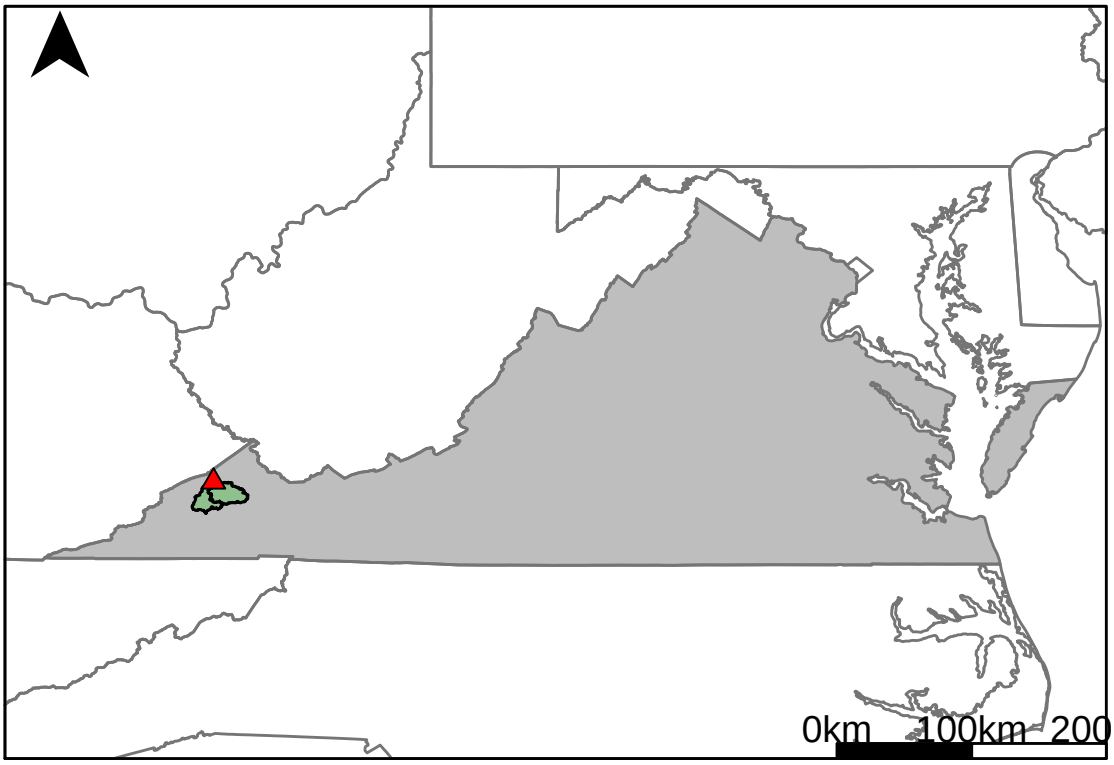
Appendix A.3: USGS Gage 03208500 vs. BS2_8590_8440+BS3_8580_8440



This river segment follows part of the flow of the Russell Fork, a tributary of the Big Sandy River. The gage is located in Dickenson County, VA (Lat 3712'25", Long 8217'45") approximately 26 miles northeast of Norton, VA. Drainage area is 286 sq. miles. This gage started taking data in 1926 and is still taking data. There are no known anthropogenic alterations in this area that would affect the flow conditions. The average daily discharge error between the model and gage data for the 20 year timespan was 44.3%, with 52.5% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	26	24.4	6.15
Feb. Low Flow	26.2	36.1	-37.8
Mar. Low Flow	60	86.9	-44.8
Apr. Low Flow	111	115	-3.6
May Low Flow	191	142	25.7
Jun. Low Flow	218	149	31.7
Jul. Low Flow	258	101	60.9
Aug. Low Flow	120	69.1	42.4
Sep. Low Flow	64	44.6	30.3
Oct. Low Flow	56	20.9	62.7
Nov. Low Flow	39	16.1	58.7
Dec. Low Flow	27	16.1	40.4

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	366	204	44.3
Jan. Mean Flow	488	285	41.6
Feb. Mean Flow	733	406	44.6
Mar. Mean Flow	751	362	51.8
Apr. Mean Flow	674	280	58.5
May Mean Flow	433	225	48
Jun. Mean Flow	281	145	48.4
Jul. Mean Flow	194	95.4	50.8
Aug. Mean Flow	122	89.5	26.6
Sep. Mean Flow	94.3	78.1	17.2
Oct. Mean Flow	108	105	2.78
Nov. Mean Flow	177	152	14.1
Dec. Mean Flow	357	238	33.3

