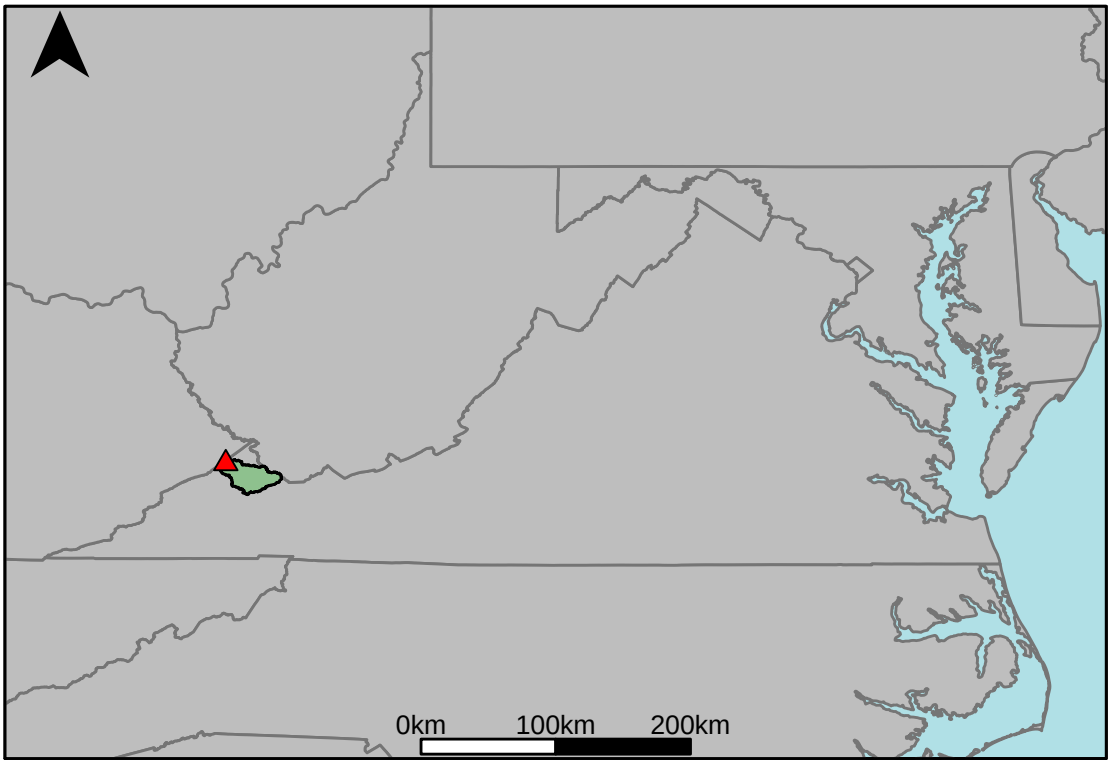
Appendix A.4: USGS Gage 03207800 vs. BS3_8350_8330



This river segment follows part of the flow of the Levisa Fork of the Big Sandy River. The gage is located in Buchanan County, VA (Lat 3721'13", Long 8211'45") approximately 40 miles northeast of Norton, VA. Drainage area is 297 sq. miles. This gage started taking data in 1967 and is still taking data. This area is not regulated and should not have any anthropogenic alterations to the flow. The average daily discharge error between the model and gage data for the 20 year timespan was -2.92%, with 57.1% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	32	55.7	74.1
Feb. Low Flow	38	65	71.1
Mar. Low Flow	88	172	95.5
Apr. Low Flow	140	270	92.9
May Low Flow	250	334	33.6
Jun. Low Flow	264	327	23.9
Jul. Low Flow	272	258	-5.15
Aug. Low Flow	154	171	11
Sep. Low Flow	90	120	33.3
Oct. Low Flow	62.8	6.33	-89.9
Nov. Low Flow	53	19	-64.2
Dec. Low Flow	33	12.2	-63

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	377	388	2.92
Jan. Mean Flow	495	533	7.68
Feb. Mean Flow	728	729	0.14
Mar. Mean Flow	742	677	-8.76
Apr. Mean Flow	691	566	-18.1
May Mean Flow	505	474	-6.14
Jun. Mean Flow	295	289	-2.03
Jul. Mean Flow	193	195	1.04
Aug. Mean Flow	138	175	26.8
Sep. Mean Flow	88	138	56.8
Oct. Mean Flow	110	189	71.8
Nov. Mean Flow	199	277	39.2
Dec. Mean Flow	362	431	19.1

