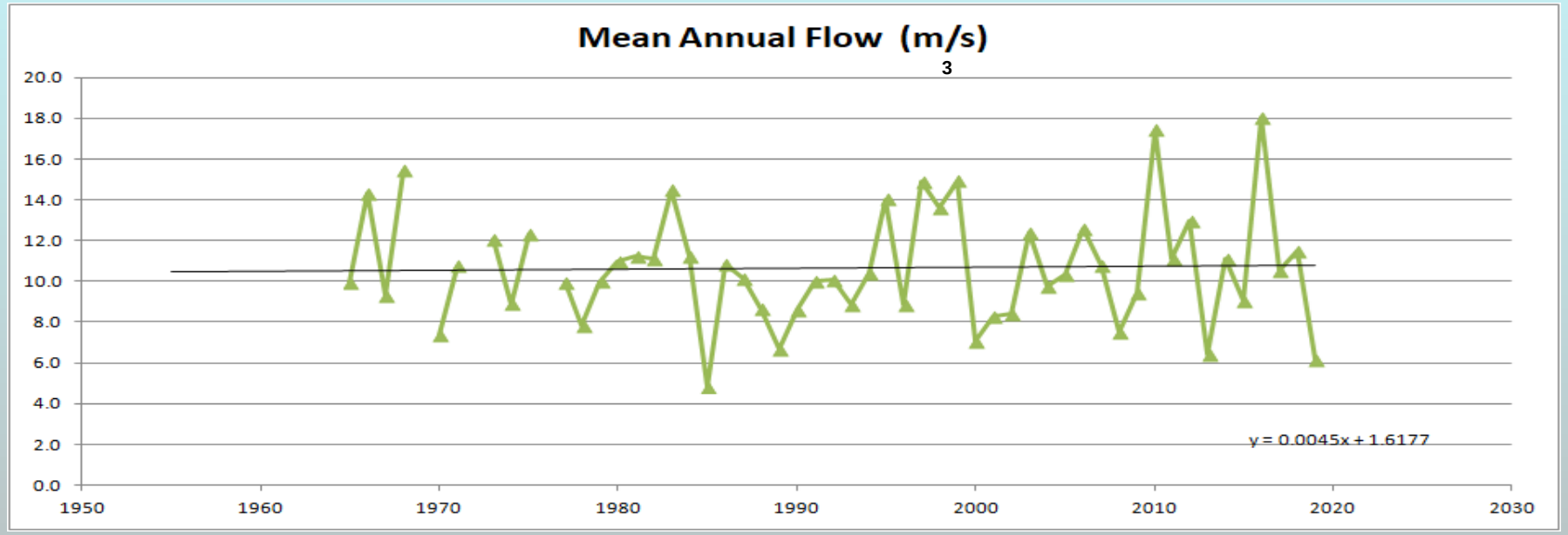
Since 1970, the total annual flow increases slightly. Recent years show more variability. MAD is 10.3 cubic metres per second



