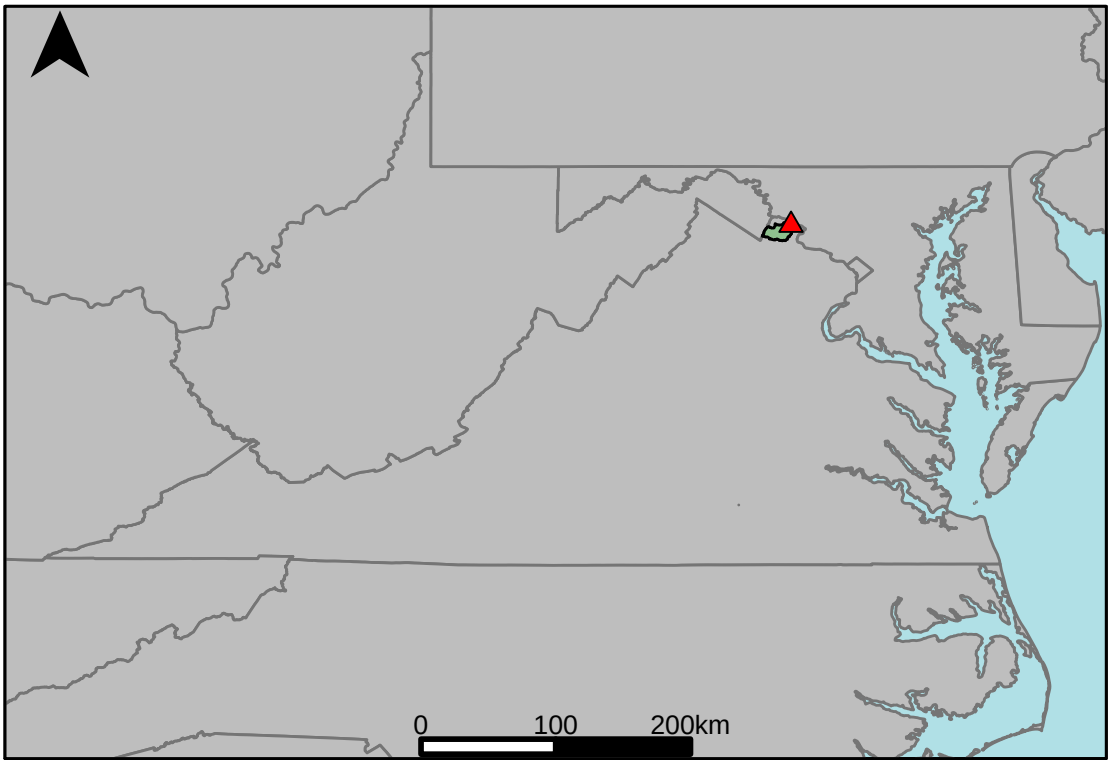
Appendix B.16: USGS Gage 01638480 vs. PM1_4430_4200 Middle Potomac River



This river segment follows part of the flow of the Catoctin Creek, a tributary of the Potomac. The gage is located in Loudoun County (Lat. 39°15'18.4", Long. -77°34'36.0"), approximately 3.5 miles east of Lovettsville, VA. Drainage area is 89.5 sq. miles. This gage started taking data in 1970 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 3.23%, with 47.9% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	6.56	14.2	116
Feb. Low Flow	16	21.7	35.6
Mar. Low Flow	29	42.5	46.6
Apr. Low Flow	37	45.9	24.1
May Low Flow	50	60.6	21.2
Jun. Low Flow	53	57.1	7.74
Jul. Low Flow	52	49.8	-4.23
Aug. Low Flow	35	29.8	-14.9
Sep. Low Flow	19	20.5	7.89
Oct. Low Flow	11	9.46	-14
Nov. Low Flow	5.25	4.73	-9.9
Dec. Low Flow	2.9	5.04	73.8

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	96.1	93	-3.23
Jan. Mean Flow	132	122	-7.58
Feb. Mean Flow	127	140	10.2
Mar. Mean Flow	197	163	-17.3
Apr. Mean Flow	151	125	-17.2
May Mean Flow	128	107	-16.4
Jun. Mean Flow	73.6	64.8	-12
Jul. Mean Flow	47.6	42.4	-10.9
Aug. Mean Flow	24.4	35.2	44.3
Sep. Mean Flow	49.8	68.6	37.8
Oct. Mean Flow	37.5	56.2	49.9
Nov. Mean Flow	65.7	84.4	28.5
Dec. Mean Flow	120	111	-7.5

