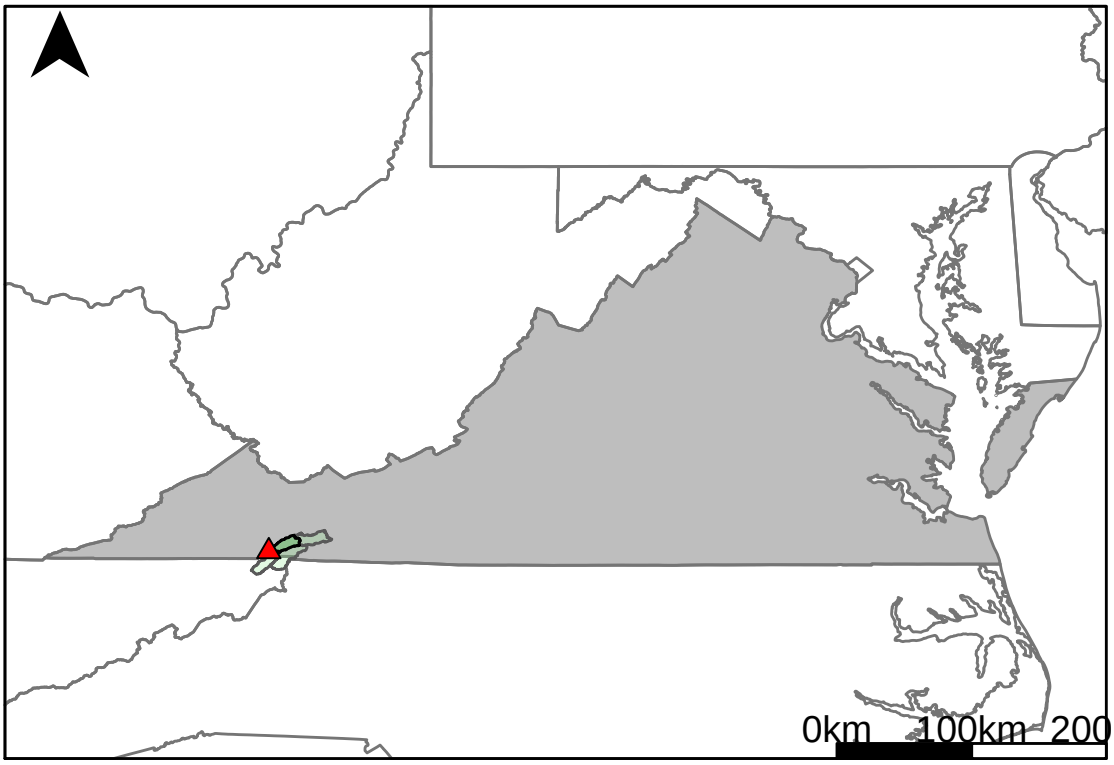
Appendix D.2: USGS Gage 03473000 vs. TU3_9040_9180+TU2_9200_9180



This river segment follows part of the flow of the South Fork of the Holston River, a tributary of the Tennessee River. The gage is located in Washington County, VA (Lat 3639'06", Long 8150'39") approximately 20 miles northeast of Bristol, VA. Drainage area is 303 sq. miles. This gage started taking data in 1931 and is still taking data. There may be some diurnal fluctuations during low flows due to a number of small dams upstream, as years have gone on many dams have been removed but the total number is unknown. The average daily discharge error between the model and gage data for the 20 year timespan was 59.7%, with 36.7% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	97	34.5	64.4
Feb. Low Flow	111	54.5	50.9
Mar. Low Flow	183	71.3	61
Apr. Low Flow	210	112	46.7
May Low Flow	339	152	55.2
Jun. Low Flow	373	175	53.1
Jul. Low Flow	378	131	65.3
Aug. Low Flow	289	92.1	68.1
Sep. Low Flow	182	84.2	53.7
Oct. Low Flow	131	54.3	58.5
Nov. Low Flow	122	56.4	53.8
Dec. Low Flow	100	43.2	56.8

