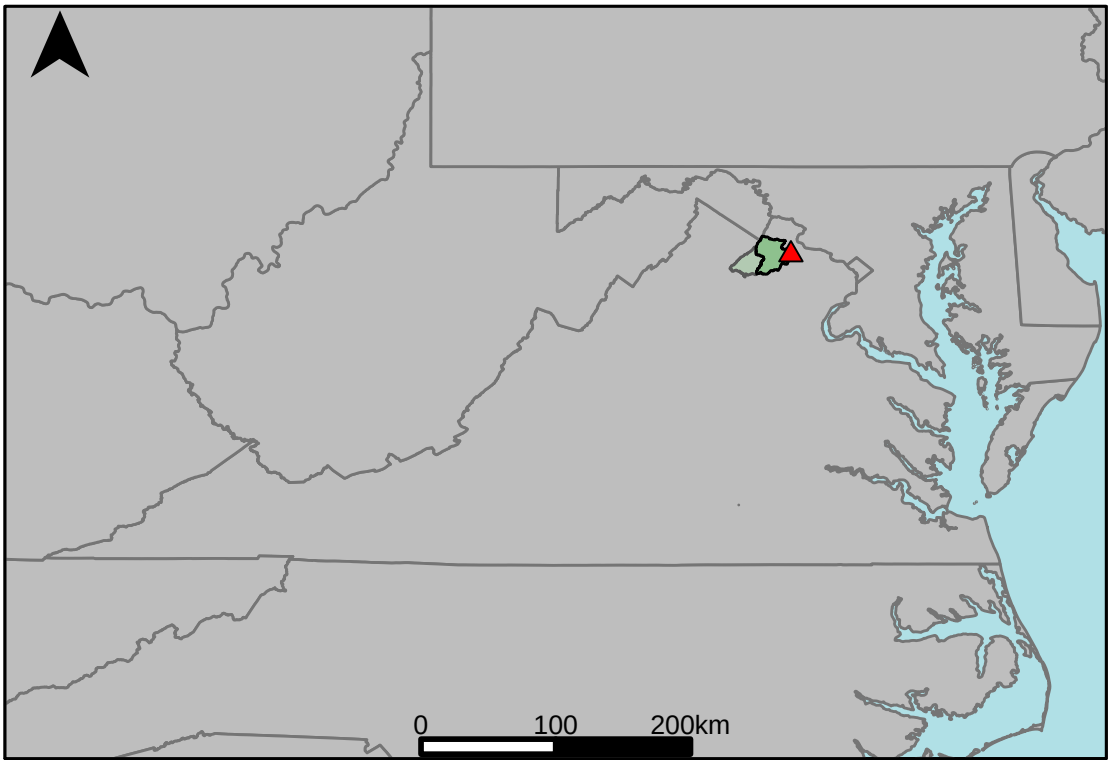
Appendix B.19: USGS Gage 01644000 vs. PM3_4670_4660 Middle Potomac River



This river segment follows part of the flow of the Goose Creek, a tributary of the Potomac. The gage is located in Loudoun County (Lat. 39°01'10.4", Long. -77°34'39.0"), approximately 6.1 miles south of Leesburg, VA. Drainage area is 332 sq. miles. This gage started taking data in 1909 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 1.44%, with 56.2% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	29	41	41.4
Feb. Low Flow	54	62.4	15.6
Mar. Low Flow	116	133	14.7
Apr. Low Flow	113	161	42.5
May Low Flow	197	226	14.7
Jun. Low Flow	208	210	0.96
Jul. Low Flow	241	162	-32.8
Aug. Low Flow	135	92.6	-31.4
Sep. Low Flow	61	59.2	-2.95
Oct. Low Flow	31	31.7	2.26
Nov. Low Flow	19	22.4	17.9
Dec. Low Flow	5.7	15.9	179

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	348	343	-1.44
Jan. Mean Flow	465	462	-0.64
Feb. Mean Flow	484	527	8.88
Mar. Mean Flow	689	619	-10.2
Apr. Mean Flow	544	453	-16.7
May Mean Flow	438	380	-13.2
Jun. Mean Flow	268	219	-18.3
Jul. Mean Flow	146	149	2.05
Aug. Mean Flow	108	131	21.3
Sep. Mean Flow	207	263	27.1
Oct. Mean Flow	153	201	31.4
Nov. Mean Flow	271	316	16.6
Dec. Mean Flow	409	408	-0.24

