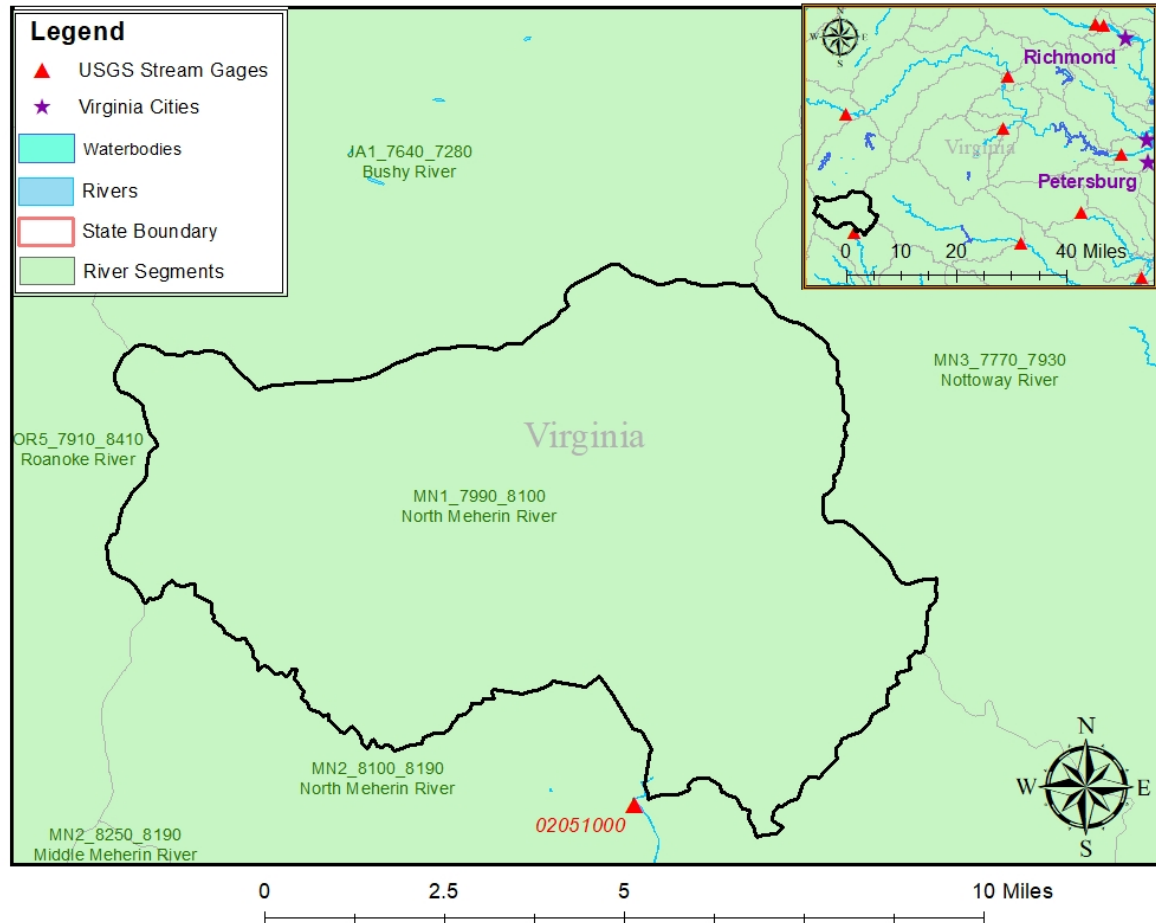


02051000 vs. MN1_7990_8100

Daniel Hildebrand, Hailey Alsbaugh, and Kelsey Reitz

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This river segment follows part of the flow of the North Meherrin River. The gage is located in Lunenburg County, VA (Lat 36°59'50", Long 78°21'00") approximately 62 miles southwest of Richmond, VA. Drainage area is 56 sq. miles. This gage started taking data in 1910 and is still taking data. There are no known anthropogenic alterations in this area that would affect the flow conditions. The average daily discharge error between the model and gage data for the 20 year timespan was -6.92%, with 66.2% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	3.9	2.94	24.6
Feb. Low Flow	10	8.52	14.8
Mar. Low Flow	14	12.5	10.7
Apr. Low Flow	17	19.2	-12.9
May Low Flow	29	32.6	-12.4
Jun. Low Flow	27.8	30.3	-8.99
Jul. Low Flow	24.7	20	19
Aug. Low Flow	12.2	11.9	2.46
Sep. Low Flow	6.93	6.59	4.91
Oct. Low Flow	3.2	3.19	0.31
Nov. Low Flow	2.1	2.47	-17.6
Dec. Low Flow	1.52	2.61	-71.7