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	186	229	23.1
Feb. High Flow	696	827	18.8
Mar. High Flow	1160	978	-15.7
Apr. High Flow	1650	1380	-16.4
May High Flow	2960	1620	-45.3
Jun. High Flow	2010	1740	-13.4
Jul. High Flow	1270	1150	-9.45
Aug. High Flow	1700	1290	-24.1
Sep. High Flow	507	595	17.4
Oct. High Flow	588	430	-26.9
Nov. High Flow	385	226	-41.3
Dec. High Flow	207	234	13

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	14	0	-100
Med. 1 Day Min	25.2	1.65	-93.5
Min. 3 Day Min	14.3	0	-100
Med. 3 Day Min	26.7	1.96	-92.7
Min. 7 Day Min	15.6	0	-100
Med. 7 Day Min	28.3	3.29	-88.4
Min. 30 Day Min	22.1	2.2	-90
Med. 30 Day Min	39.3	28.3	-28
Min. 90 Day Min	36.1	8.42	-76.7
Med. 90 Day Min	99.6	91.8	-7.83
7Q10	20.2	0	-100
Year of 90-Day Min. Flow	1988	1988	0
Drought Year Mean	121	148	22.3
Mean Baseflow	175	205	17.1

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	11200	12100	8.04
Med. 1 Day Max	4510	5450	20.8
Max. 3 Day Max	5880	7120	21.1
Med. 3 Day Max	3110	3410	9.65
Max. 7 Day Max	3520	4980	41.5
Med. 7 Day Max	2040	2200	7.84
Max. 30 Day Max	2370	2380	0.42
Med. 30 Day Max	1120	1010	-9.82
Max. 90 Day Max	1360	1520	11.8
Med. 90 Day Max	778	730	-6.17

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	23	0.72	-96.9
5% Non-Exceedance	32	7.86	-75.4
50% Non-Exceedance	188	250	33
95% Non-Exceedance	1250	1140	-8.8
99% Non-Exceedance	2820	2910	3.19
Sept. 10% Non-Exceedance	2.41	27	1020

