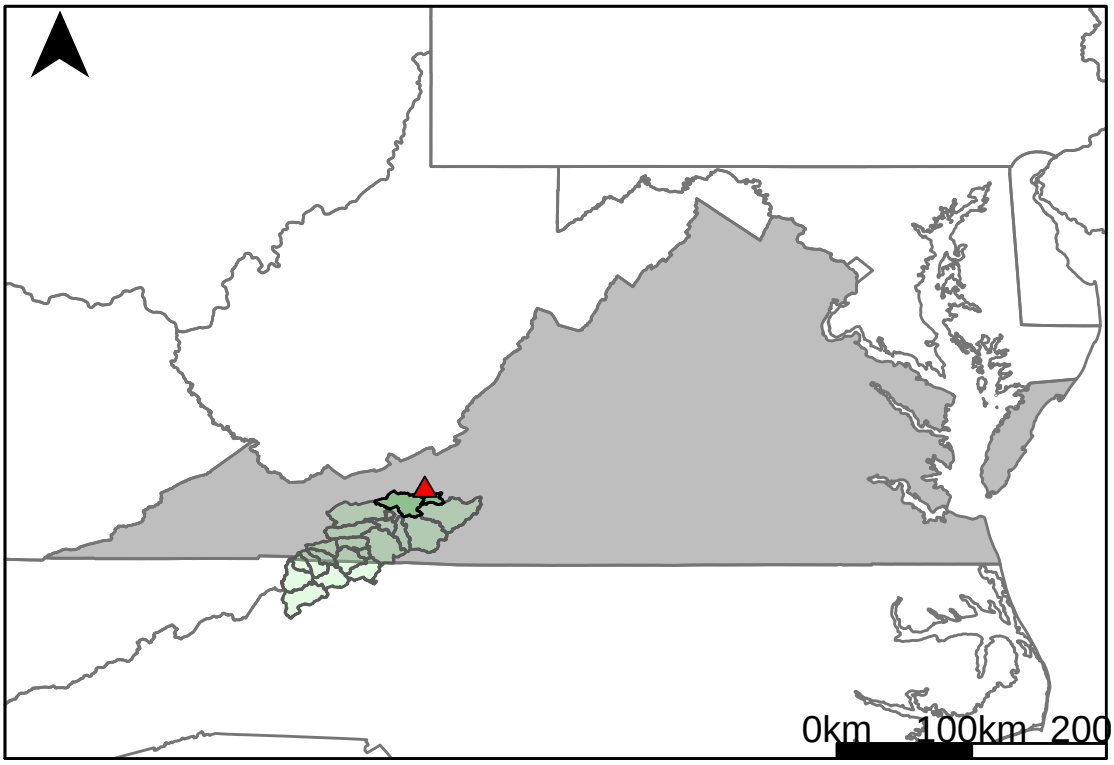
Appendix F.6: USGS Gage 03171000 vs. NR6_8500_7820+NR3_8430_7820



This river segment follows part of the flow of the New River. The gage is located in Pulaski County, VA (Lat 3708'30", Long 8034'10") approximately 1 mile northeast of Radford, VA. Drainage area is 2767 sq. miles. This gage started taking data in 1907 and is still taking data. There are two dams and two power plants located in this area; the Claytor Dam, the Radford Dam, the American Electric Power Plant and the Little River Power Plant. Claytor Dam and the American Electric Power Company are located 5.5 miles upstream and regulate a majority of the normal flow that passes this gage. Radford Dam and the power plant at Little River are half a mile below Claytor Dam, which causes fluctuations during low flow periods. The Buck and Byllesyby powerplants are also in this area but are before Claytor Dam so their effect on this gage should be minimal to none at all. The average daily discharge error between the model and gage data for the 20 year timespan was 8.36%, with 37.5% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	1060	1110	-4.72
Feb. Low Flow	1060	1200	-13.2
Mar. Low Flow	1050	2210	-110
Apr. Low Flow	1080	2190	-103
May Low Flow	1160	3130	-170
Jun. Low Flow	1400	3580	-156
Jul. Low Flow	1360	1320	2.94
Aug. Low Flow	1720	1000	41.9
Sep. Low Flow	1750	1850	-5.71
Oct. Low Flow	1390	3510	-153
Nov. Low Flow	1120	2190	-95.5
Dec. Low Flow	1090	1440	-32.1

