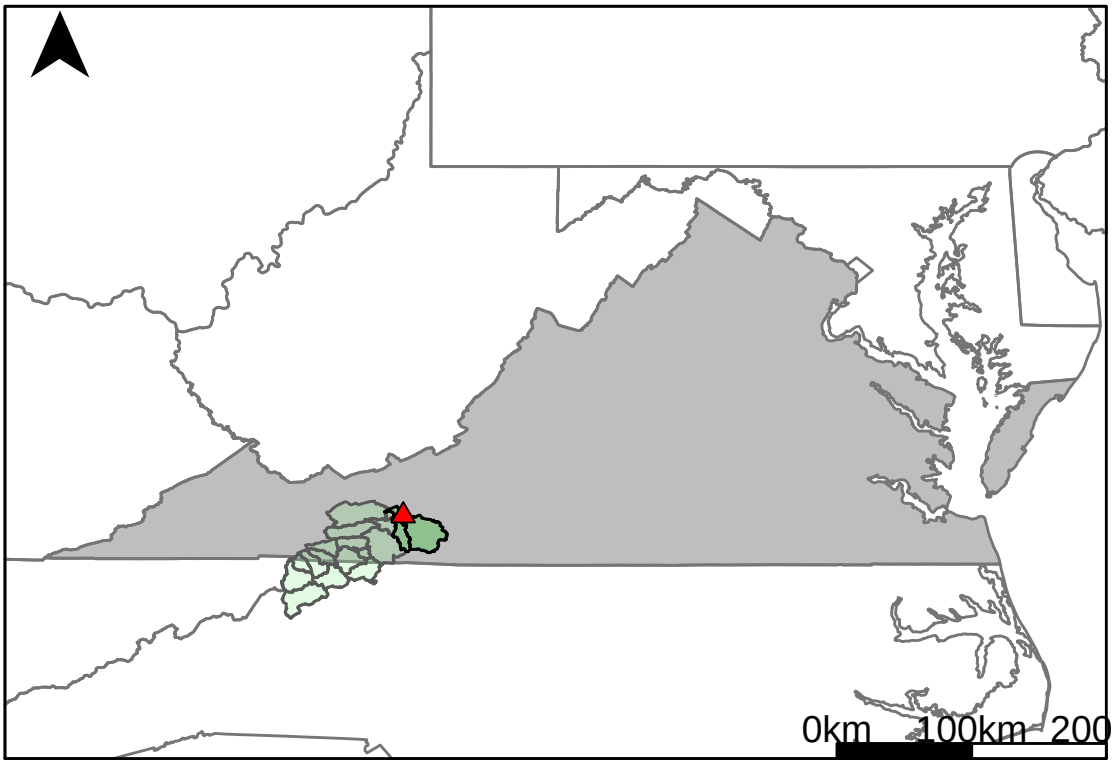
Appendix F.4: USGS Gage 03168000 vs. NR6_8640_8500+NR3_8740_8500+NR3_8690_8500



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 11.5%, with 27.1% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	900	674	25.1
Feb. Low Flow	1040	843	18.9
Mar. Low Flow	1450	1480	-2.07
Apr. Low Flow	1200	1450	-20.8
May Low Flow	2220	2200	0.9
Jun. Low Flow	2590	2630	-1.54
Jul. Low Flow	2520	2070	17.9
Aug. Low Flow	2180	1750	19.7
Sep. Low Flow	1730	1510	12.7
Oct. Low Flow	1360	1050	22.8
Nov. Low Flow	1110	913	17.7
Dec. Low Flow	879	858	2.39

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	3140	2780	11.5
Jan. Mean Flow	3690	3310	10.3
Feb. Mean Flow	4270	4140	3.04
Mar. Mean Flow	4870	4690	3.7
Apr. Mean Flow	4470	3950	11.6
May Mean Flow	3580	2900	19
Jun. Mean Flow	2980	2530	15.1
Jul. Mean Flow	2230	1800	19.3
Aug. Mean Flow	2050	1830	10.7
Sep. Mean Flow	2180	1930	11.5
Oct. Mean Flow	1990	1810	9.05
Nov. Mean Flow	2680	2190	18.3
Dec. Mean Flow	2790	2330	16.5