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	126	154	-22.2
Feb. High Flow	955	619	35.2
Mar. High Flow	1250	566	54.7
Apr. High Flow	1820	676	62.9
May High Flow	3640	1360	62.6
Jun. High Flow	2040	830	59.3
Jul. High Flow	1300	646	50.3
Aug. High Flow	1320	633	52
Sep. High Flow	508	285	43.9
Oct. High Flow	437	206	52.9
Nov. High Flow	363	250	31.1
Dec. High Flow	246	130	47.2

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	8.2	0.66	92
Med. 1 Day Min	17	6.53	61.6
Min. 3 Day Min	8.73	0.89	89.8
Med. 3 Day Min	17.6	7.07	59.8
Min. 7 Day Min	9.17	1.43	84.4
Med. 7 Day Min	20.3	8.61	57.6
Min. 30 Day Min	12.7	5.77	54.6
Med. 30 Day Min	28.8	20.9	27.4
Min. 90 Day Min	28.5	11	61.4
Med. 90 Day Min	75.1	52.5	30.1
7Q10	12.3	2.9	76.4
Year of 90-Day Min. Flow	1988	1988	0
Drought Year Mean	132	204	-54.5
Mean Baseflow	143	96.9	32.2

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	15000	7010	53.3
Med. 1 Day Max	5940	3250	45.3
Max. 3 Day Max	7440	4390	41
Med. 3 Day Max	3590	1650	54
Max. 7 Day Max	4400	2940	33.2
Med. 7 Day Max	2570	1170	54.5
Max. 30 Day Max	2030	1230	39.4
Med. 30 Day Max	1150	583	49.3
Max. 90 Day Max	1470	871	40.7
Med. 90 Day Max	766	396	48.3

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	15	5.77	61.5
5% Non-Exceedance	24	13.7	42.9
50% Non-Exceedance	159	119	25.2
95% Non-Exceedance	1260	619	50.9
99% Non-Exceedance	3380	1640	51.5
Sept. 10% Non-Exceedance	18.5	8.53	53.9