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	44.8	47.9	-6.92
Jan. Mean Flow	60.9	64.4	-5.75
Feb. Mean Flow	72.3	84.3	-16.6
Mar. Mean Flow	85.4	105	-23
Apr. Mean Flow	67	73.4	-9.55
May Mean Flow	45	42.9	4.67
Jun. Mean Flow	27.5	27.5	0
Jul. Mean Flow	18.5	14	24.3
Aug. Mean Flow	22.3	19.8	11.2
Sep. Mean Flow	33.6	41.3	-22.9
Oct. Mean Flow	16.1	23.3	-44.7
Nov. Mean Flow	47.3	37.6	20.5
Dec. Mean Flow	44.6	43.6	2.24

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	49.9	30.1	39.7
Feb. High Flow	178	101	43.3
Mar. High Flow	242	97.4	59.8
Apr. High Flow	299	189	36.8
May High Flow	243	196	19.3
Jun. High Flow	350	453	-29.4
Jul. High Flow	241	197	18.3
Aug. High Flow	224	84.7	62.2
Sep. High Flow	86	25	70.9
Oct. High Flow	40	32.4	19
Nov. High Flow	75	27.9	62.8
Dec. High Flow	22	24	-9.09

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	0.00	8.00e-02	-Inf
Med. 1 Day Min	1.00	1.77	-7.70e+01
Min. 3 Day Min	0.00	9.00e-02	4.00e+14
Med. 3 Day Min	1.10	1.82	-6.55e+01
Min. 7 Day Min	1.00e-02	1.00e-01	-9.10e+02
Med. 7 Day Min	1.24	2.10	-6.94e+01
Min. 30 Day Min	6.00e-02	3.30e-01	-4.53e+02
Med. 30 Day Min	2.76	3.81	-3.80e+01
Min. 90 Day Min	1.52	2.14	-4.08e+01
Med. 90 Day Min	9.90	7.12	2.81e+01
7Q10	1.50e-01	2.80e-01	-8.62e+01
Year of 90-Day Min. Flow	2.00e+03	2.00e+03	0.00
Drought Year Mean	1.00e+01	1.43e+01	-4.30e+01
Mean Baseflow	1.55e+01	2.07e+01	-3.35e+01

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	3010	3380	-12.3
Med. 1 Day Max	840	1280	-52.4
Max. 3 Day Max	1390	1620	-16.5
Med. 3 Day Max	503	690	-37.2
Max. 7 Day Max	842	978	-16.2
Med. 7 Day Max	258	367	-42.2
Max. 30 Day Max	299	337	-12.7
Med. 30 Day Max	125	149	-19.2
Max. 90 Day Max	187	226	-20.9
Med. 90 Day Max	84.8	91	-7.31

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	0.36	0.57	-58.3
5% Non-Exceedance	1.6	2.14	-33.8
50% Non-Exceedance	19	21.4	-12.6
95% Non-Exceedance	153	147	3.92
99% Non-Exceedance	446	486	-8.97
Sept. 10% Non-Exceedance	1.66	0.82	50.7