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	2860	1520	46.9
Feb. High Flow	5960	3690	38.1
Mar. High Flow	5300	3430	35.3
Apr. High Flow	8300	8300	0
May High Flow	8630	6600	23.5
Jun. High Flow	12700	10700	15.7
Jul. High Flow	9720	8120	16.5
Aug. High Flow	7250	6820	5.93
Sep. High Flow	4550	3140	31
Oct. High Flow	3320	2710	18.4
Nov. High Flow	3200	1910	40.3
Dec. High Flow	3350	2050	38.8

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	446	252	43.5
Med. 1 Day Min	823	636	22.7
Min. 3 Day Min	457	256	44
Med. 3 Day Min	874	643	26.4
Min. 7 Day Min	501	262	47.7
Med. 7 Day Min	914	672	26.5
Min. 30 Day Min	653	335	48.7
Med. 30 Day Min	1060	774	27
Min. 90 Day Min	825	692	16.1
Med. 90 Day Min	1540	1080	29.9
7Q10	641	373	41.8
Year of 90-Day Min. Flow	2002	1988	100
Drought Year Mean	1500	2780	-85.3
Mean Baseflow	1960	1880	4.08

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	84700	58000	31.5
Med. 1 Day Max	30200	29900	0.99
Max. 3 Day Max	49600	36700	26
Med. 3 Day Max	20300	23100	-13.8
Max. 7 Day Max	26400	21700	17.8
Med. 7 Day Max	13400	14000	-4.48
Max. 30 Day Max	12000	10800	10
Med. 30 Day Max	6930	6890	0.58
Max. 90 Day Max	8580	8240	3.96
Med. 90 Day Max	5600	4770	14.8

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	683	470	31.2
5% Non-Exceedance	887	668	24.7
50% Non-Exceedance	2240	1930	13.8
95% Non-Exceedance	7770	7160	7.85
99% Non-Exceedance	16800	15800	5.95
Sept. 10% Non-Exceedance	818	720	12