Fig. 1: Hydrograph

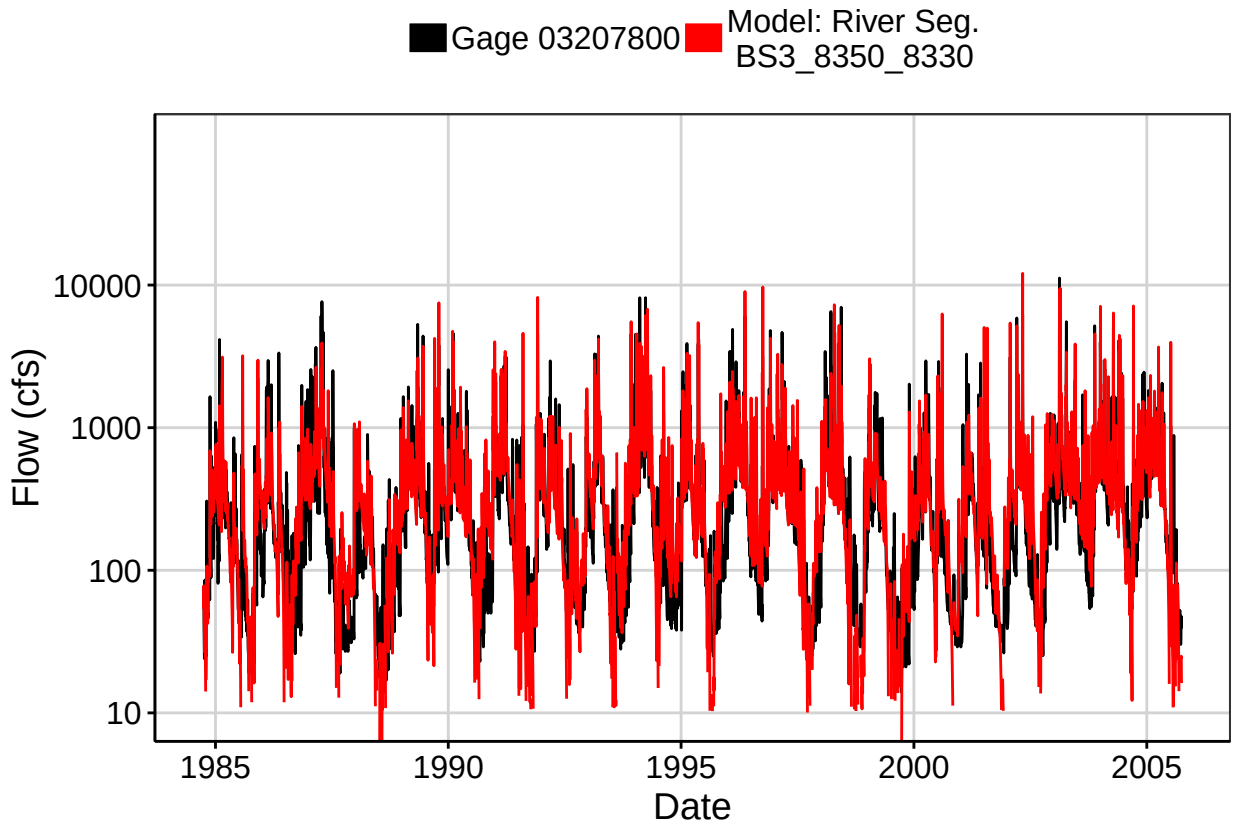


Fig. 2: Zoomed Hydrograph