Fig. 1: Hydrograph

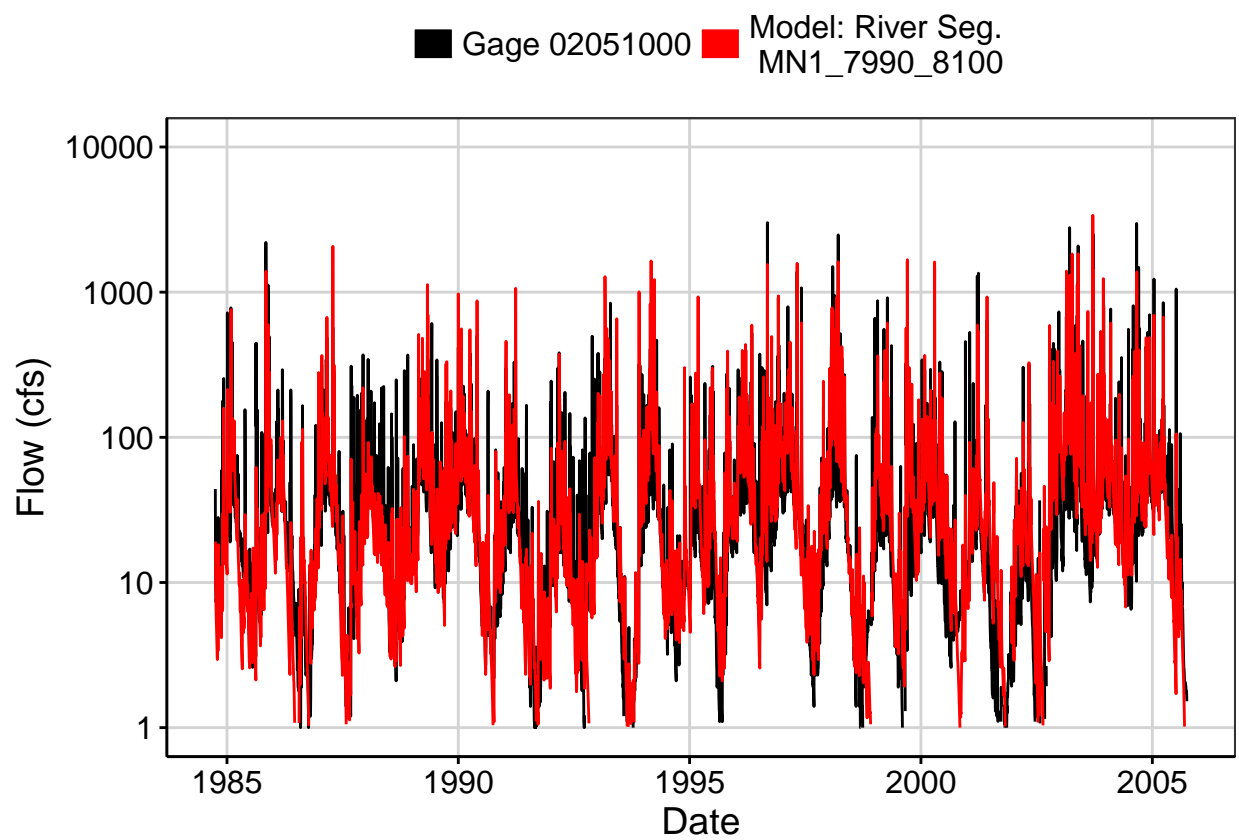


Fig. 2: Zoomed Hydrograph