Fig. 1: Hydrograph

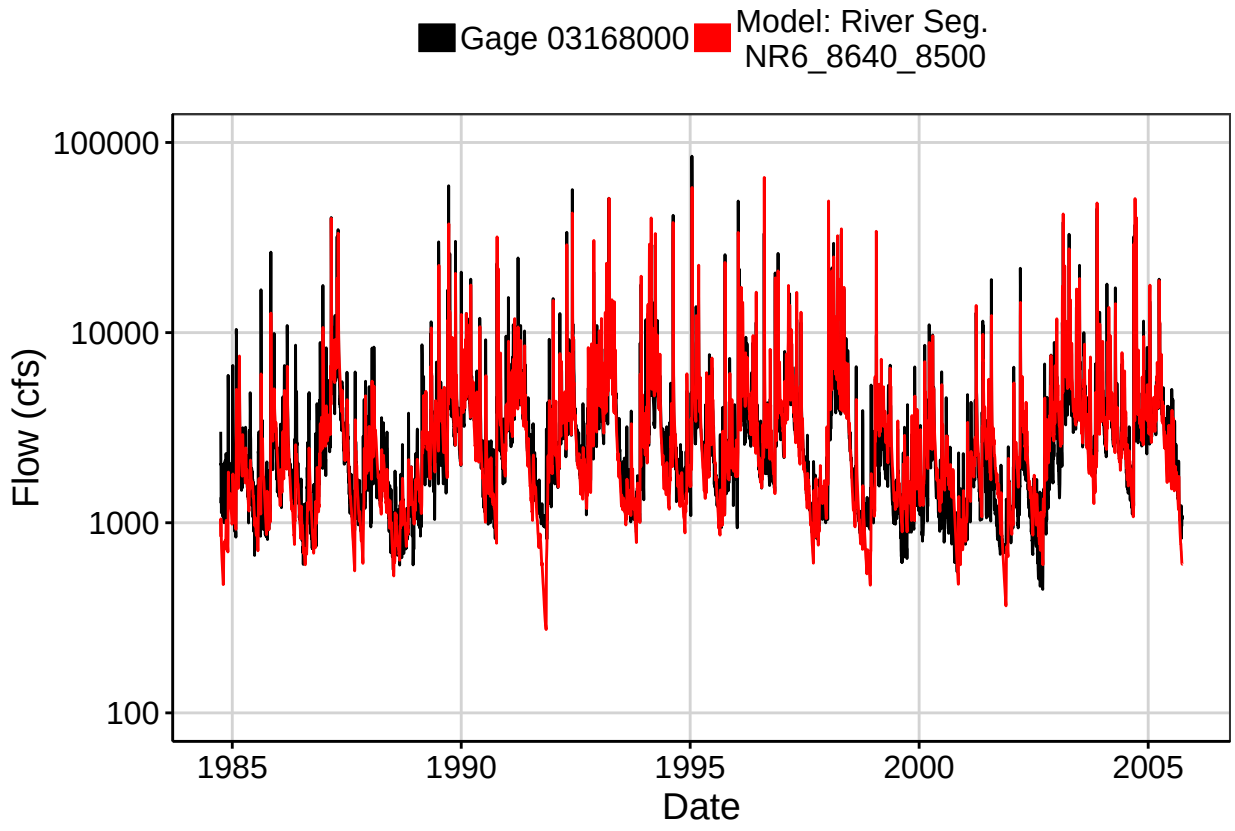


Fig. 2: Zoomed Hydrograph

