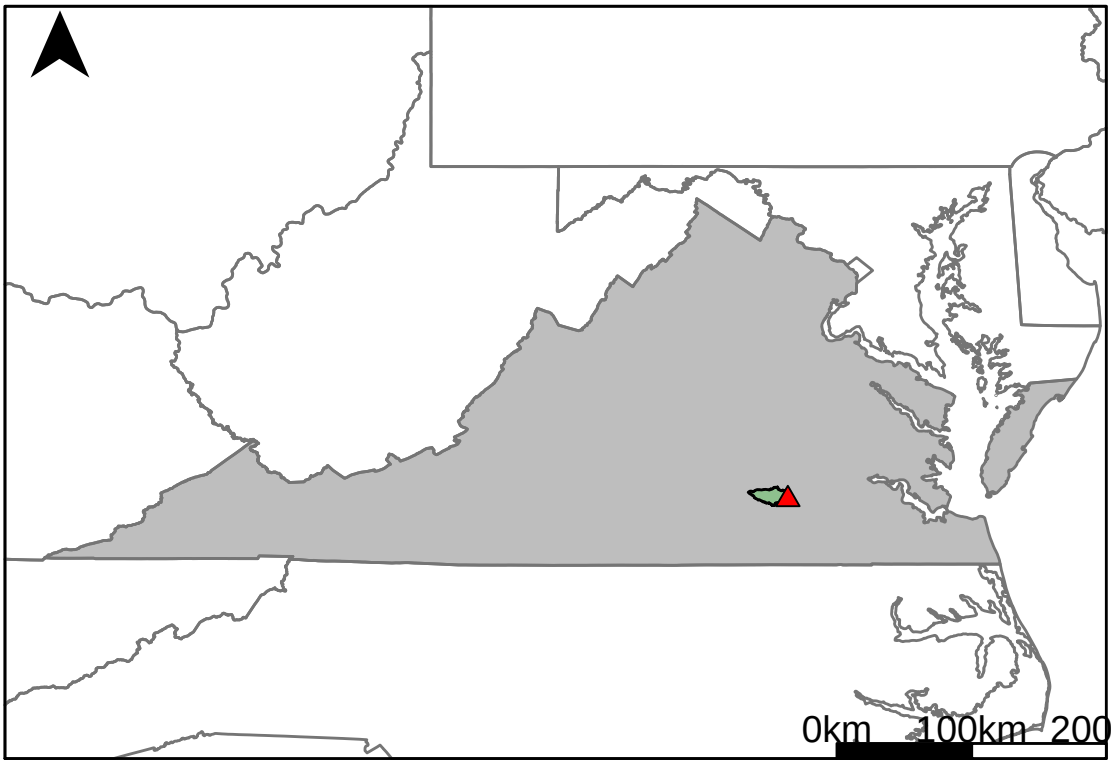
Appendix G.2: USGS Gage 02046000 vs. MN2_7720_7830



This river segment follows part of the flow of the Stony Creek, a tributary of the Meherrin River. The gage is located in Dinwiddie County, VA (Lat 3704'01", Long 7736'10") approximately 15 miles southwest of Petersburg, VA. Drainage area is 113 sq. miles. This gage started taking data in 1946 and is still taking data. A few times a year there is a small increase in flow due to a release from a large pond just upstream of the gage. The average daily discharge error between the model and gage data for the 20 year timespan was 1.92%, with 53.8% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	3	4.84	-61.3
Feb. Low Flow	14	16.1	-15
Mar. Low Flow	22	20.7	5.91
Apr. Low Flow	34	35.9	-5.59
May Low Flow	66	64.1	2.88
Jun. Low Flow	68	57.3	15.7
Jul. Low Flow	46	34.7	24.6
Aug. Low Flow	23	21.4	6.96
Sep. Low Flow	10	11.3	-13
Oct. Low Flow	4.5	5.29	-17.6
Nov. Low Flow	2.8	6.43	-130
Dec. Low Flow	1.4	5.11	-265