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	414	288	-30.4
Feb. High Flow	1080	1160	7.41
Mar. High Flow	1330	1250	-6.02
Apr. High Flow	1180	1130	-4.24
May High Flow	833	943	13.2
Jun. High Flow	1960	1810	-7.65
Jul. High Flow	1340	1330	-0.75
Aug. High Flow	1080	1050	-2.78
Sep. High Flow	604	472	-21.9
Oct. High Flow	357	274	-23.2
Nov. High Flow	122	184	50.8
Dec. High Flow	152	280	84.2

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	0.42	2.38	467
Med. 1 Day Min	3.8	7.03	85
Min. 3 Day Min	0.43	2.51	484
Med. 3 Day Min	4.37	7.53	72.3
Min. 7 Day Min	0.45	2.86	537
Med. 7 Day Min	5.54	8.93	61.2
Min. 30 Day Min	1.38	5.22	278
Med. 30 Day Min	14.7	24.3	65.3
Min. 90 Day Min	7.61	19.4	155
Med. 90 Day Min	47.2	85	80.1
7Q10	0.88	4.12	366
Year of 90-Day Min. Flow	1985	1991	100
Drought Year Mean	169	184	8.88
Mean Baseflow	157	161	2.55

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	20800	18700	-10.1
Med. 1 Day Max	4550	5610	23.3
Max. 3 Day Max	9270	7620	-17.8
Med. 3 Day Max	3000	2990	-0.33
Max. 7 Day Max	5320	4760	-10.5
Med. 7 Day Max	1990	1700	-14.6
Max. 30 Day Max	2040	1810	-11.3
Med. 30 Day Max	1140	881	-22.7
Max. 90 Day Max	1520	1380	-9.21
Med. 90 Day Max	702	555	-20.9

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	1.3	6.3	385
5% Non-Exceedance	5.55	16.1	190
50% Non-Exceedance	171	192	12.3
95% Non-Exceedance	1210	1030	-14.9
99% Non-Exceedance	2920	2960	1.37
Sept. 10% Non-Exceedance	2	9.75	388

