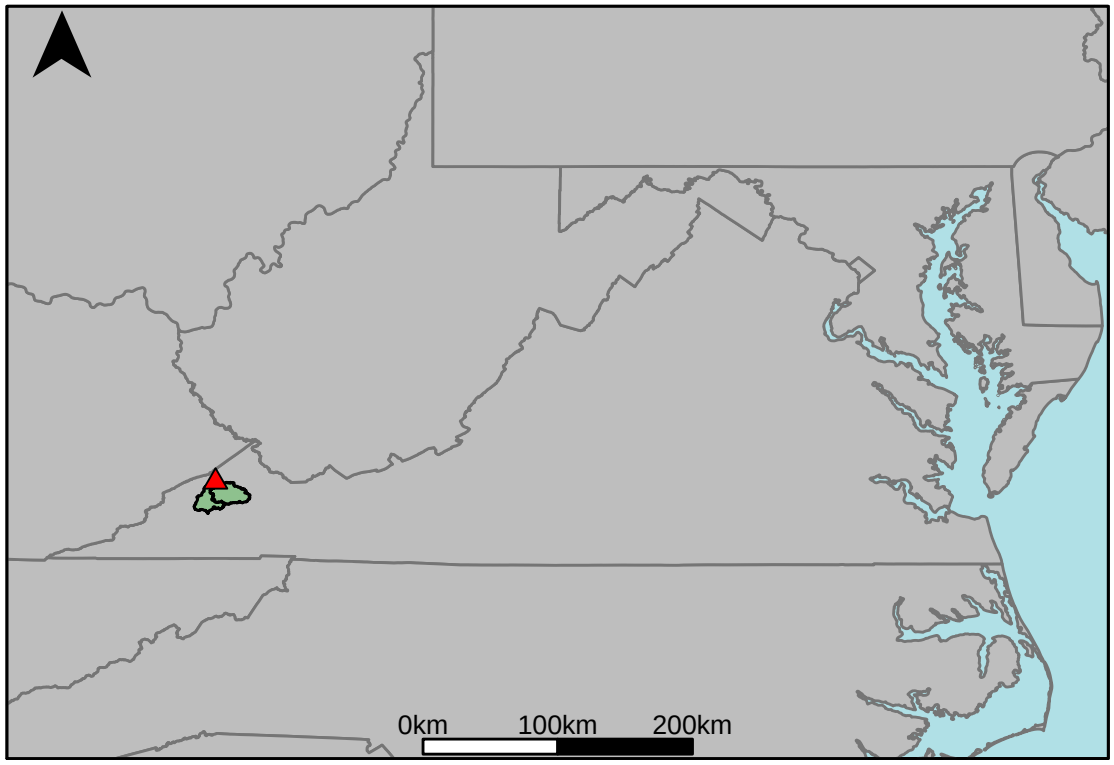
Appendix A.3: USGS Gage 03208500 vs. BS2_8590_8440+BS3_8580_8440



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 -2.73%, with 52.9% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	26	42.9	65
Feb. Low Flow	26.2	74.3	184
Mar. Low Flow	60	159	165
Apr. Low Flow	111	209	88.3
May Low Flow	191	245	28.3
Jun. Low Flow	218	246	12.8
Jul. Low Flow	258	173	-32.9
Aug. Low Flow	120	109	-9.17
Sep. Low Flow	64	72.2	12.8
Oct. Low Flow	56	41	-26.8
Nov. Low Flow	39	35.2	-9.74
Dec. Low Flow	27	28.8	6.67

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	366	376	2.73
Jan. Mean Flow	488	527	7.99
Feb. Mean Flow	733	763	4.09
Mar. Mean Flow	751	672	-10.5
Apr. Mean Flow	674	507	-24.8
May Mean Flow	433	401	-7.39
Jun. Mean Flow	281	264	-6.05
Jul. Mean Flow	194	171	-11.9
Aug. Mean Flow	122	163	33.6
Sep. Mean Flow	94.3	147	55.9
Oct. Mean Flow	108	195	80.6
Nov. Mean Flow	177	283	59.9
Dec. Mean Flow	357	444	24.4