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	3830	3510	8.36
Jan. Mean Flow	4440	3930	11.5
Feb. Mean Flow	5210	4490	13.8
Mar. Mean Flow	5790	5060	12.6
Apr. Mean Flow	5290	3960	25.1
May Mean Flow	4300	2800	34.9
Jun. Mean Flow	3790	3510	7.39
Jul. Mean Flow	2840	4040	-42.3
Aug. Mean Flow	2580	3370	-30.6
Sep. Mean Flow	2690	2570	4.46
Oct. Mean Flow	2490	2710	-8.84
Nov. Mean Flow	3310	2710	18.1
Dec. Mean Flow	3320	3030	8.73

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	4130	2000	51.6
Feb. High Flow	7360	2370	67.8
Mar. High Flow	7420	3250	56.2
Apr. High Flow	8750	6490	25.8
May High Flow	10700	4920	54
Jun. High Flow	12300	6330	48.5
Jul. High Flow	12200	3890	68.1
Aug. High Flow	9120	3670	59.8
Sep. High Flow	6410	4160	35.1
Oct. High Flow	4870	4680	3.9
Nov. High Flow	4800	4070	15.2
Dec. High Flow	4630	2260	51.2

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	754	1000	-32.6
Med. 1 Day Min	917	1000	-9.05
Min. 3 Day Min	787	1000	-27.1
Med. 3 Day Min	964	1000	-3.73
Min. 7 Day Min	793	1000	-26.1
Med. 7 Day Min	1070	1000	6.54
Min. 30 Day Min	810	1000	-23.5
Med. 30 Day Min	1340	1030	23.1
Min. 90 Day Min	990	1000	-1.01
Med. 90 Day Min	2000	1810	9.5
7Q10	860	1010	-17.4
Year of 90-Day Min. Flow	2002	2001	100
Drought Year Mean	1710	3510	-105
Mean Baseflow	1840	2960	-60.9

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	74000	15700	78.8
Med. 1 Day Max	35800	12400	65.4
Max. 3 Day Max	49300	15600	68.4
Med. 3 Day Max	22000	12100	45
Max. 7 Day Max	27800	15000	46
Med. 7 Day Max	15000	10900	27.3
Max. 30 Day Max	14500	11500	20.7
Med. 30 Day Max	8110	8100	0.12
Max. 90 Day Max	10500	8940	14.9
Med. 90 Day Max	6760	5950	12

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	858	1000	-16.6
5% Non-Exceedance	989	1000	-1.11
50% Non-Exceedance	2820	2880	-2.13
95% Non-Exceedance	9930	8560	13.8
99% Non-Exceedance	17800	12500	29.8
Sept. 10% Non-Exceedance	1220	1110	9.02

