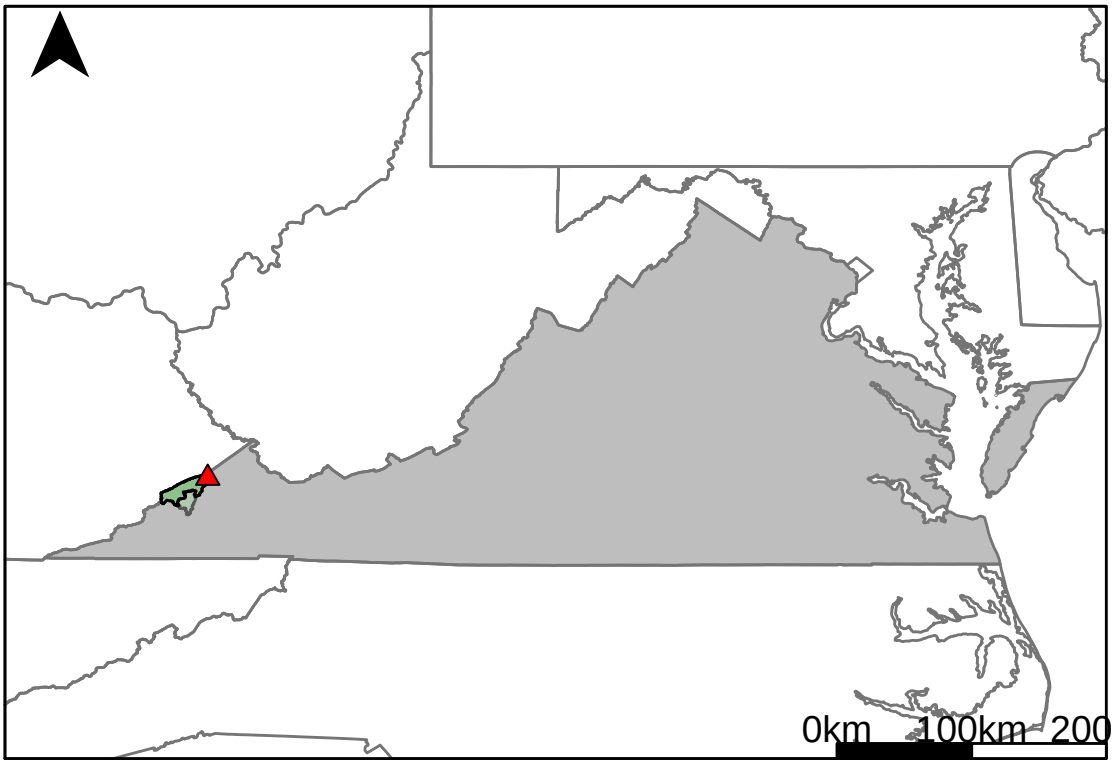
Appendix A.2: USGS Gage 03209000 vs. BS4_8540_8441



This river segment follows part of the flow of the Pound River, a tributary of the Big Sandy River. The gage is located in Dickenson County, VA (Lat 3714'13", Long 8220'36") approximately 26 miles northeast of Norton, VA. Drainage area is 221 sq. miles. This gage started taking data in 1926 and is still collecting data. Flow in this area is completely regulated by the Flannagan Dam, approximately 1,700 ft upstream. There is a possibility that some water will bypass the station if the reservoir fills completely and overflows across the spillway, this water will travel down the Cane Branch and return to the Pound River 4,600 ft below the gage. The average daily discharge error between the model and gage data for the 20 year timespan was -2.44%, with 50.4% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	51	55	-7.84
Feb. Low Flow	70	66.8	4.57
Mar. Low Flow	57	92.5	-62.3
Apr. Low Flow	46	150	-226
May Low Flow	92	186	-102
Jun. Low Flow	70	177	-153
Jul. Low Flow	51	55	-7.84
Aug. Low Flow	58	55	5.17
Sep. Low Flow	53	55	-3.77
Oct. Low Flow	46	55	-19.6
Nov. Low Flow	46	55	-19.6
Dec. Low Flow	46	55	-19.6