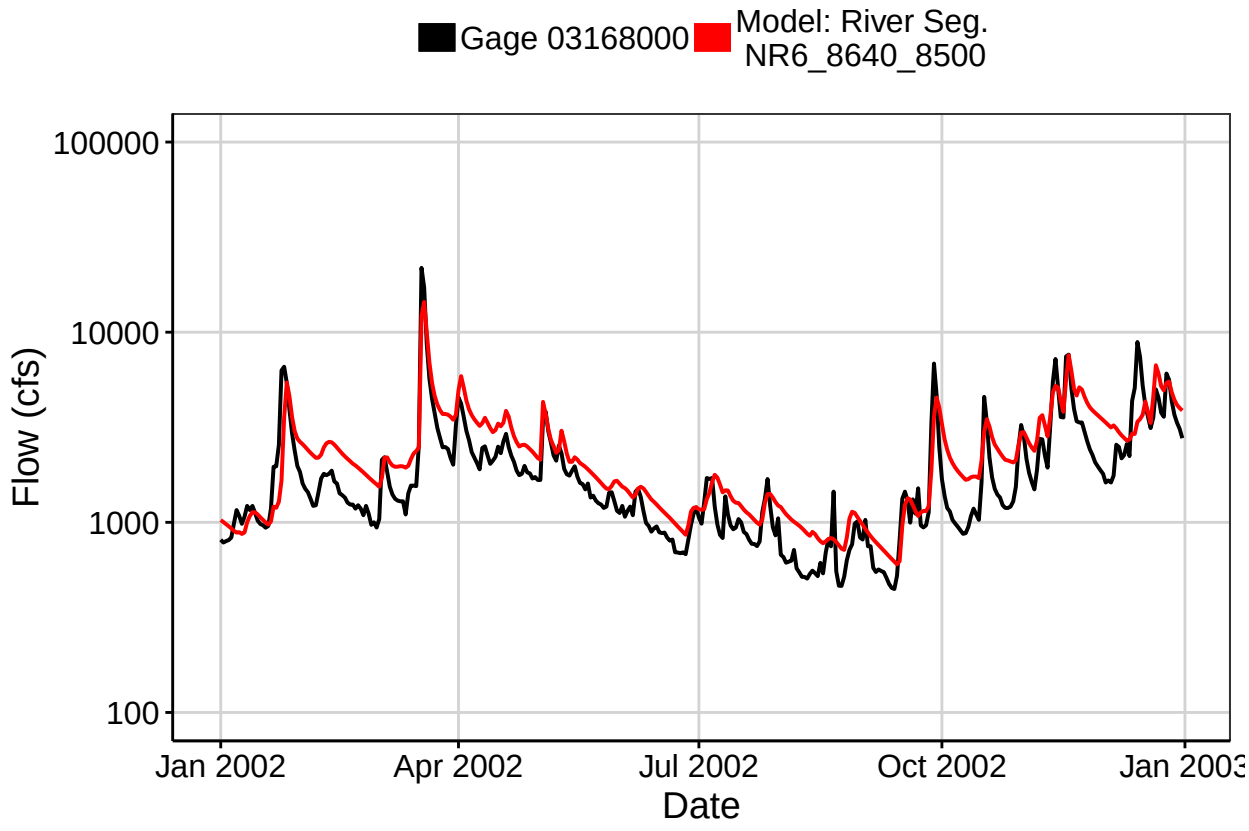


Fig. 3: Flow Exceedance

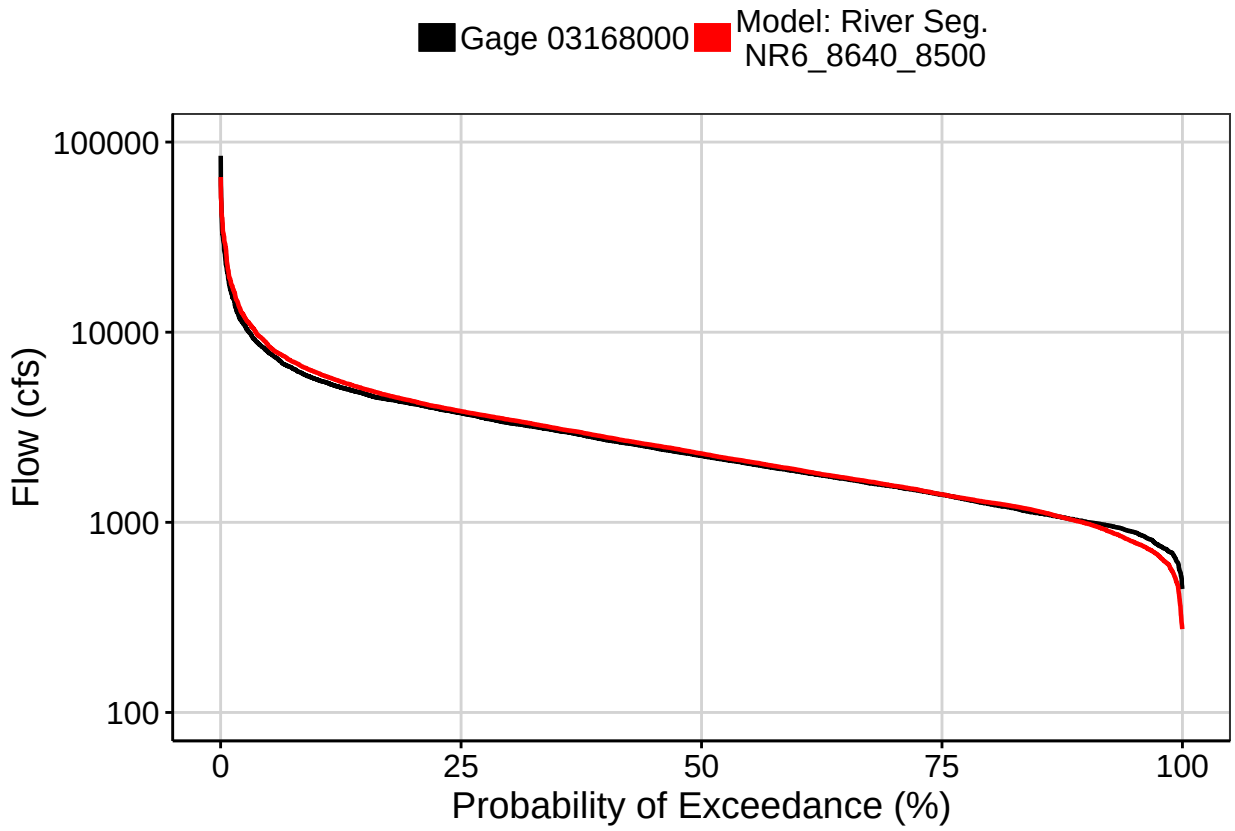