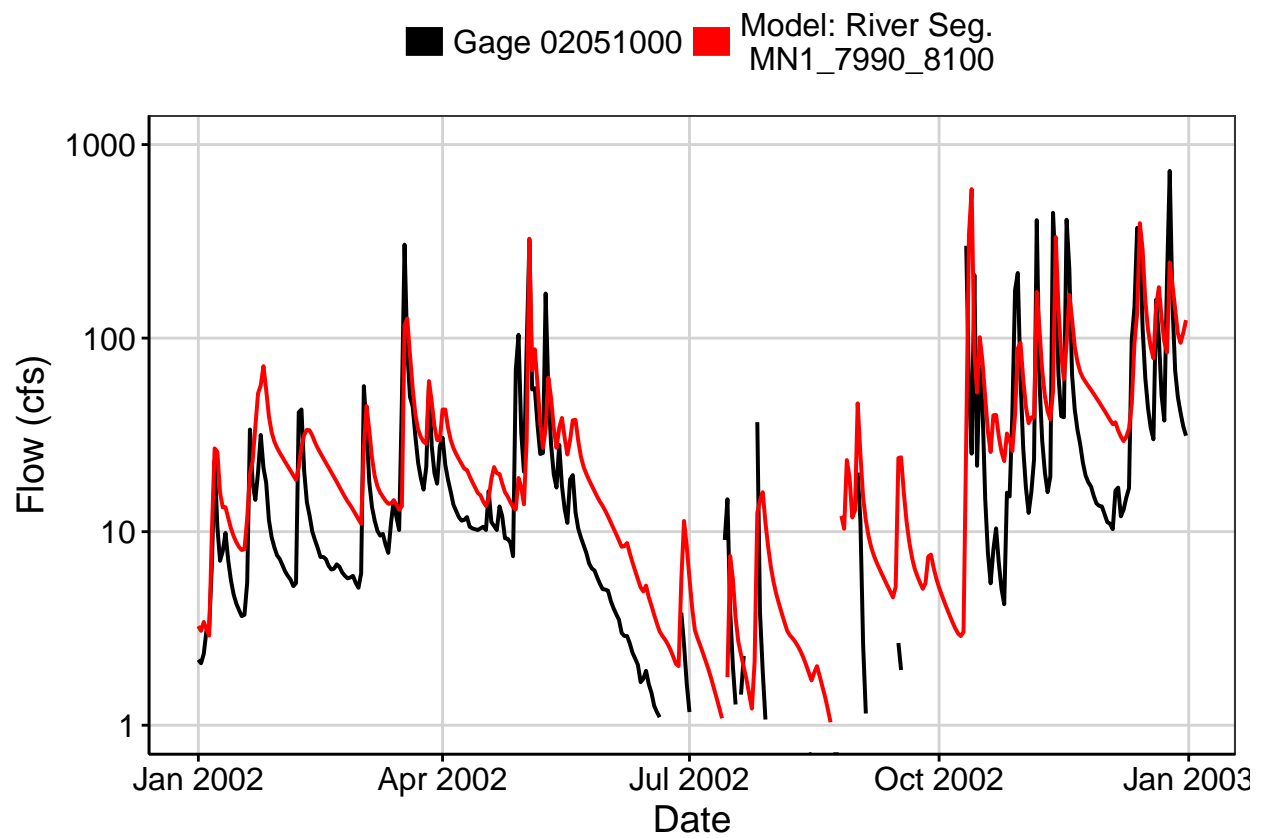


Fig. 3: Flow Exceedance

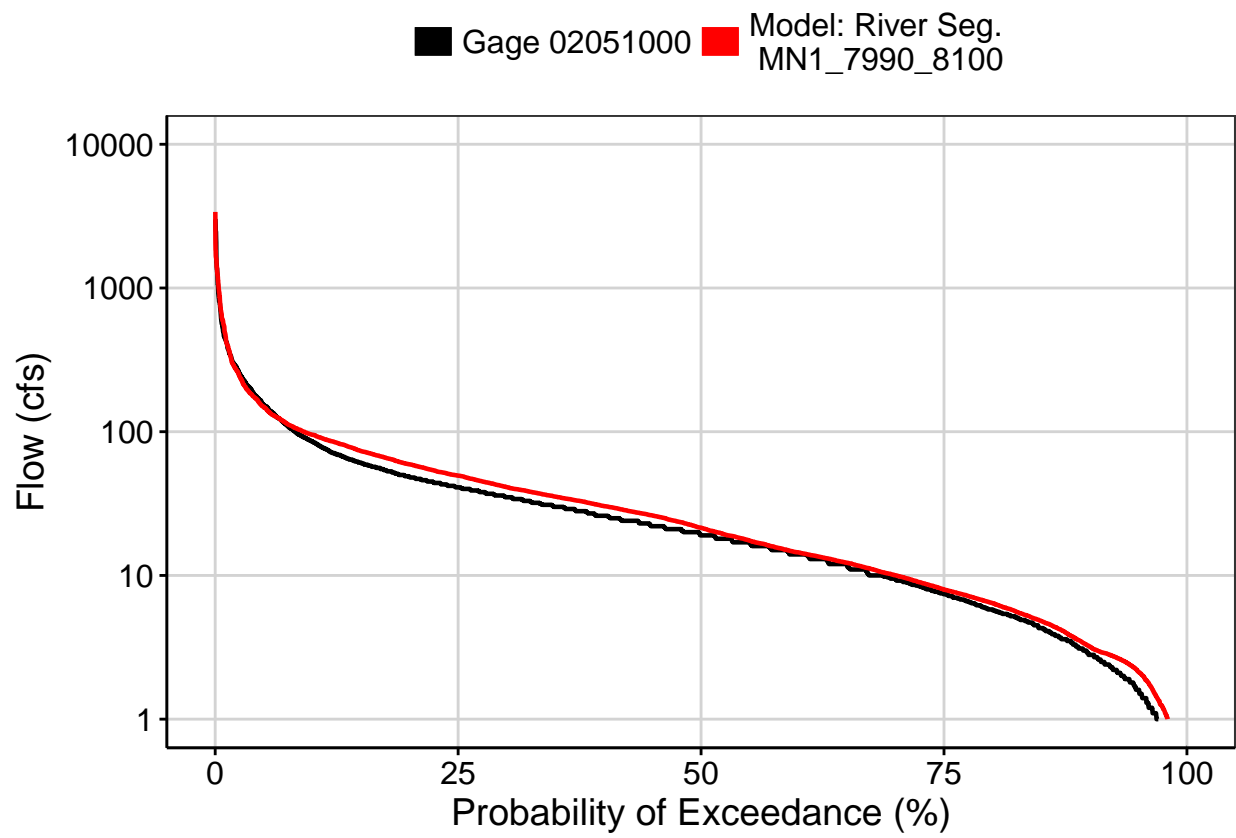