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	287	294	-2.44
Jan. Mean Flow	368	421	-14.4
Feb. Mean Flow	534	623	-16.7
Mar. Mean Flow	505	545	-7.92
Apr. Mean Flow	308	316	-2.6
May Mean Flow	325	165	49.2
Jun. Mean Flow	228	187	18
Jul. Mean Flow	138	114	17.4
Aug. Mean Flow	120	118	1.67
Sep. Mean Flow	94.5	120	-27
Oct. Mean Flow	226	371	-64.2
Nov. Mean Flow	292	220	24.7
Dec. Mean Flow	319	342	-7.21

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	383	752	-96.3
Feb. High Flow	669	721	-7.77
Mar. High Flow	949	788	17
Apr. High Flow	1160	1110	4.31
May High Flow	1740	2030	-16.7
Jun. High Flow	1360	1420	-4.41
Jul. High Flow	673	810	-20.4
Aug. High Flow	1260	401	68.2
Sep. High Flow	399	248	37.8
Oct. High Flow	365	203	44.4
Nov. High Flow	286	231	19.2
Dec. High Flow	119	153	-28.6

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	8.5	55	-547
Med. 1 Day Min	23	55	-139
Min. 3 Day Min	8.63	55	-537
Med. 3 Day Min	39	55	-41
Min. 7 Day Min	10.9	55	-405
Med. 7 Day Min	41	55	-34.1
Min. 30 Day Min	38.4	55	-43.2
Med. 30 Day Min	56	55	1.79
Min. 90 Day Min	48.1	55	-14.3
Med. 90 Day Min	78.9	70.4	10.8
7Q10	16.3	55.6	-241
Year of 90-Day Min. Flow	1995	1985	100
Drought Year Mean	239	294	-23
Mean Baseflow	101	136	-34.7

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	4010	3760	6.23
Med. 1 Day Max	2920	2590	11.3
Max. 3 Day Max	3700	3680	0.54
Med. 3 Day Max	2350	2350	0
Max. 7 Day Max	2650	3400	-28.3
Med. 7 Day Max	1760	1530	13.1
Max. 30 Day Max	1630	1800	-10.4
Med. 30 Day Max	845	838	0.83
Max. 90 Day Max	1080	1330	-23.1
Med. 90 Day Max	562	568	-1.07

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	16.7	55	-229
5% Non-Exceedance	44	55	-25
50% Non-Exceedance	145	159	-9.66
95% Non-Exceedance	1060	912	14
99% Non-Exceedance	2260	2420	-7.08
Sept. 10% Non-Exceedance	54	55	-1.85