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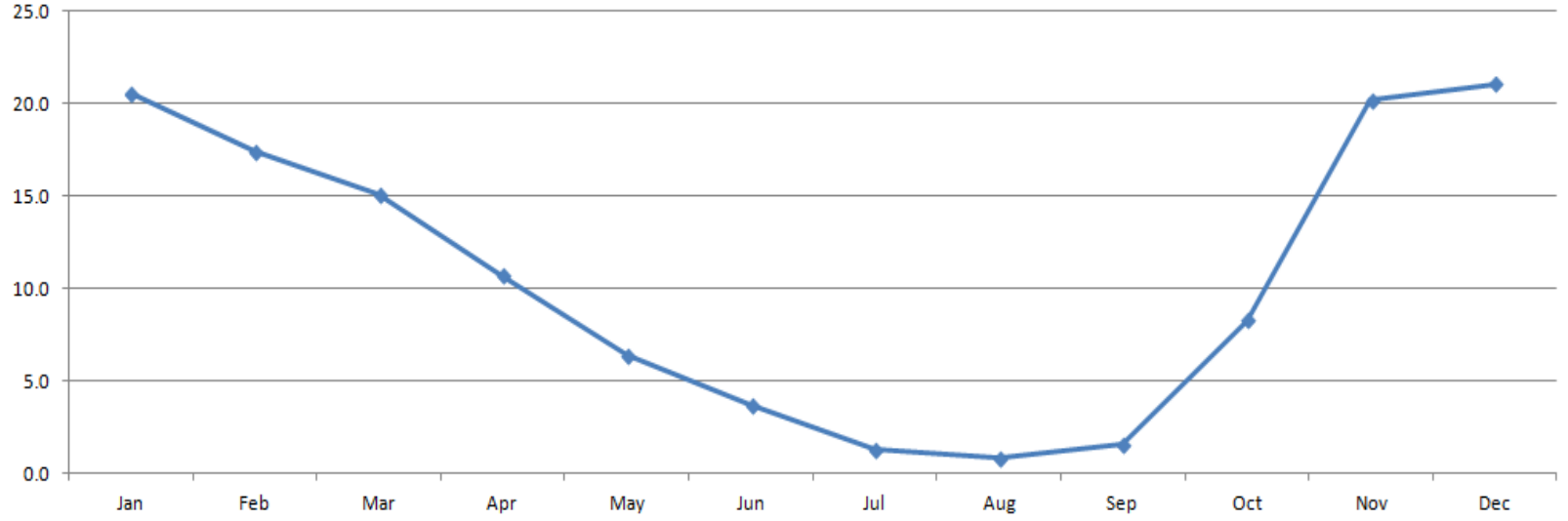
Average Monthly Flow
(cubic metres/second)