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	104	102	1.92
Jan. Mean Flow	140	142	-1.43
Feb. Mean Flow	167	170	-1.8
Mar. Mean Flow	210	214	-1.9
Apr. Mean Flow	167	144	13.8
May Mean Flow	111	88.4	20.4
Jun. Mean Flow	63.1	46	27.1
Jul. Mean Flow	36.7	31.8	13.4
Aug. Mean Flow	52.4	66.6	-27.1
Sep. Mean Flow	81.6	104	-27.5
Oct. Mean Flow	49	48.6	0.82
Nov. Mean Flow	79.6	75.2	5.53
Dec. Mean Flow	93.2	96.8	-3.86

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	55	74	-34.5
Feb. High Flow	153	156	-1.96
Mar. High Flow	227	200	11.9
Apr. High Flow	530	341	35.7
May High Flow	595	402	32.4
Jun. High Flow	770	1080	-40.3
Jul. High Flow	558	360	35.5
Aug. High Flow	292	236	19.2
Sep. High Flow	170	53.4	68.6
Oct. High Flow	86	56.6	34.2
Nov. High Flow	52	63.8	-22.7
Dec. High Flow	26	66.3	-155

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	0	0.03	-Inf
Med. 1 Day Min	0.89	1.51	-69.7
Min. 3 Day Min	0	0.03	-Inf
Med. 3 Day Min	0.93	1.78	-91.4
Min. 7 Day Min	0.03	0.04	-41.3
Med. 7 Day Min	1.08	2.4	-122
Min. 30 Day Min	0.35	0.46	-34.4
Med. 30 Day Min	2.25	5.3	-136
Min. 90 Day Min	1.94	5.07	-161
Med. 90 Day Min	18.9	18.8	0.53
7Q10	0.15	0.38	-146
Year of 90-Day Min. Flow	2002	2002	0
Drought Year Mean	15.5	102	-558
Mean Baseflow	37.4	39.8	-6.42

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	8400	12900	-53.6
Med. 1 Day Max	1970	2470	-25.4
Max. 3 Day Max	4220	4770	-13
Med. 3 Day Max	1390	1220	12.2
Max. 7 Day Max	2110	2310	-9.48
Med. 7 Day Max	737	698	5.29
Max. 30 Day Max	832	707	15
Med. 30 Day Max	346	326	5.78
Max. 90 Day Max	527	444	15.7
Med. 90 Day Max	224	207	7.59

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	0.47	1.12	-138
5% Non-Exceedance	1.7	3.87	-128
50% Non-Exceedance	45	43.7	2.89
95% Non-Exceedance	365	314	14
99% Non-Exceedance	996	972	2.41
Sept. 10% Non-Exceedance	3.65	3.61	1.1

