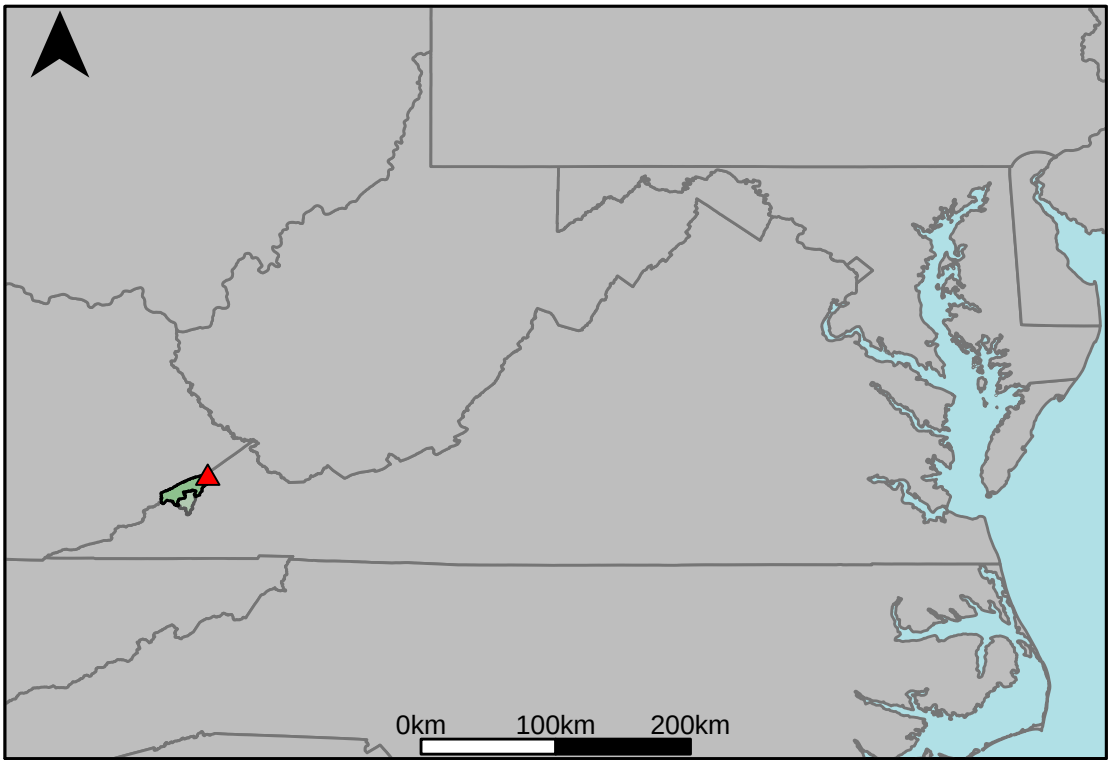
Appendix A.2: USGS Gage 03209000 vs. BS4_8540_8441



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 0.7%, with 48.8% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	51	53.5	4.9
Feb. Low Flow	70	65	-7.14
Mar. Low Flow	57	89.9	57.7
Apr. Low Flow	46	146	217
May Low Flow	92	181	96.7
Jun. Low Flow	70	172	146
Jul. Low Flow	51	53.5	4.9
Aug. Low Flow	58	53.5	-7.76
Sep. Low Flow	53	53.5	0.94
Oct. Low Flow	46	53.5	16.3
Nov. Low Flow	46	53.5	16.3
Dec. Low Flow	46	53.5	16.3

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	287	285	-0.7
Jan. Mean Flow	368	410	11.4
Feb. Mean Flow	534	606	13.5
Mar. Mean Flow	505	530	4.95
Apr. Mean Flow	308	307	-0.32
May Mean Flow	325	161	-50.5
Jun. Mean Flow	228	182	-20.2
Jul. Mean Flow	138	111	-19.6
Aug. Mean Flow	120	114	-5
Sep. Mean Flow	94.5	116	22.8
Oct. Mean Flow	226	361	59.7
Nov. Mean Flow	292	214	-26.7
Dec. Mean Flow	319	333	4.39