Fig. 1: Hydrograph

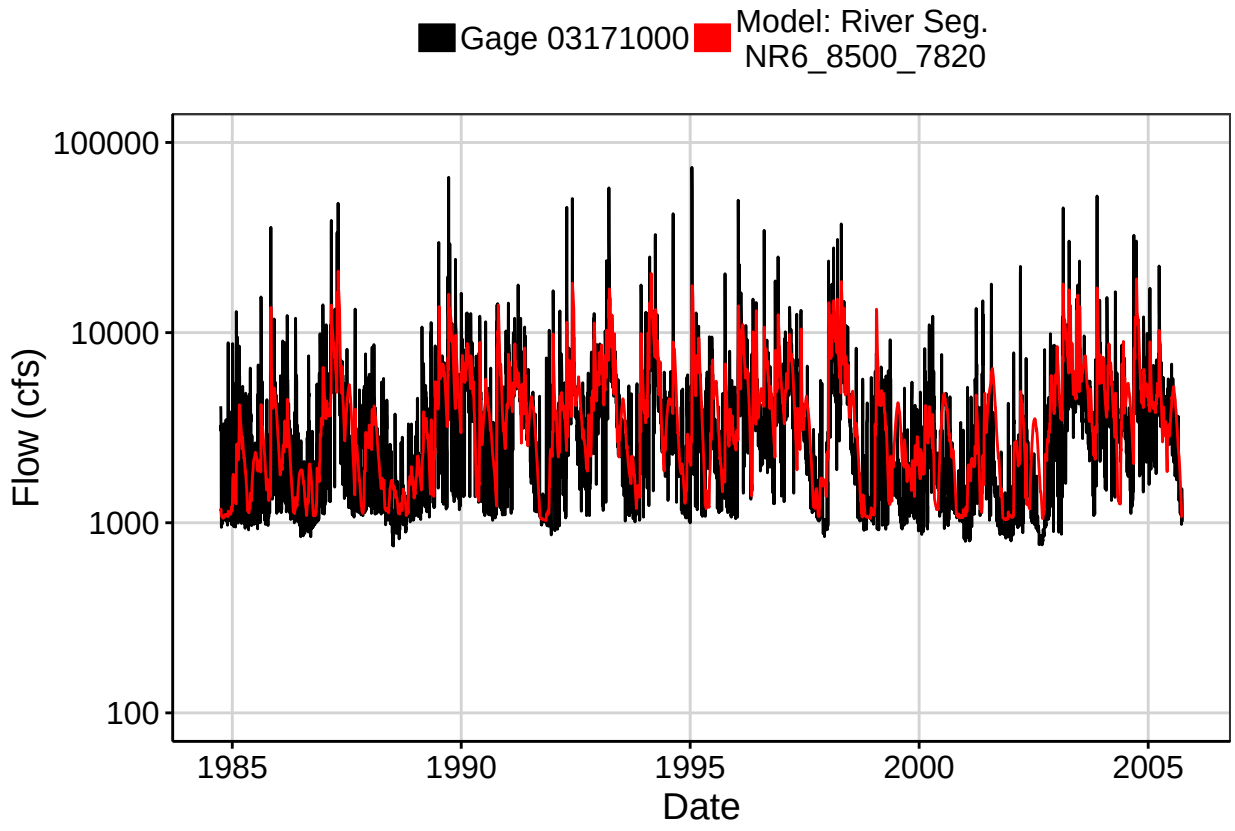


Fig. 2: Zoomed Hydrograph