Fig. 1: Hydrograph

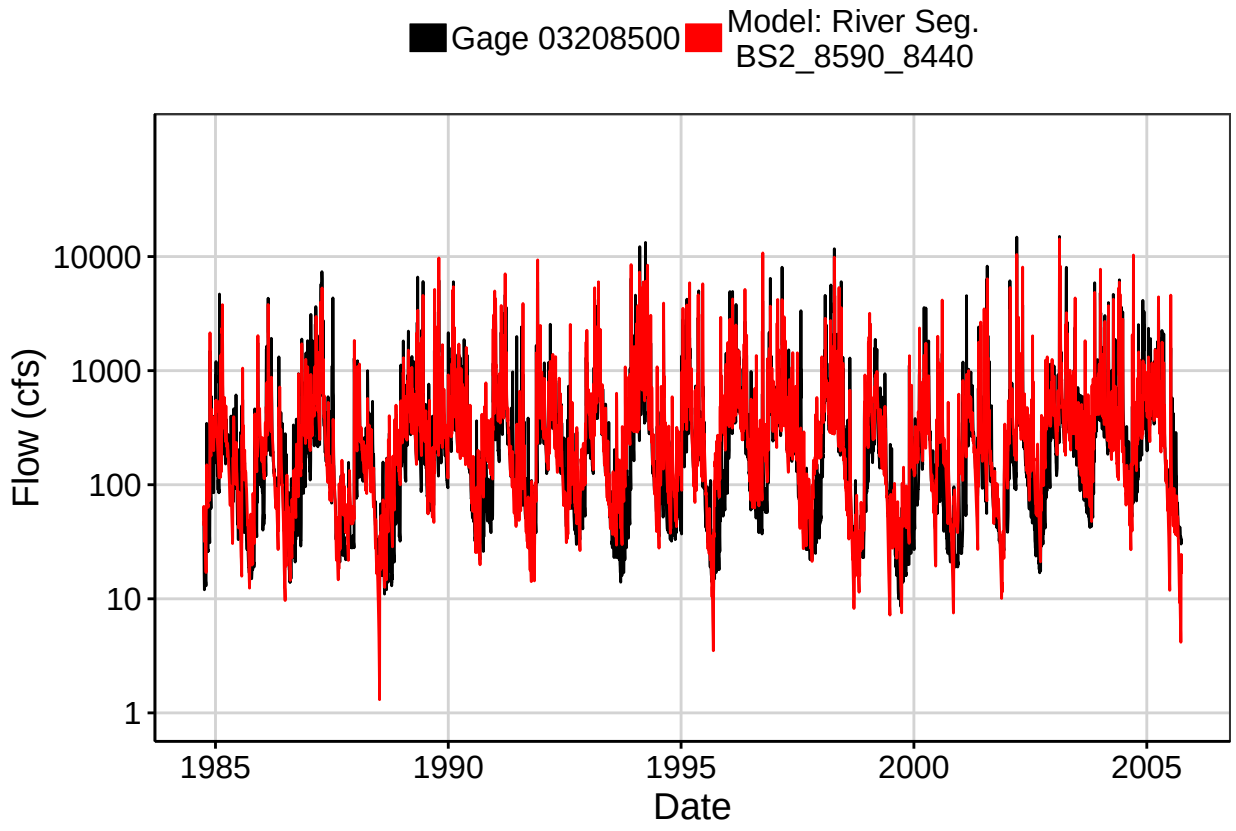


Fig. 2: Zoomed Hydrograph

