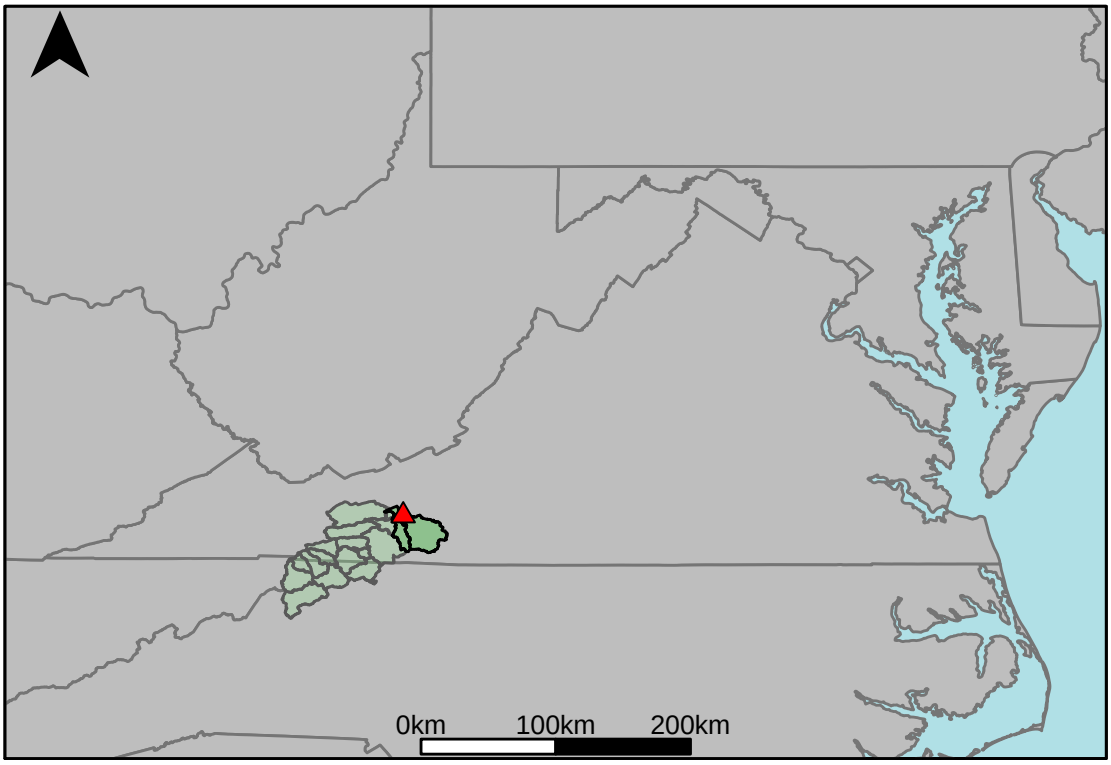
Appendix F.4: USGS Gage 03168000 vs. NR6_8640_8500+NR3_8740_8500+NR3_8690_8500



This river segment follows part of the flow of the New River. The gage is located in Pulaski County, VA (Lat 3656'15", Long 8044'45") approximately 21 miles north of Galax, VA. Drainage area is 2212 sq. miles. This gage started taking data in 1929 and is still taking data. Flow in this area is regulated by the American Electric Power Companys power plants at Buck and Byllesby approximately 25 miles upstream. This station is also 21 miles upstream of Claytor Dam, which is also owned and operated by the American Electric Power Company. The average daily discharge error between the model and gage data for the 20 year timespan was -4.14%, with 25.8% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	900	796	-11.6
Feb. Low Flow	1040	1020	-1.92
Mar. Low Flow	1450	1760	21.4
Apr. Low Flow	1200	1730	44.2
May Low Flow	2220	2610	17.6
Jun. Low Flow	2590	3170	22.4
Jul. Low Flow	2520	2410	-4.37
Aug. Low Flow	2180	2020	-7.34
Sep. Low Flow	1730	1730	0
Oct. Low Flow	1360	1200	-11.8
Nov. Low Flow	1110	1100	-0.9
Dec. Low Flow	879	958	8.99