Fig. 1: Hydrograph

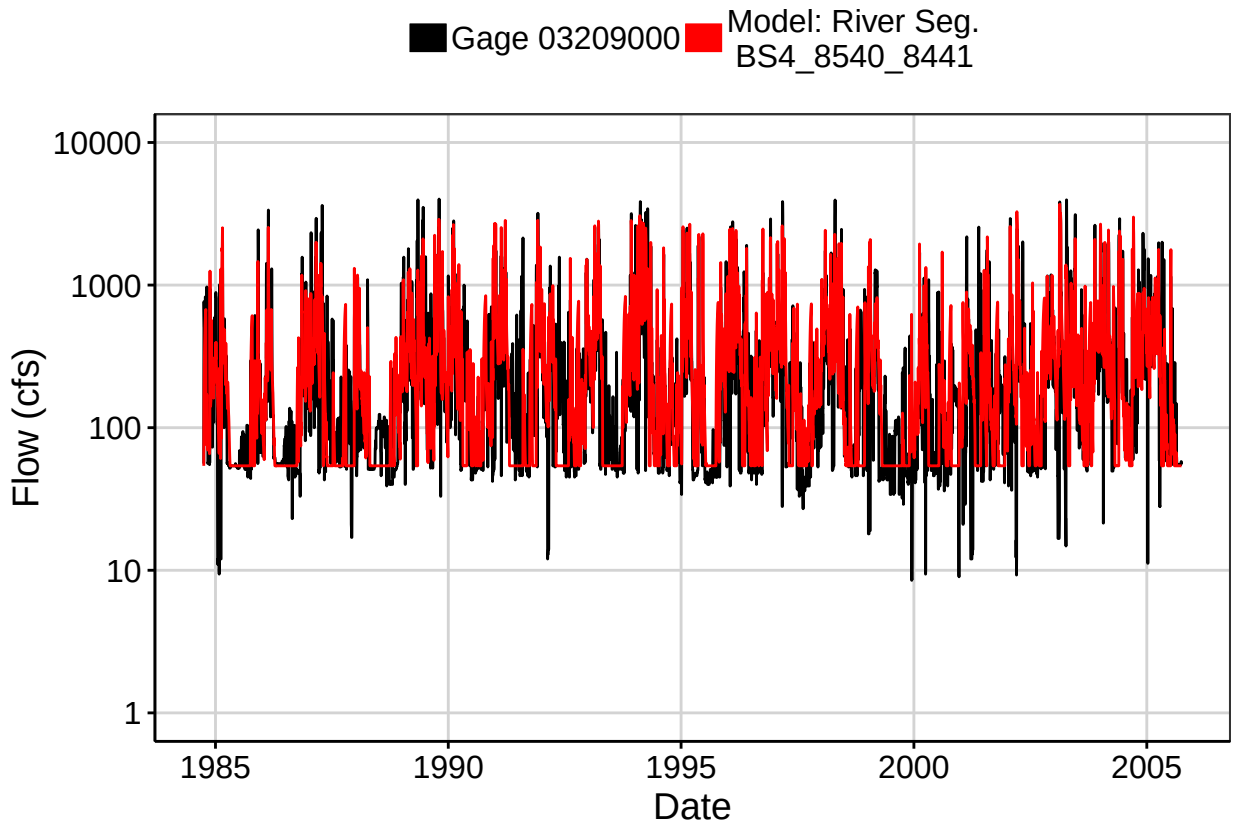


Fig. 2: Zoomed Hydrograph