Fig. 1: Hydrograph

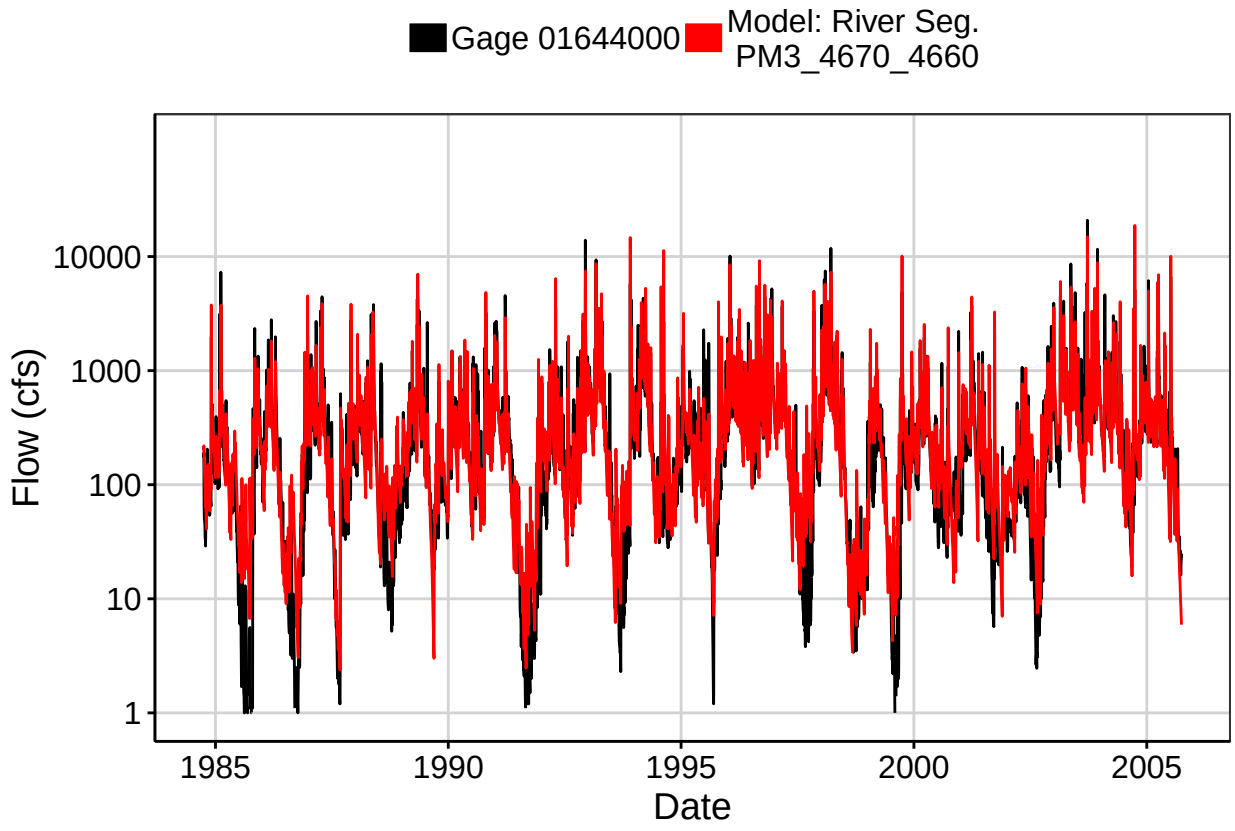


Fig. 2: Zoomed Hydrograph