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	3140	3270	4.14
Jan. Mean Flow	3690	3920	6.23
Feb. Mean Flow	4270	4880	14.3
Mar. Mean Flow	4870	5510	13.1
Apr. Mean Flow	4470	4650	4.03
May Mean Flow	3580	3390	-5.31
Jun. Mean Flow	2980	2980	0
Jul. Mean Flow	2230	2100	-5.83
Aug. Mean Flow	2050	2140	4.39
Sep. Mean Flow	2180	2310	5.96
Oct. Mean Flow	1990	2130	7.04
Nov. Mean Flow	2680	2630	-1.87
Dec. Mean Flow	2790	2770	-0.72

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	2860	1690	-40.9
Feb. High Flow	5960	4620	-22.5
Mar. High Flow	5300	4100	-22.6
Apr. High Flow	8300	8940	7.71
May High Flow	8630	7480	-13.3
Jun. High Flow	12700	13800	8.66
Jul. High Flow	9720	9550	-1.75
Aug. High Flow	7250	7740	6.76
Sep. High Flow	4550	4040	-11.2
Oct. High Flow	3320	3100	-6.63
Nov. High Flow	3200	2180	-31.9
Dec. High Flow	3350	2450	-26.9

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	446	272	-39
Med. 1 Day Min	823	704	-14.5
Min. 3 Day Min	457	277	-39.4
Med. 3 Day Min	874	726	-16.9
Min. 7 Day Min	501	285	-43.1
Med. 7 Day Min	914	759	-17
Min. 30 Day Min	653	373	-42.9
Med. 30 Day Min	1060	918	-13.4
Min. 90 Day Min	825	831	0.73
Med. 90 Day Min	1540	1280	-16.9
7Q10	641	421	-34.3
Year of 90-Day Min. Flow	2002	1988	100
Drought Year Mean	1500	1710	14
Mean Baseflow	1960	2210	12.8

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	84700	65000	-23.3
Med. 1 Day Max	30200	33900	12.3
Max. 3 Day Max	49600	40000	-19.4
Med. 3 Day Max	20300	28300	39.4
Max. 7 Day Max	26400	24800	-6.06
Med. 7 Day Max	13400	15800	17.9
Max. 30 Day Max	12000	13100	9.17
Med. 30 Day Max	6930	7940	14.6
Max. 90 Day Max	8580	9570	11.5
Med. 90 Day Max	5600	5560	-0.71

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	683	546	-20.1
5% Non-Exceedance	887	780	-12.1
50% Non-Exceedance	2240	2290	2.23
95% Non-Exceedance	7770	8400	8.11
99% Non-Exceedance	16800	18700	11.3
Sept. 10% Non-Exceedance	812	888	9.36