Fig. 4: Baseflow

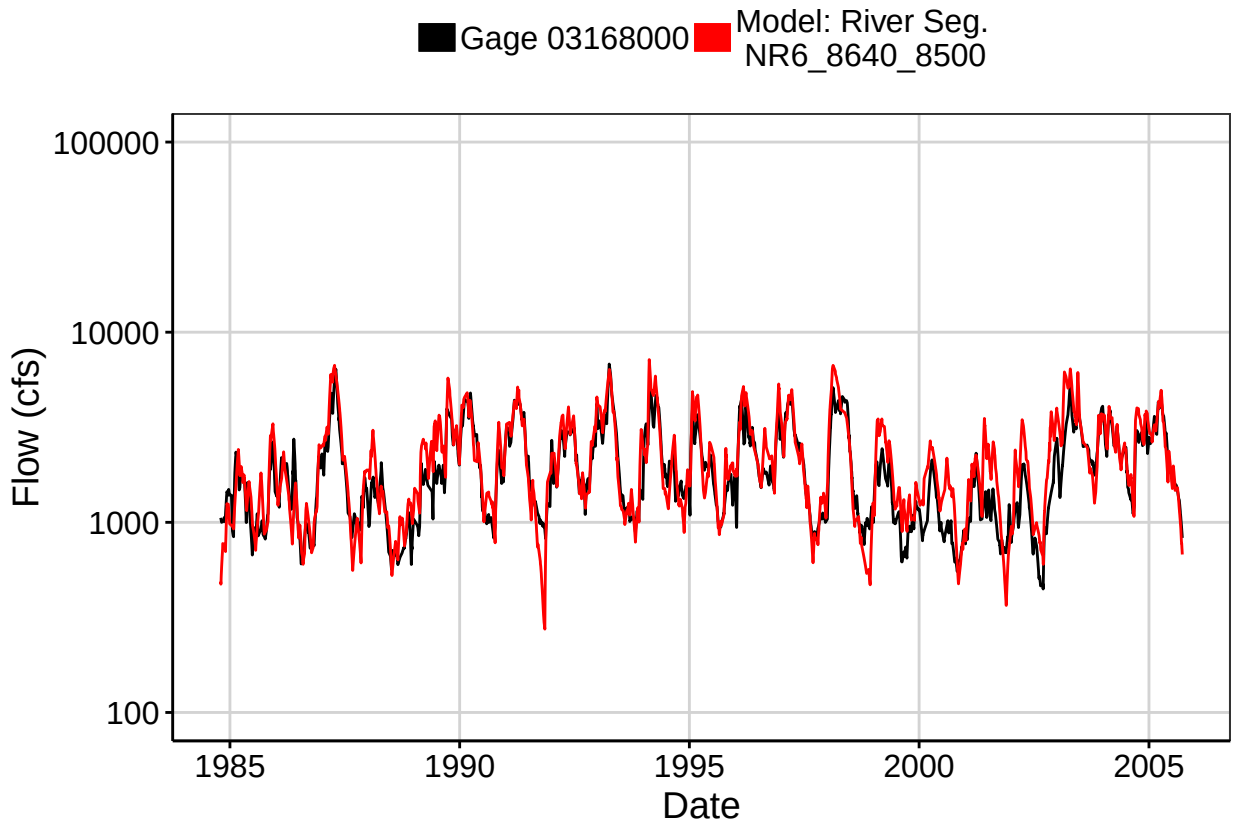


Fig. 5: Combined Baseflow