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	126	269	113
Feb. High Flow	955	1230	28.8
Mar. High Flow	1250	1120	-10.4
Apr. High Flow	1820	1280	-29.7
May High Flow	3640	2670	-26.6
Jun. High Flow	2040	1690	-17.2
Jul. High Flow	1300	1310	0.77
Aug. High Flow	1320	1420	7.58
Sep. High Flow	508	485	-4.53
Oct. High Flow	437	370	-15.3
Nov. High Flow	363	500	37.7
Dec. High Flow	246	225	-8.54

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	8.2	1.29	-84.3
Med. 1 Day Min	17	14.5	-14.7
Min. 3 Day Min	8.73	1.84	-78.9
Med. 3 Day Min	17.6	15.8	-10.2
Min. 7 Day Min	9.17	3.17	-65.4
Med. 7 Day Min	20.3	19.3	-4.93
Min. 30 Day Min	12.7	12.7	0
Med. 30 Day Min	28.8	40.3	39.9
Min. 90 Day Min	28.5	24.4	-14.4
Med. 90 Day Min	75.1	93	23.8
7Q10	12.3	6.12	-50.2
Year of 90-Day Min. Flow	1988	1988	0
Drought Year Mean	132	132	0
Mean Baseflow	143	173	21

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	15000	14100	-6
Med. 1 Day Max	5940	5950	0.17
Max. 3 Day Max	7440	8640	16.1
Med. 3 Day Max	3590	3180	-11.4
Max. 7 Day Max	4400	5590	27
Med. 7 Day Max	2570	2150	-16.3
Max. 30 Day Max	2030	2250	10.8
Med. 30 Day Max	1150	1100	-4.35
Max. 90 Day Max	1470	1650	12.2
Med. 90 Day Max	766	722	-5.74

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	15	12.2	-18.7
5% Non-Exceedance	24	28.8	20
50% Non-Exceedance	159	212	33.3
95% Non-Exceedance	1260	1150	-8.73
99% Non-Exceedance	3380	3100	-8.28
Sept. 10% Non-Exceedance	18.3	18	-1.64