Fig. 1: Hydrograph

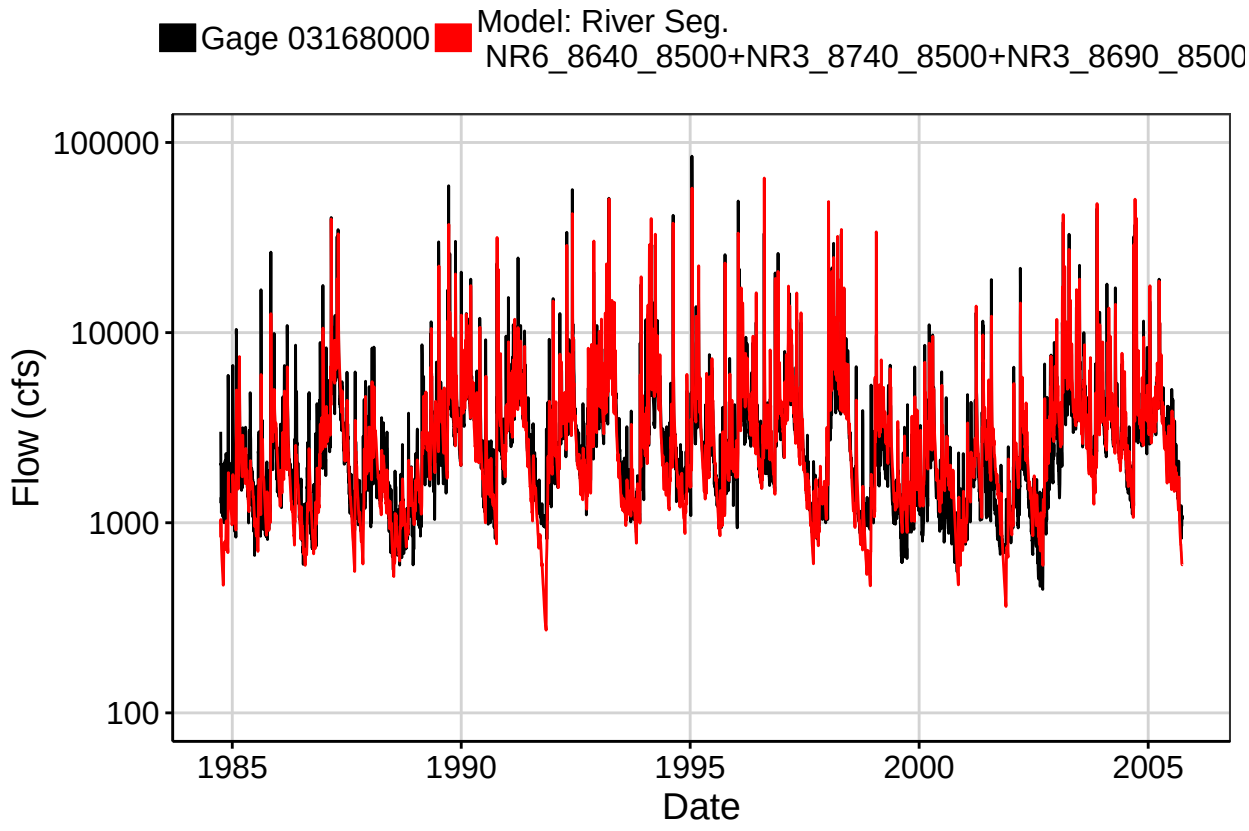


Fig. 2: Zoomed Hydrograph