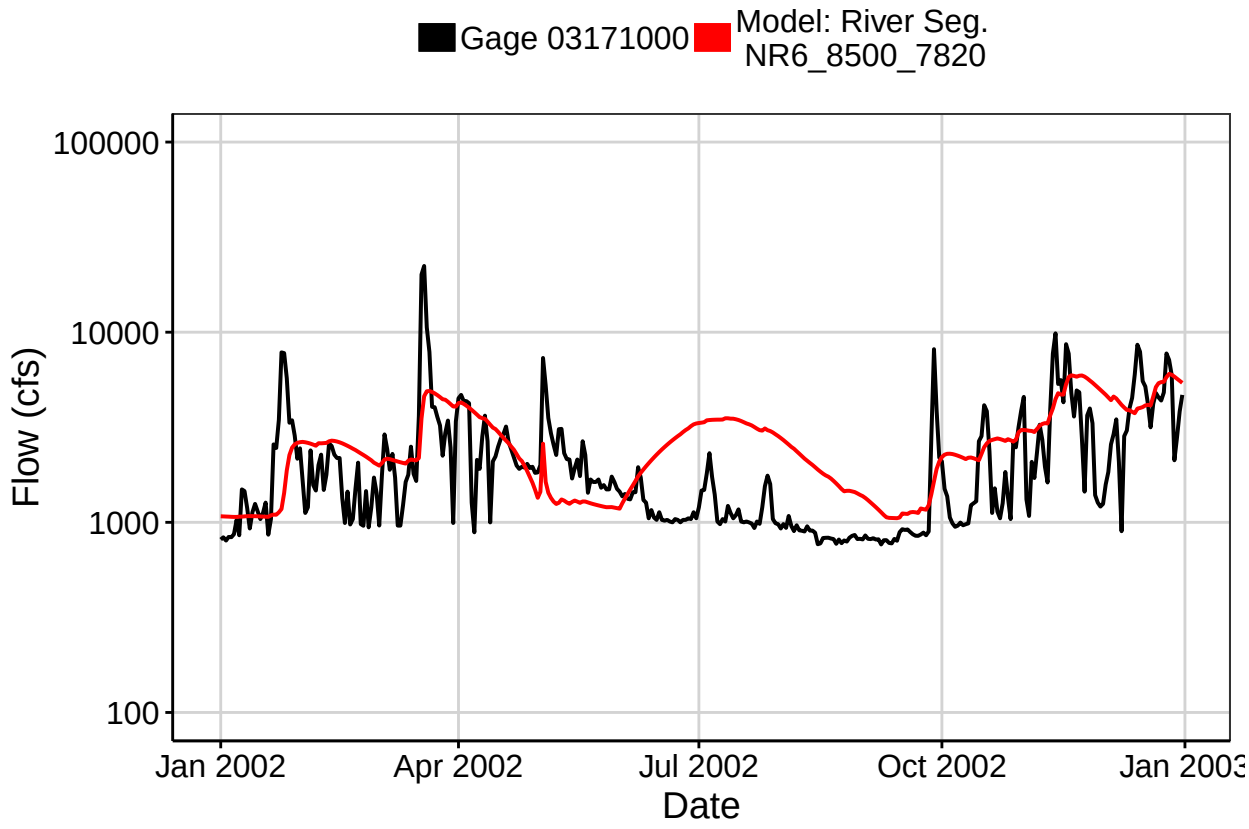


Fig. 3: Flow Exceedance

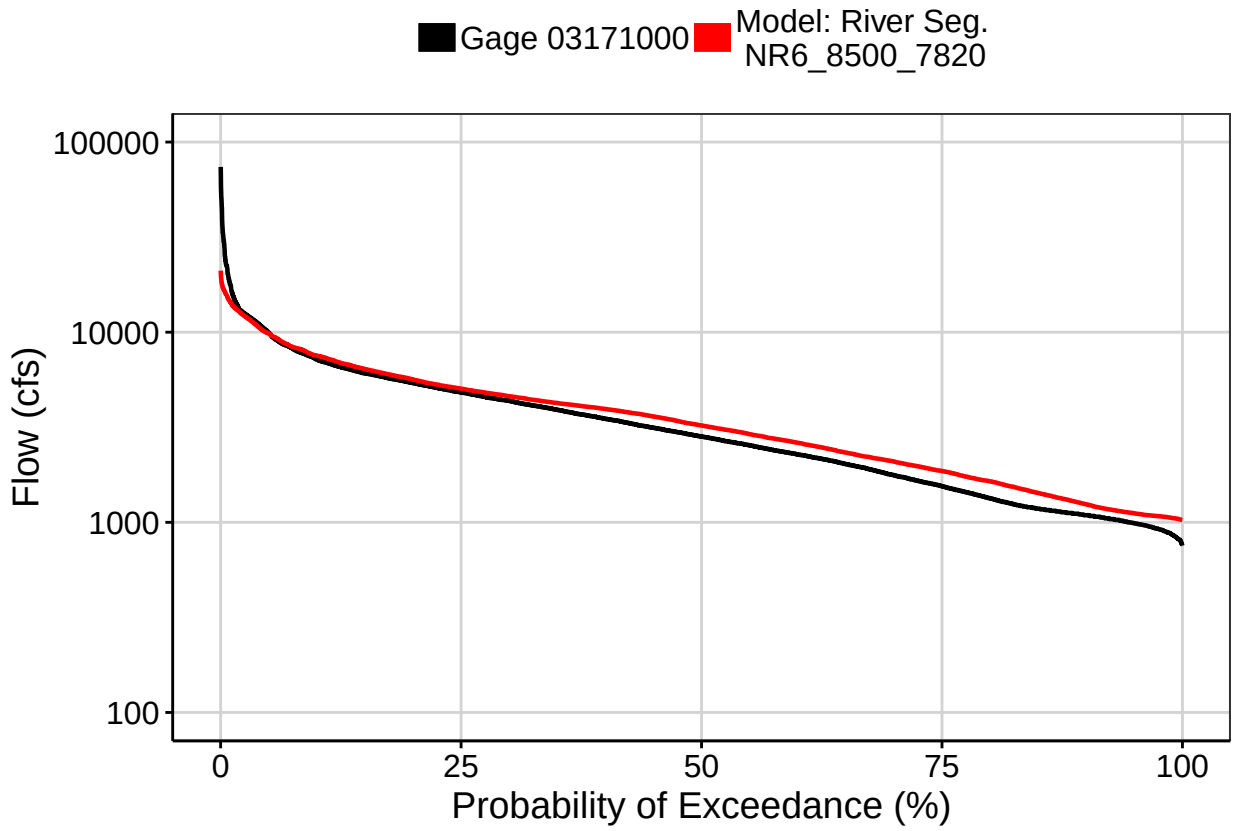