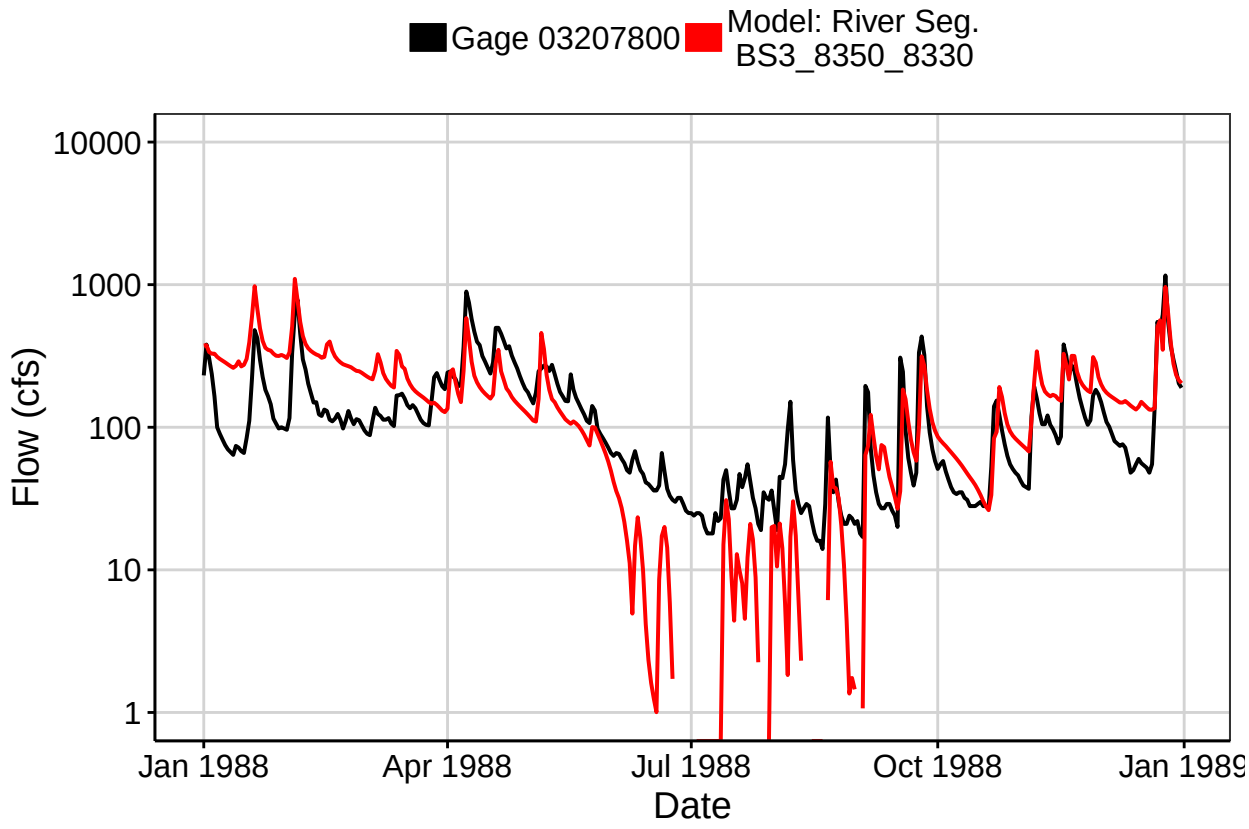


Fig. 3: Flow Exceedance

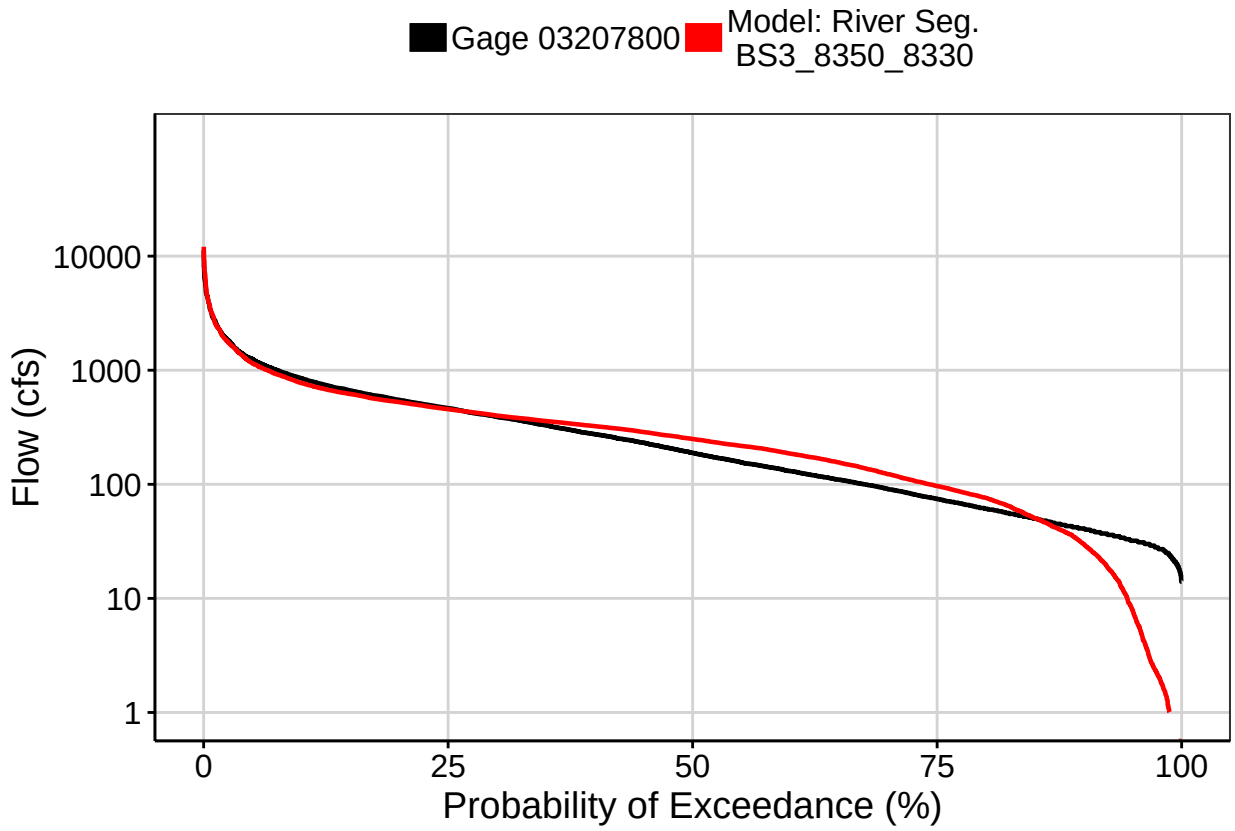