Data from years 1977 through 2019



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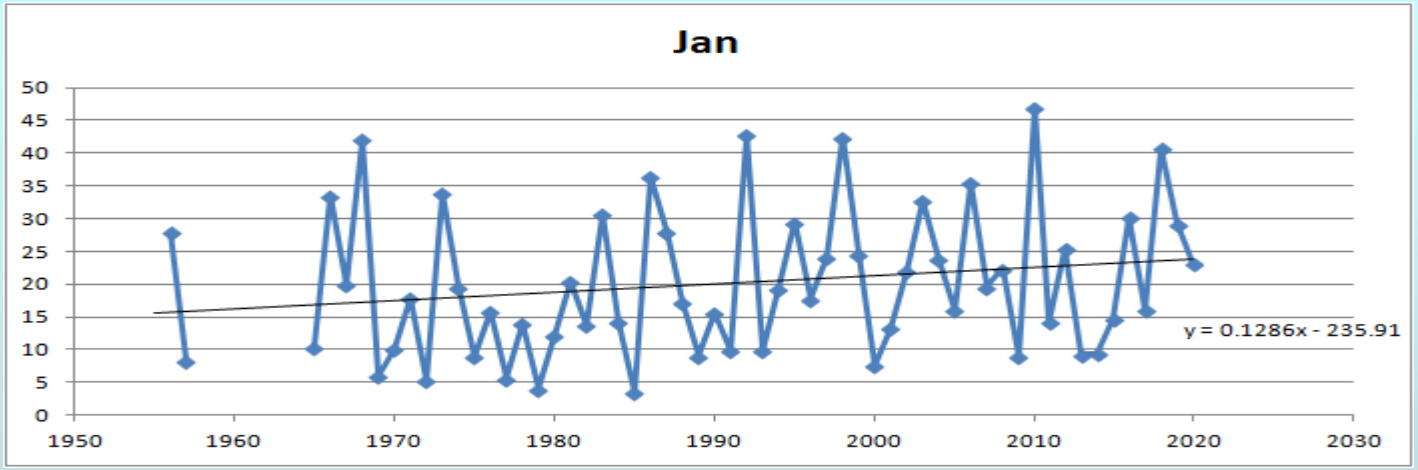
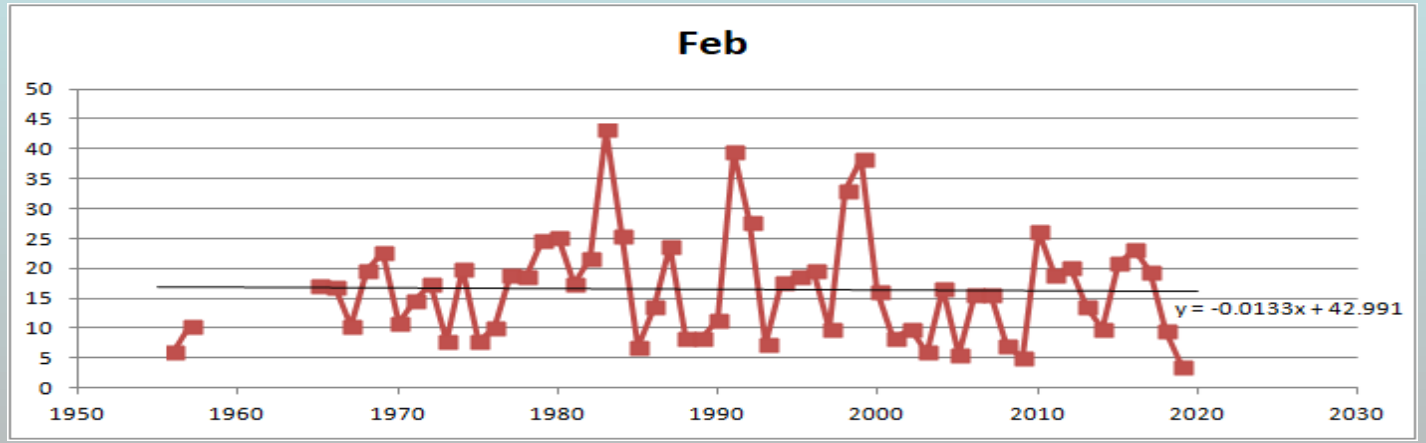
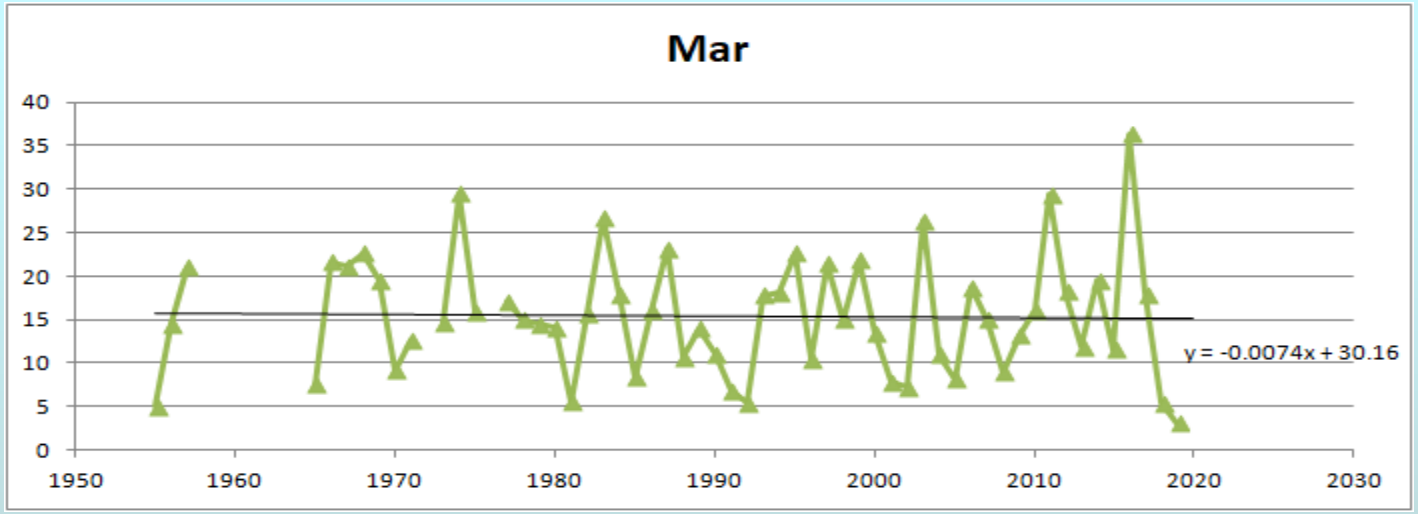