Fig. 1: Hydrograph

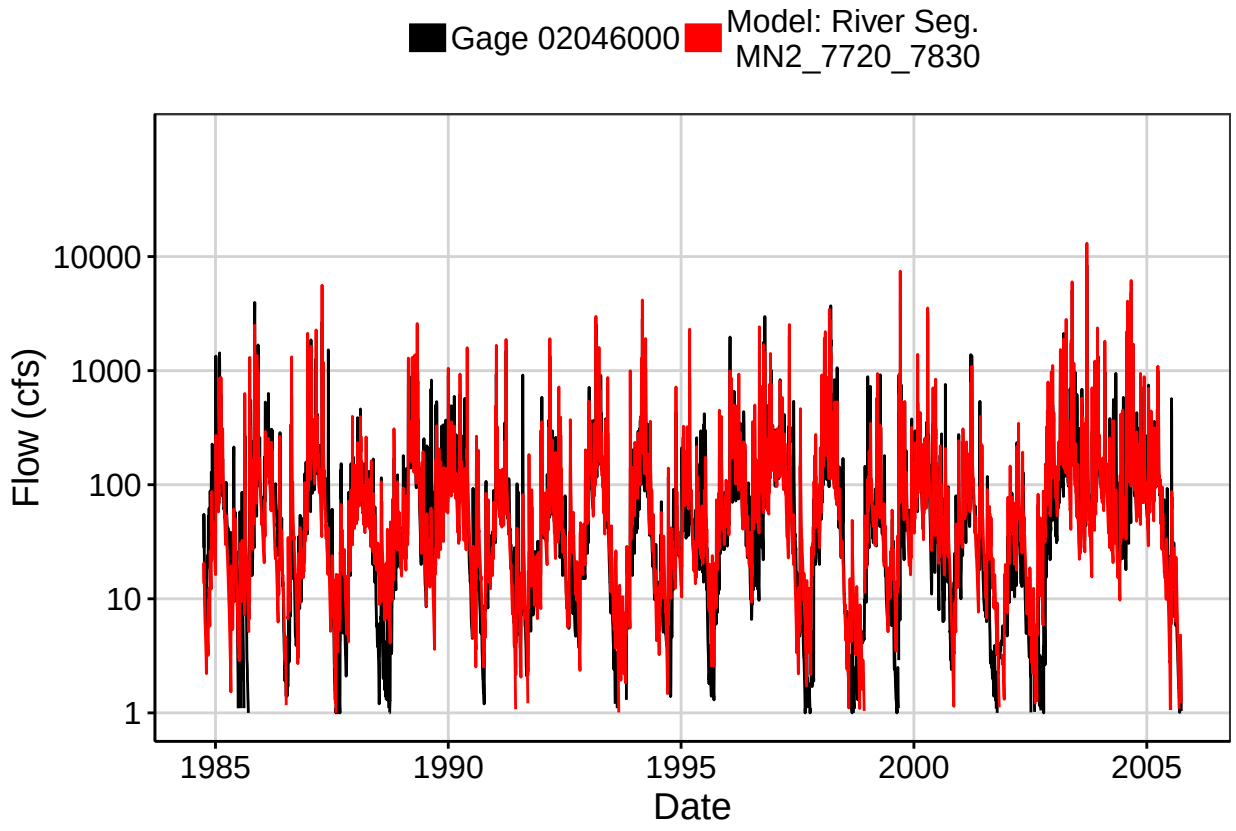


Fig. 2: Zoomed Hydrograph