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	469	189	59.7
Jan. Mean Flow	616	247	59.9
Feb. Mean Flow	826	347	58
Mar. Mean Flow	806	353	56.2
Apr. Mean Flow	730	269	63.2
May Mean Flow	599	189	68.4
Jun. Mean Flow	407	153	62.4
Jul. Mean Flow	300	112	62.7
Aug. Mean Flow	225	108	52
Sep. Mean Flow	202	92.3	54.3
Oct. Mean Flow	176	95.8	45.6
Nov. Mean Flow	306	132	56.9
Dec. Mean Flow	459	183	60.1

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	205	90.7	55.8
Feb. High Flow	526	189	64.1
Mar. High Flow	1450	261	82
Apr. High Flow	1650	782	52.6
May High Flow	2640	781	70.4
Jun. High Flow	2080	974	53.2
Jul. High Flow	1420	461	67.5
Aug. High Flow	1530	401	73.8
Sep. High Flow	802	232	71.1
Oct. High Flow	596	175	70.6
Nov. High Flow	362	150	58.6
Dec. High Flow	285	123	56.8

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	65	7.43	88.6
Med. 1 Day Min	83	21.9	73.6
Min. 3 Day Min	65	7.63	88.3
Med. 3 Day Min	84	22.7	73
Min. 7 Day Min	66.9	8.4	87.4
Med. 7 Day Min	88.6	24	72.9
Min. 30 Day Min	86.3	16.1	81.3
Med. 30 Day Min	101	33	67.3
Min. 90 Day Min	96.2	38.8	59.7
Med. 90 Day Min	174	64.9	62.7
7Q10	71.5	12.5	82.5
Year of 90-Day Min. Flow	1988	1988	0
Drought Year Mean	245	189	22.9
Mean Baseflow	266	119	55.3

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	10400	3880	62.7
Med. 1 Day Max	4840	1970	59.3
Max. 3 Day Max	6920	2560	63
Med. 3 Day Max	3430	1310	61.8
Max. 7 Day Max	4480	1590	64.5
Med. 7 Day Max	2200	764	65.3
Max. 30 Day Max	2000	954	52.3
Med. 30 Day Max	1160	460	60.3
Max. 90 Day Max	1330	662	50.2
Med. 90 Day Max	891	380	57.4

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	79	18	77.2
5% Non-Exceedance	93	30.6	67.1
50% Non-Exceedance	312	129	58.7
95% Non-Exceedance	1310	502	61.7
99% Non-Exceedance	2670	1050	60.7
Sept. 10% Non-Exceedance	64.4	27.4	57.5