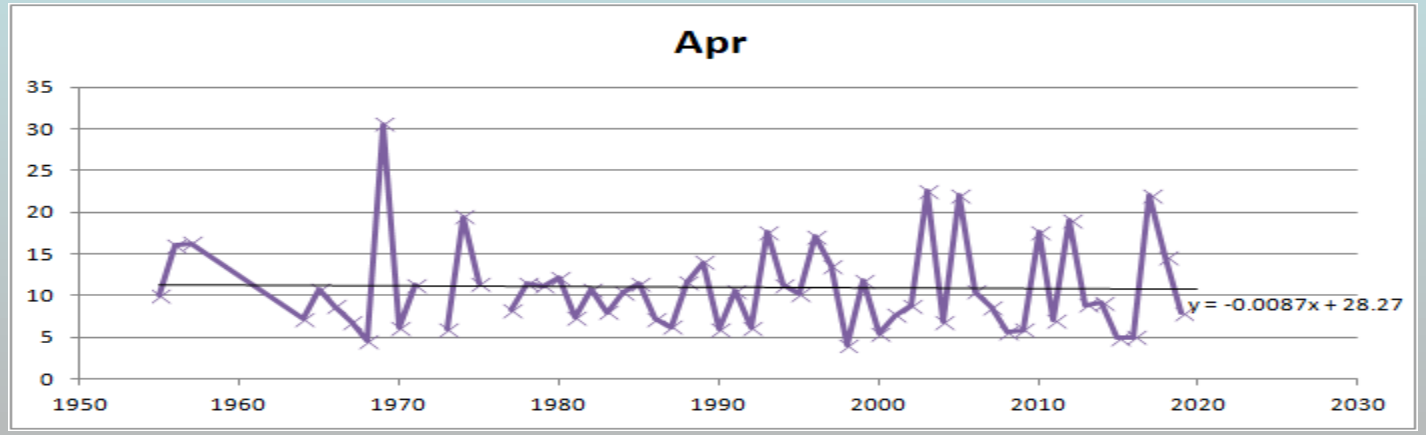
Increasing at 0.13m3/s/year. 0.6%/year



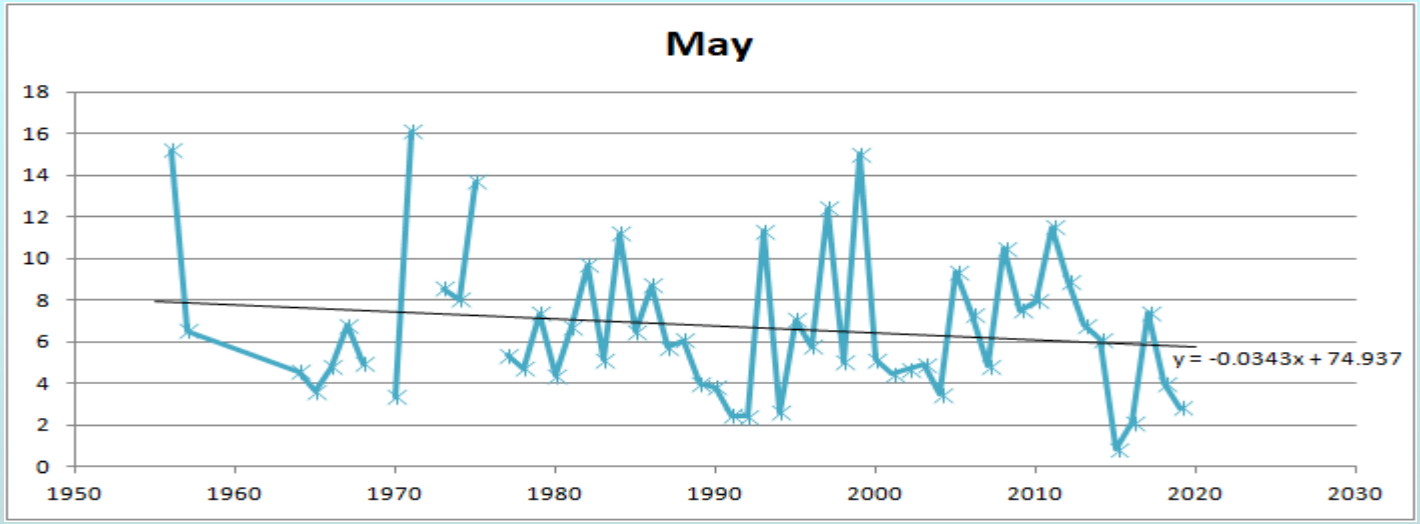
Stays constant



Minimal Change



Minimal change