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	383	731	90.9
Feb. High Flow	669	701	4.78
Mar. High Flow	949	766	-19.3
Apr. High Flow	1160	1080	-6.9
May High Flow	1740	1970	13.2
Jun. High Flow	1360	1380	1.47
Jul. High Flow	673	787	16.9
Aug. High Flow	1260	390	-69
Sep. High Flow	399	241	-39.6
Oct. High Flow	365	197	-46
Nov. High Flow	286	224	-21.7
Dec. High Flow	119	148	24.4

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	8.5	53.5	529
Med. 1 Day Min	23	53.5	133
Min. 3 Day Min	8.63	53.5	520
Med. 3 Day Min	39	53.5	37.2
Min. 7 Day Min	10.9	53.5	391
Med. 7 Day Min	41	53.5	30.5
Min. 30 Day Min	38.4	53.5	39.3
Med. 30 Day Min	56	53.5	-4.46
Min. 90 Day Min	48.1	53.5	11.2
Med. 90 Day Min	78.9	68.4	-13.3
7Q10	16.3	53.5	228
Year of 90-Day Min. Flow	1995	1986	100
Drought Year Mean	239	278	16.3
Mean Baseflow	101	132	30.7

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	4010	3650	-8.98
Med. 1 Day Max	2920	2510	-14
Max. 3 Day Max	3700	3580	-3.24
Med. 3 Day Max	2350	2290	-2.55
Max. 7 Day Max	2650	3310	24.9
Med. 7 Day Max	1760	1490	-15.3
Max. 30 Day Max	1630	1750	7.36
Med. 30 Day Max	845	815	-3.55
Max. 90 Day Max	1080	1290	19.4
Med. 90 Day Max	562	552	-1.78

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	16.7	53.5	220
5% Non-Exceedance	44	53.5	21.6
50% Non-Exceedance	145	154	6.21
95% Non-Exceedance	1060	887	-16.3
99% Non-Exceedance	2260	2360	4.42
Sept. 10% Non-Exceedance	53.5	45	-15.9