Fig. 1: Hydrograph

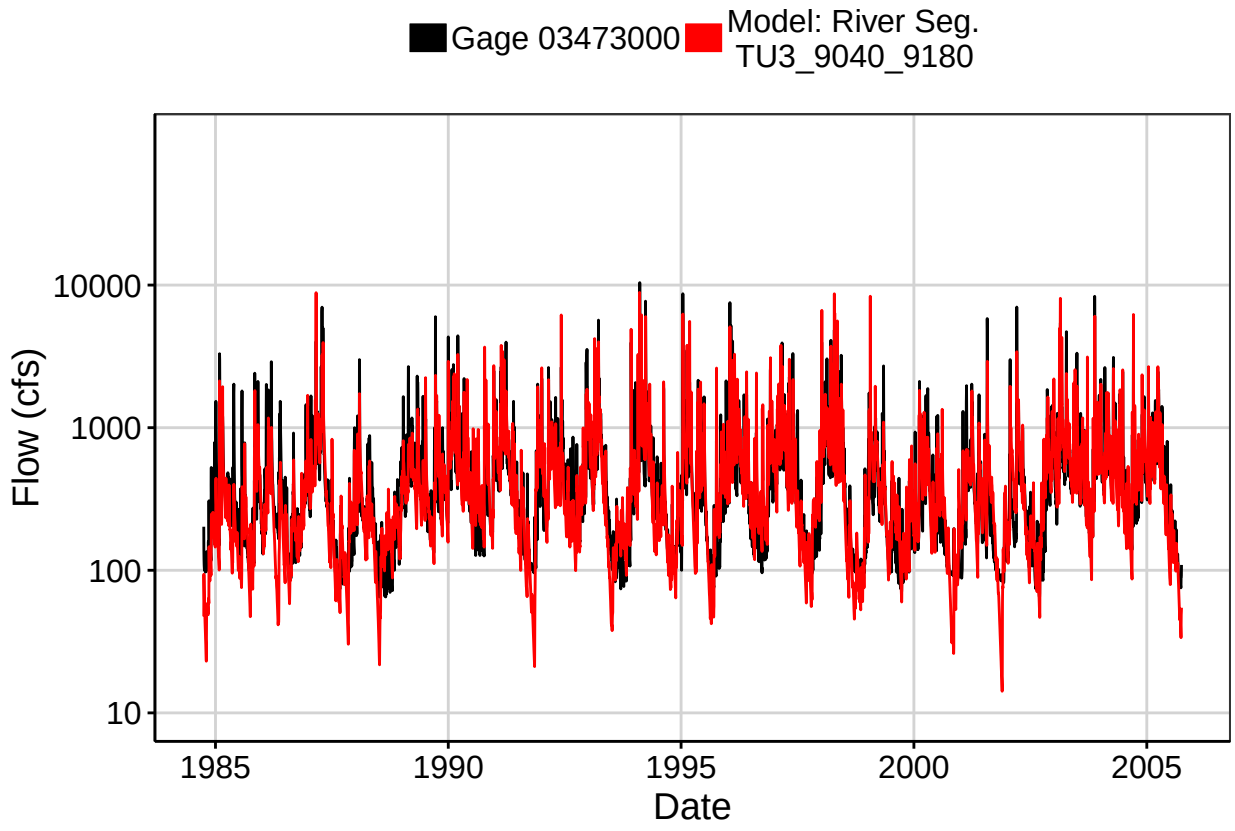


Fig. 2: Zoomed Hydrograph