Fig. 4: Baseflow

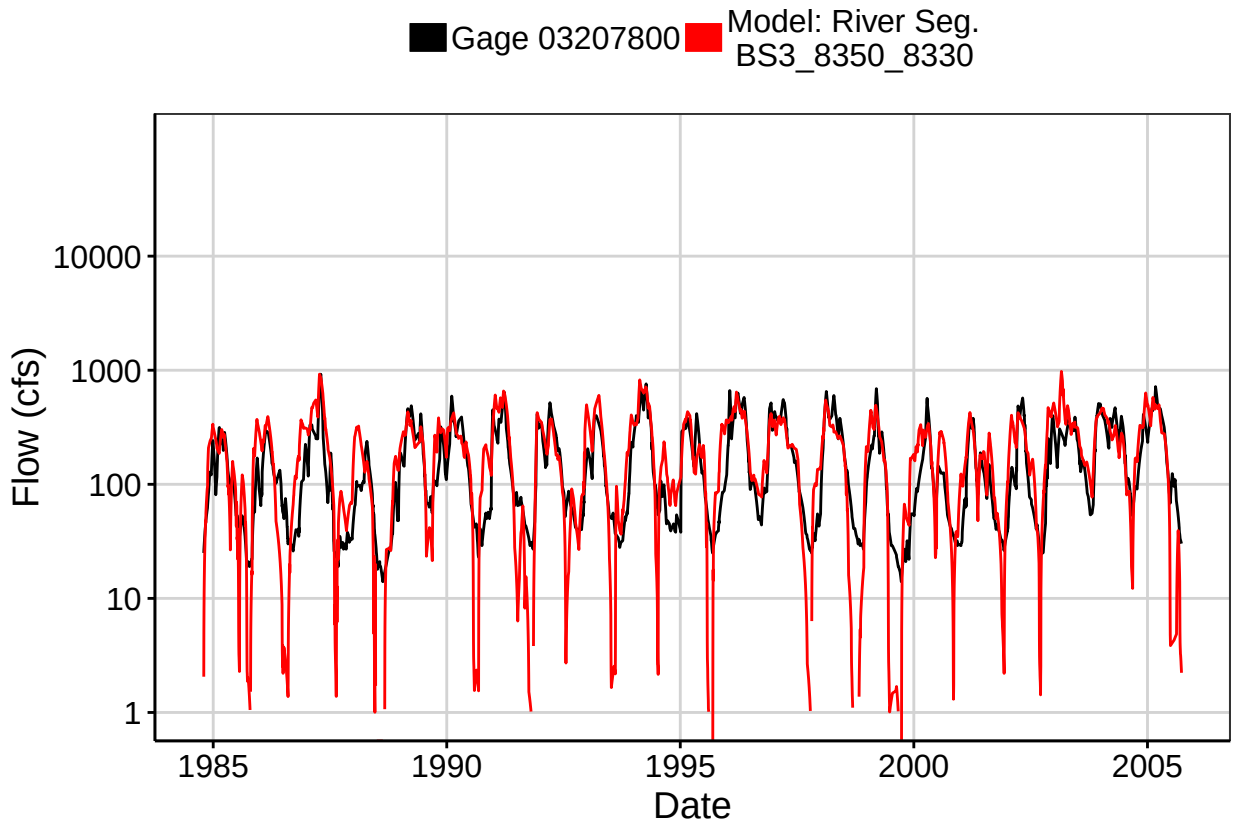


Fig. 5: Combined Baseflow