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	97	78.1	-19.5
Feb. High Flow	274	253	-7.66
Mar. High Flow	319	234	-26.6
Apr. High Flow	290	277	-4.48
May High Flow	215	215	0
Jun. High Flow	788	488	-38.1
Jul. High Flow	416	319	-23.3
Aug. High Flow	238	265	11.3
Sep. High Flow	153	86.9	-43.2
Oct. High Flow	141	92.3	-34.5
Nov. High Flow	41	59.6	45.4
Dec. High Flow	60	77.3	28.8

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	0.09	0	-100
Med. 1 Day Min	1.4	1.14	-18.6
Min. 3 Day Min	0.09	0	-100
Med. 3 Day Min	2.06	1.23	-40.3
Min. 7 Day Min	0.1	0.01	-89.6
Med. 7 Day Min	2.09	1.49	-28.7
Min. 30 Day Min	0.45	0.48	6.01
Med. 30 Day Min	4.6	7.7	67.4
Min. 90 Day Min	2.5	5.21	108
Med. 90 Day Min	18.1	23.7	30.9
7Q10	0.3	0.08	-74.4
Year of 90-Day Min. Flow	1986	1991	100
Drought Year Mean	56.9	55.3	-2.81
Mean Baseflow	41.2	46.6	13.1

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	5400	4700	-13
Med. 1 Day Max	2140	1580	-26.2
Max. 3 Day Max	2320	2030	-12.5
Med. 3 Day Max	1080	870	-19.4
Max. 7 Day Max	1300	1160	-10.8
Med. 7 Day Max	622	468	-24.8
Max. 30 Day Max	654	452	-30.9
Med. 30 Day Max	346	238	-31.2
Max. 90 Day Max	449	352	-21.6
Med. 90 Day Max	214	156	-27.1

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	0.46	0.51	11.4
5% Non-Exceedance	2.4	3.71	54.6
50% Non-Exceedance	45	55.8	24
95% Non-Exceedance	313	270	-13.7
99% Non-Exceedance	874	737	-15.7
Sept. 10% Non-Exceedance	1.3	1.54	18.5