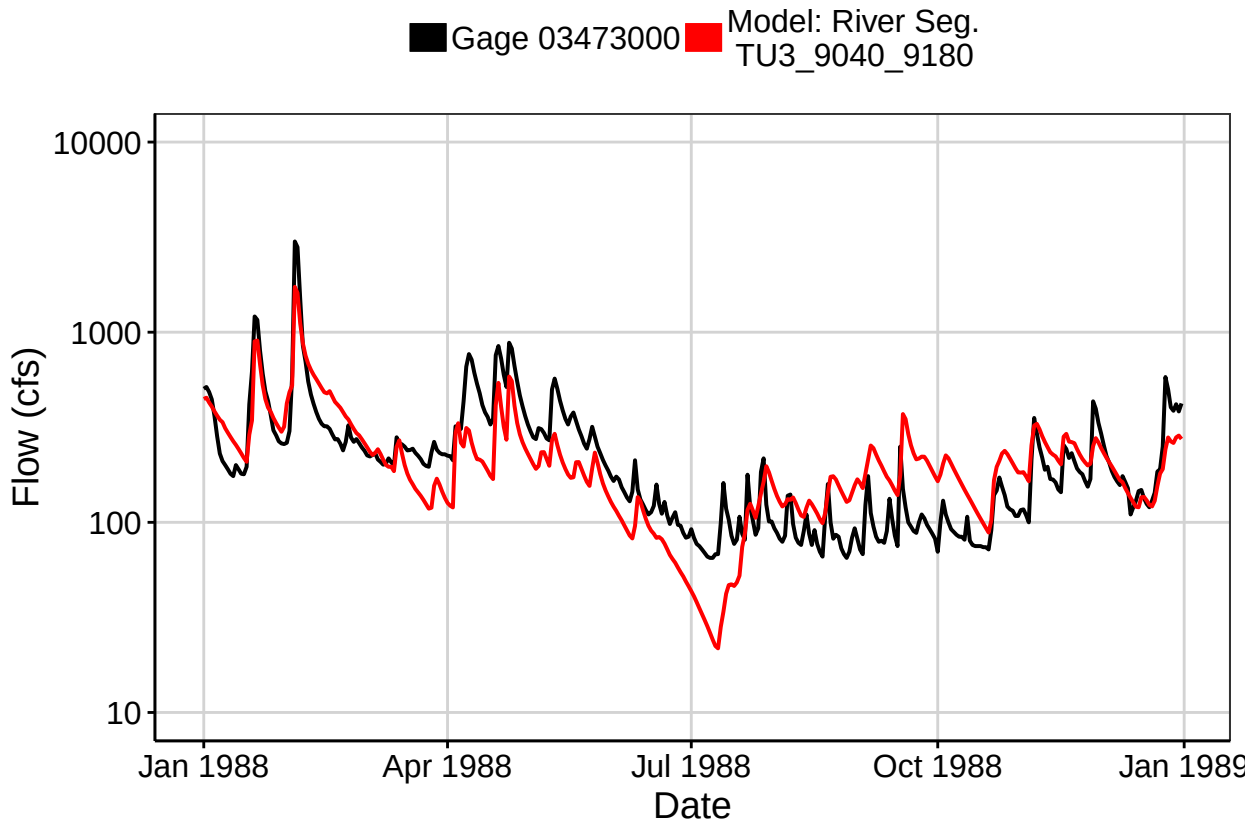


Fig. 3: Flow Exceedance

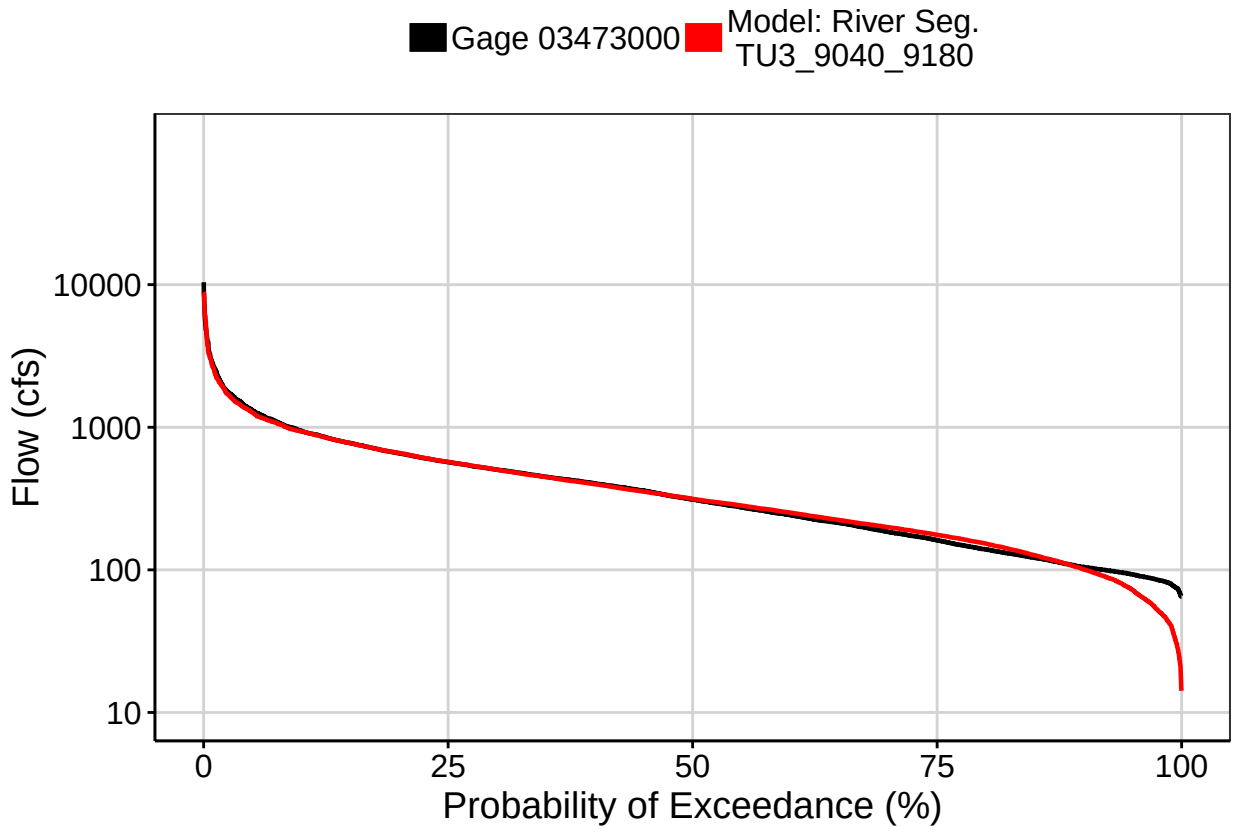