Fig. 1: Hydrograph

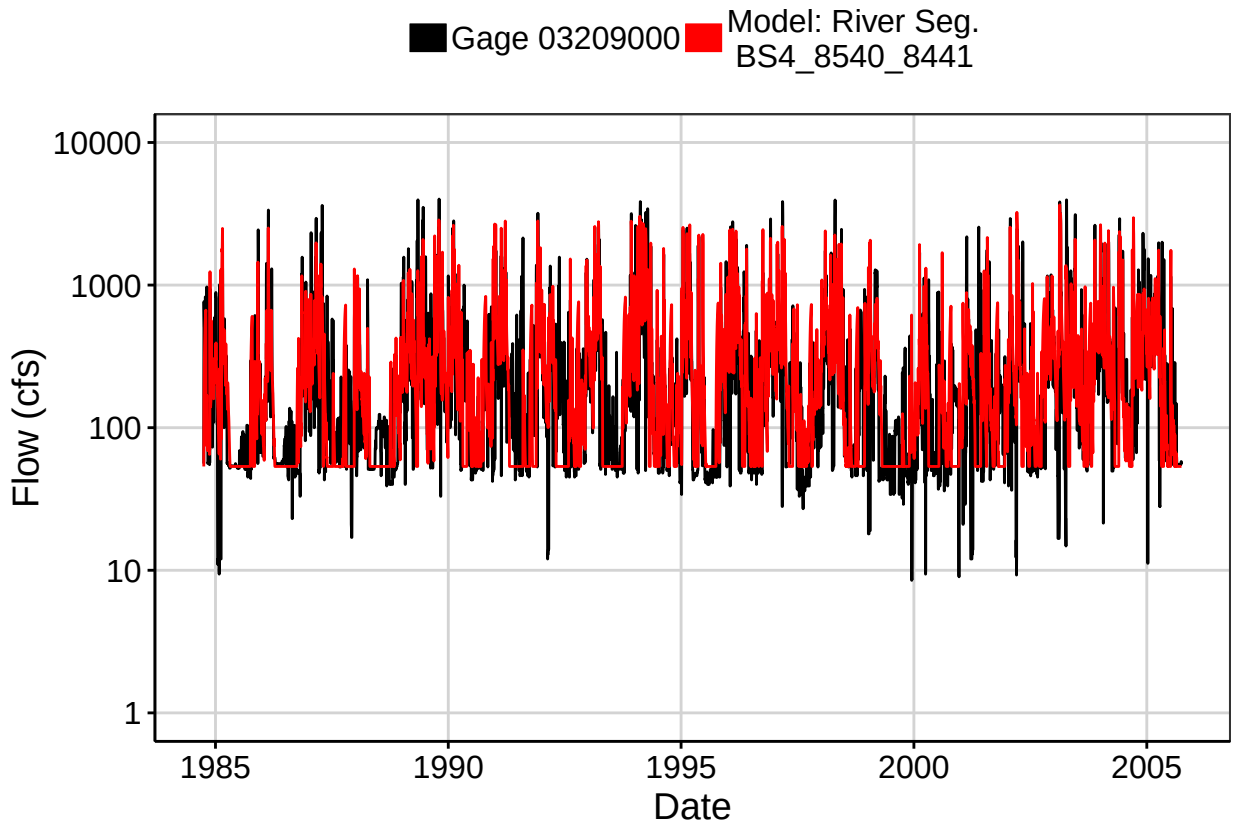


Fig. 2: Zoomed Hydrograph