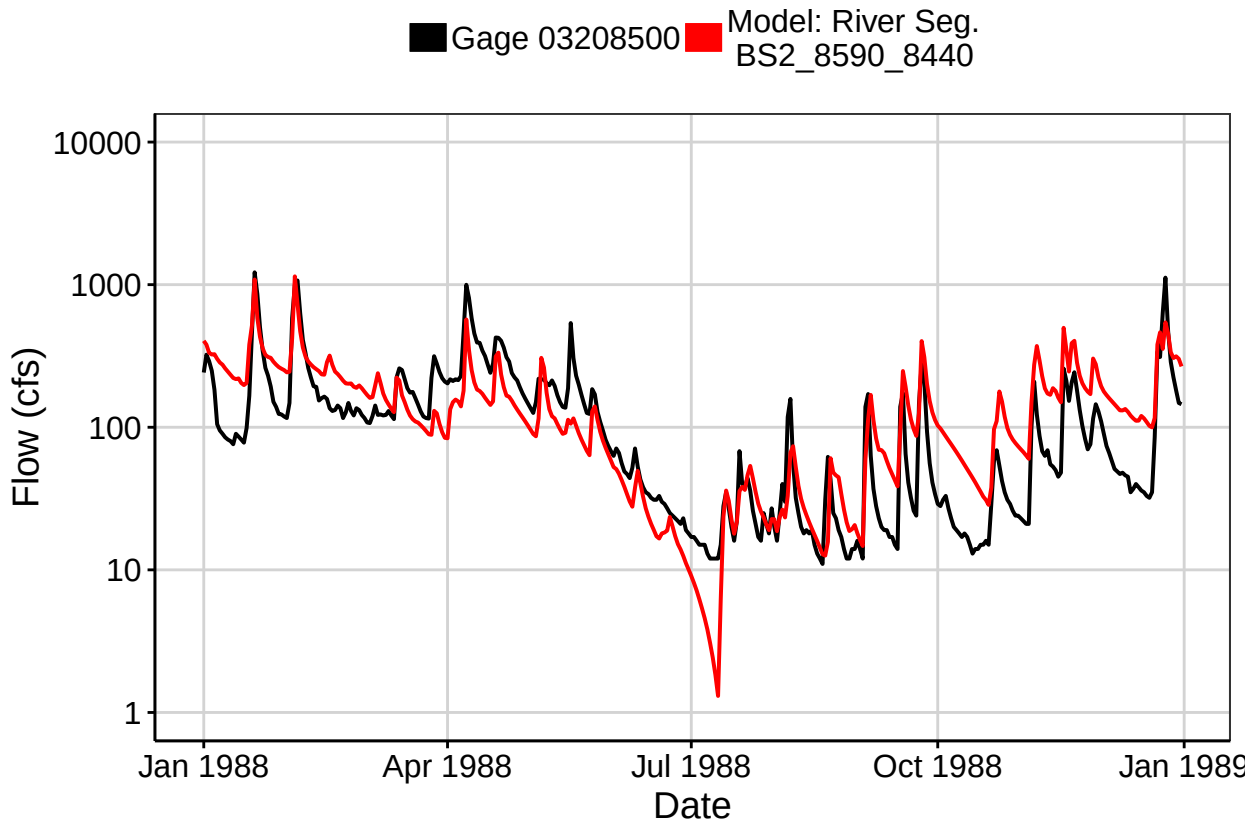


Fig. 3: Flow Exceedance

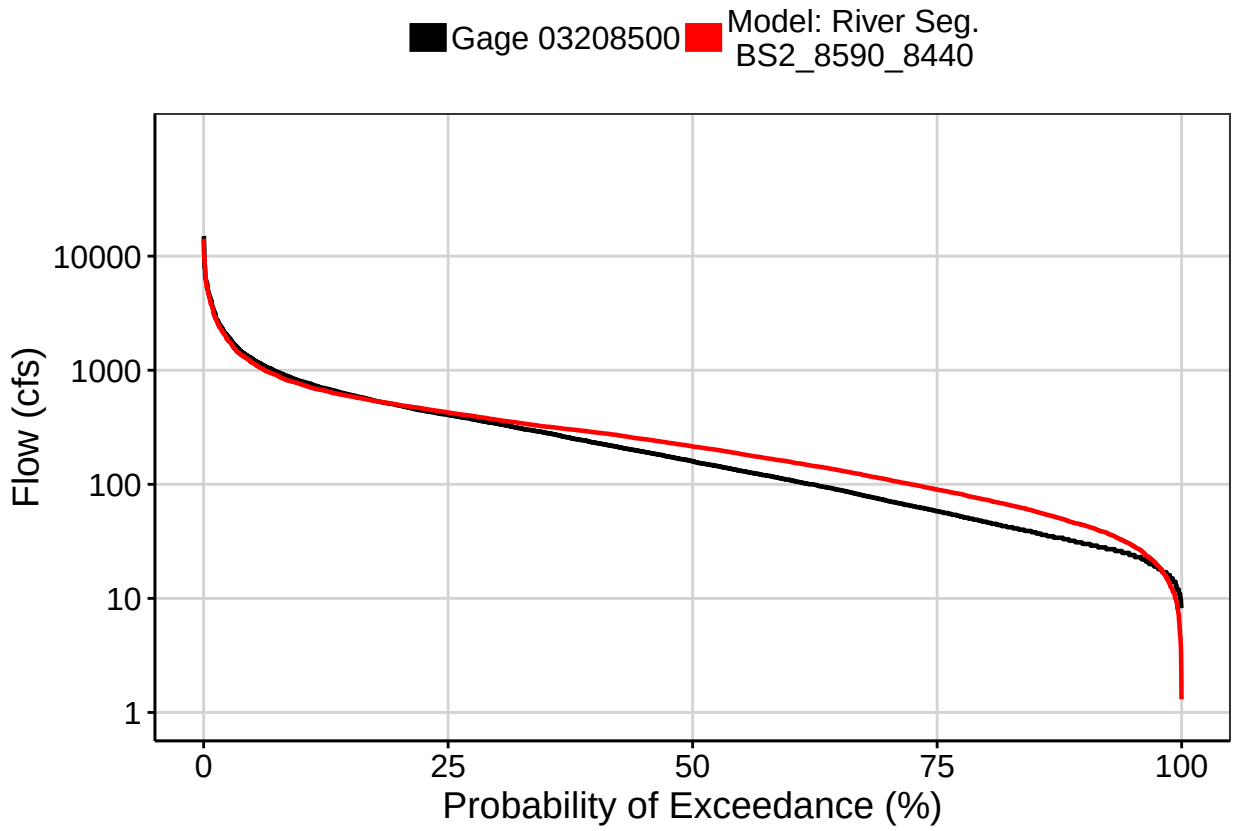