Fig. 4: Baseflow

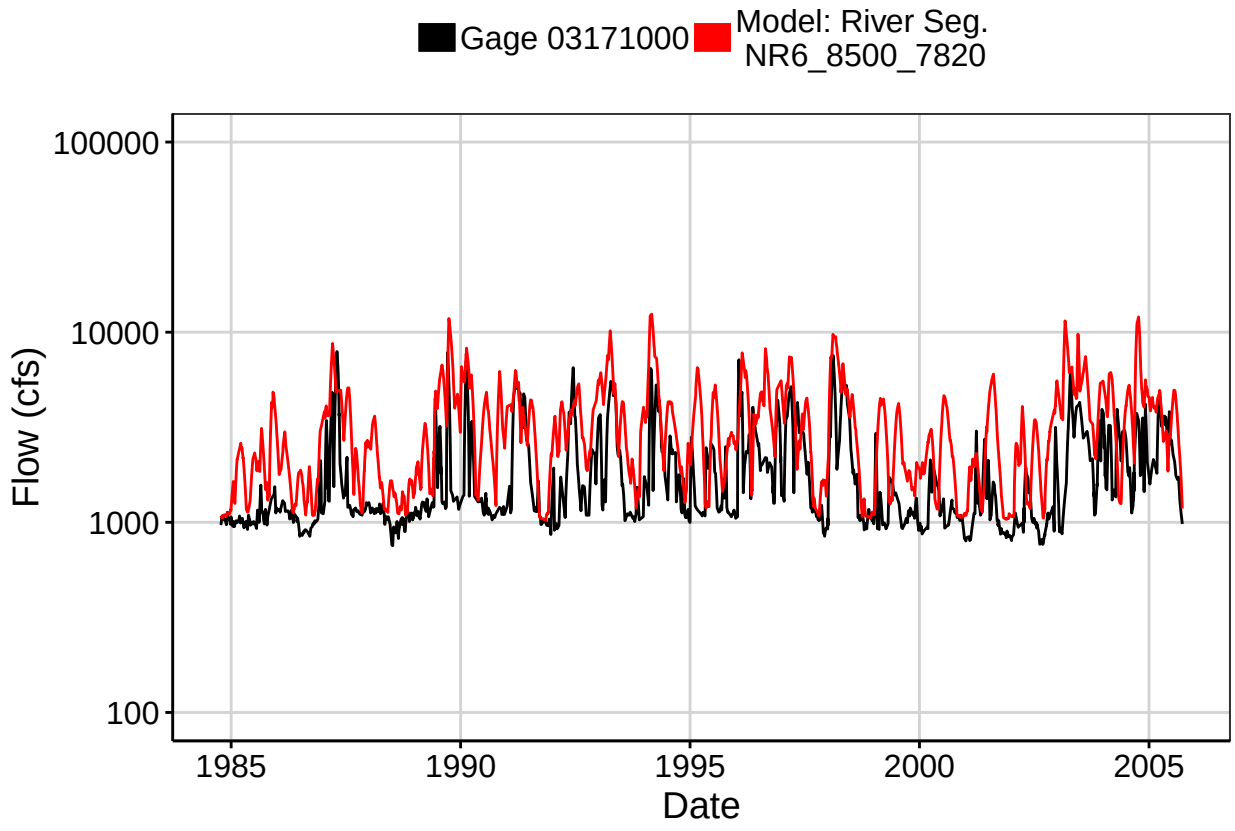


Fig. 5: Combined Baseflow