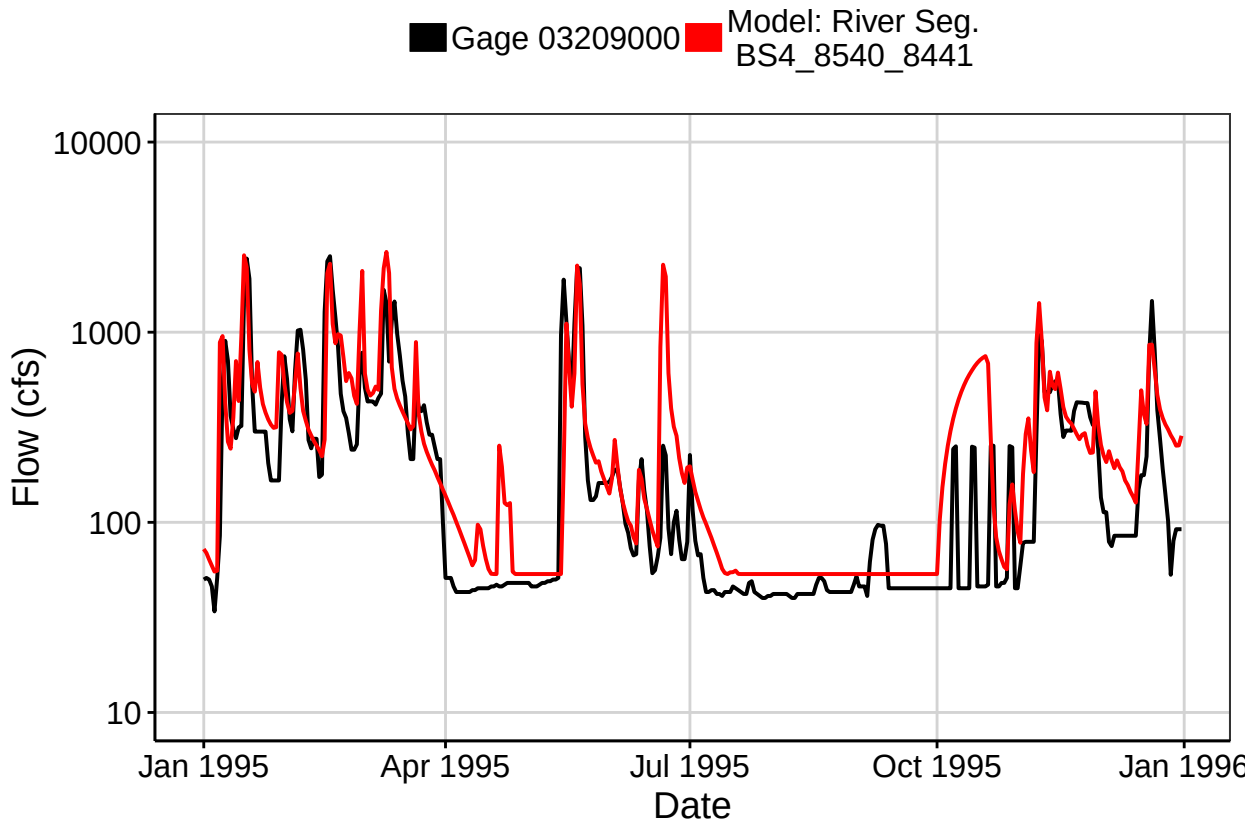


Fig. 3: Flow Exceedance

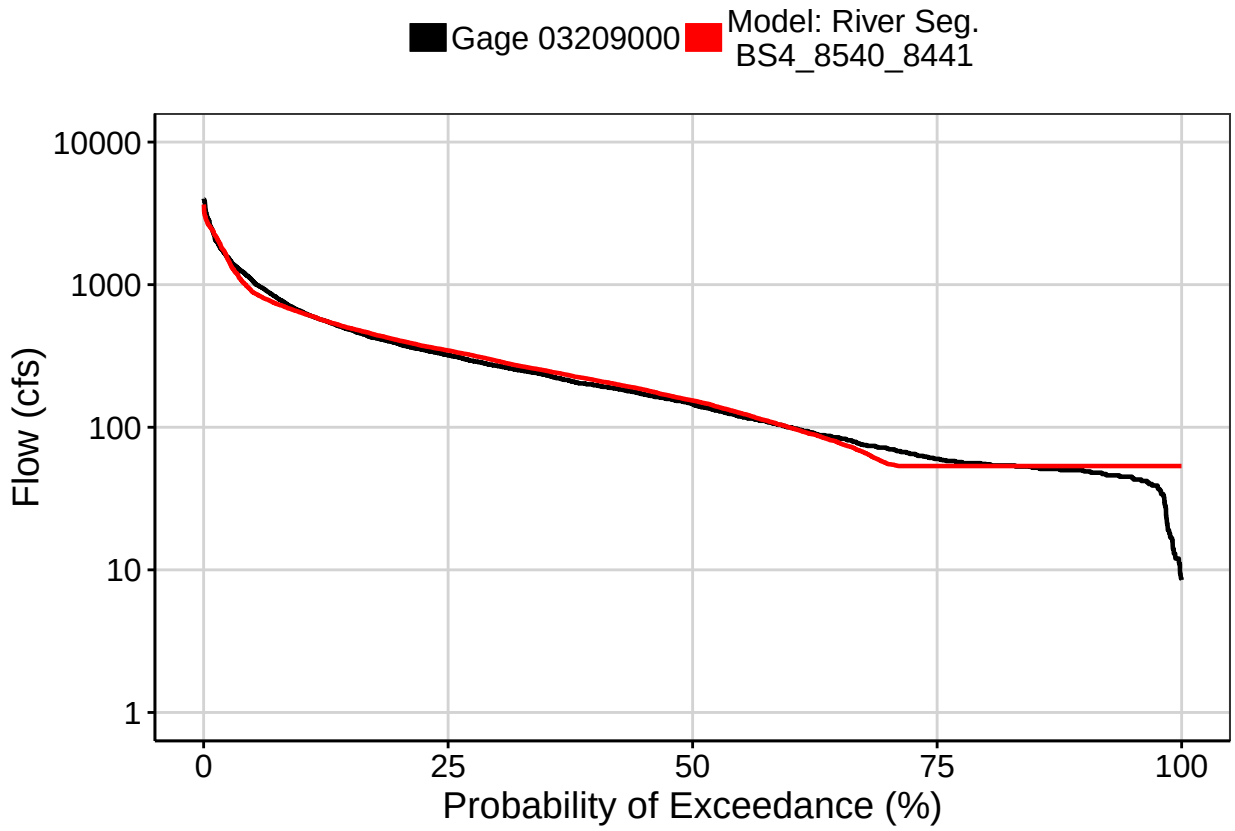