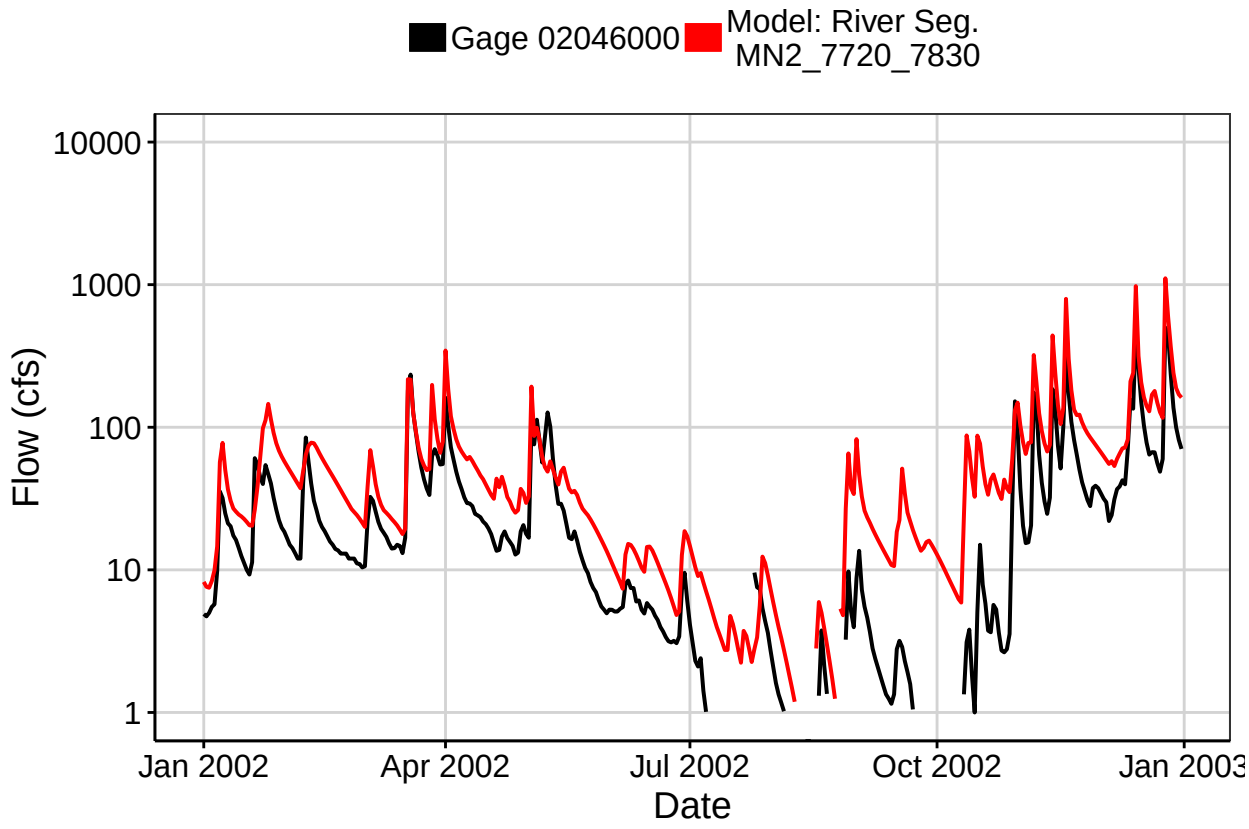


Fig. 3: Flow Exceedance

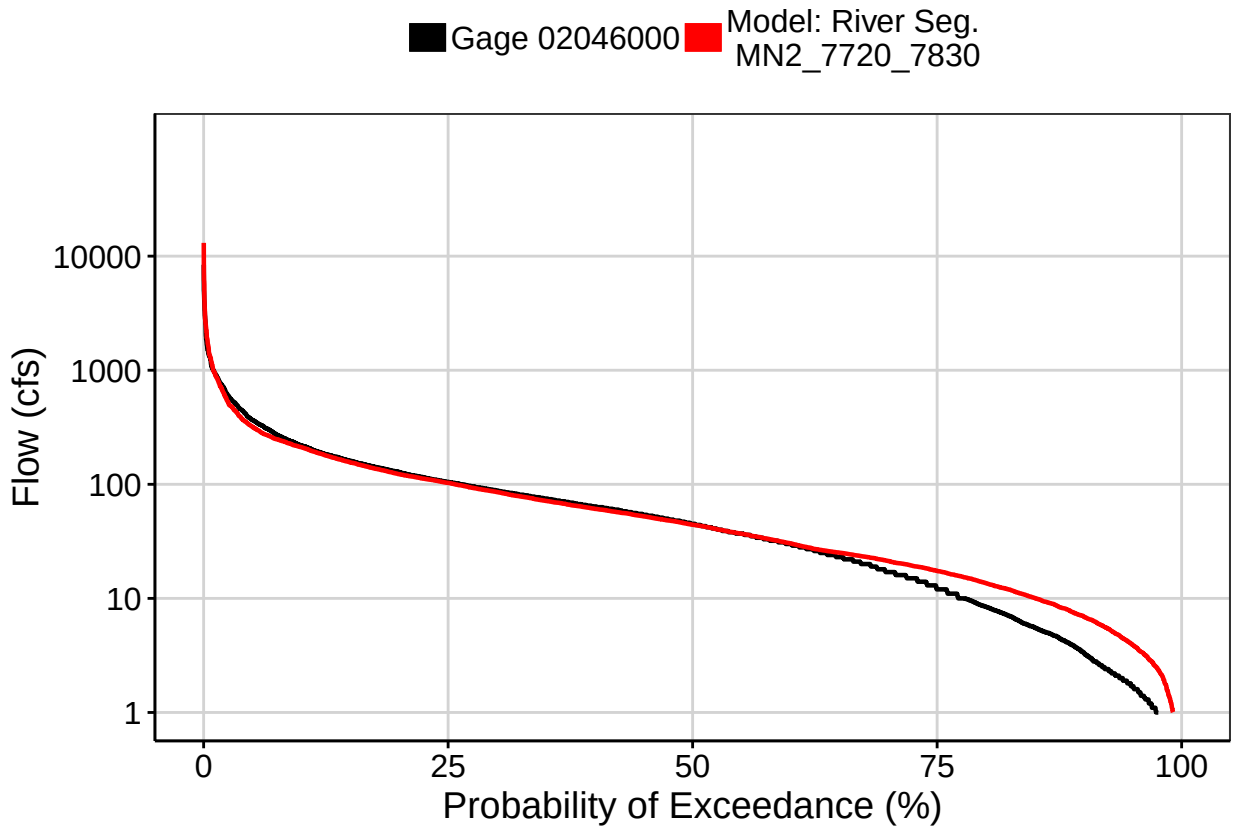