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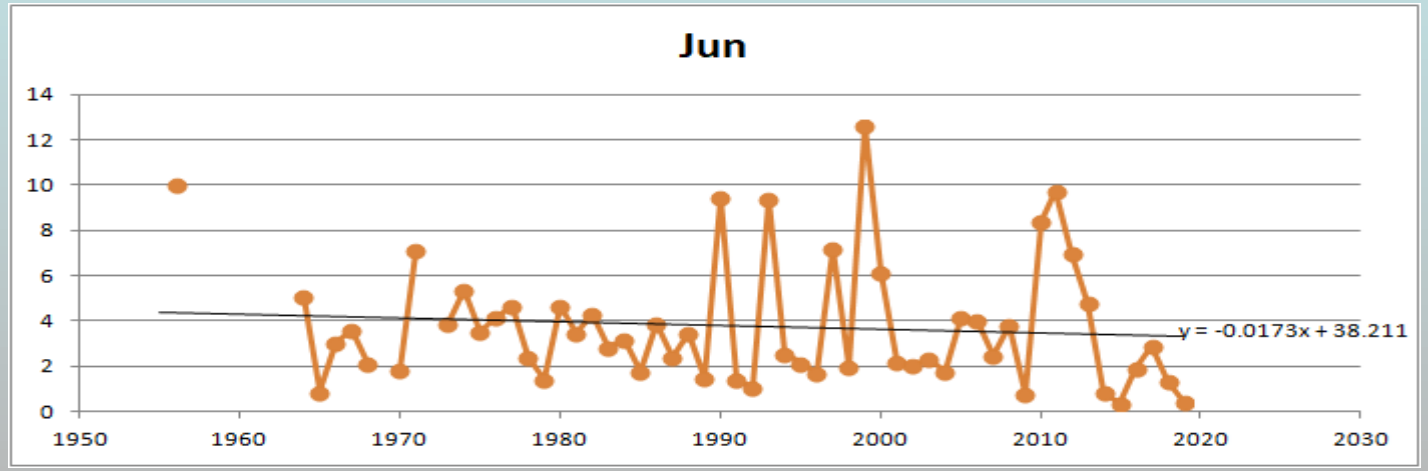
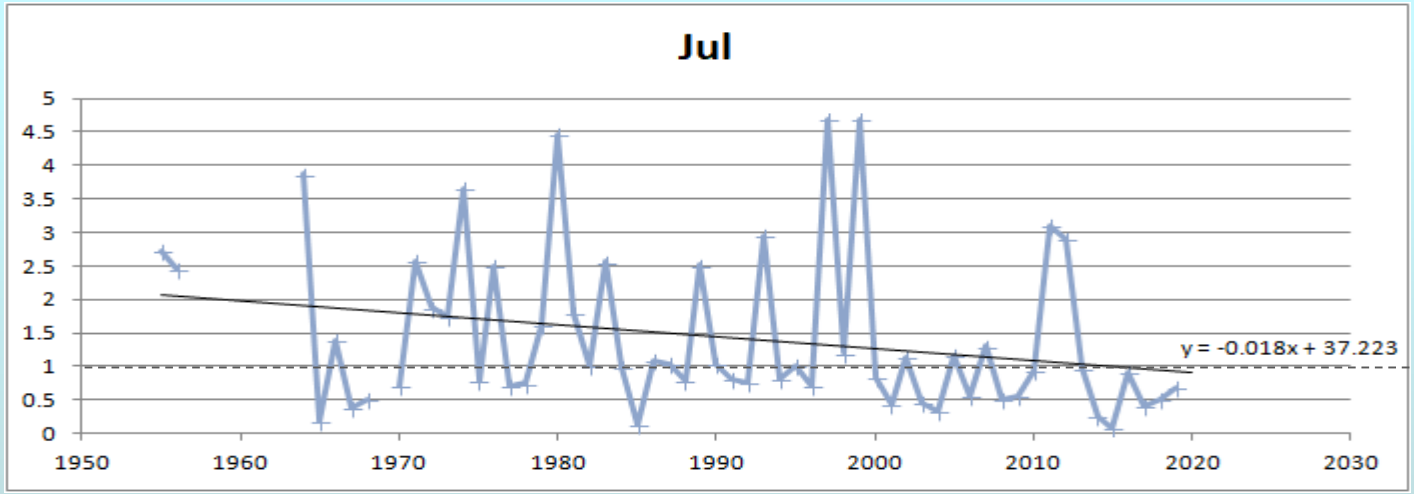
Decreasing at 0.034 m3/s/year. 0.6%/year