Fig. 4: Baseflow

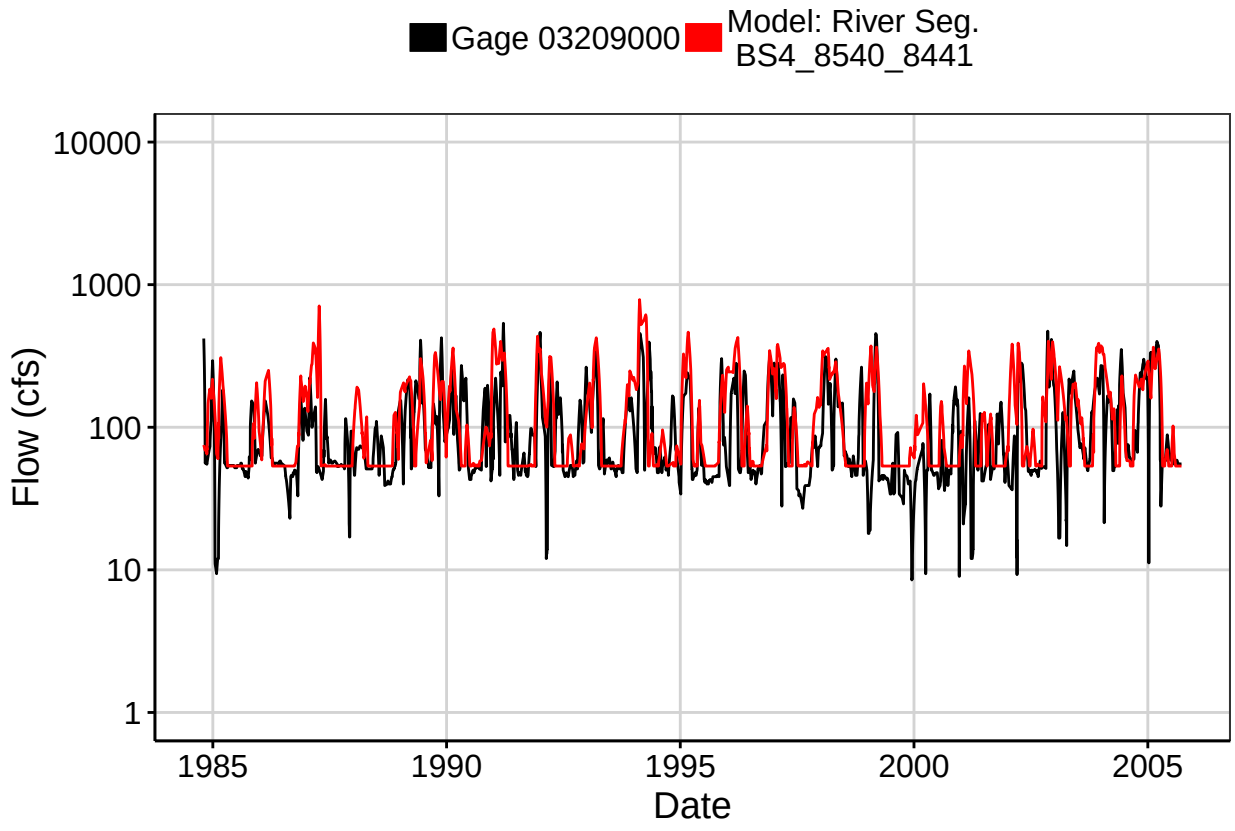


Fig. 5: Combined Baseflow