Fig. 4: Baseflow

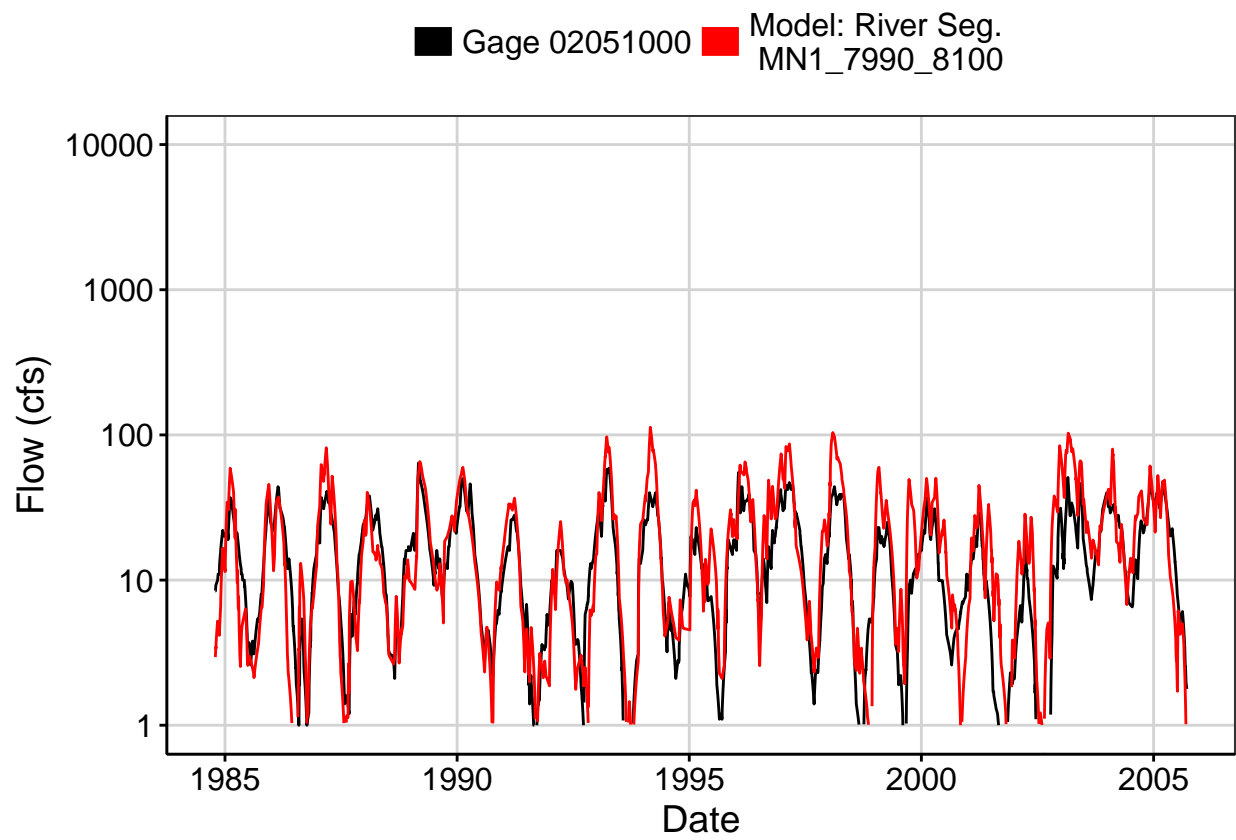


Fig. 5: Combined Baseflow