Fig. 4: Baseflow

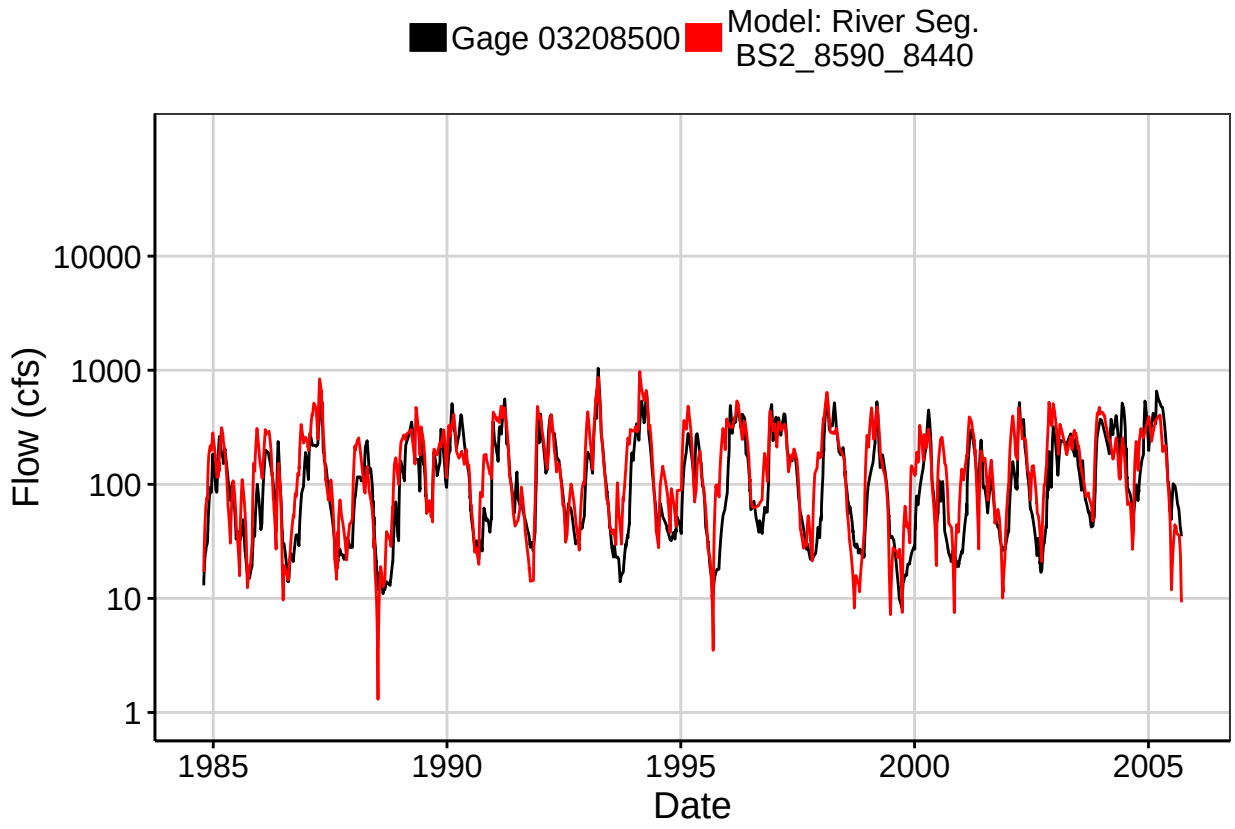


Fig. 5: Combined Baseflow