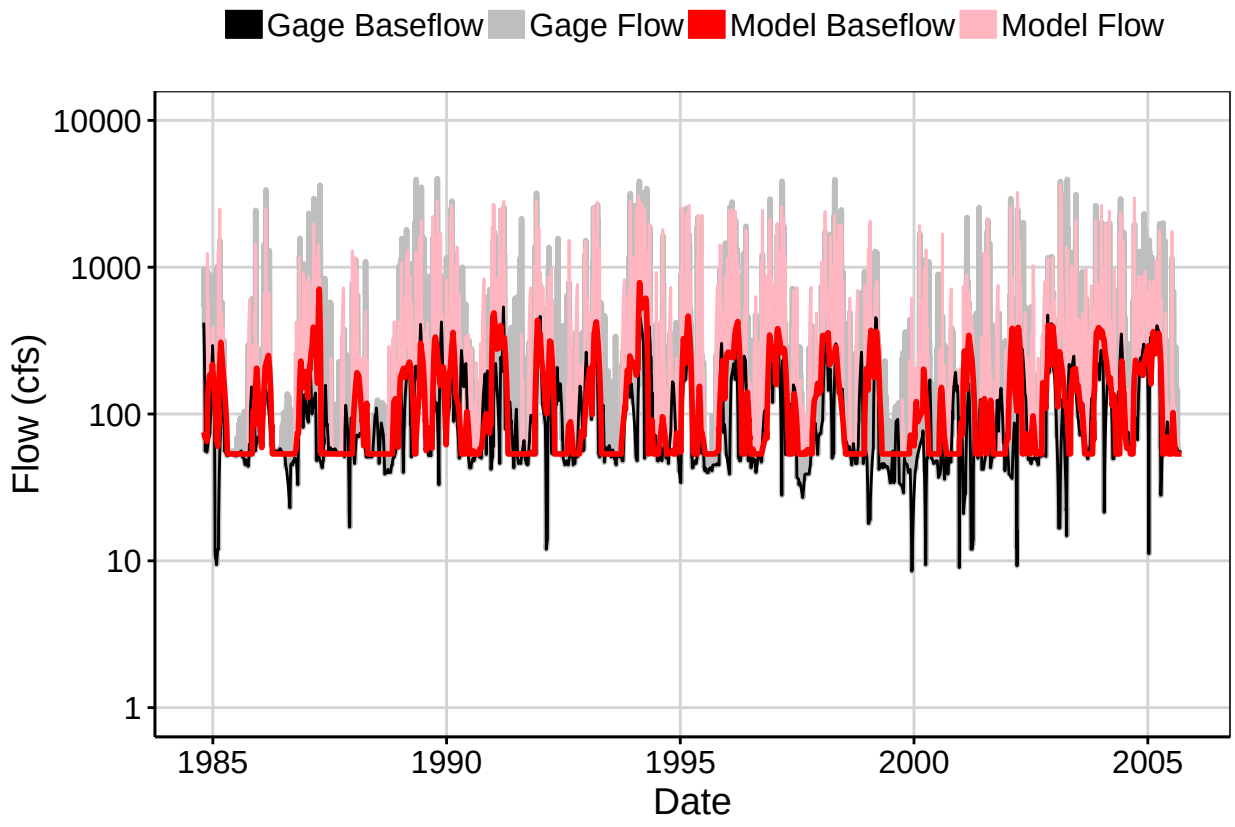


Fig. 6: Largest Error Segment

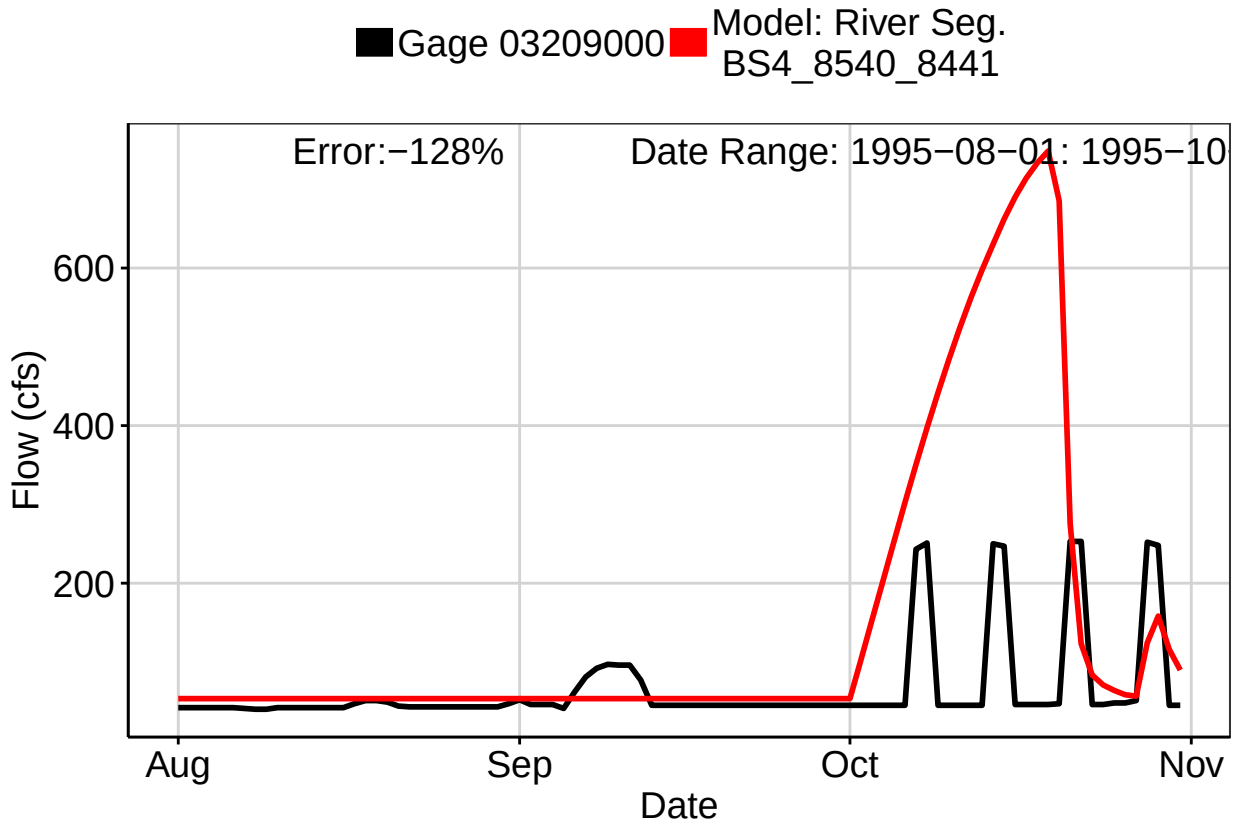