Fig. 1: Hydrograph

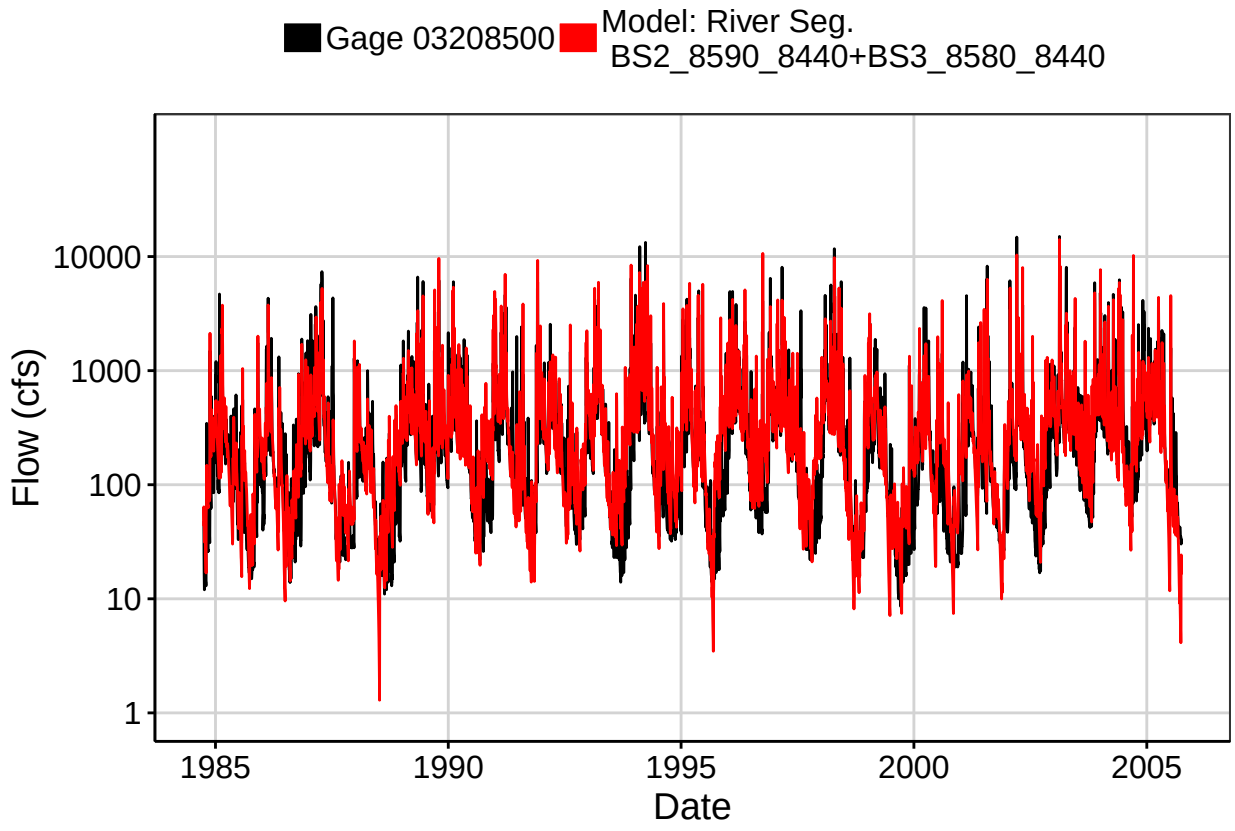


Fig. 2: Zoomed Hydrograph