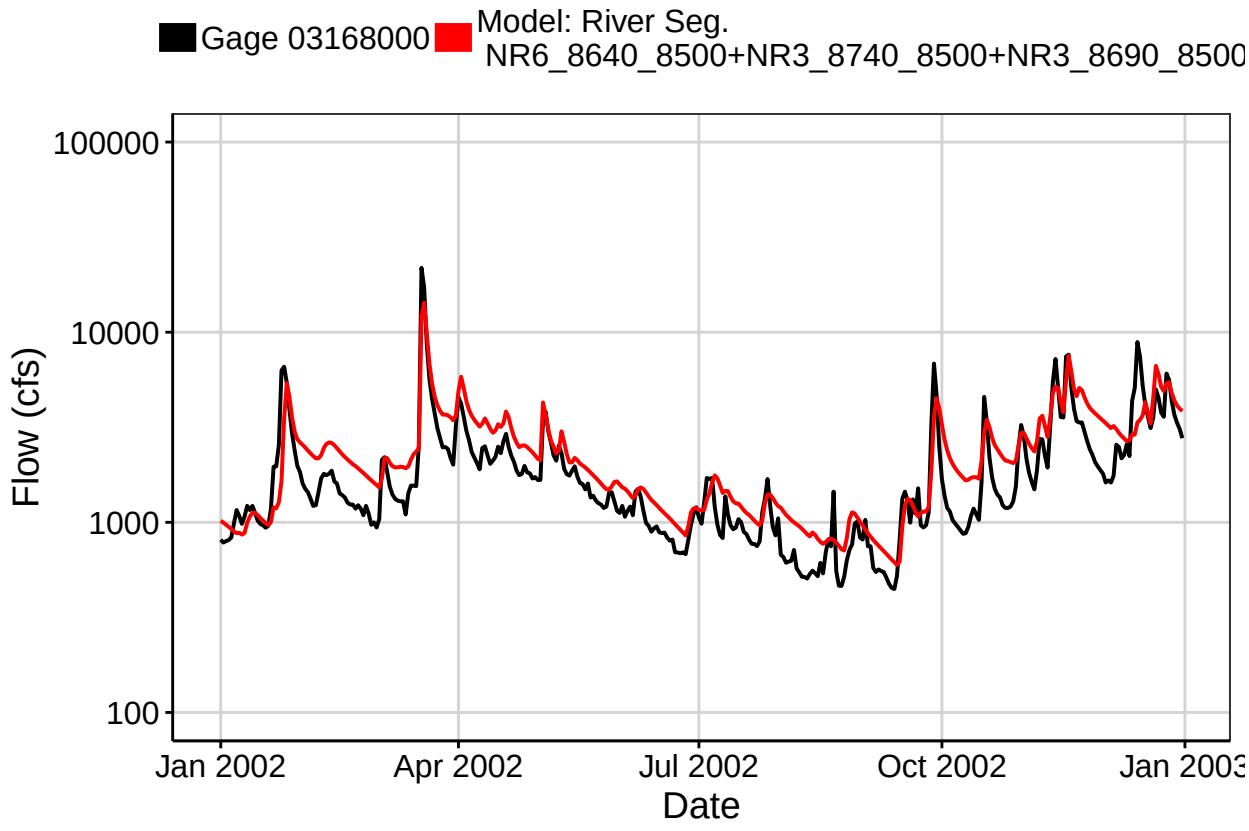


Fig. 3: Flow Exceedance

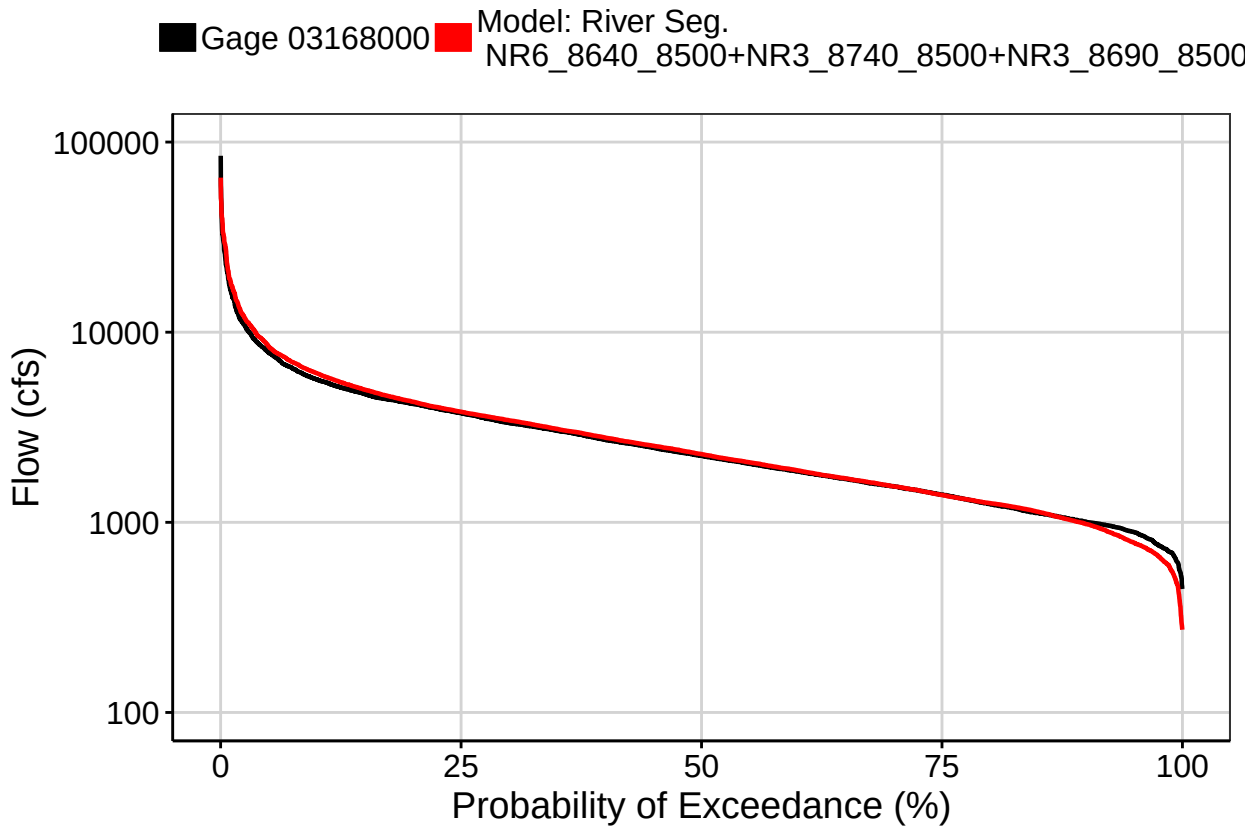