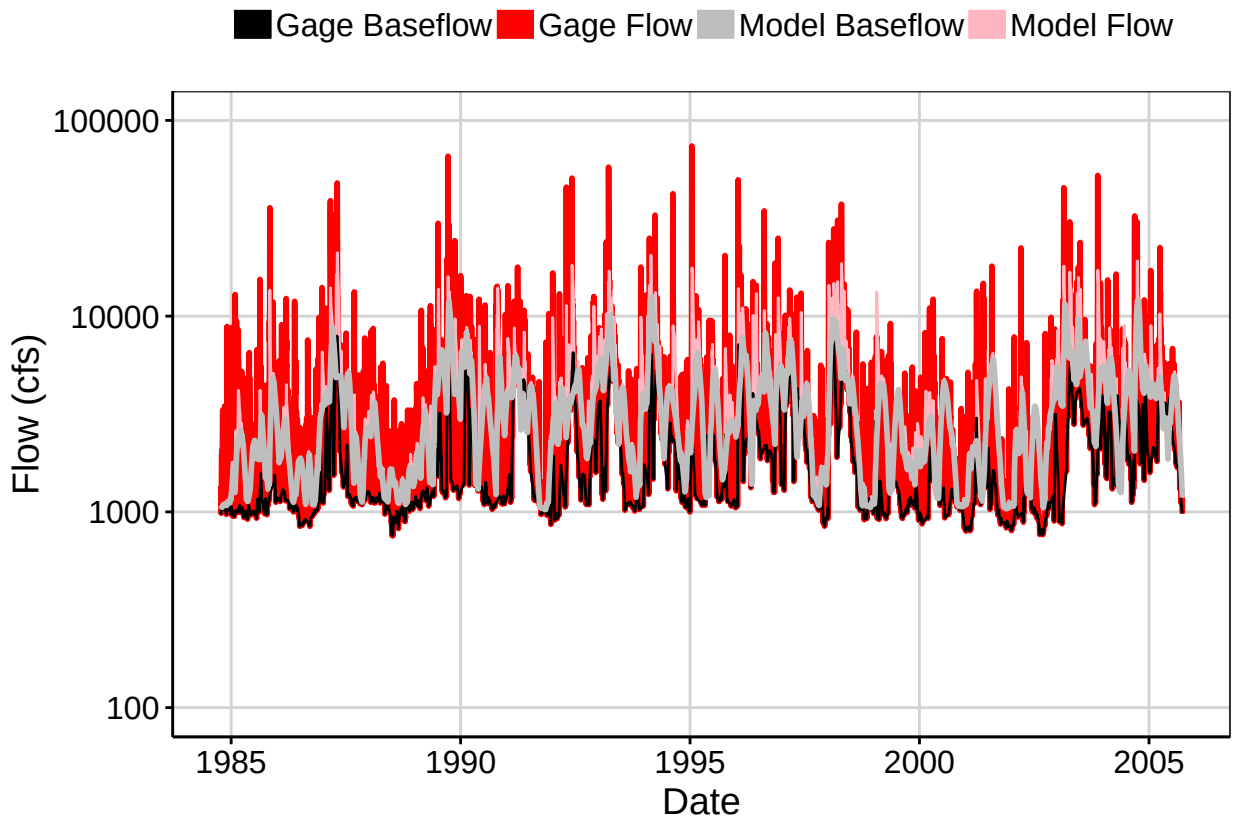


Fig. 6: Largest Error Segment

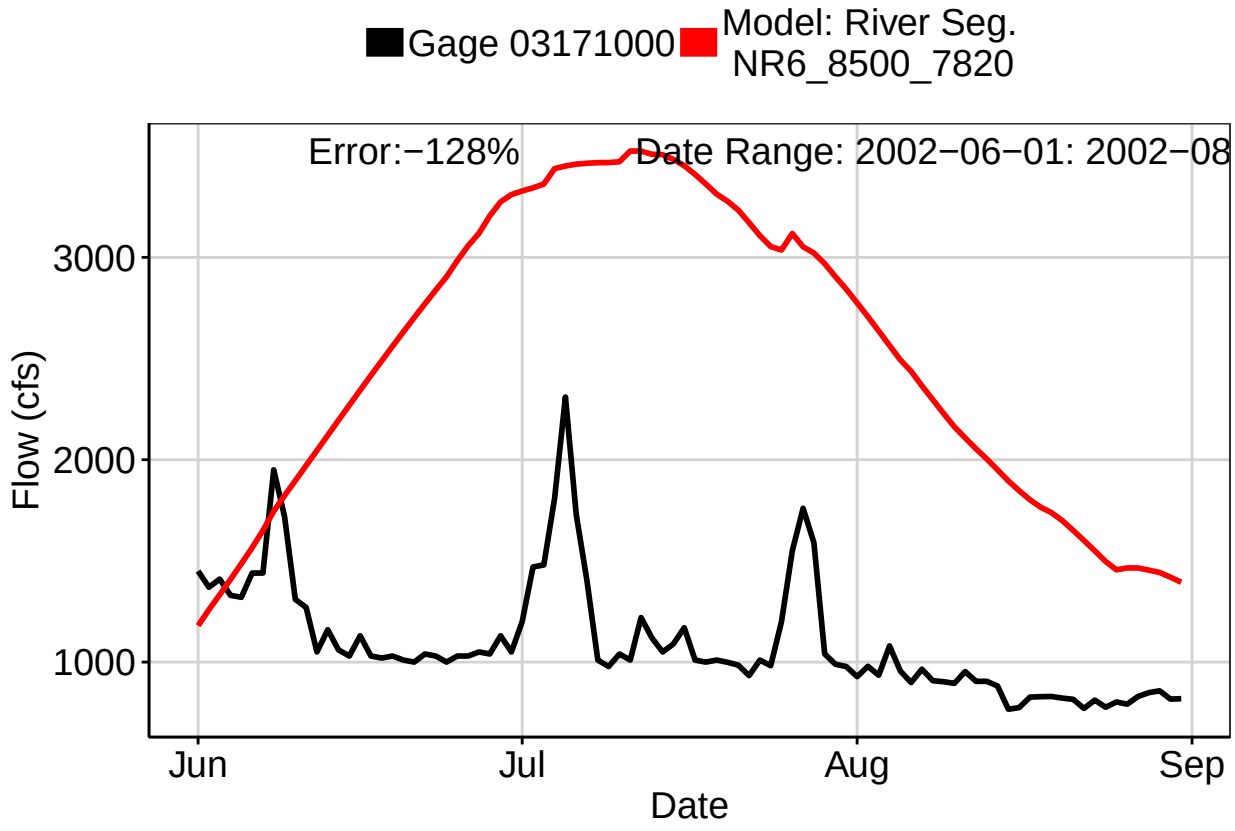