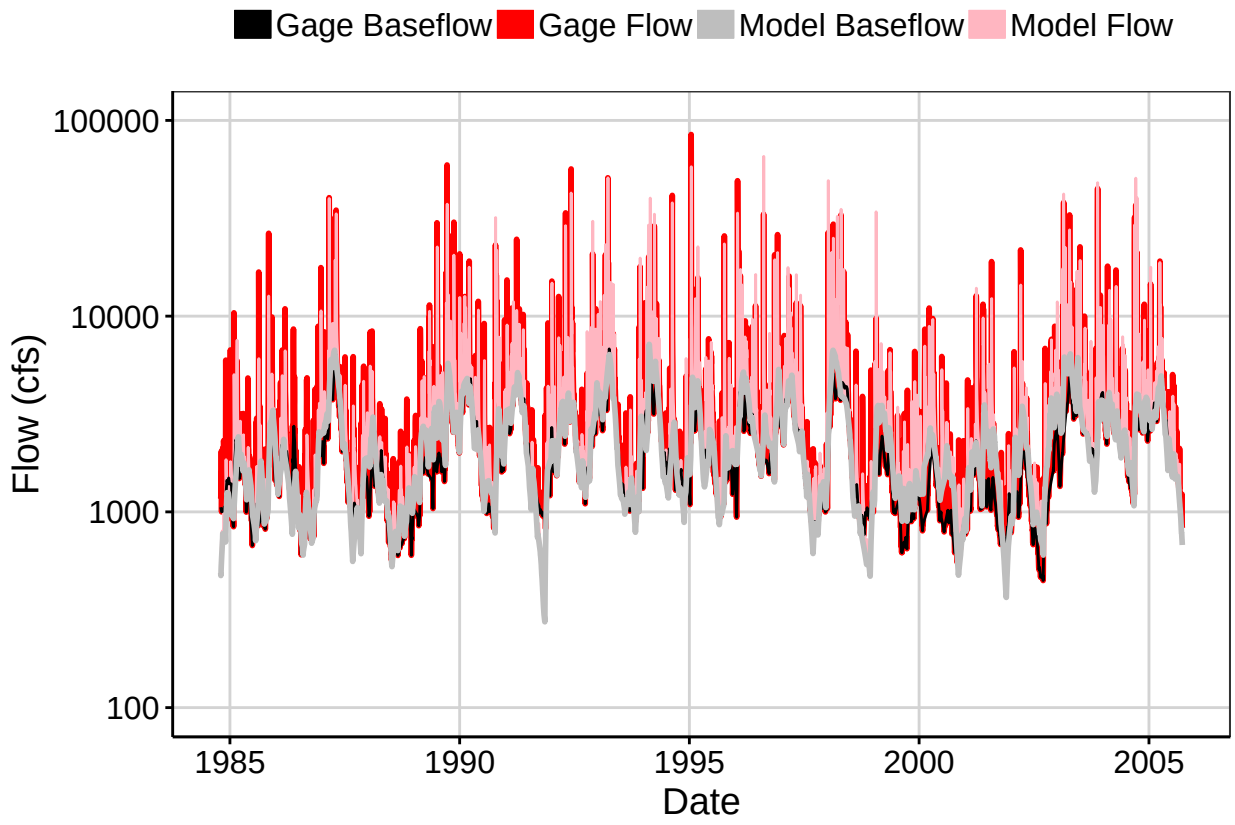


Fig. 6: Largest Error Segment

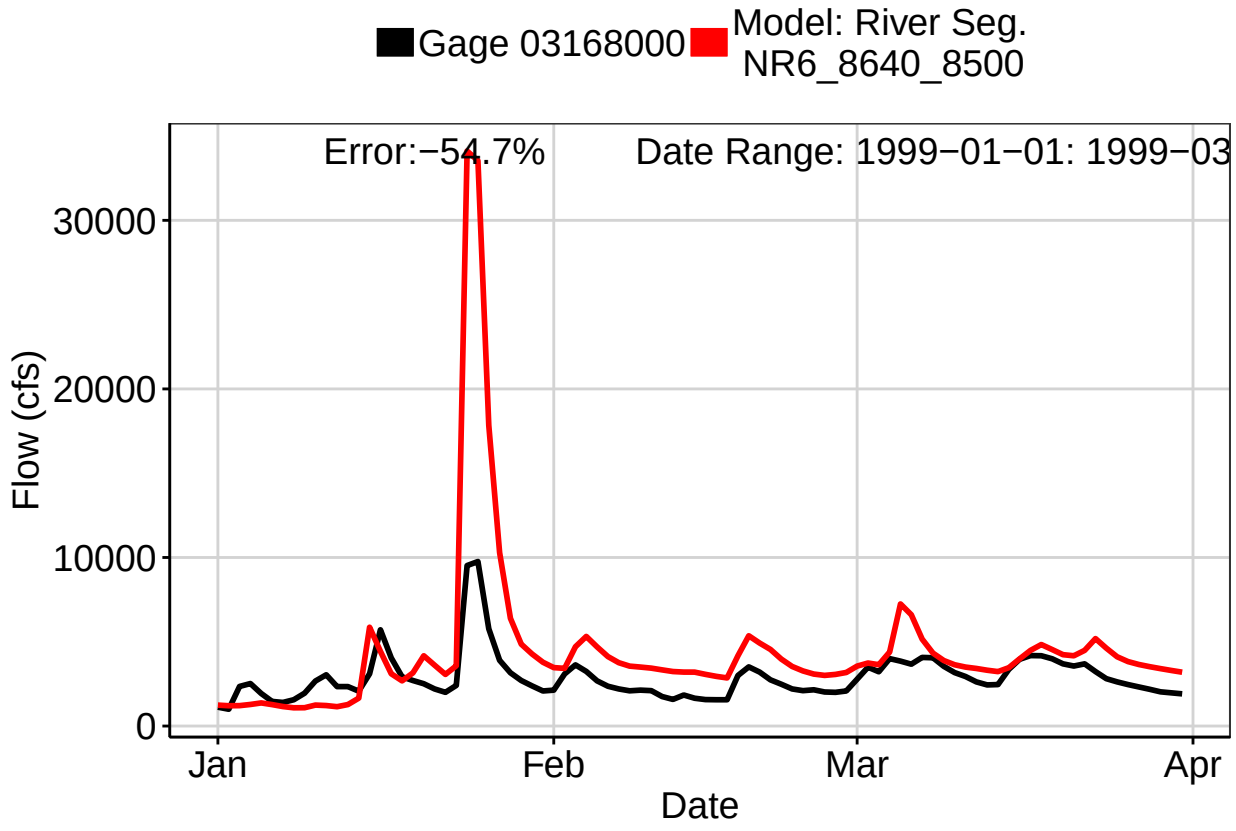