Fig. 4: Baseflow

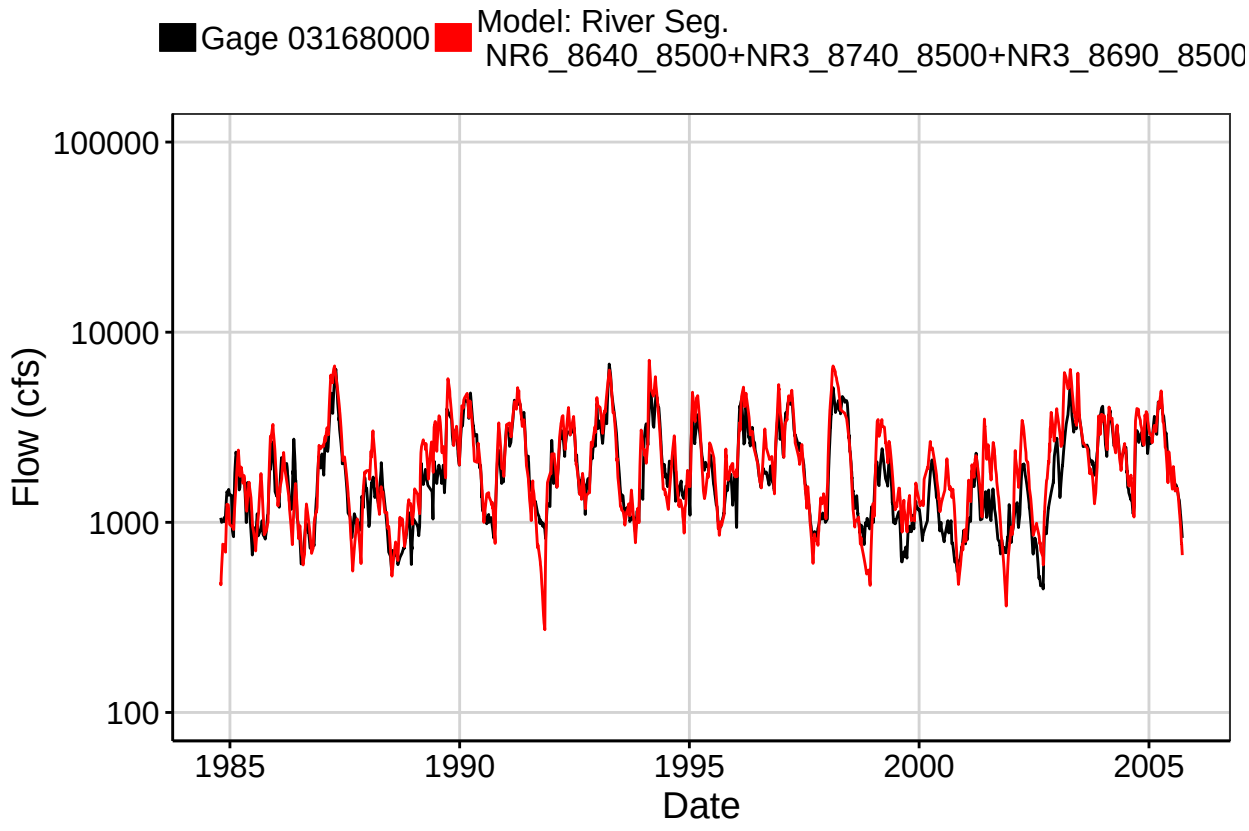


Fig. 5: Combined Baseflow