Fig. 4: Baseflow

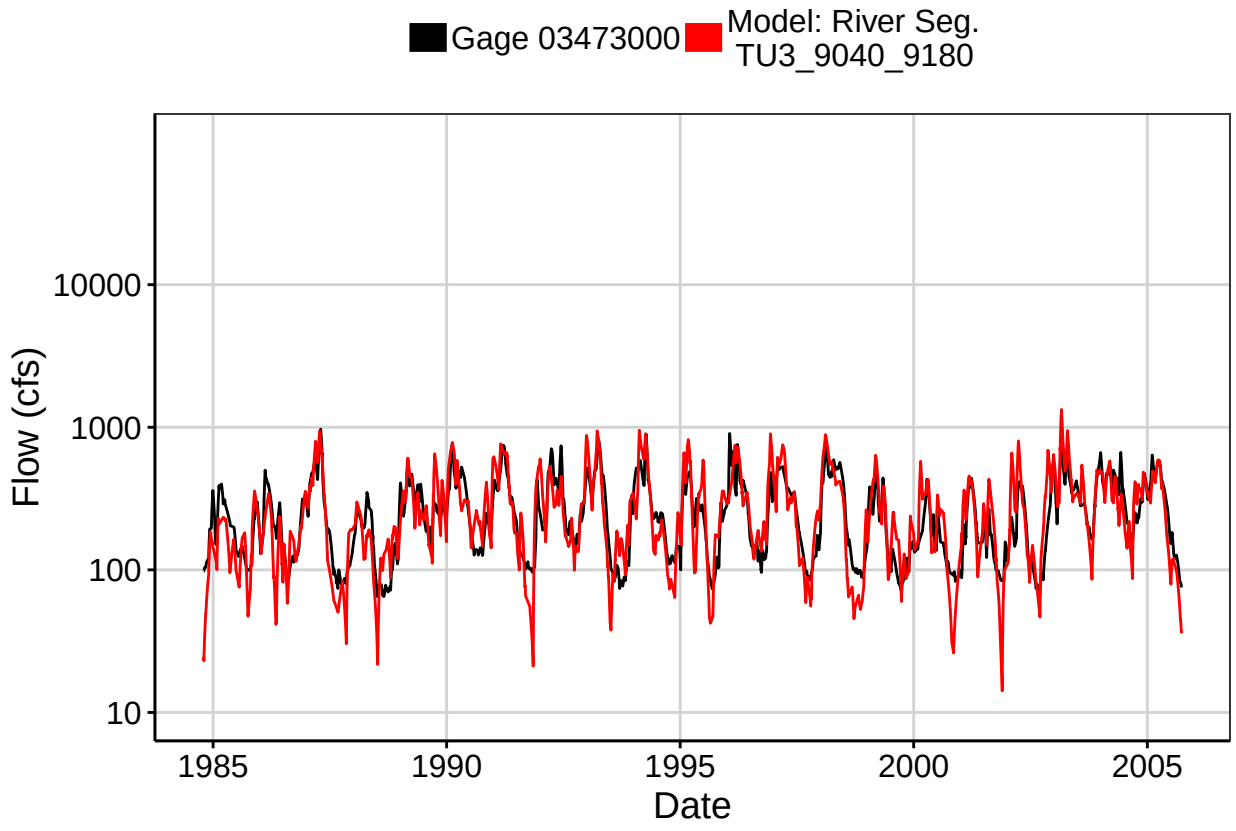


Fig. 5: Combined Baseflow