Fig. 7: Second Largest Error Segment

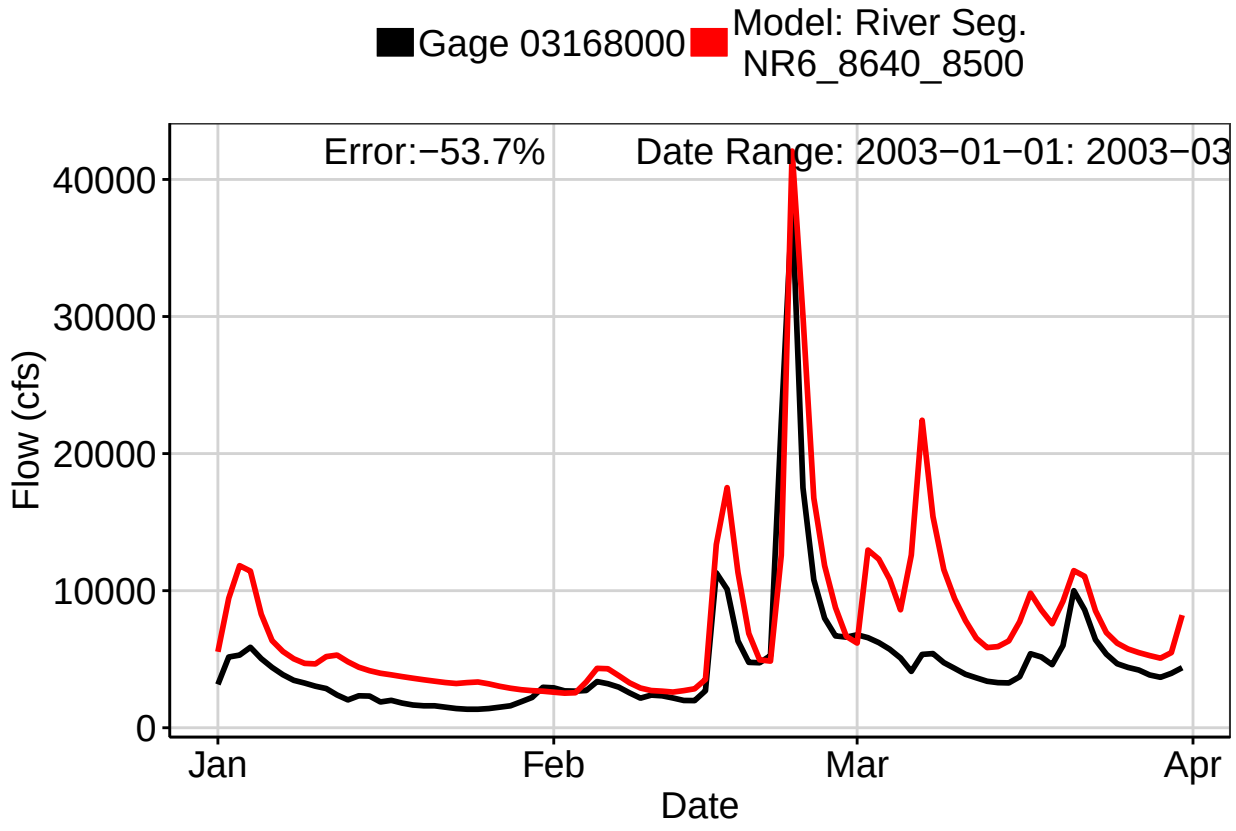