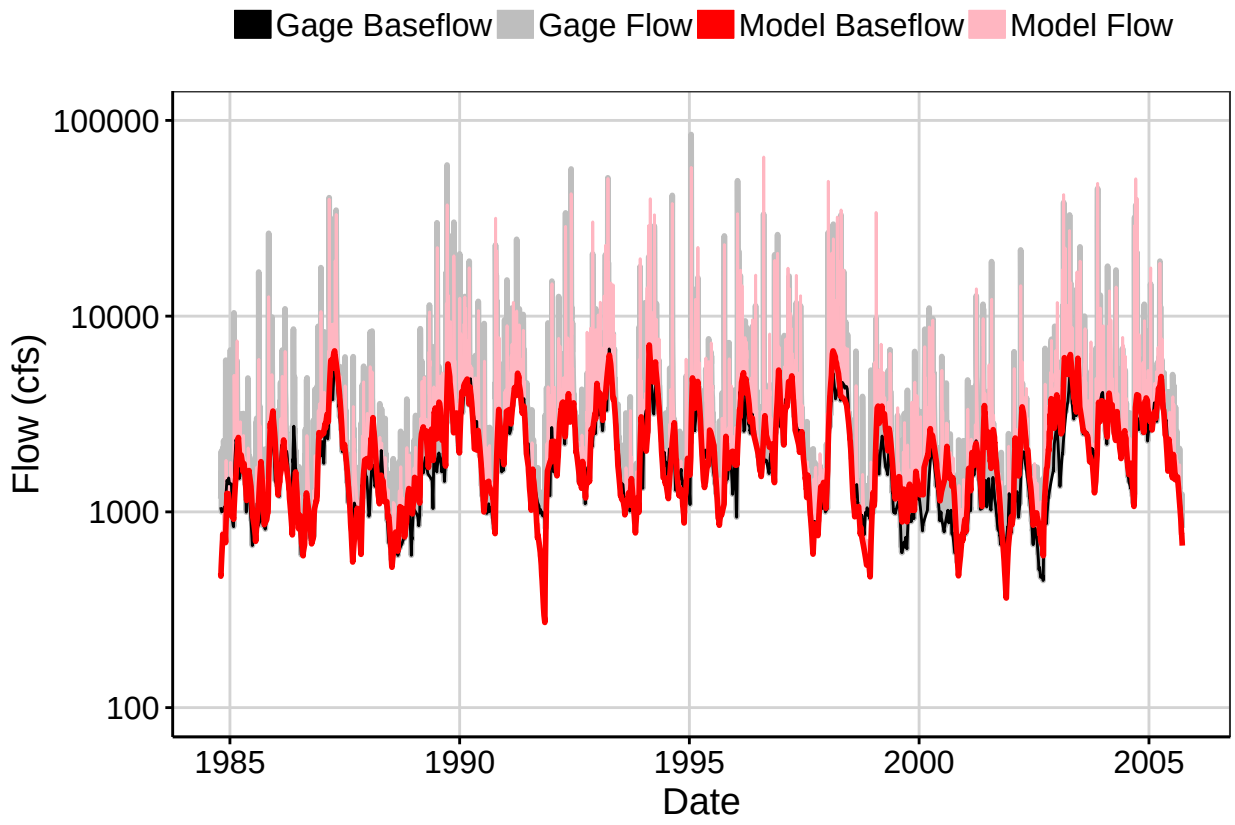


Fig. 6: Largest Error Segment

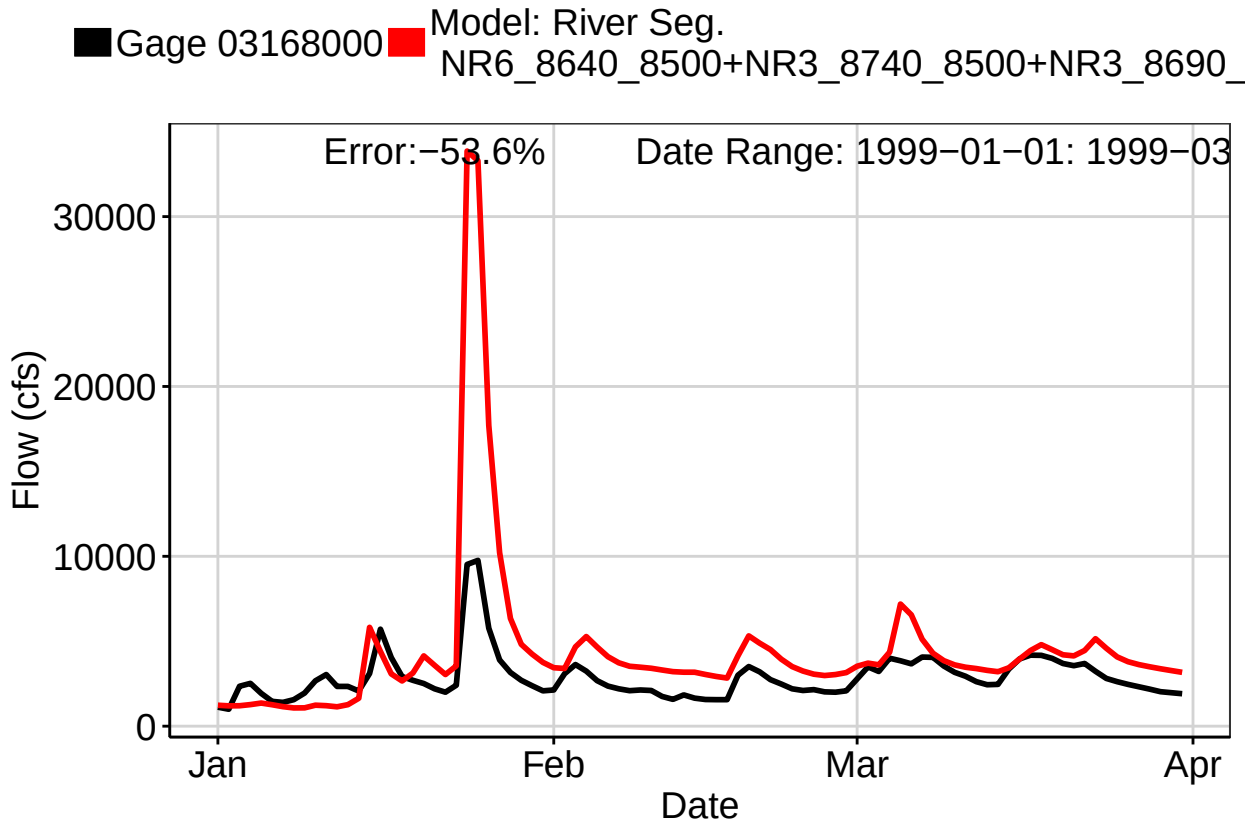