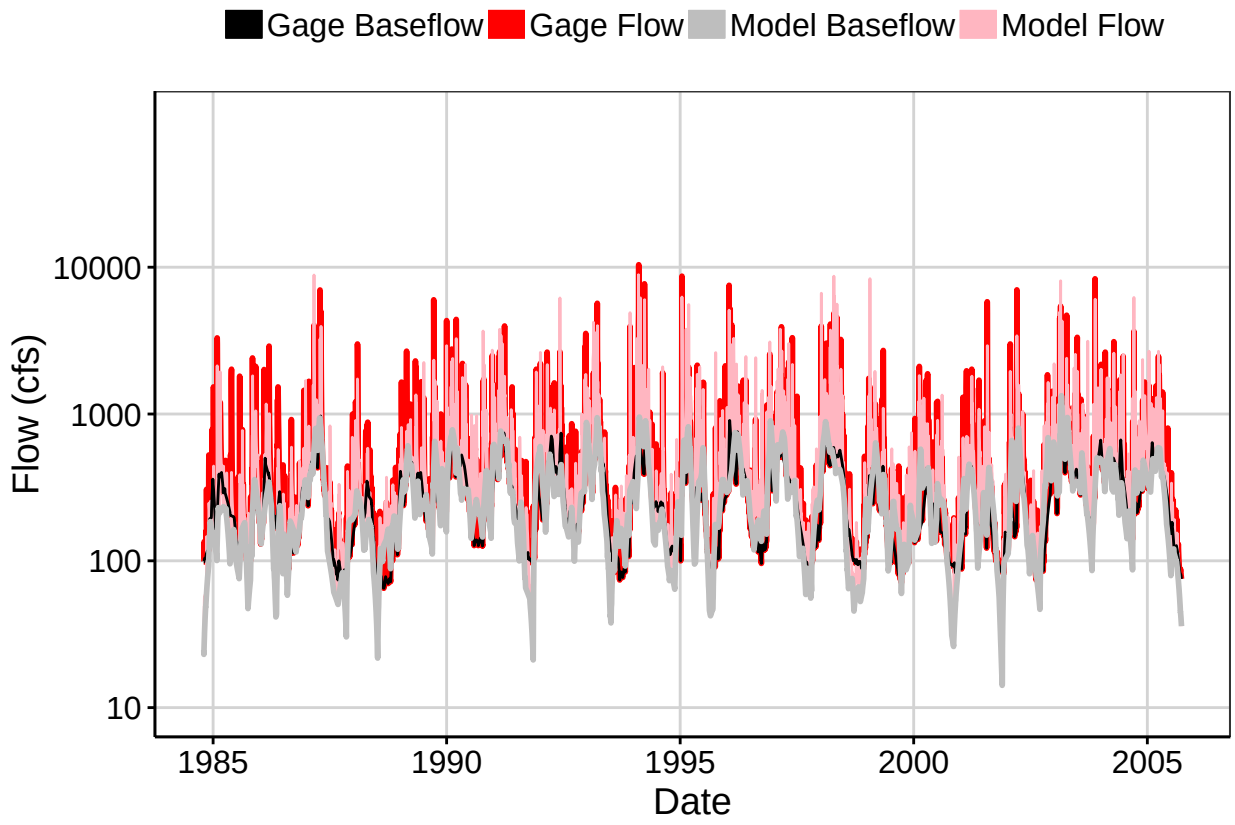


Fig. 6: Largest Error Segment

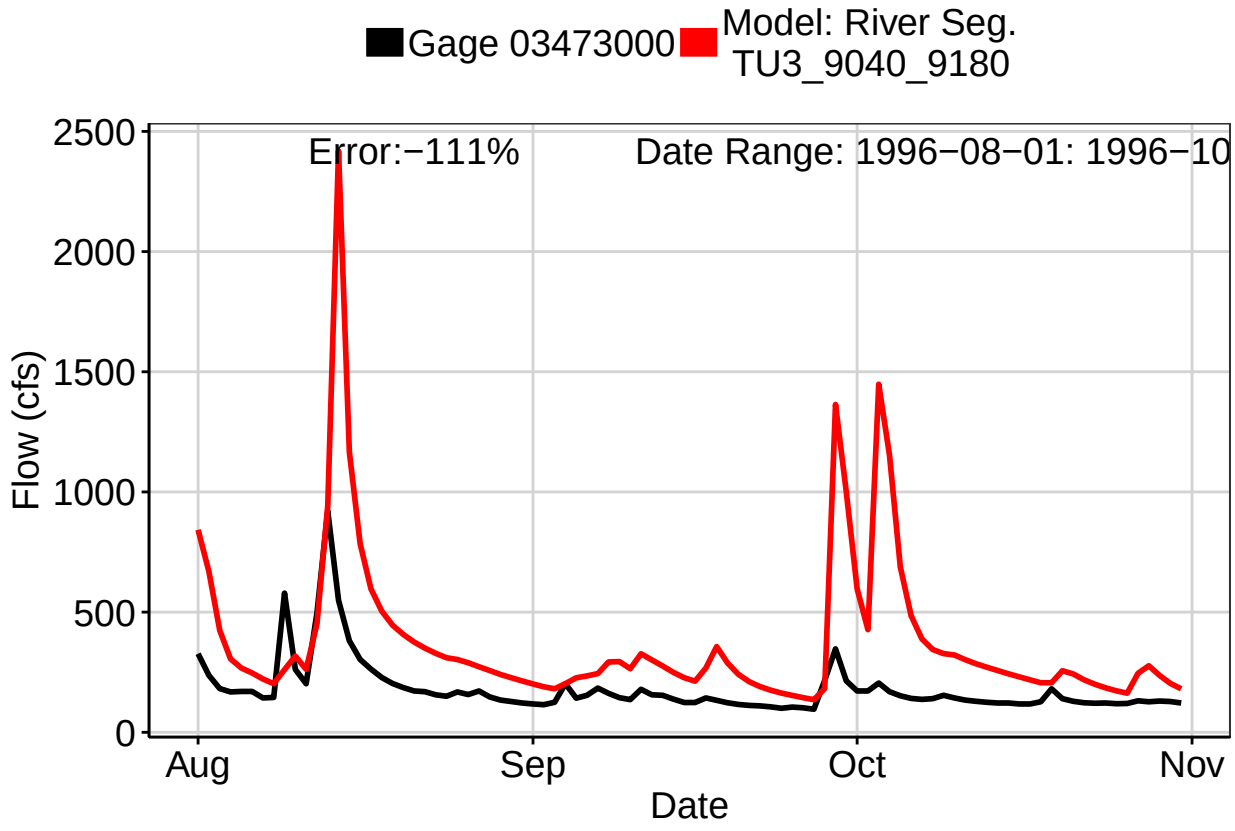