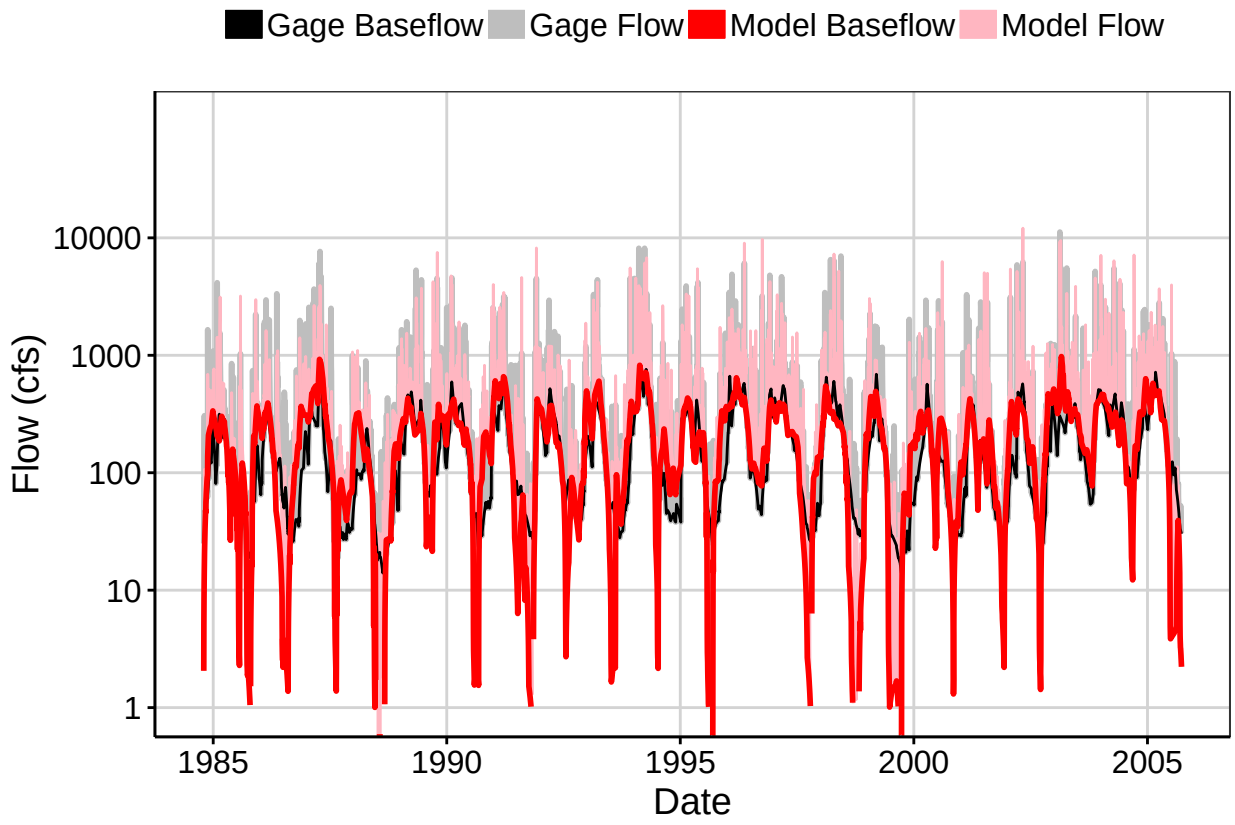


Fig. 6: Largest Error Segment

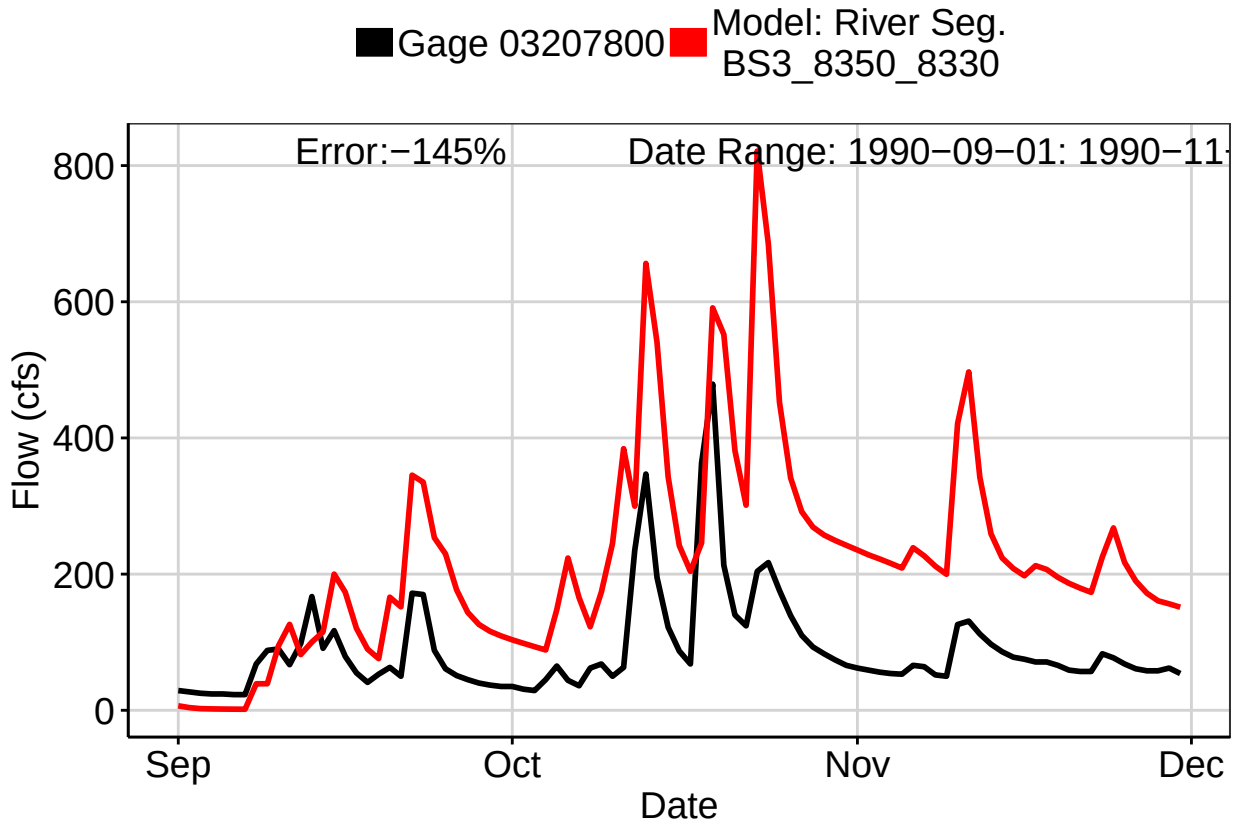