Fig. 7: Second Largest Error Segment

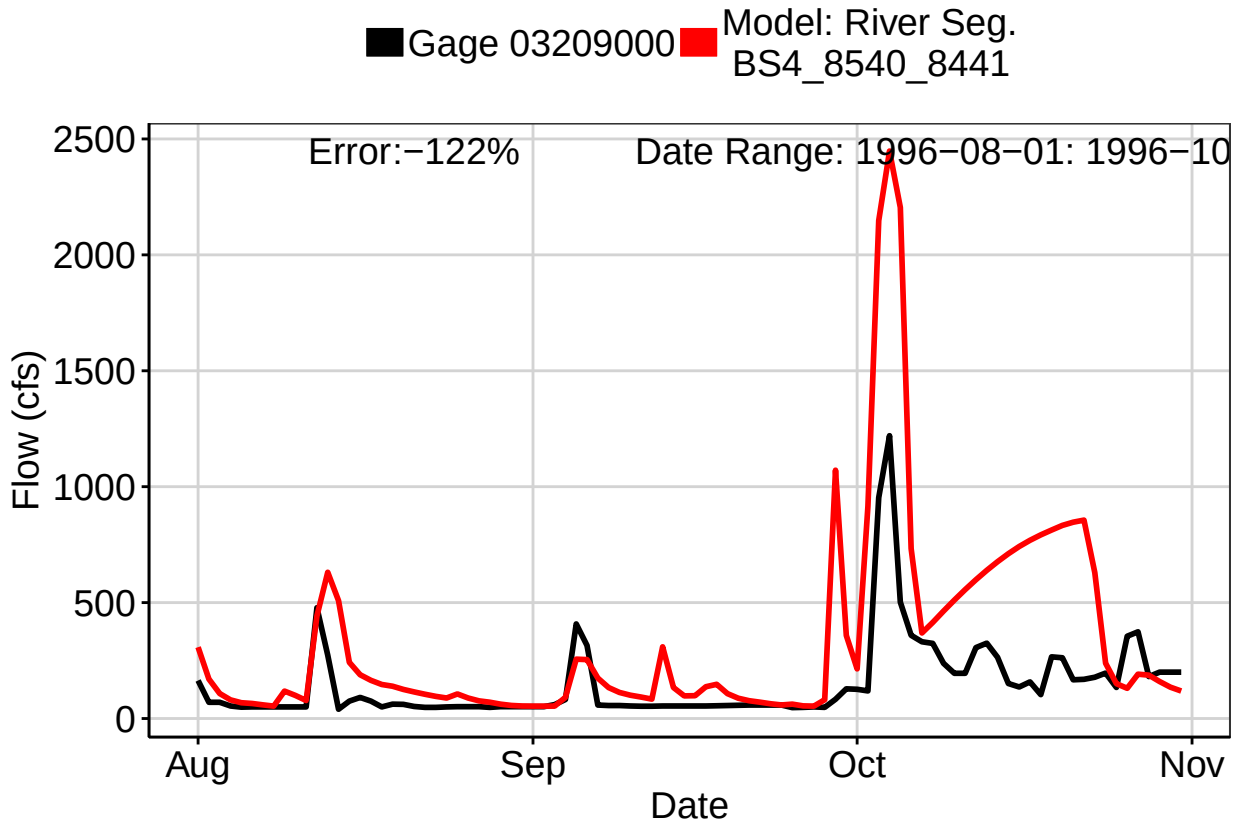