Fig. 1: Hydrograph

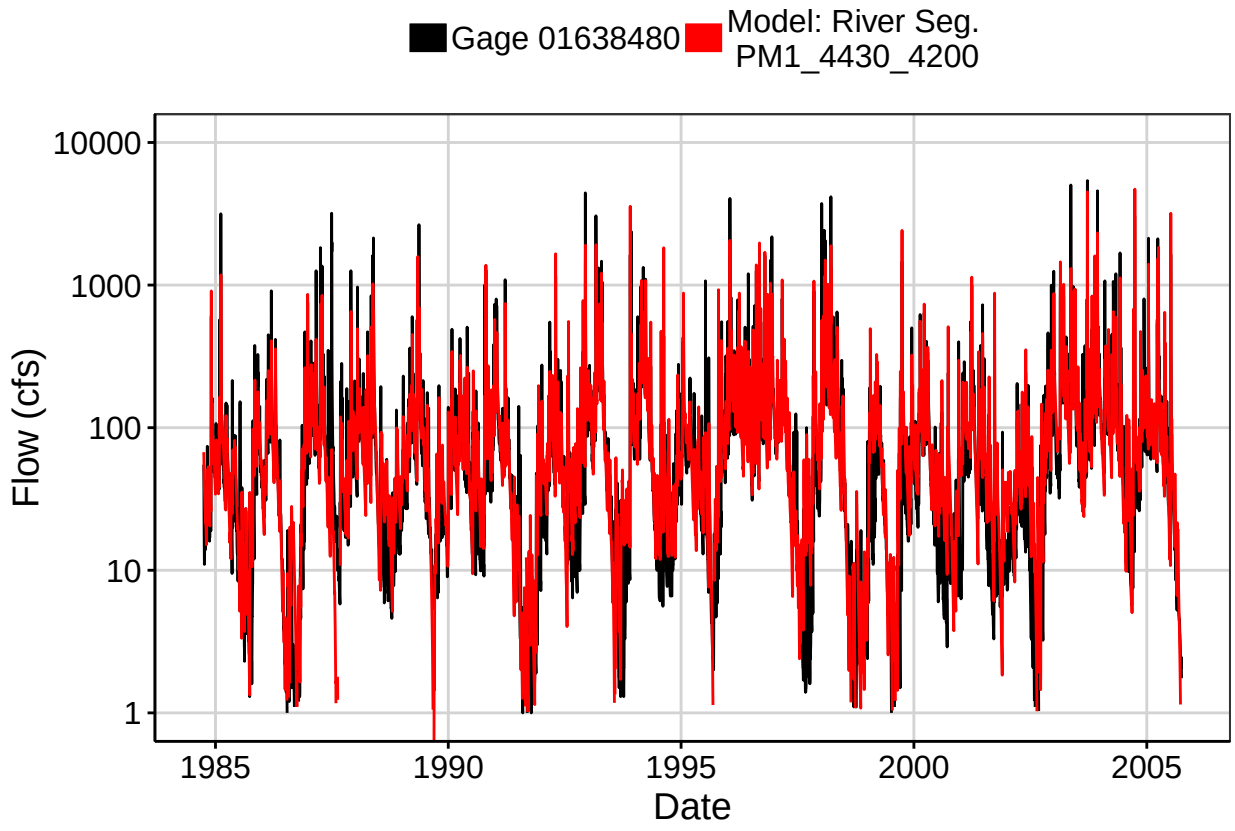


Fig. 2: Zoomed Hydrograph