Fig. 7: Second Largest Error Segment

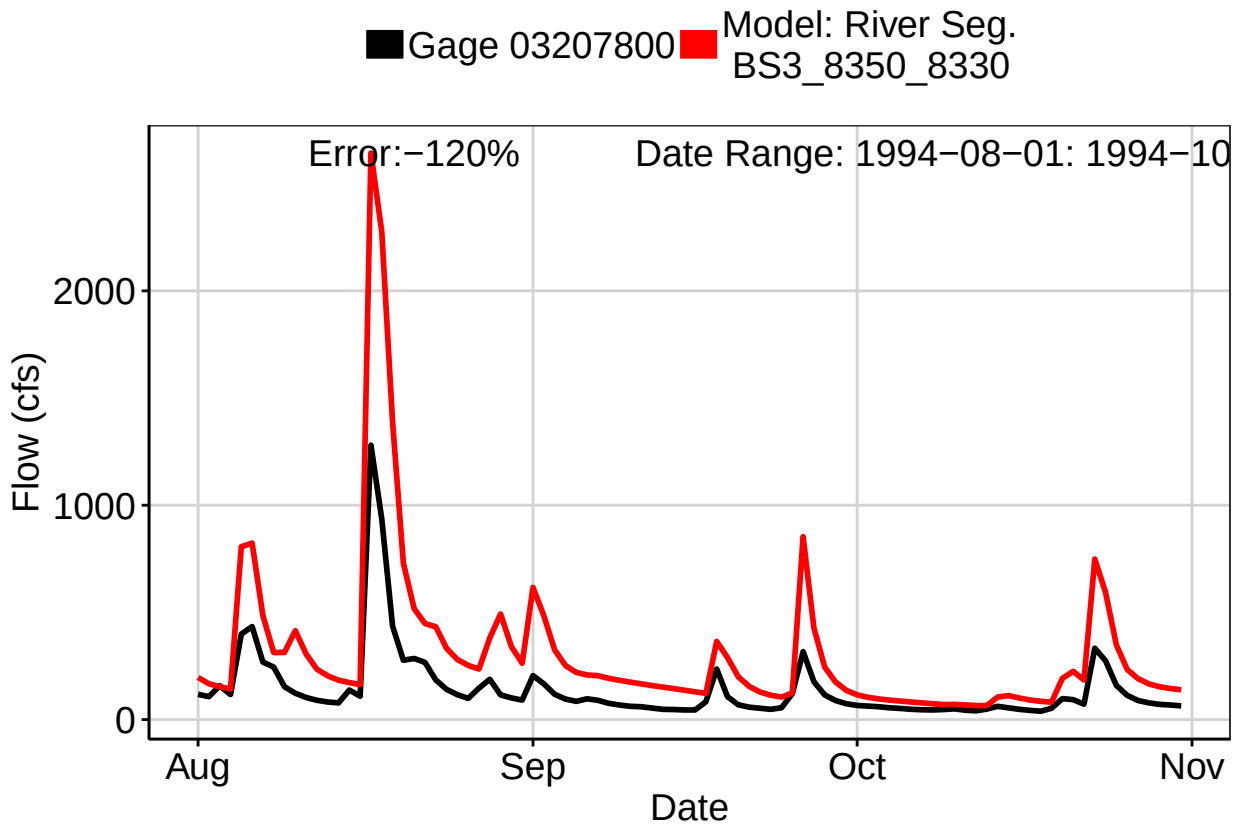