Fig. 7: Second Largest Error Segment

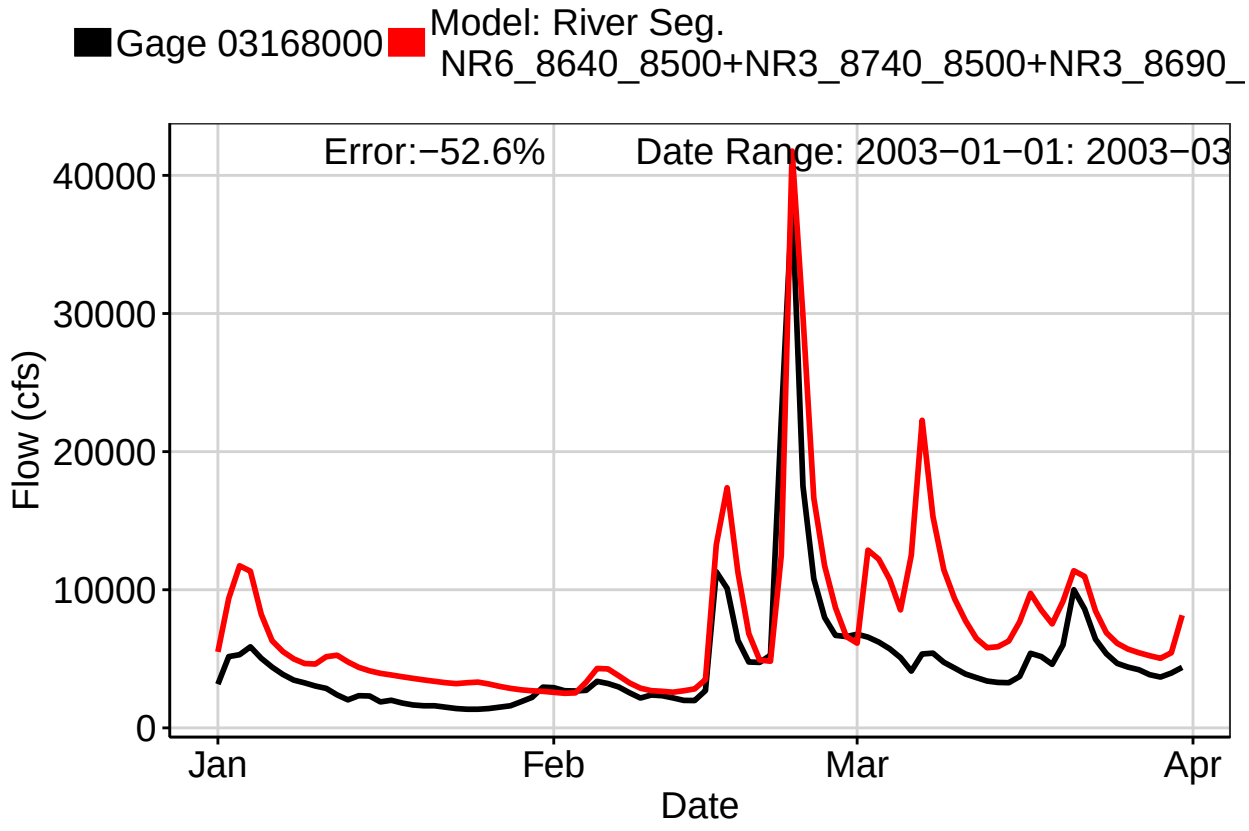