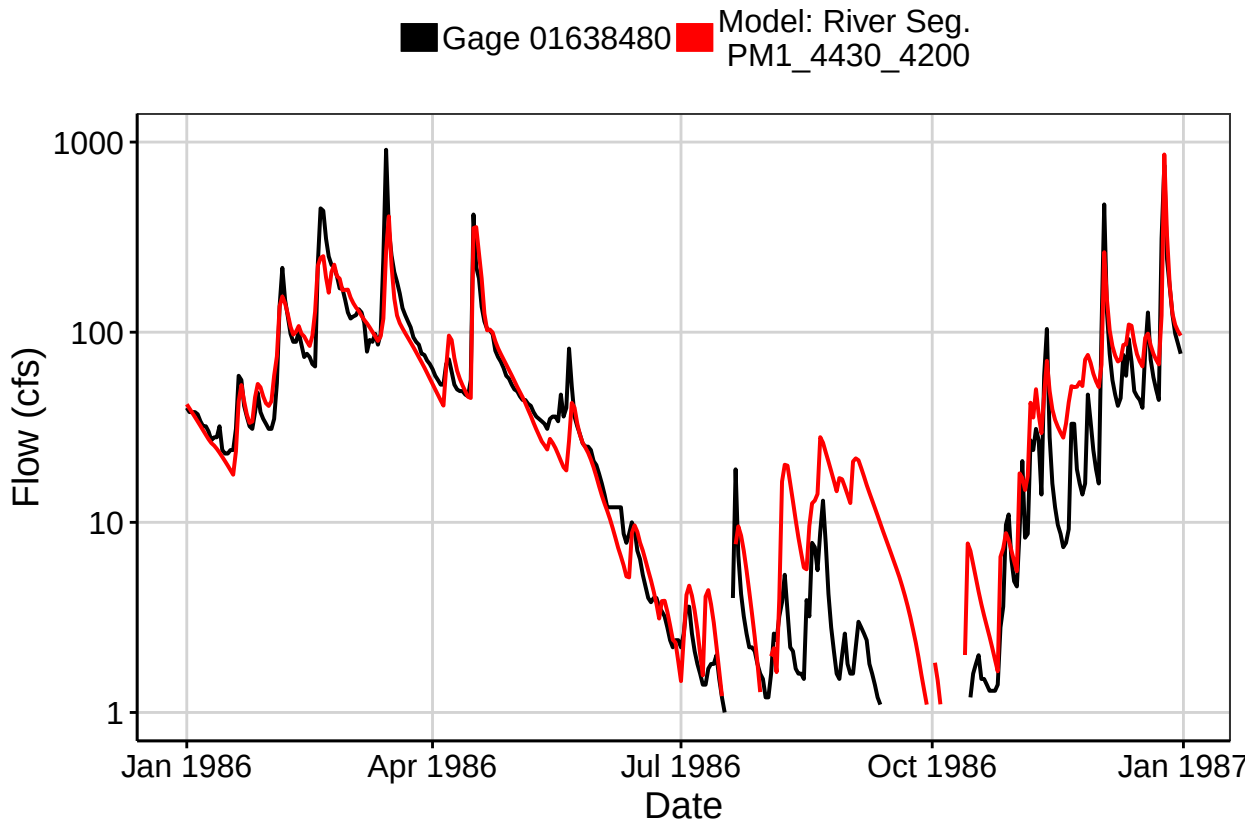


Fig. 3: Flow Exceedance

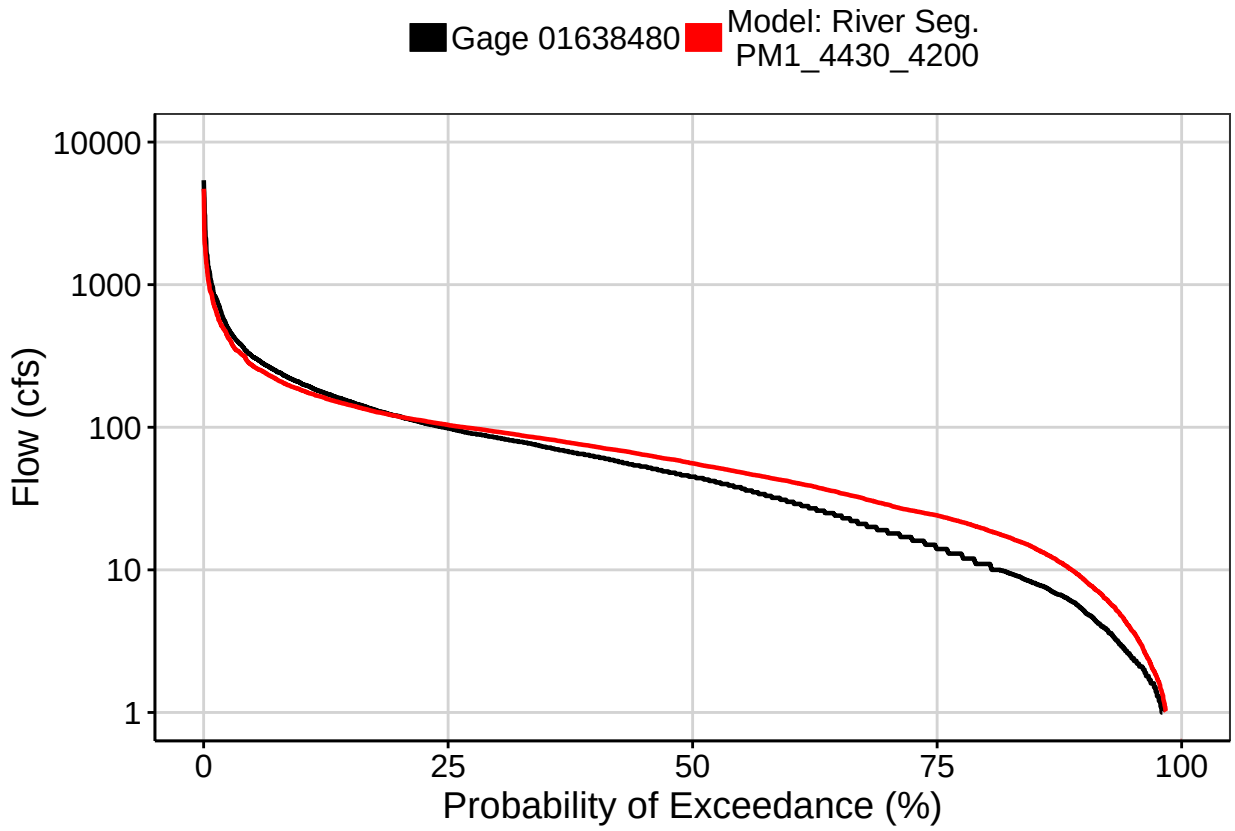