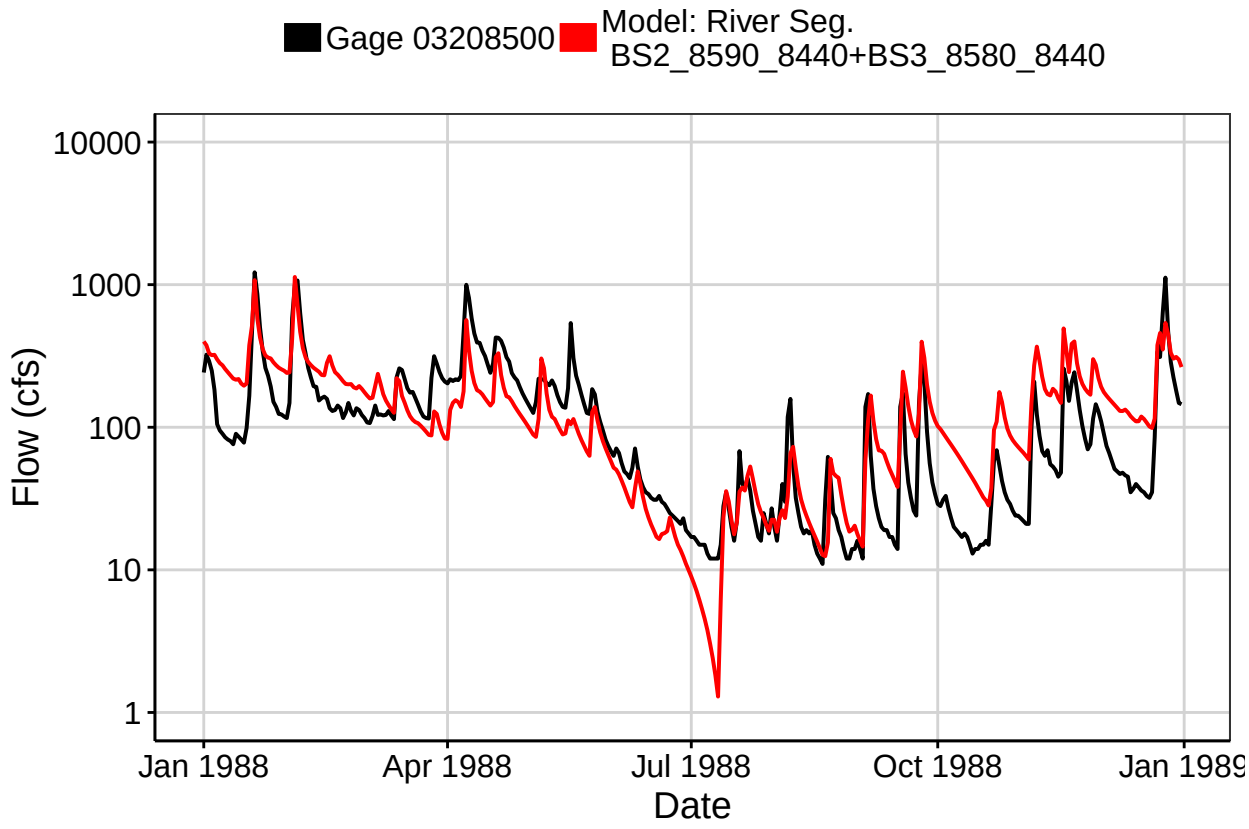


Fig. 3: Flow Exceedance

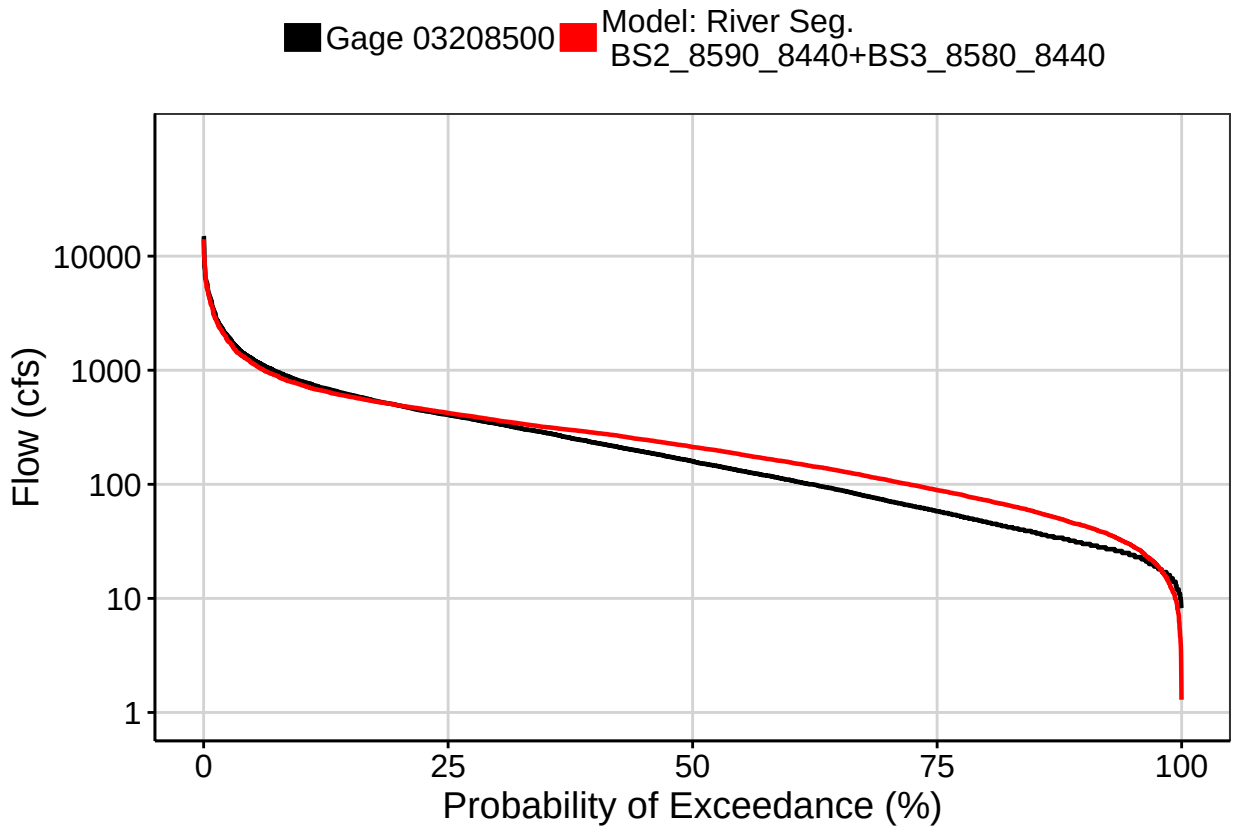