Fig. 8: Third Largest Error Segment

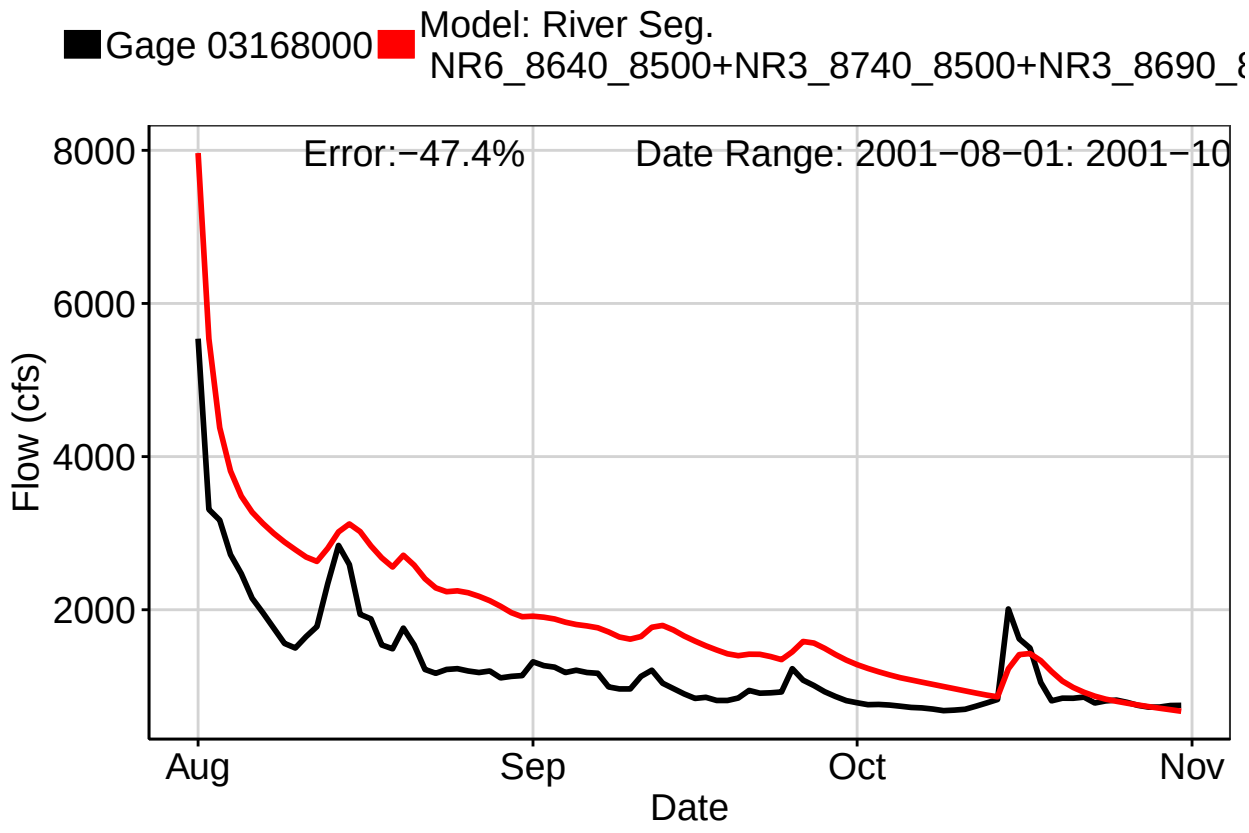


Fig. 9: Residuals Plot