Fig. 4: Baseflow

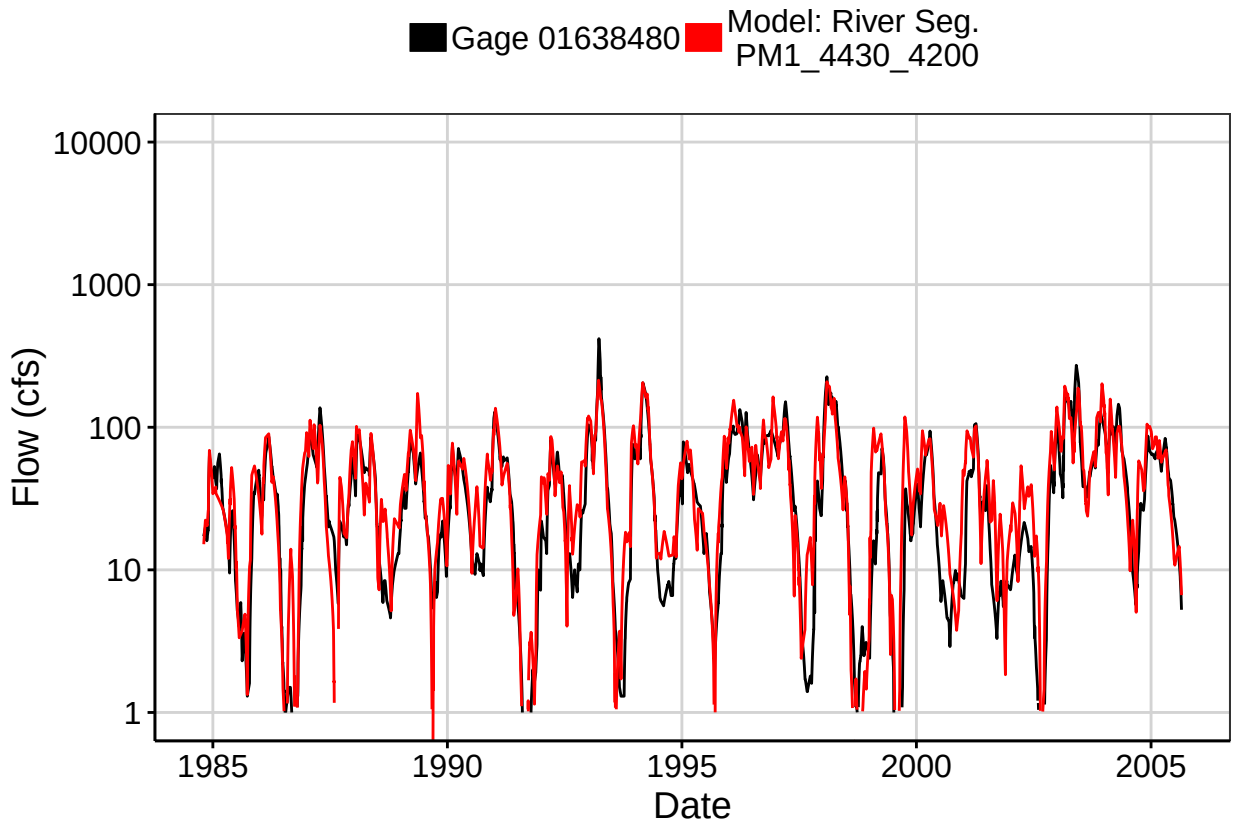


Fig. 5: Combined Baseflow