Fig. 7: Second Largest Error Segment

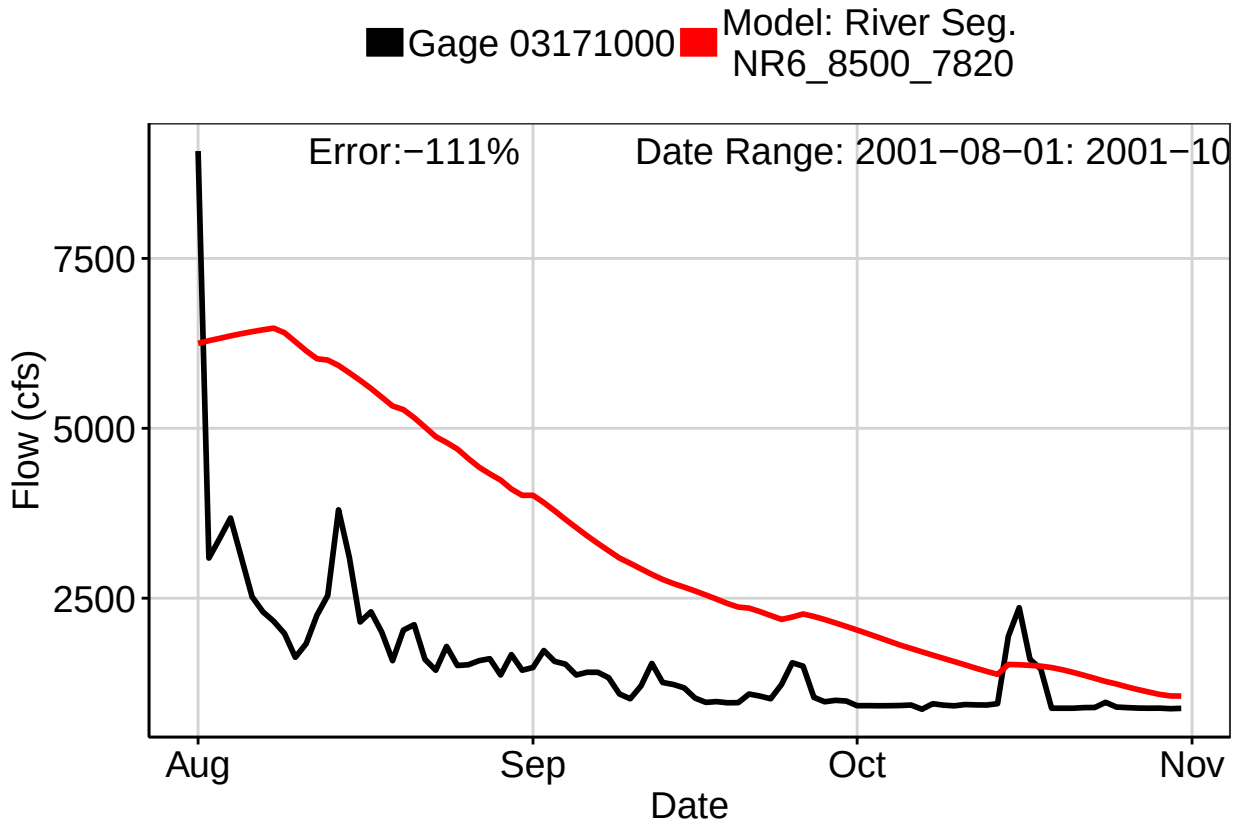