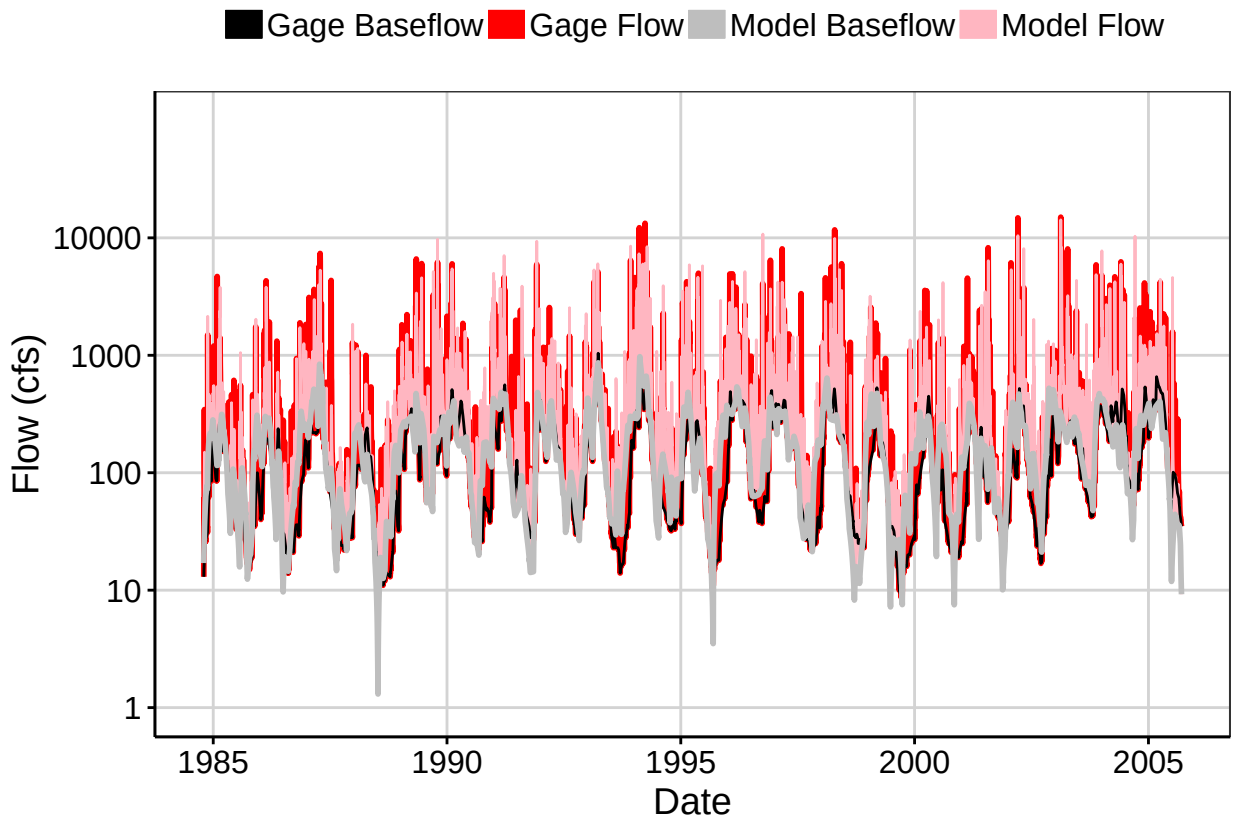


Fig. 6: Largest Error Segment

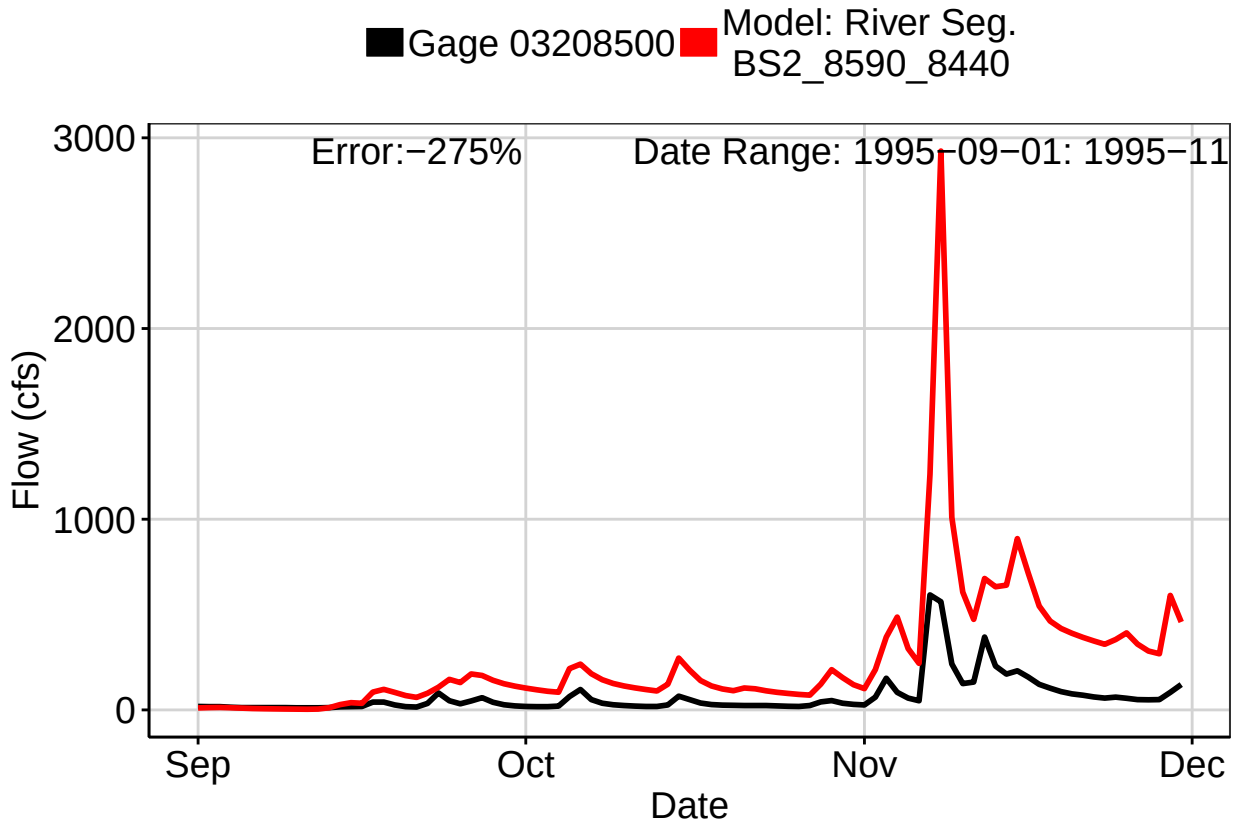