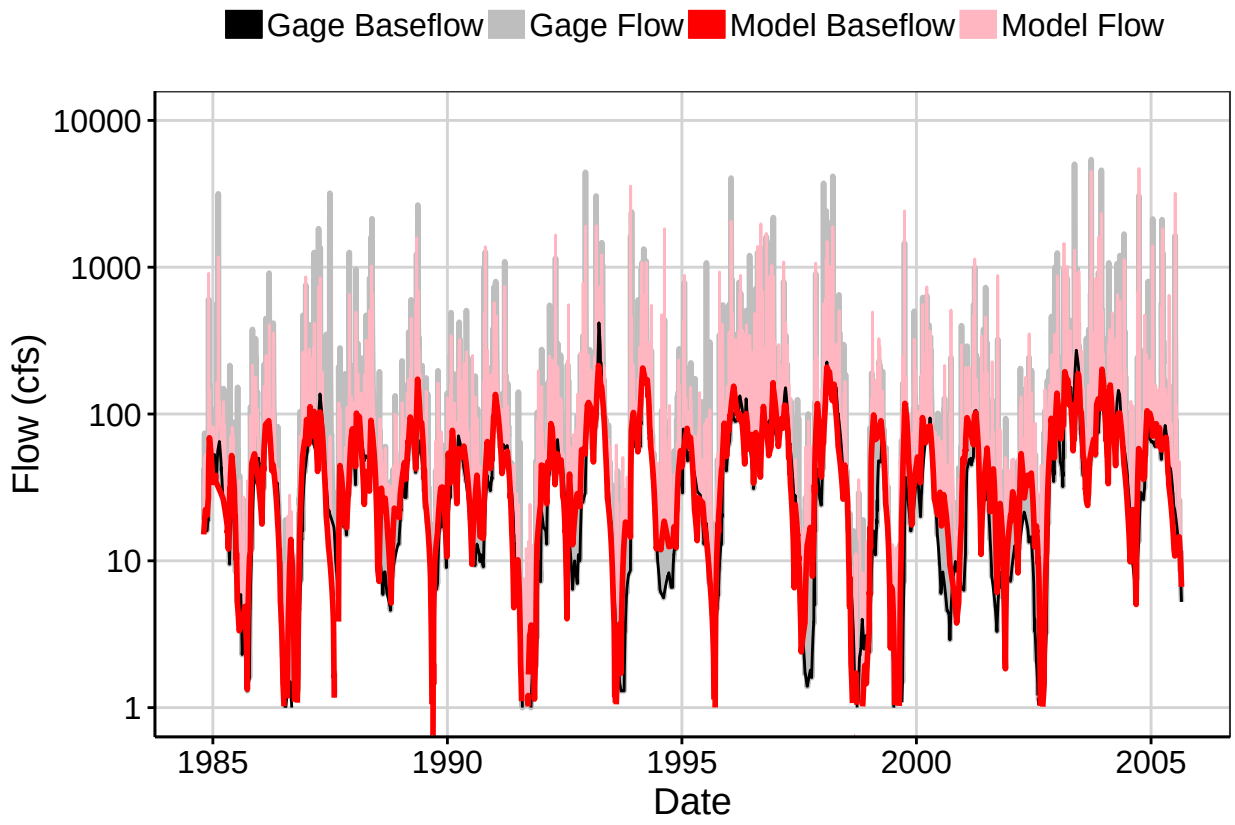


Fig. 6: Largest Error Segment

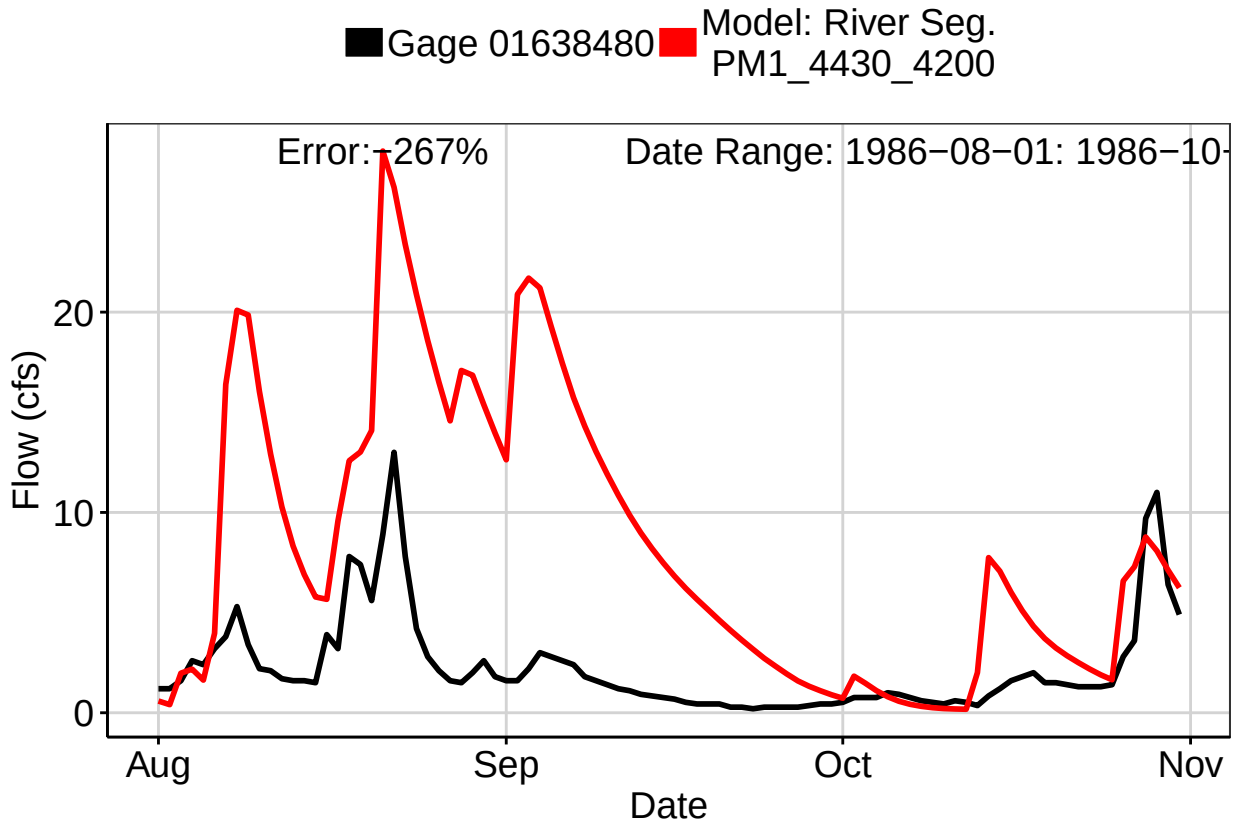