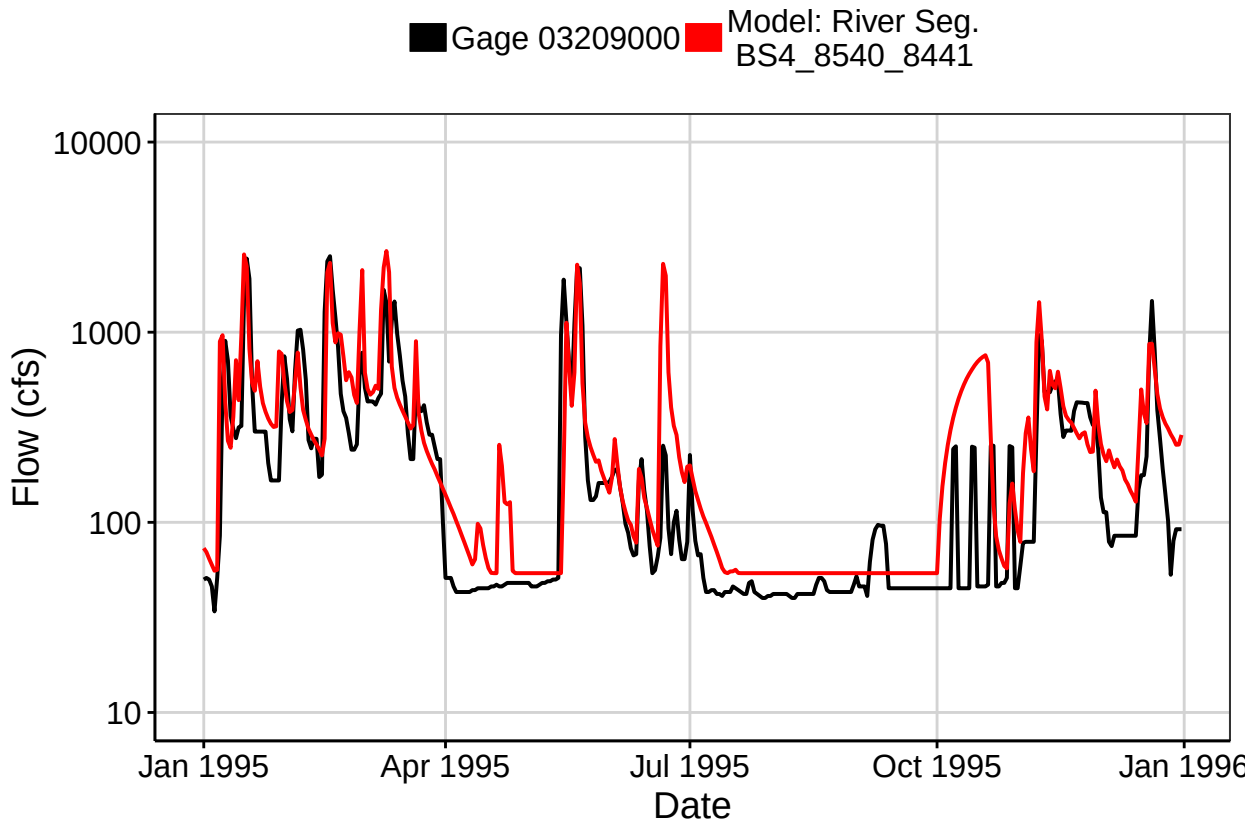


Fig. 3: Flow Exceedance

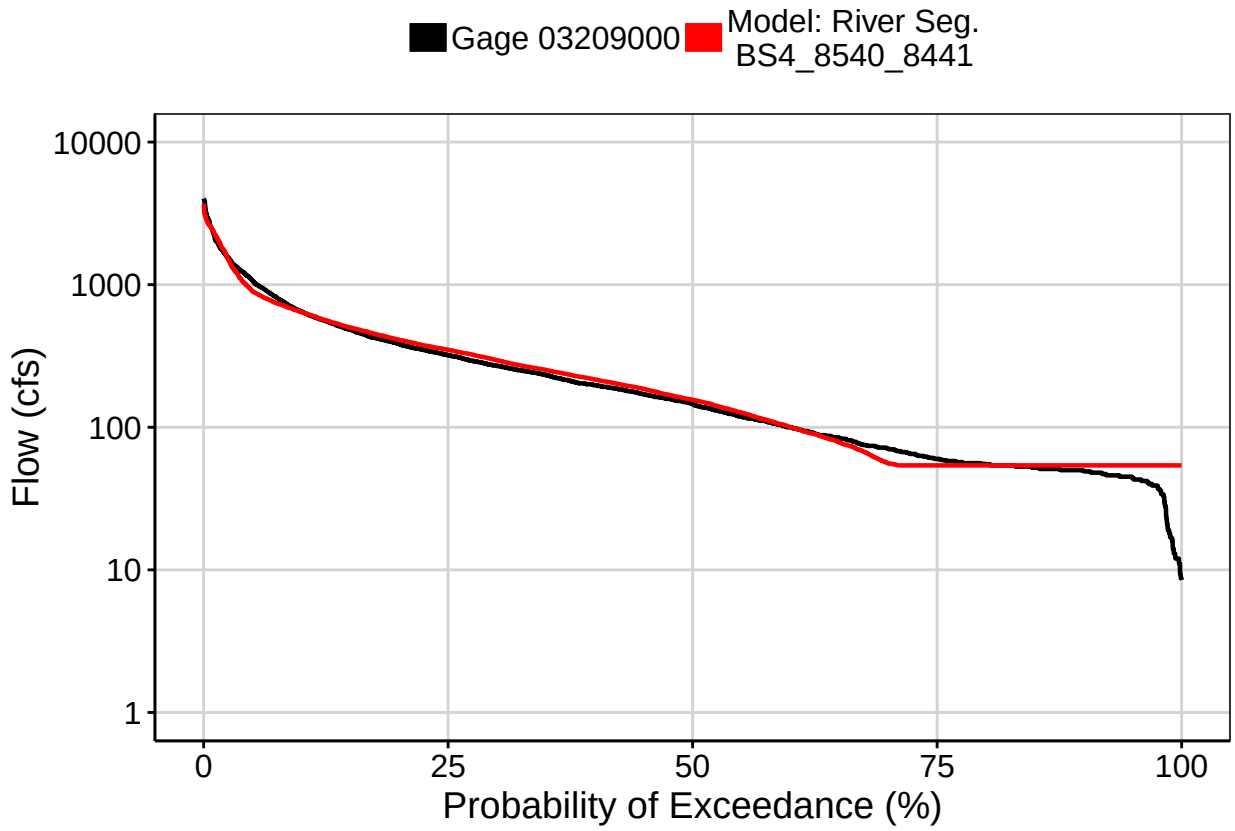