Fig. 4: Baseflow

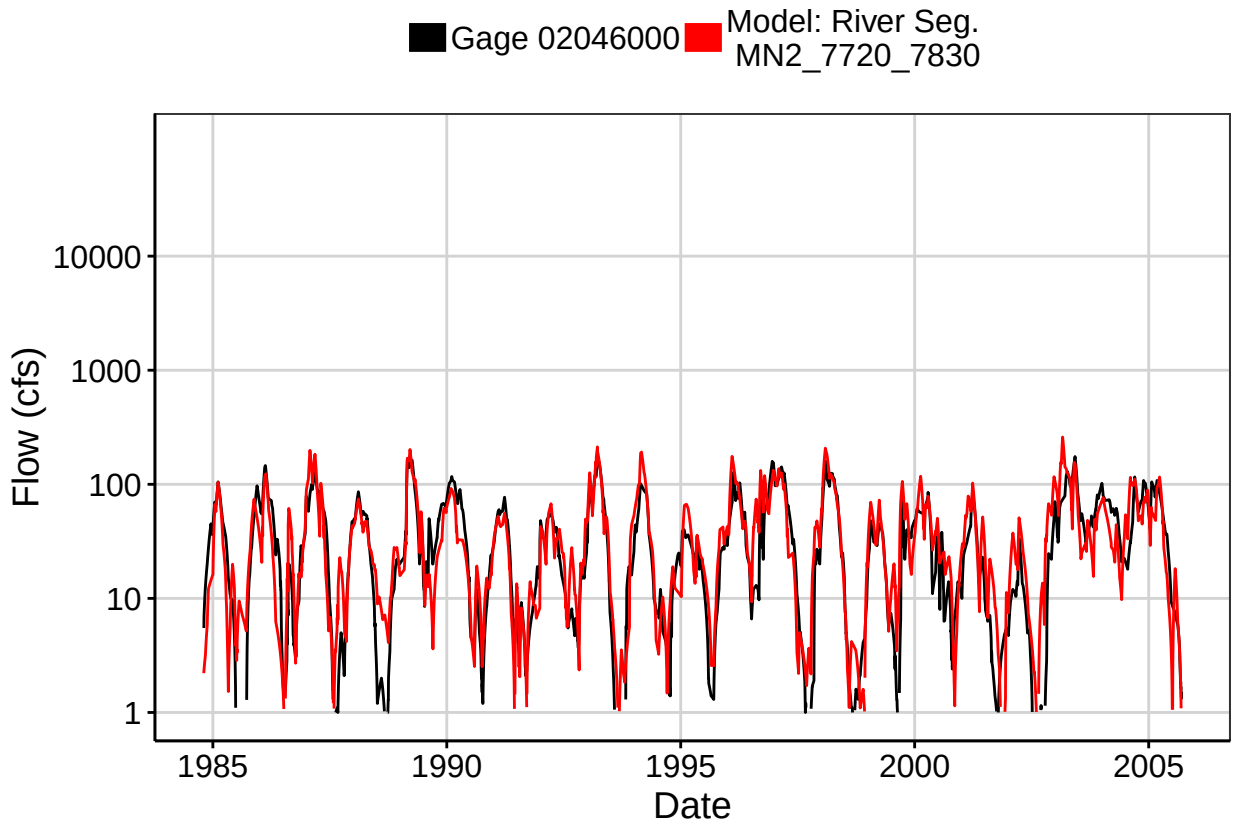


Fig. 5: Combined Baseflow