Fig. 8: Third Largest Error Segment

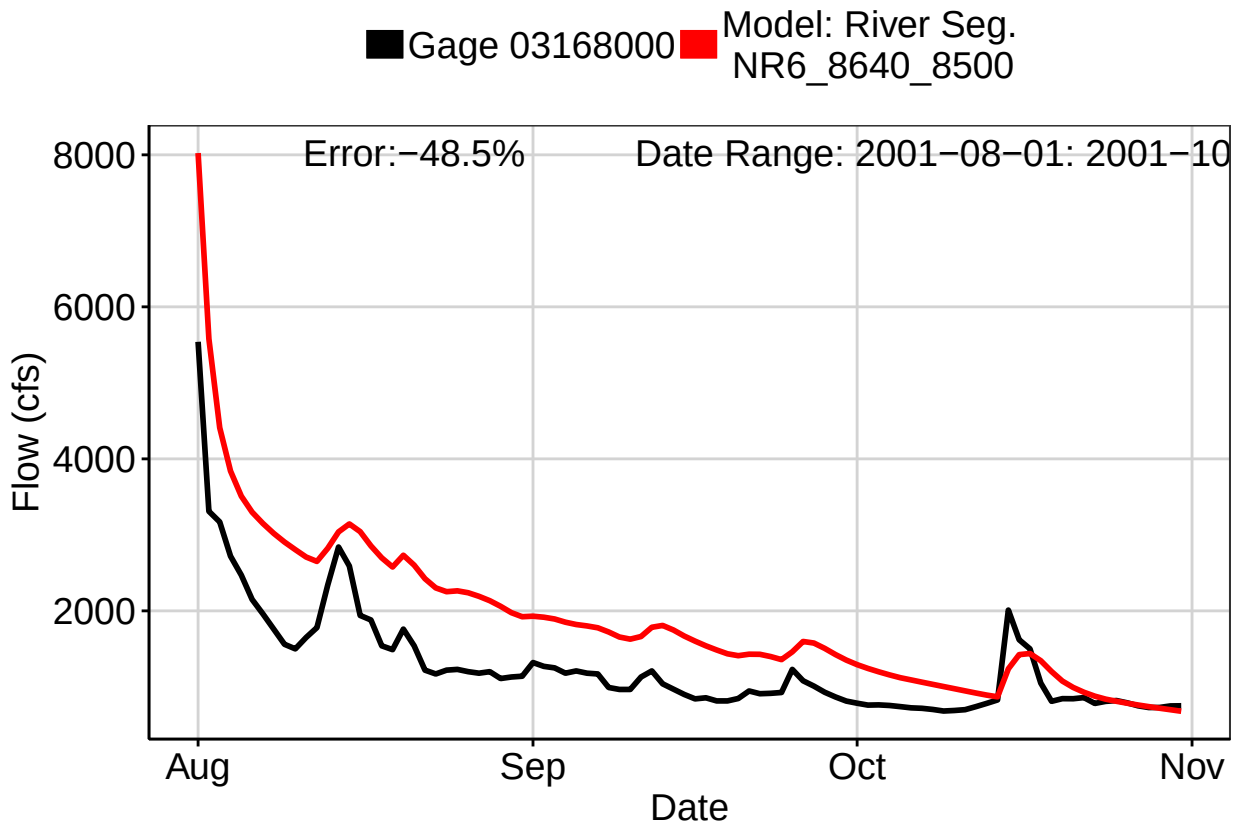


Fig. 9: Residuals Plot