Fig. 7: Second Largest Error Segment

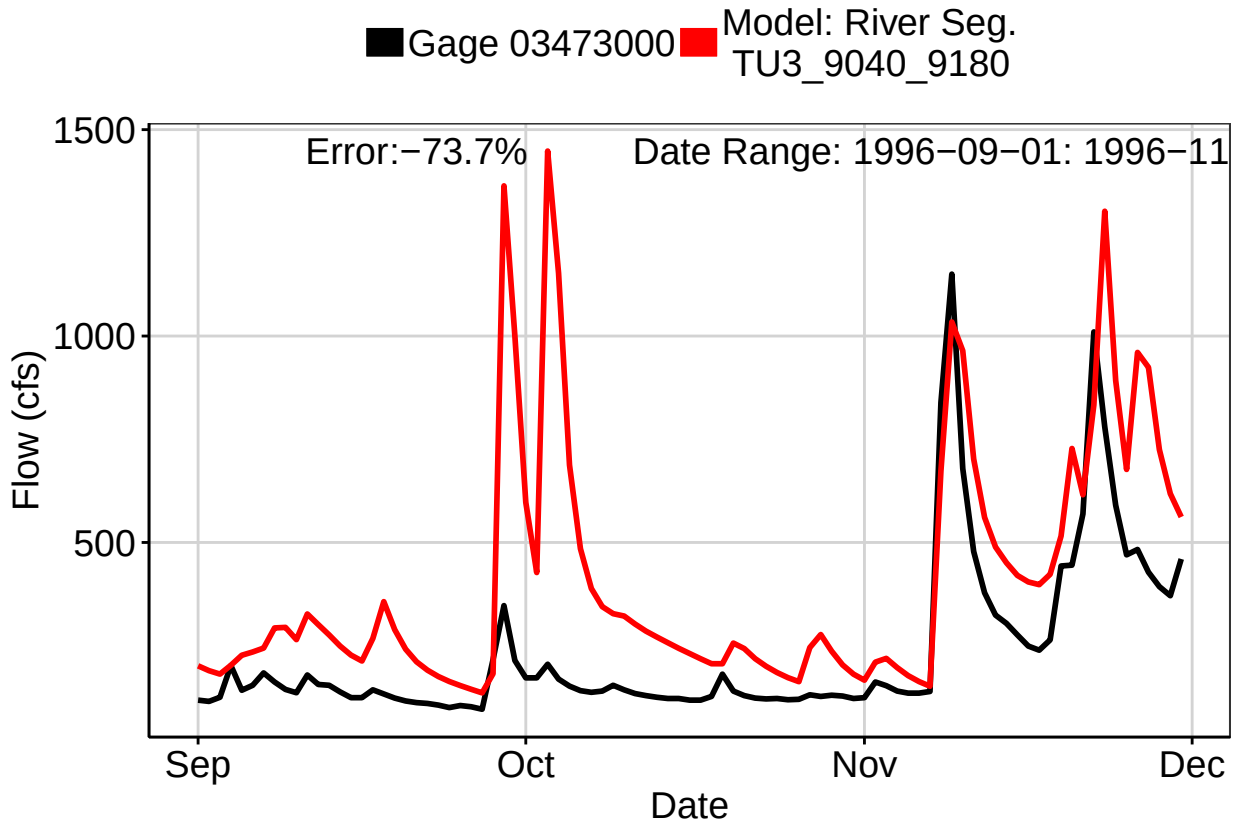