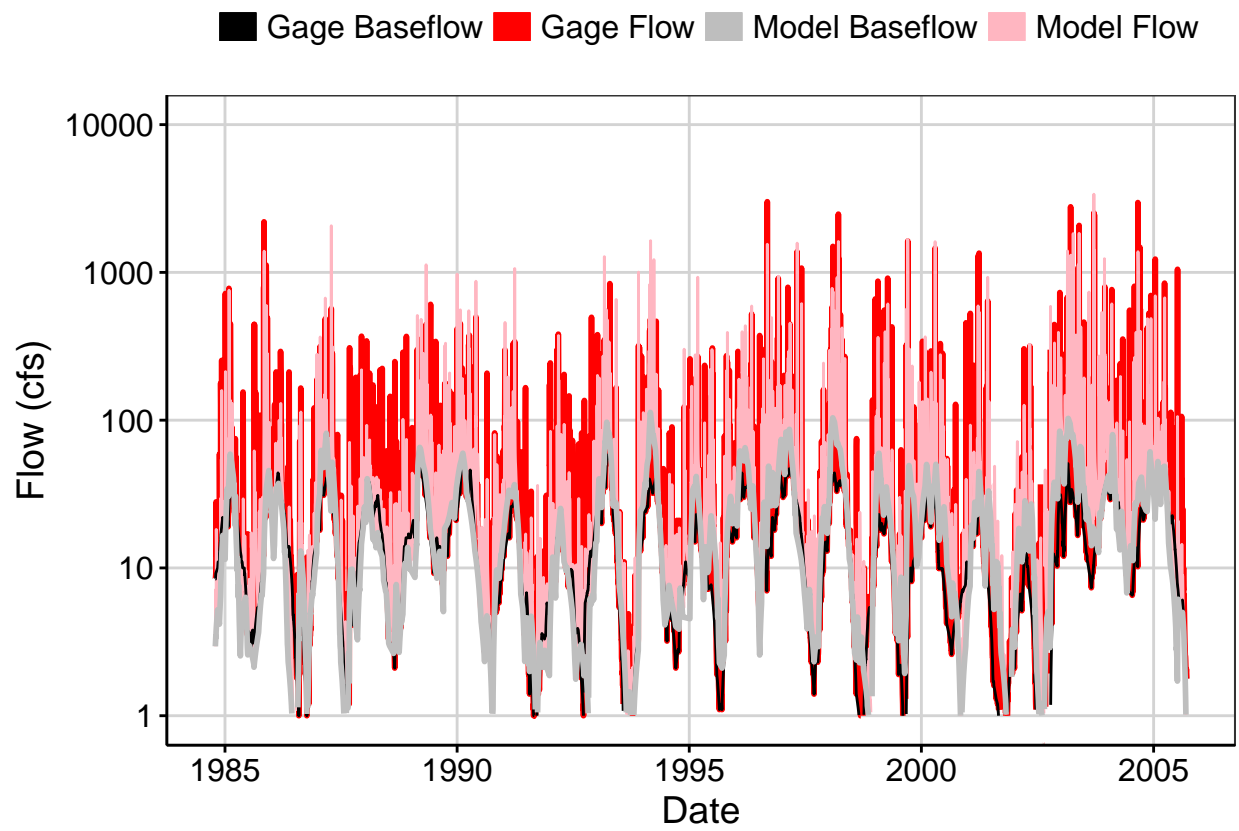


Fig. 6: Largest Error Segment

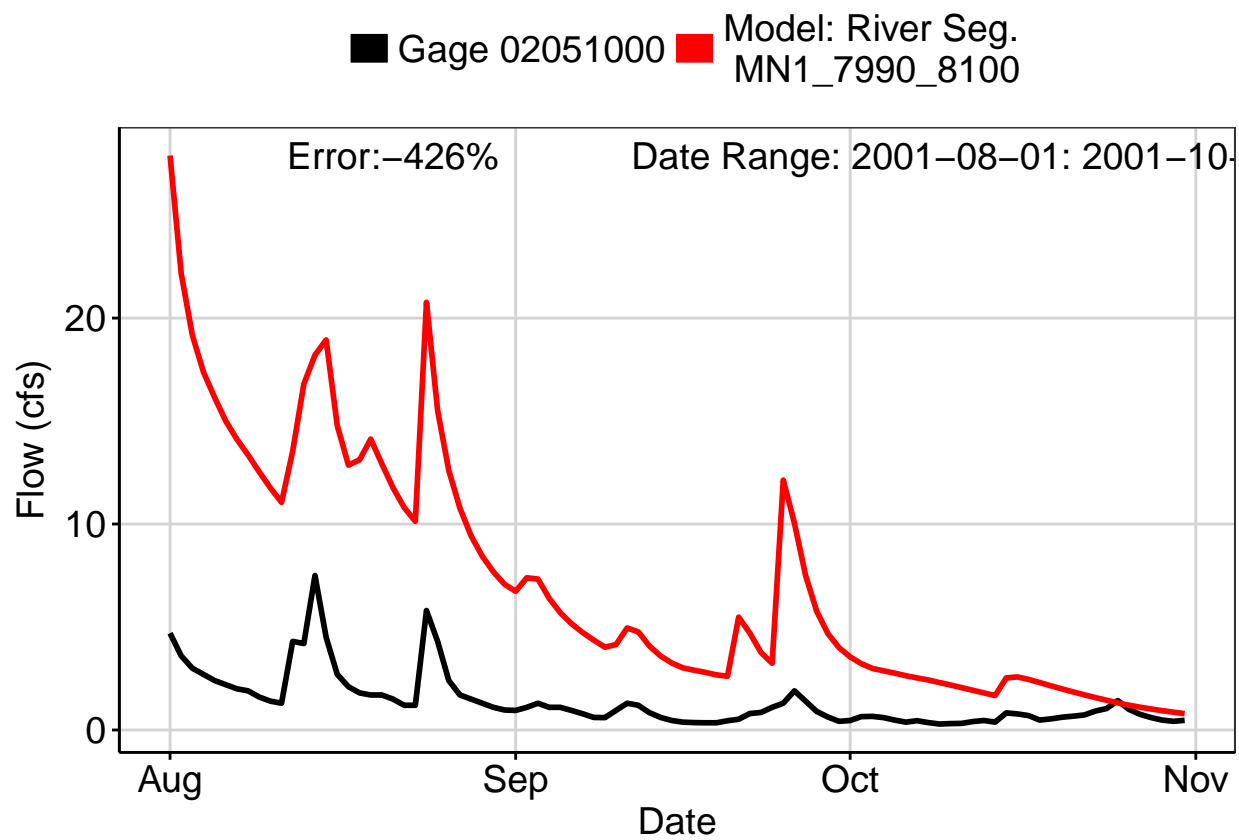