Fig. 4: Baseflow

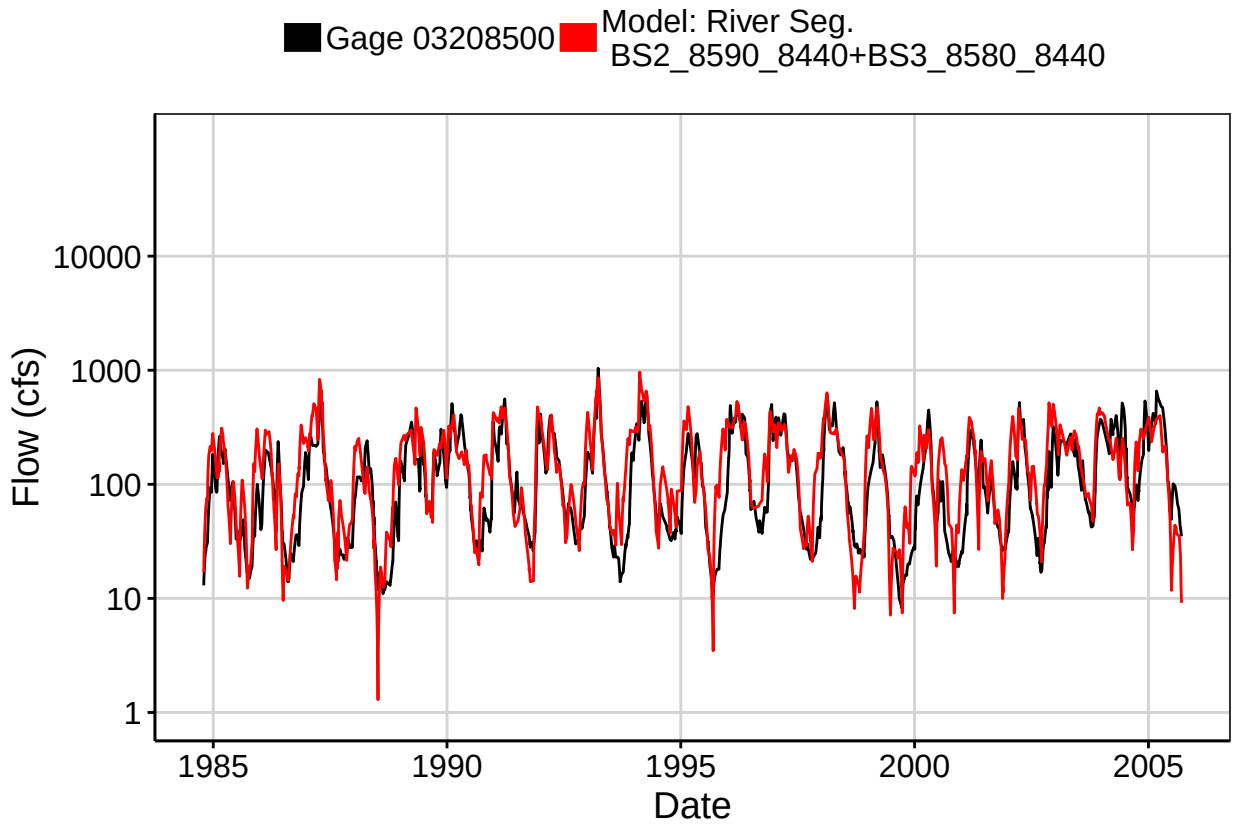


Fig. 5: Combined Baseflow