Decreasing at 0.017 m3/s/year. 1.3%/year



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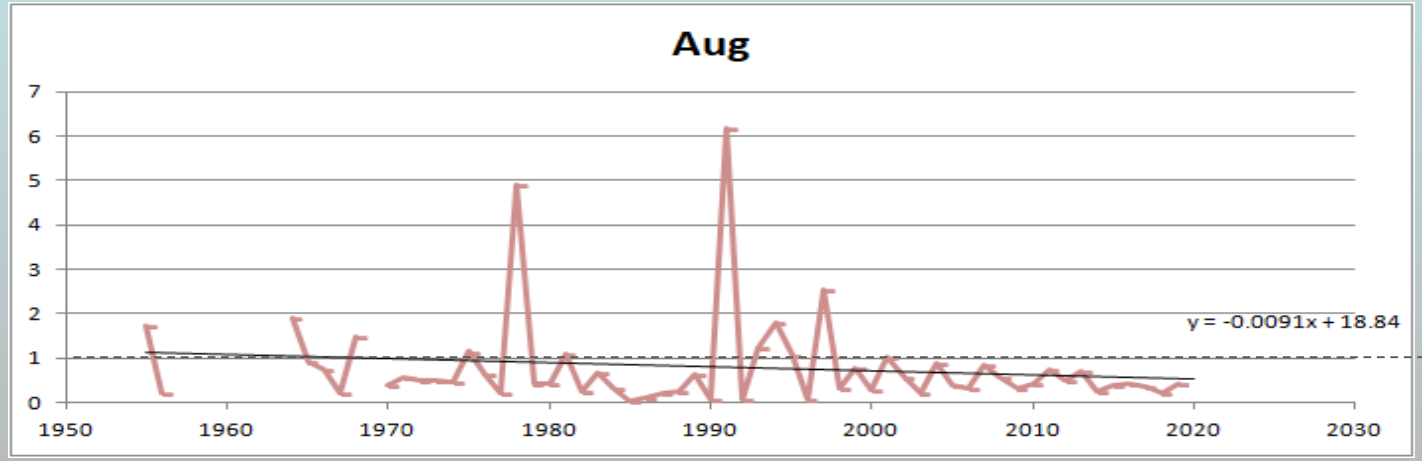
Decreasing at 0.18 m3/s/year. 2.5%/year

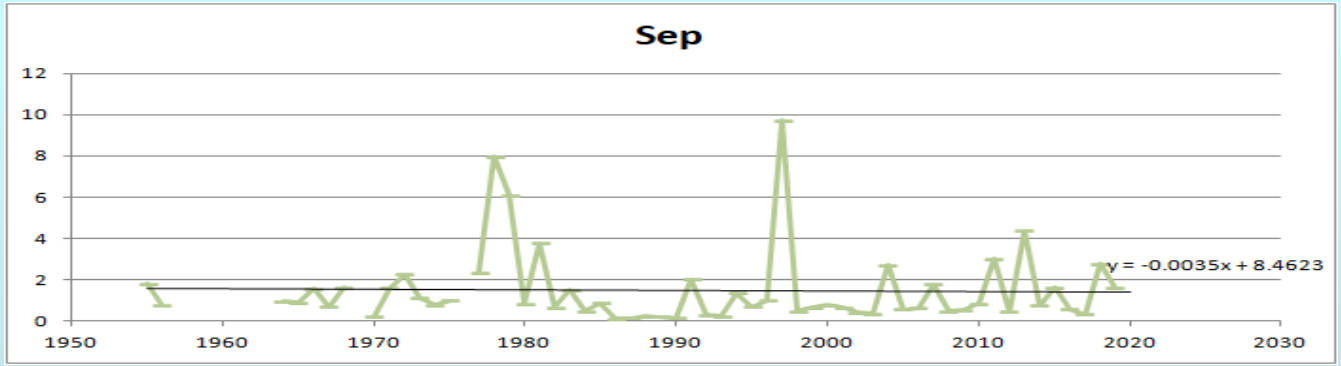
1 m3/s = 10% MAD
Usually below 10% MAD



Decreasing at 0.009 m3/s/year. 1.5%/year. Augmentation of intermittent 0.03 m3/s since 1997

No spikes since 1997.