Fig. 8: Third Largest Error Segment

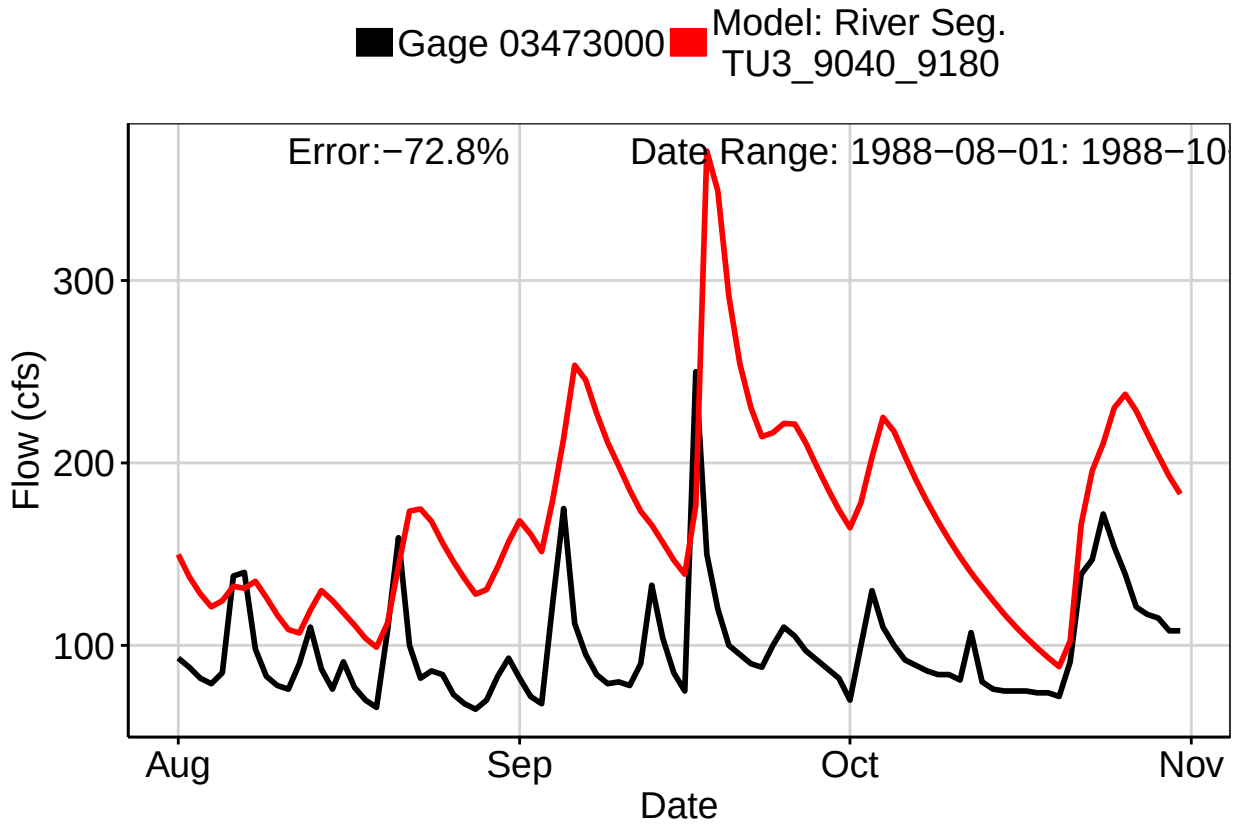


Fig. 9: Residuals Plot