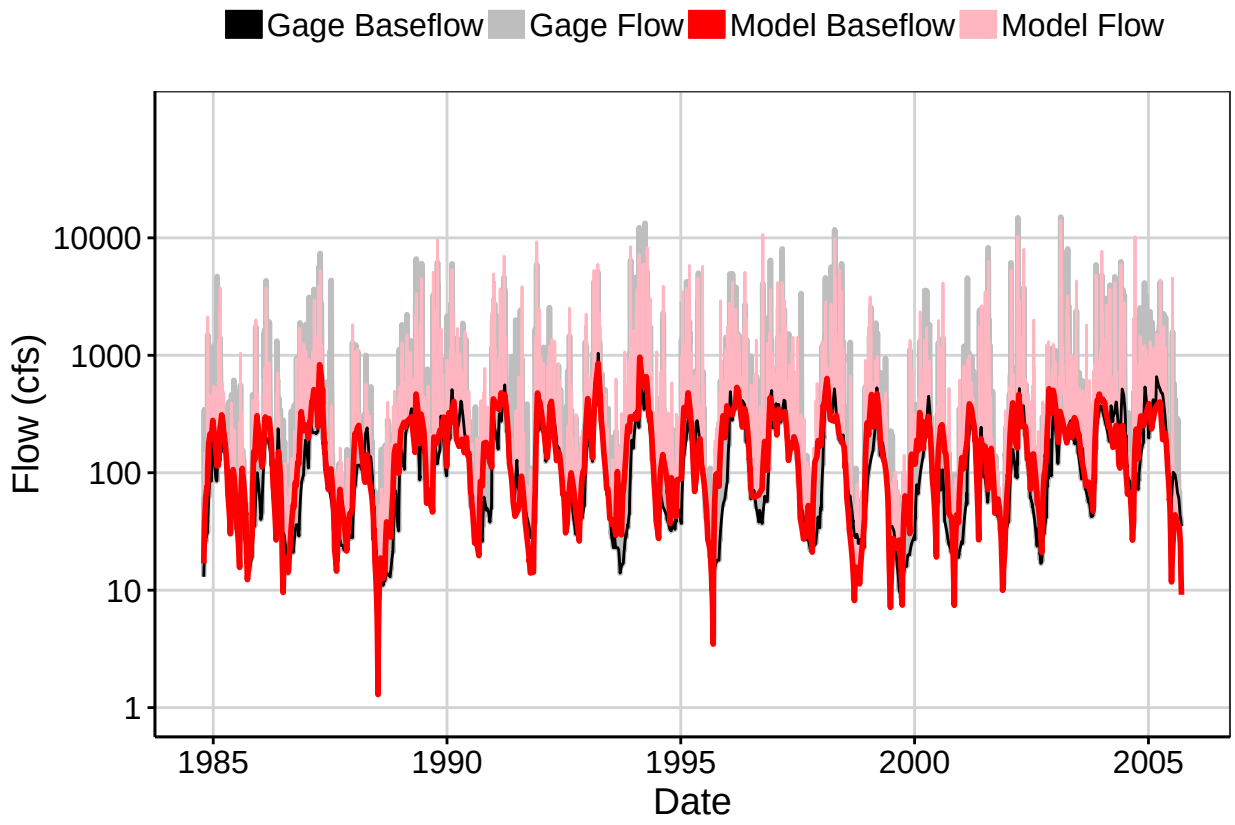


Fig. 6: Largest Error Segment

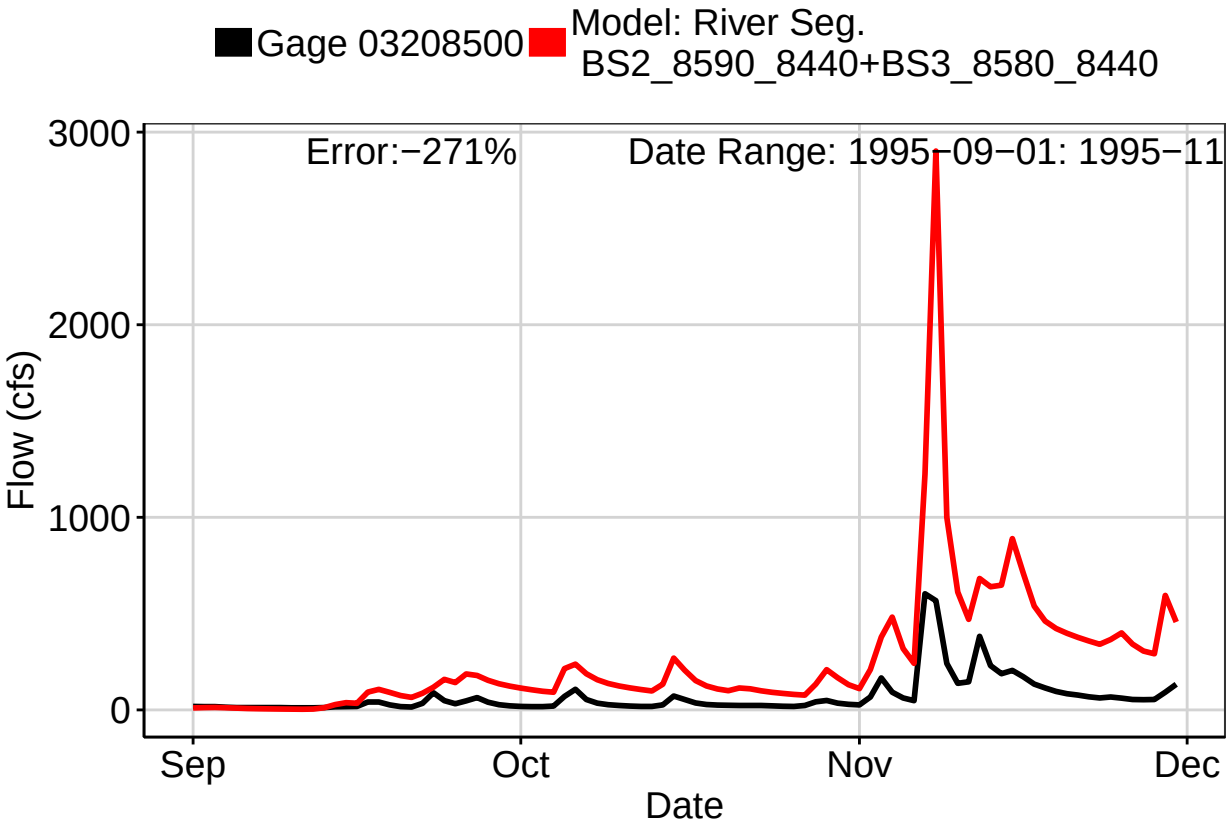