1 m3/s = 10% MAD
Usually below 10% MAD



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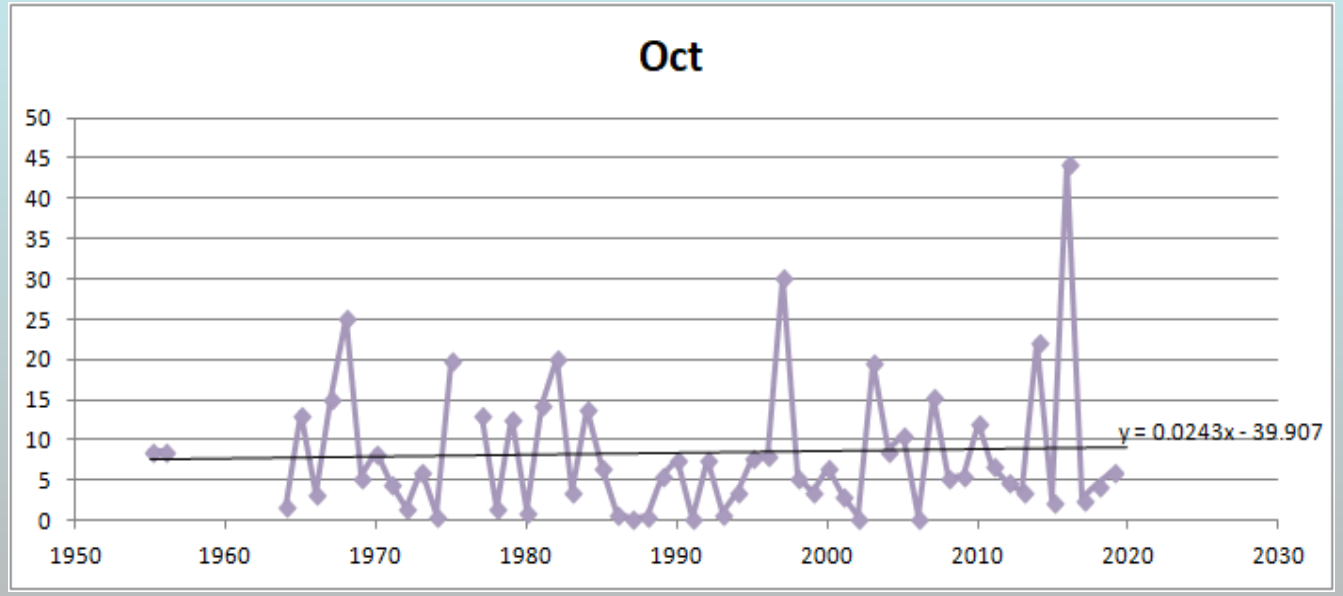
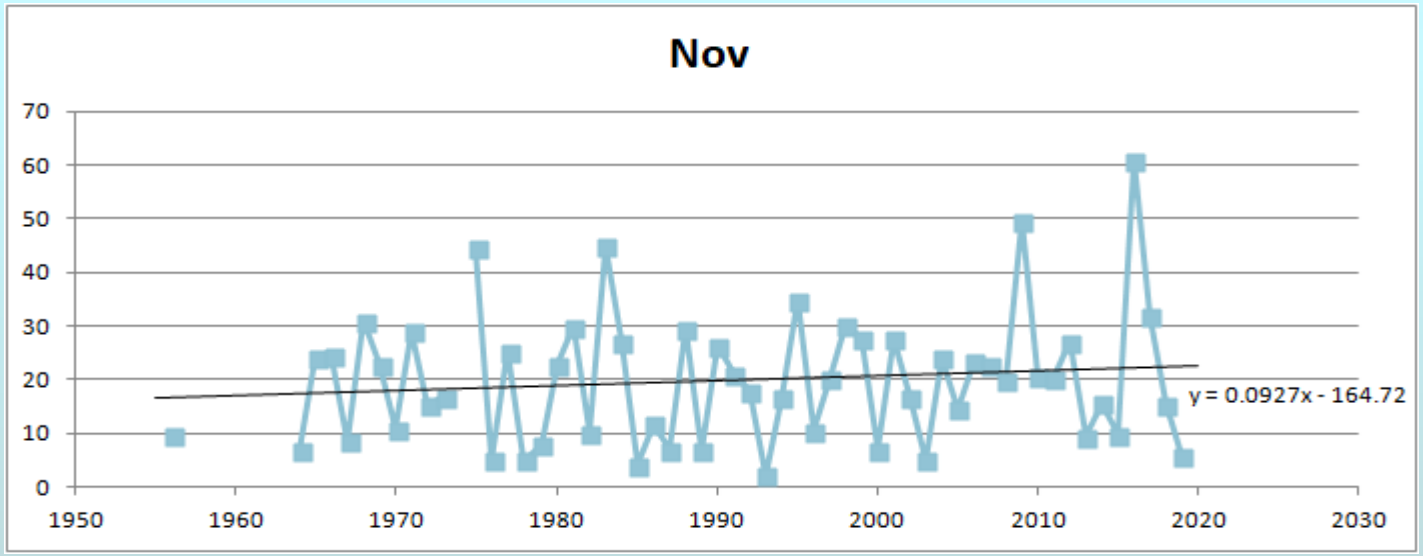
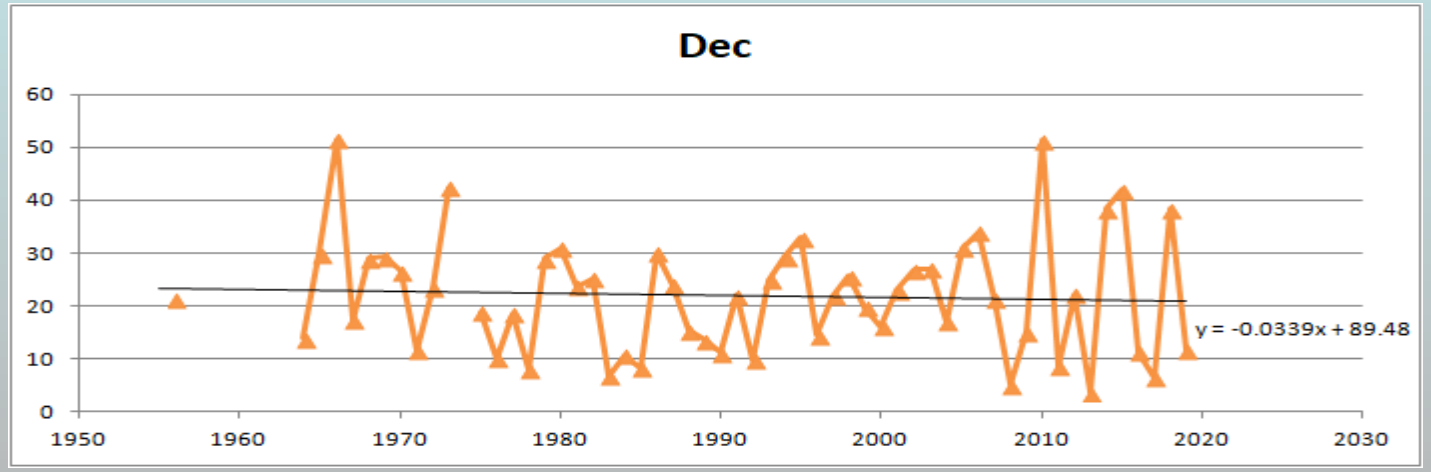
Decreasing at
0.0035 m3/s/yr
0.2%



Increasing at
0.024
m3/s/year.
0.3%/year



Increasing at 0.09 m3/s/year. 0.4%/year



Decreasing at 0.03 m3/s/year. 0.2%/year

Summary:

1. Flow records exist from about 1915, though data is sparse. Including the data before 1955 has marginal effect on trends.
2. Annual flow is marginally increasing, with the winter months showing increasing flows and the summer flows decreasing.
    a. Winter months average flows above 20 cubic metres per second
    b. July and August monthly averages are 1.3 m3/s and 0.8 m3/s historically, but are closer to 0.75 m3/s and 0.4m/s in recent years
    c. July shows a 2.5% annual reduction. Even with periodic augmentation from Wolf Lake, August shows an annual reduction of 1.5%
3. Suggestions that flow rates may be more variable (spikey) will require further analysis.

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