Fig. 8: Third Largest Error Segment

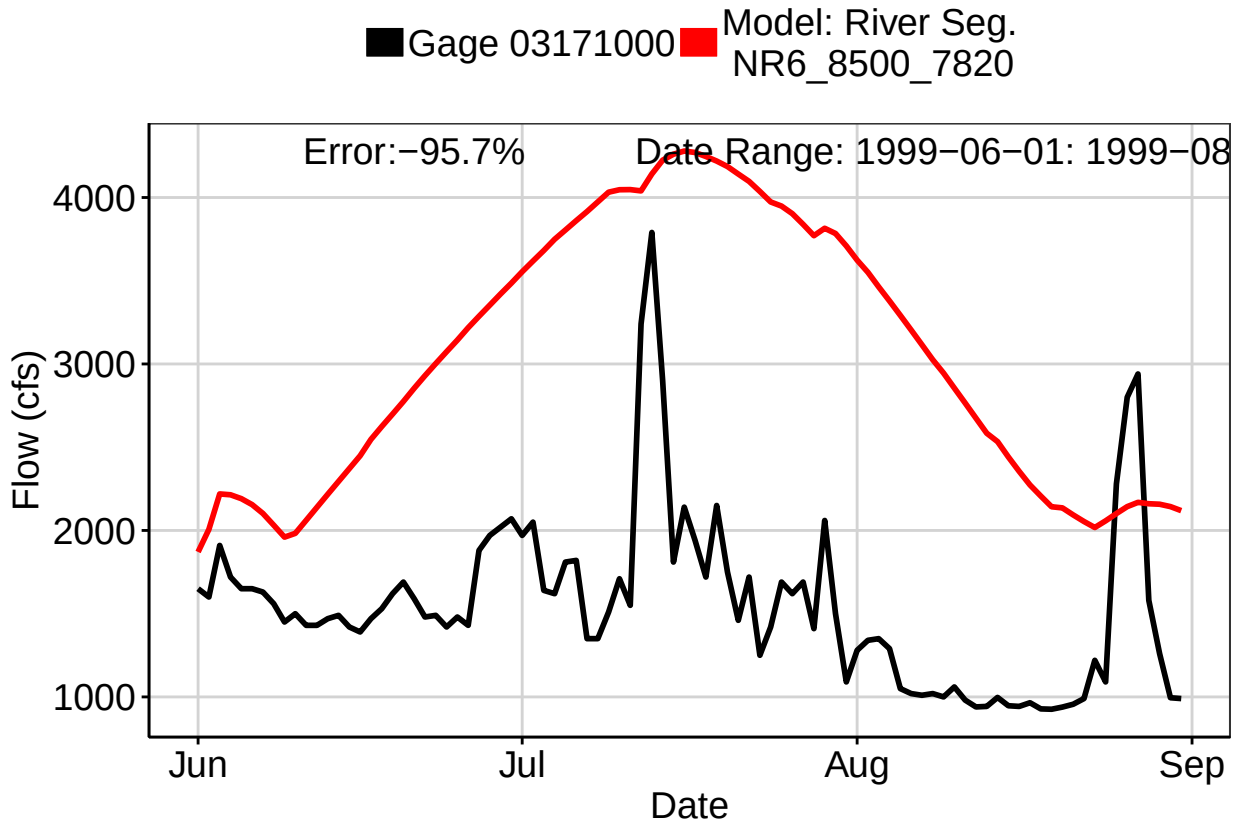


Fig. 9: Residuals Plot