Fig. 8: Third Largest Error Segment

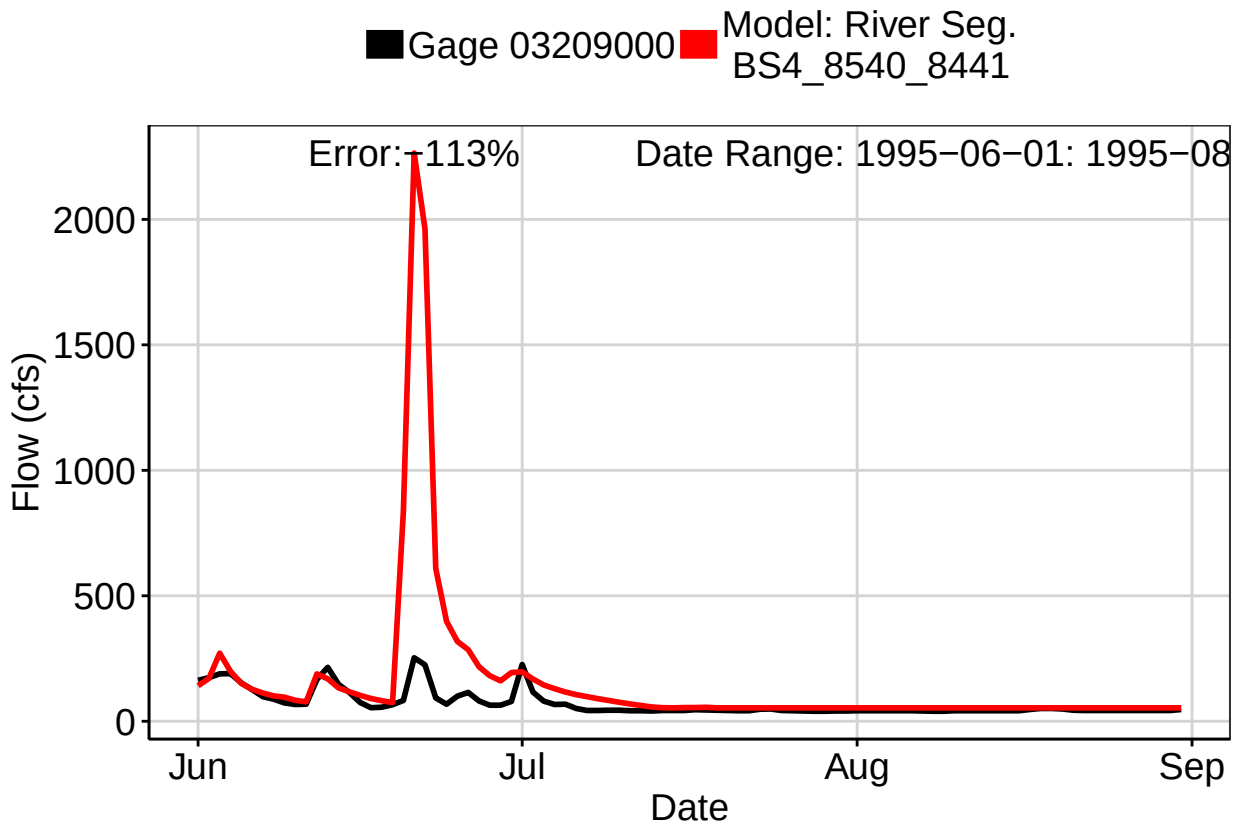


Fig. 9: Residuals Plot