Fig. 4: Baseflow

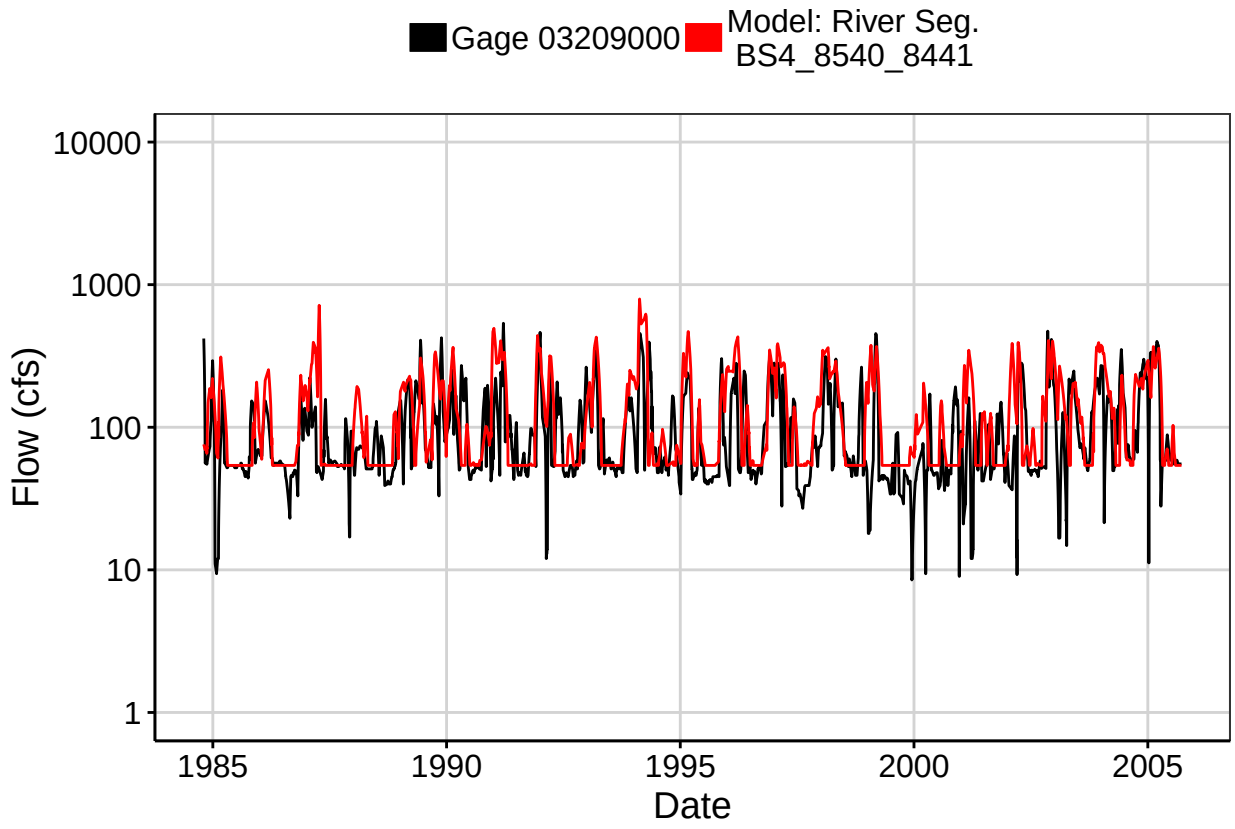


Fig. 5: Combined Baseflow