Fig. 7: Second Largest Error Segment

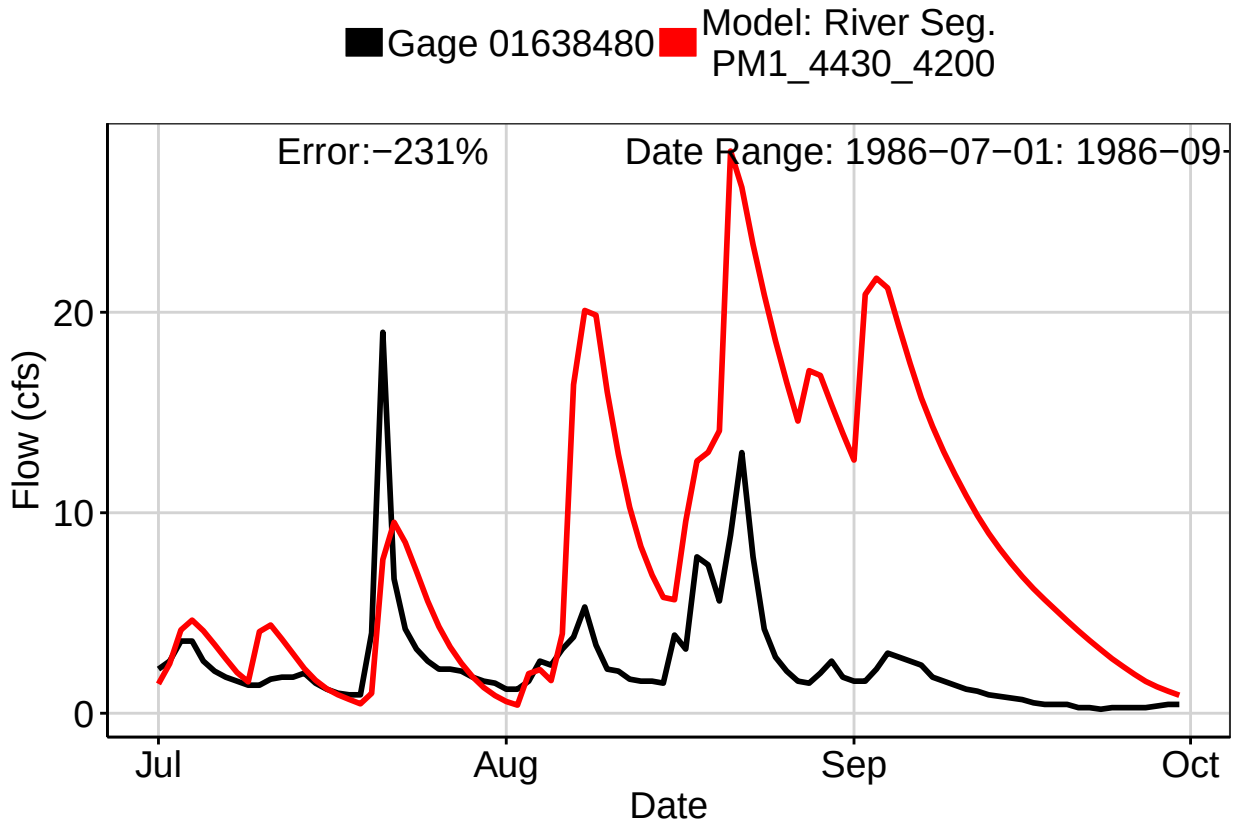