Fig. 7: Second Largest Error Segment

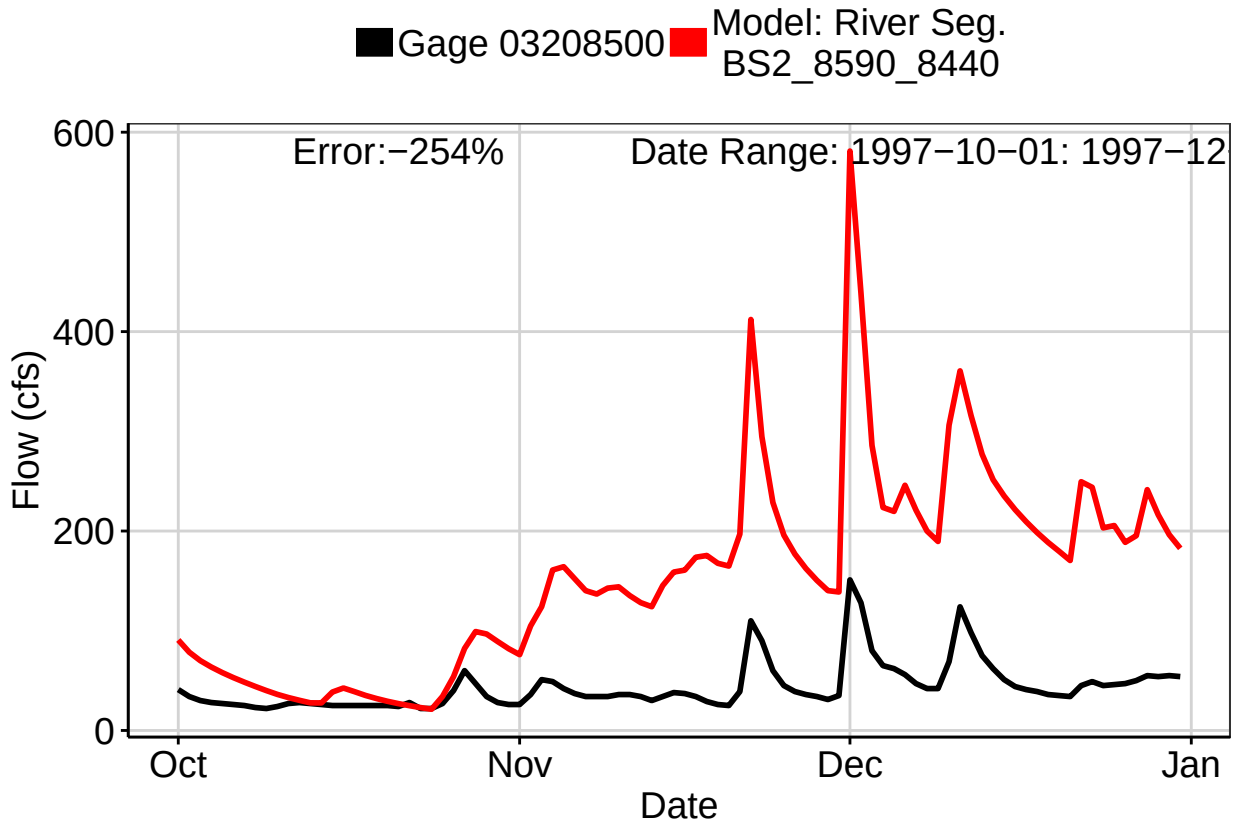