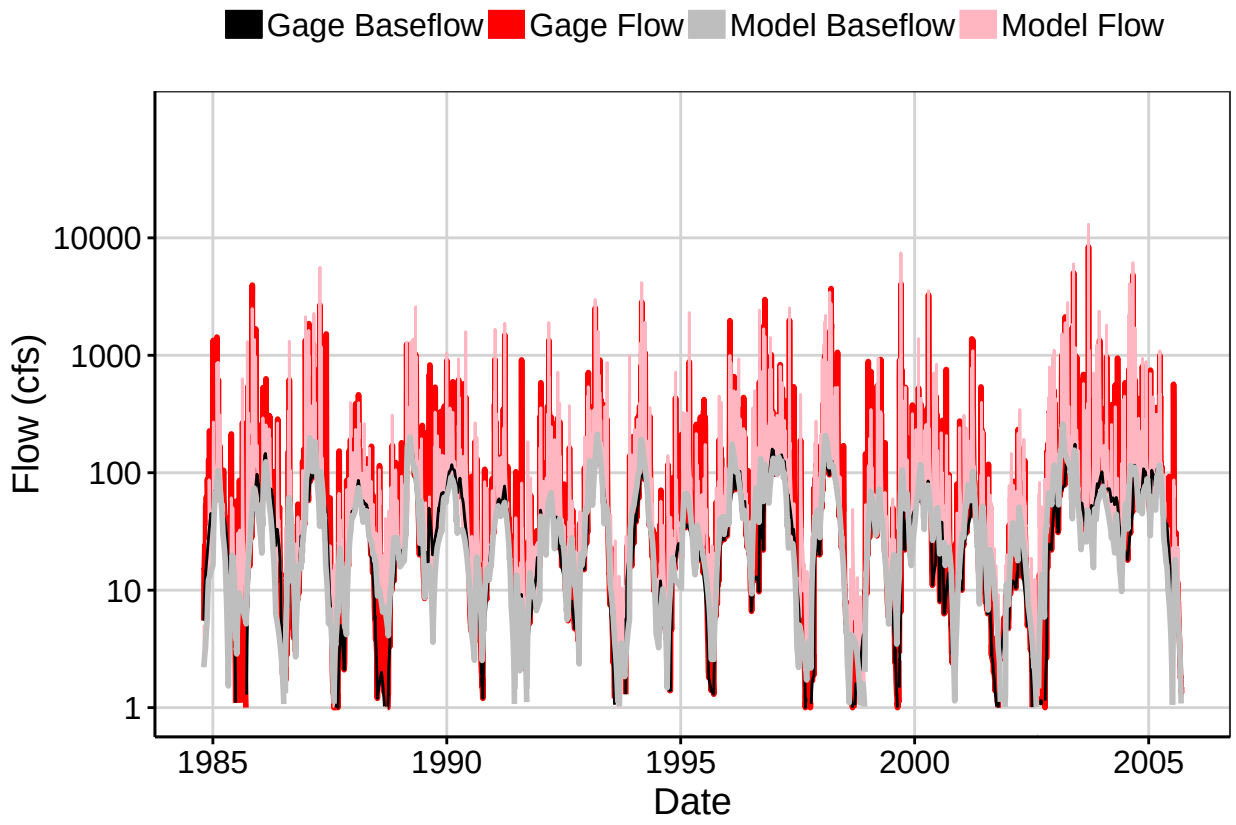


Fig. 6: Largest Error Segment

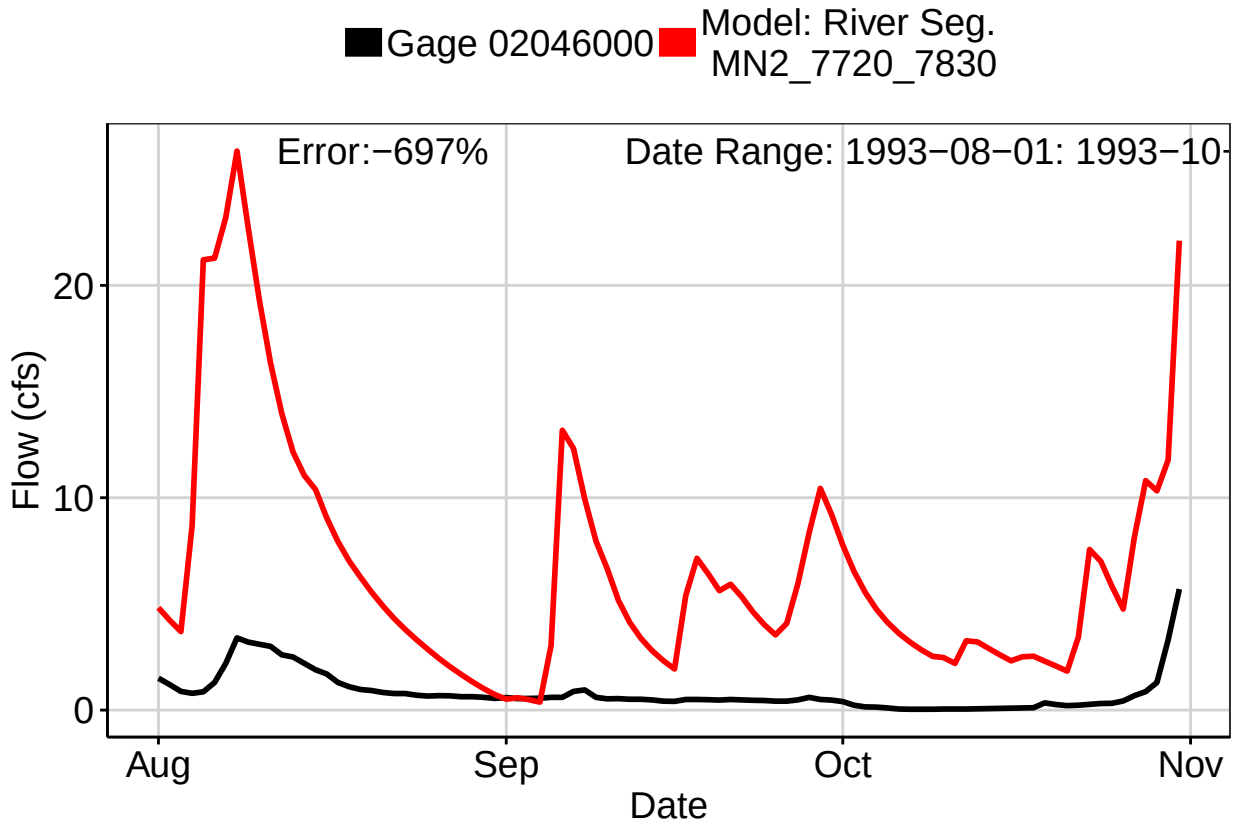