Fig. 8: Third Largest Error Segment

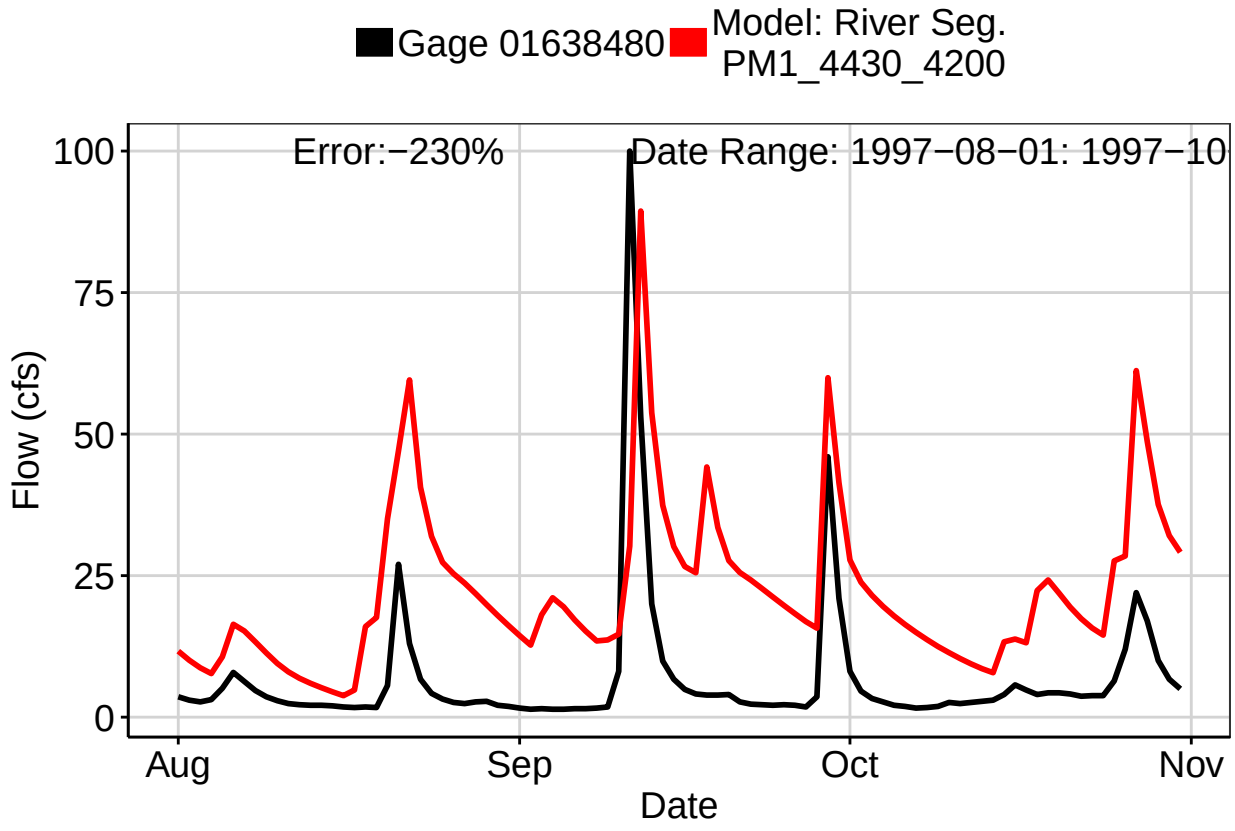


Fig. 9: Residuals Plot