Fig. 8: Third Largest Error Segment

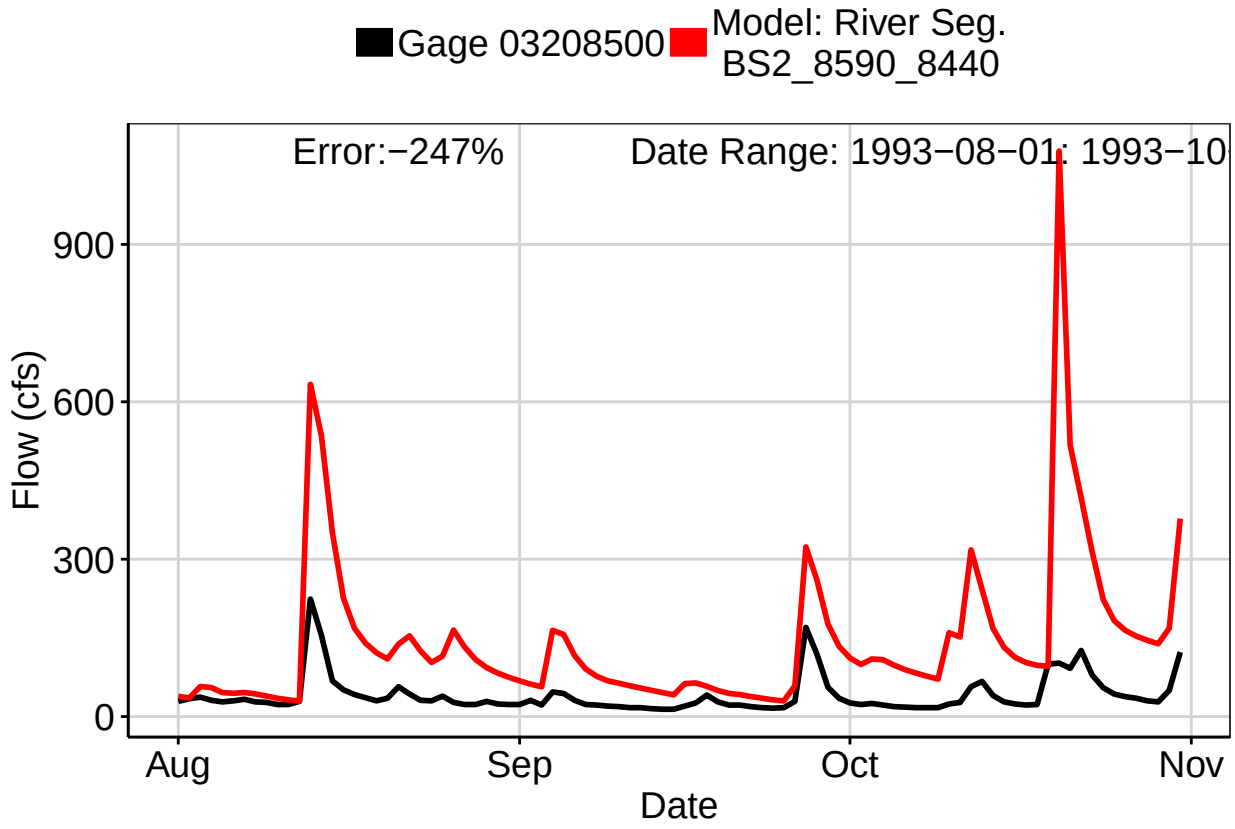


Fig. 9: Residuals Plot