Fig. 7: Second Largest Error Segment

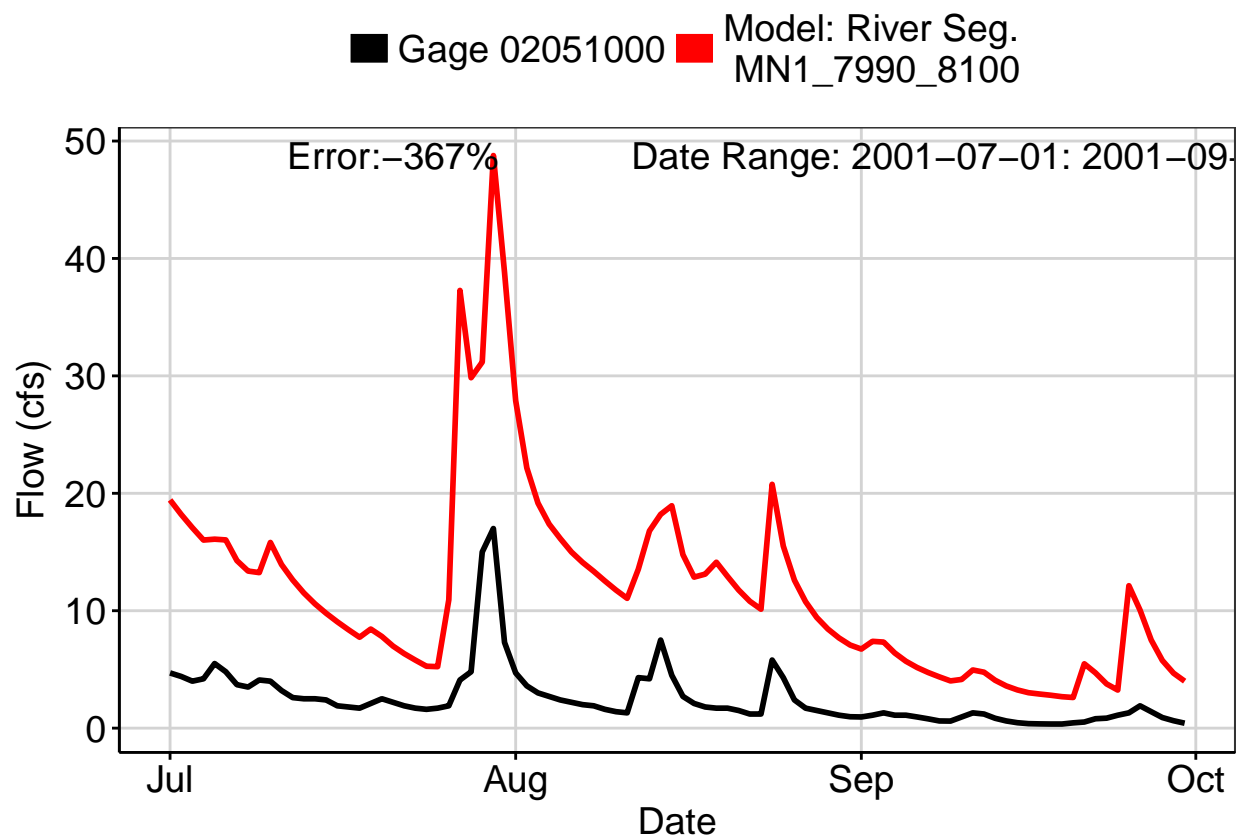