Fig. 7: Second Largest Error Segment

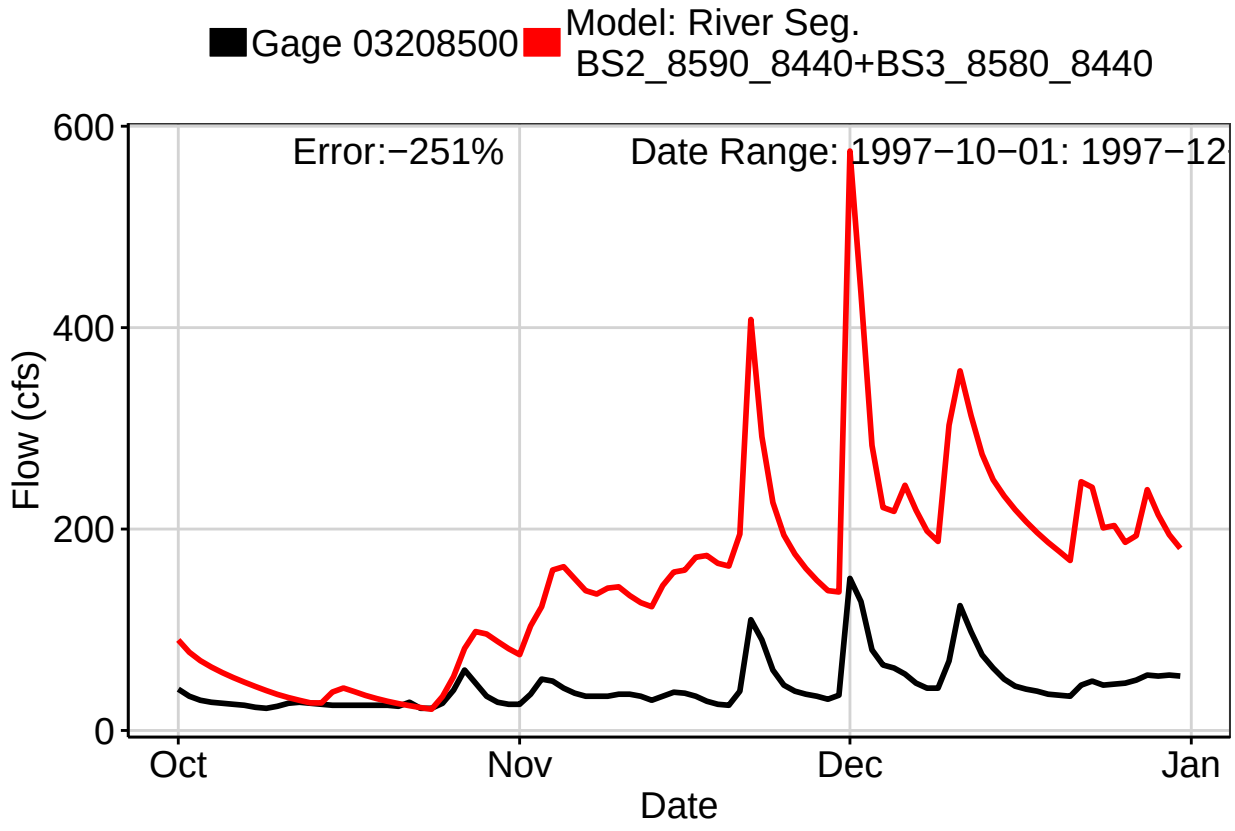