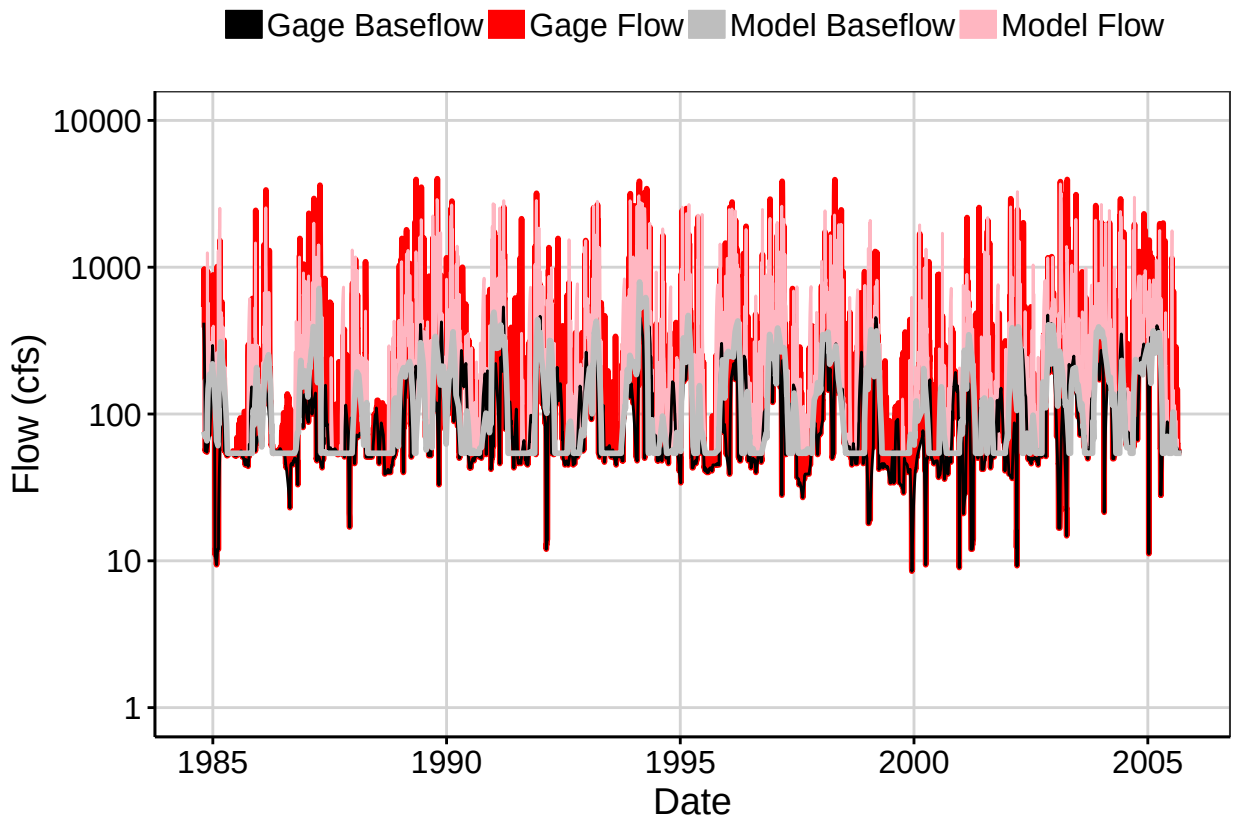


Fig. 6: Largest Error Segment

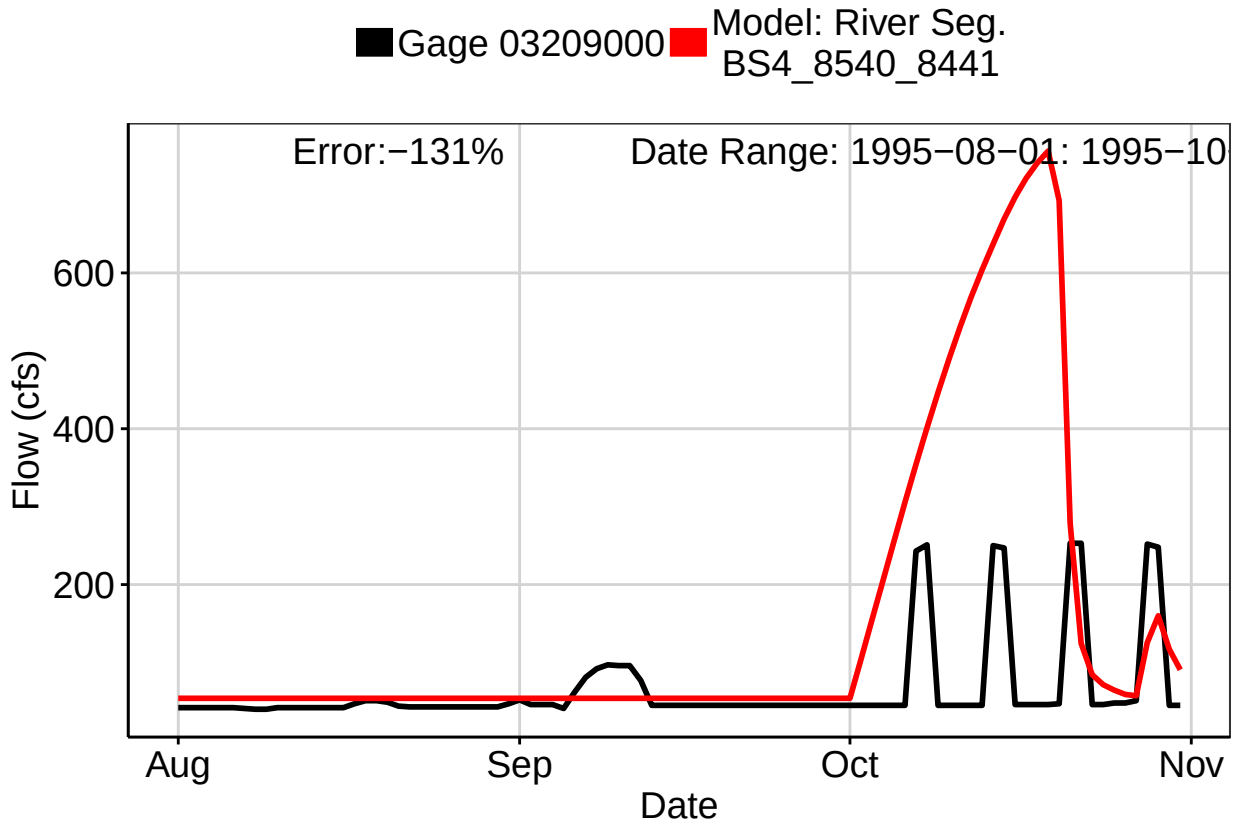