Fig. 8: Third Largest Error Segment

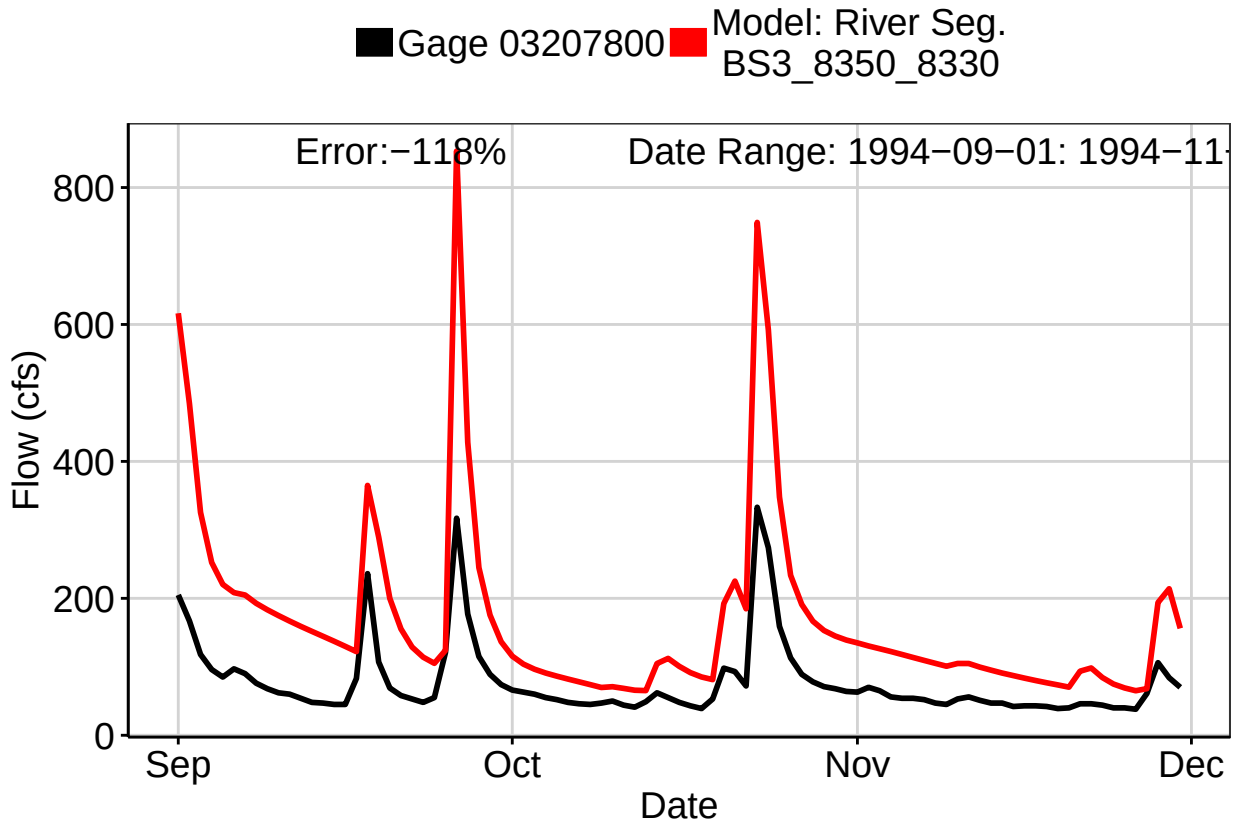


Fig. 9: Residuals Plot