Fig. 8: Third Largest Error Segment

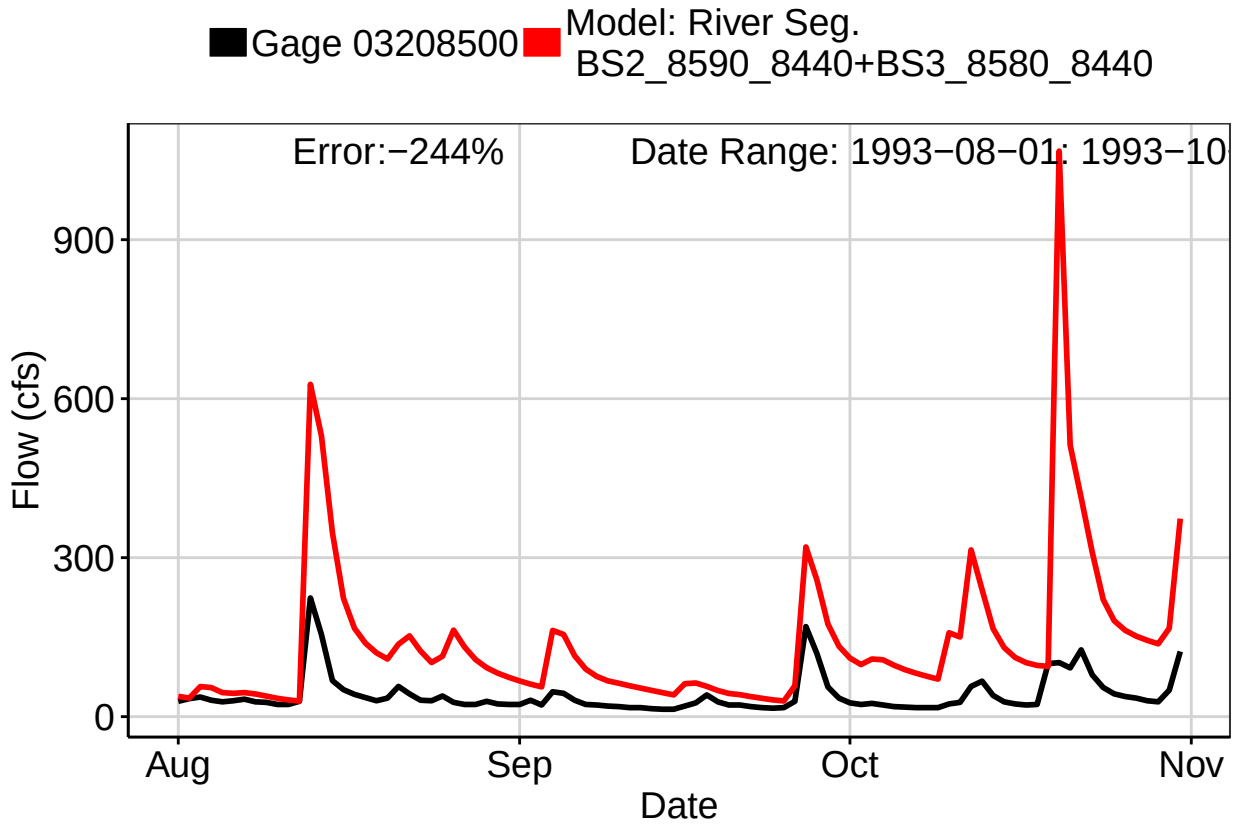


Fig. 9: Residuals Plot