Fig. 7: Second Largest Error Segment

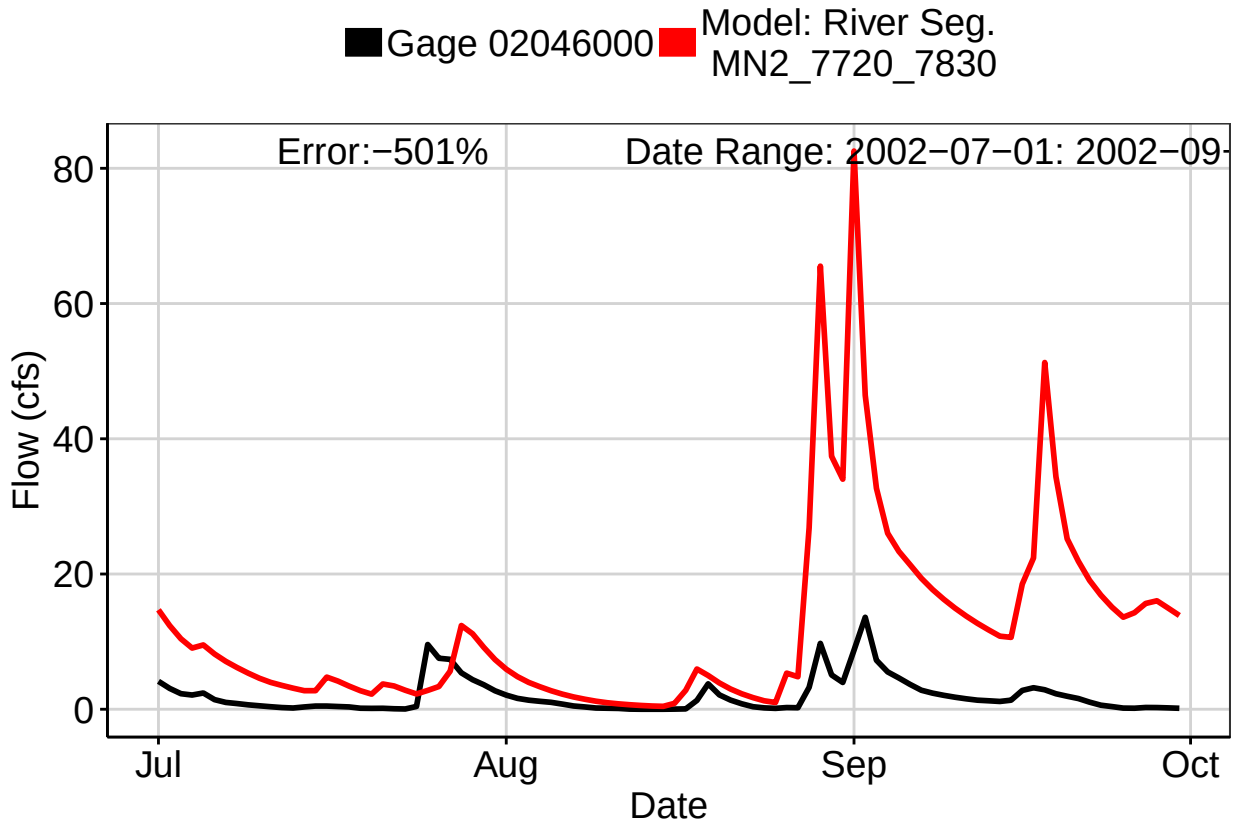