Fig. 7: Second Largest Error Segment

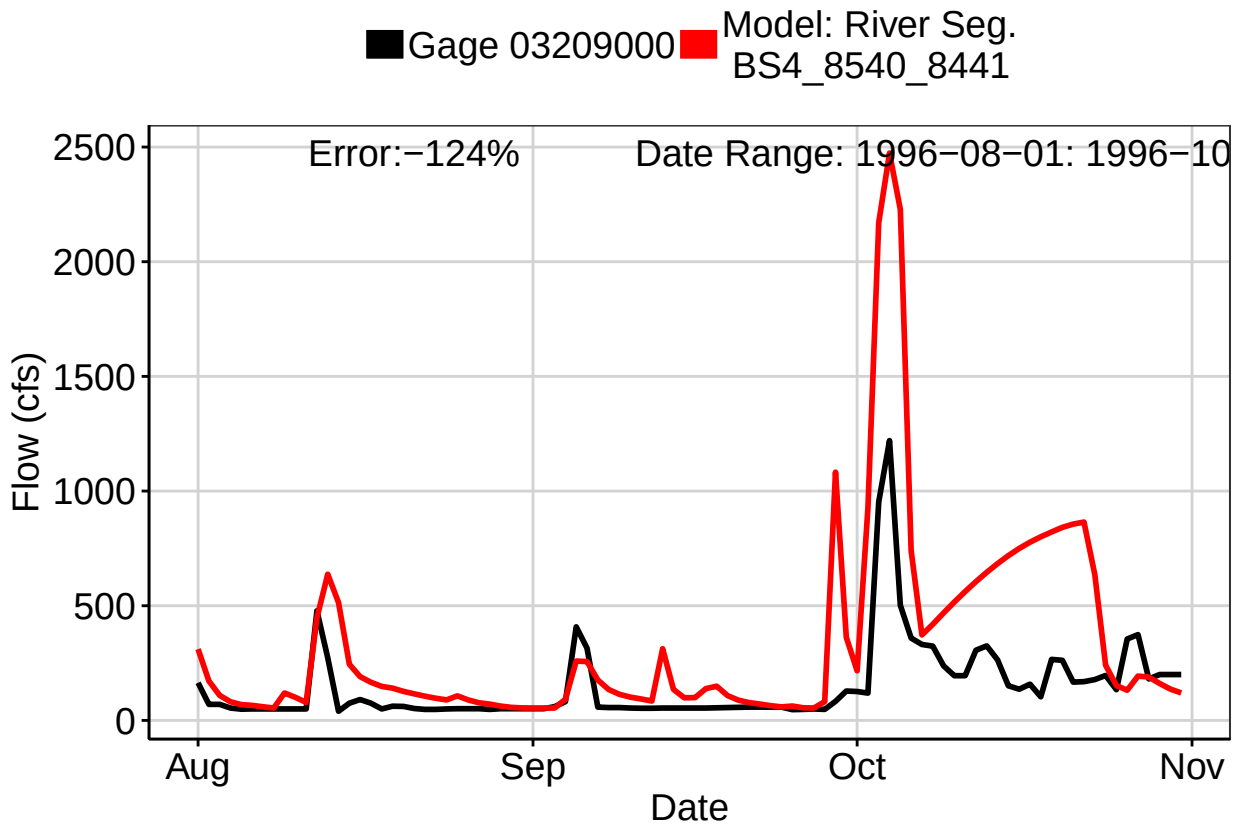