Fig. 8: Third Largest Error Segment

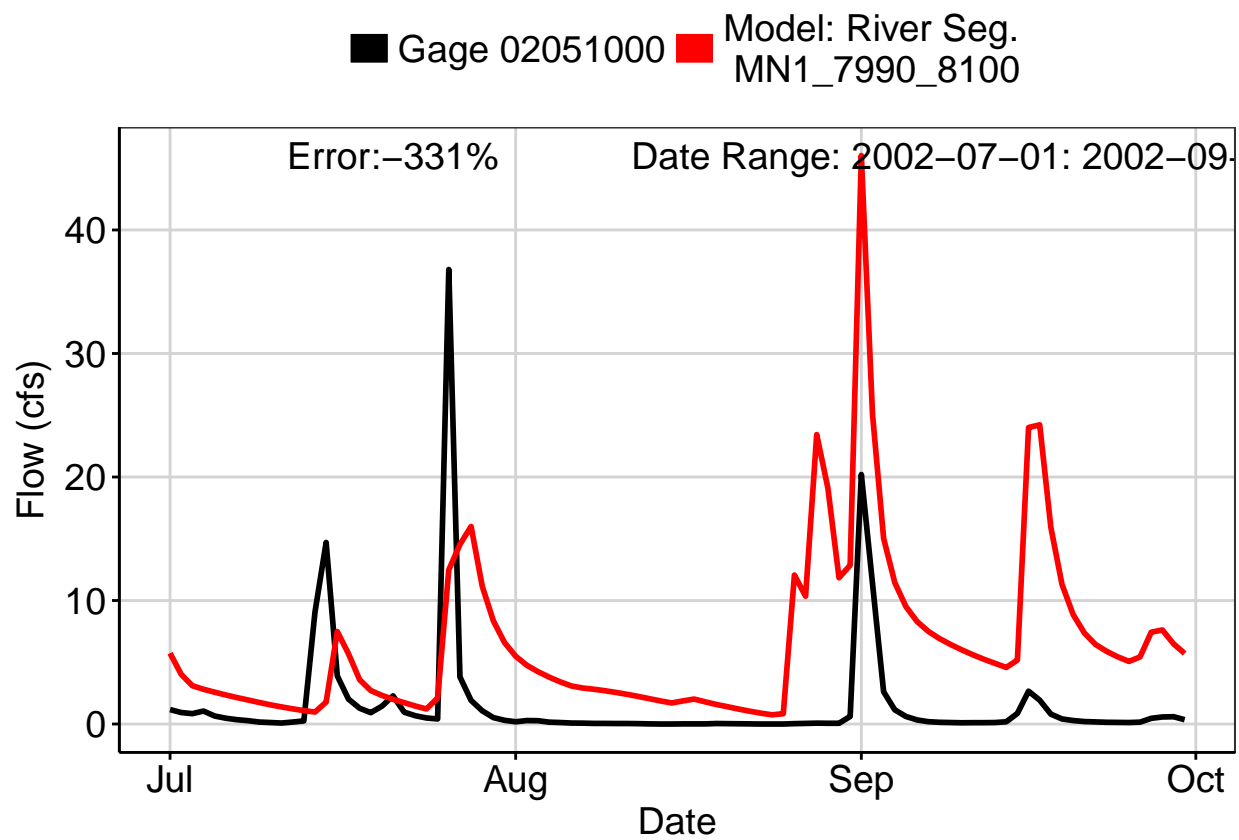


Fig. 9: Residuals Plot