Fig. 8: Third Largest Error Segment

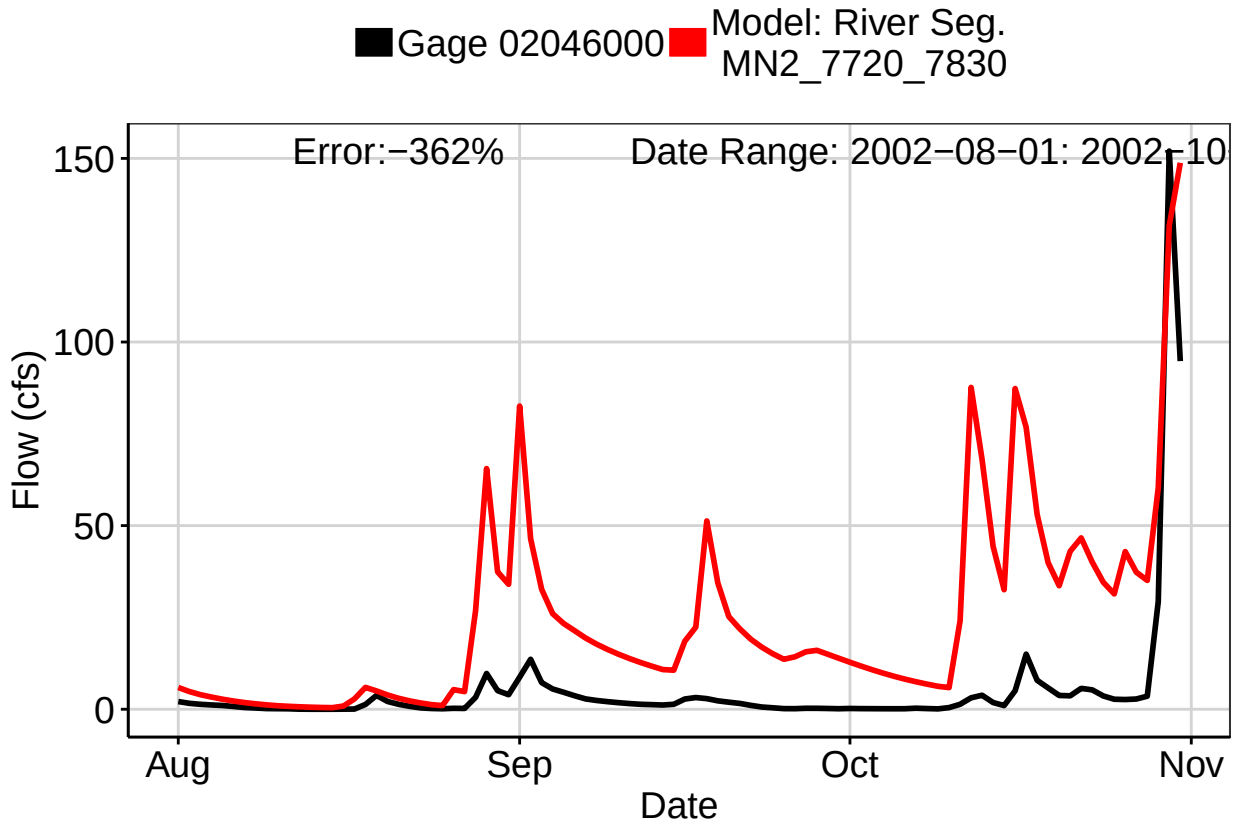


Fig. 9: Residuals Plot