Fig. 8: Third Largest Error Segment

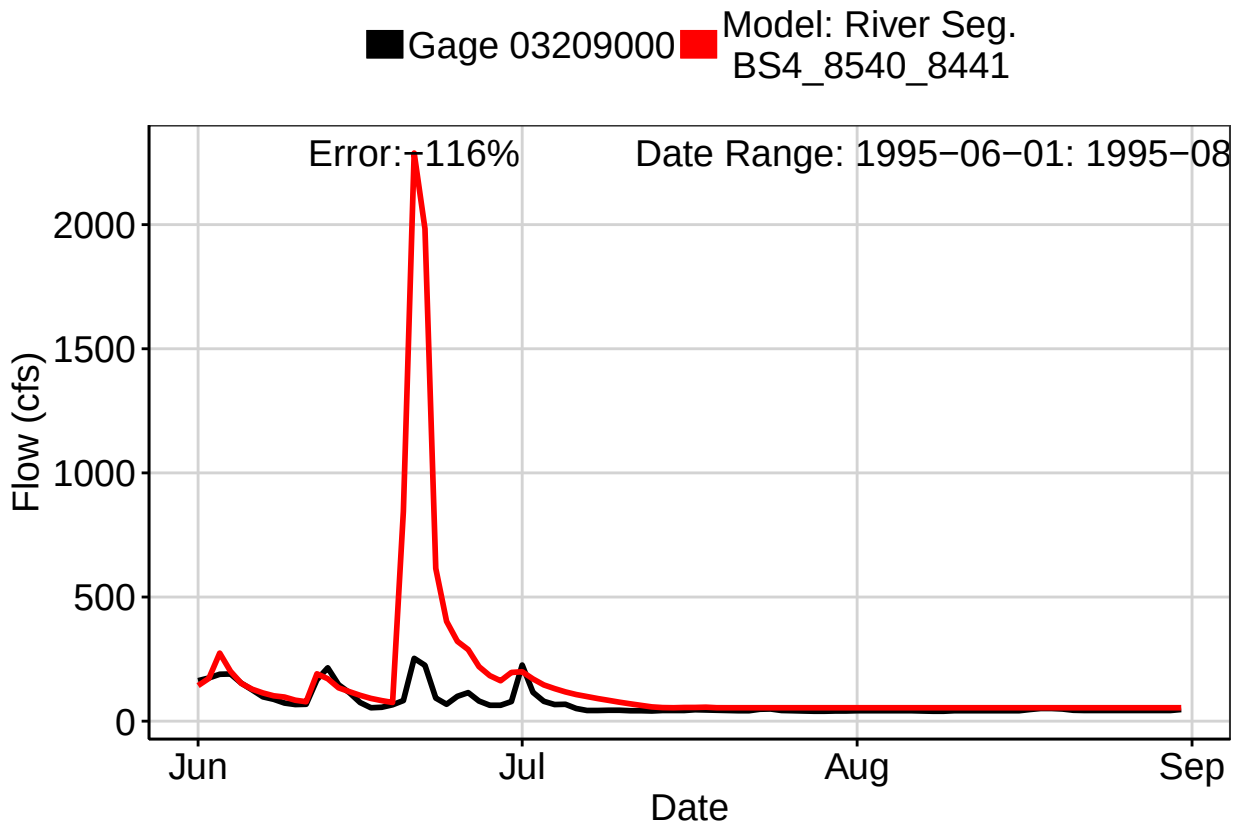


Fig. 9: Residuals Plot