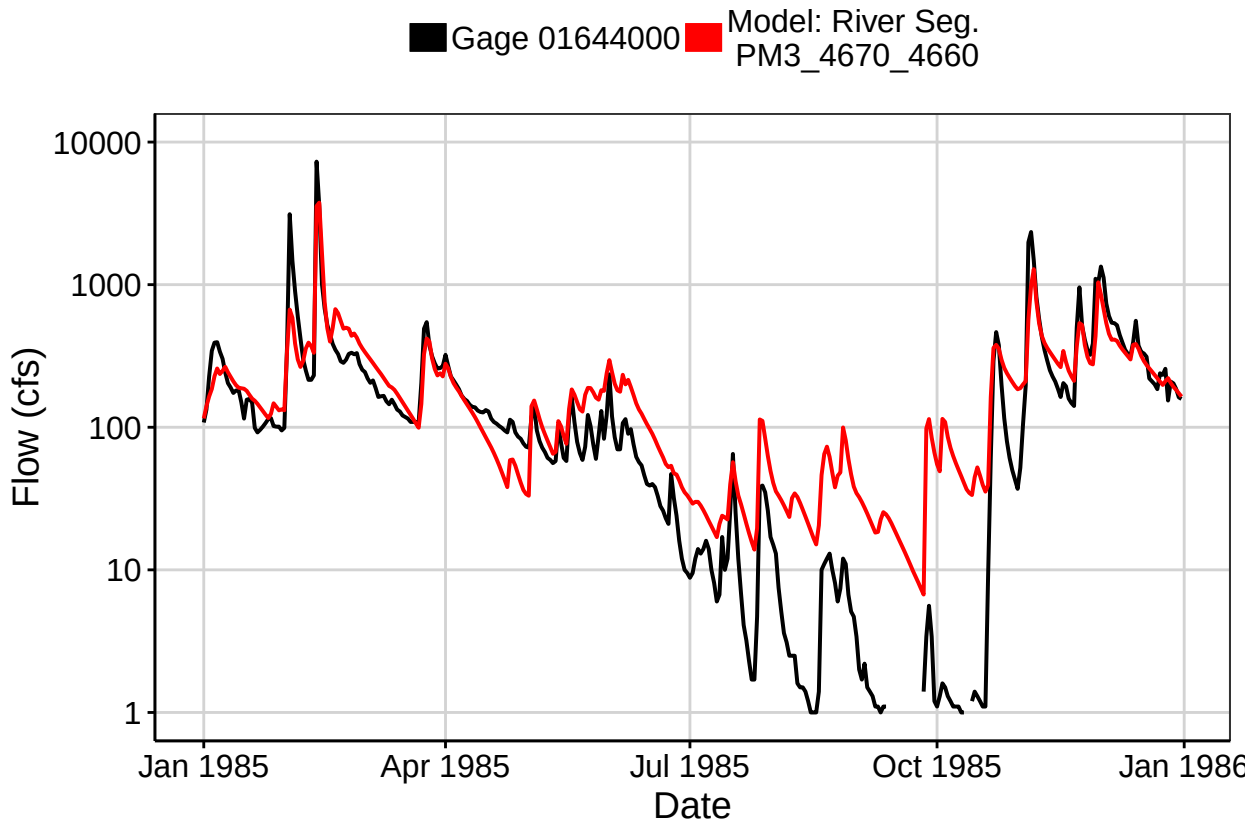


Fig. 3: Flow Exceedance

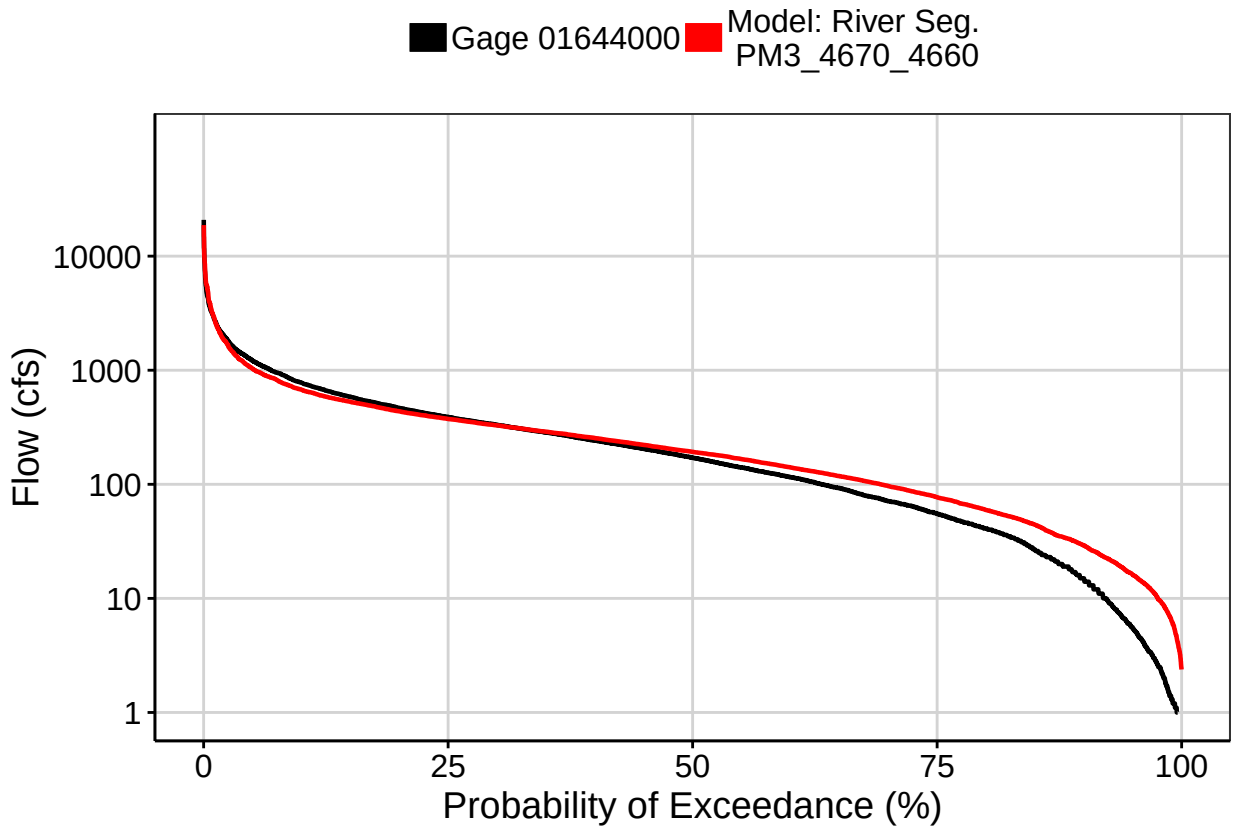


Fig. 4: Baseflow

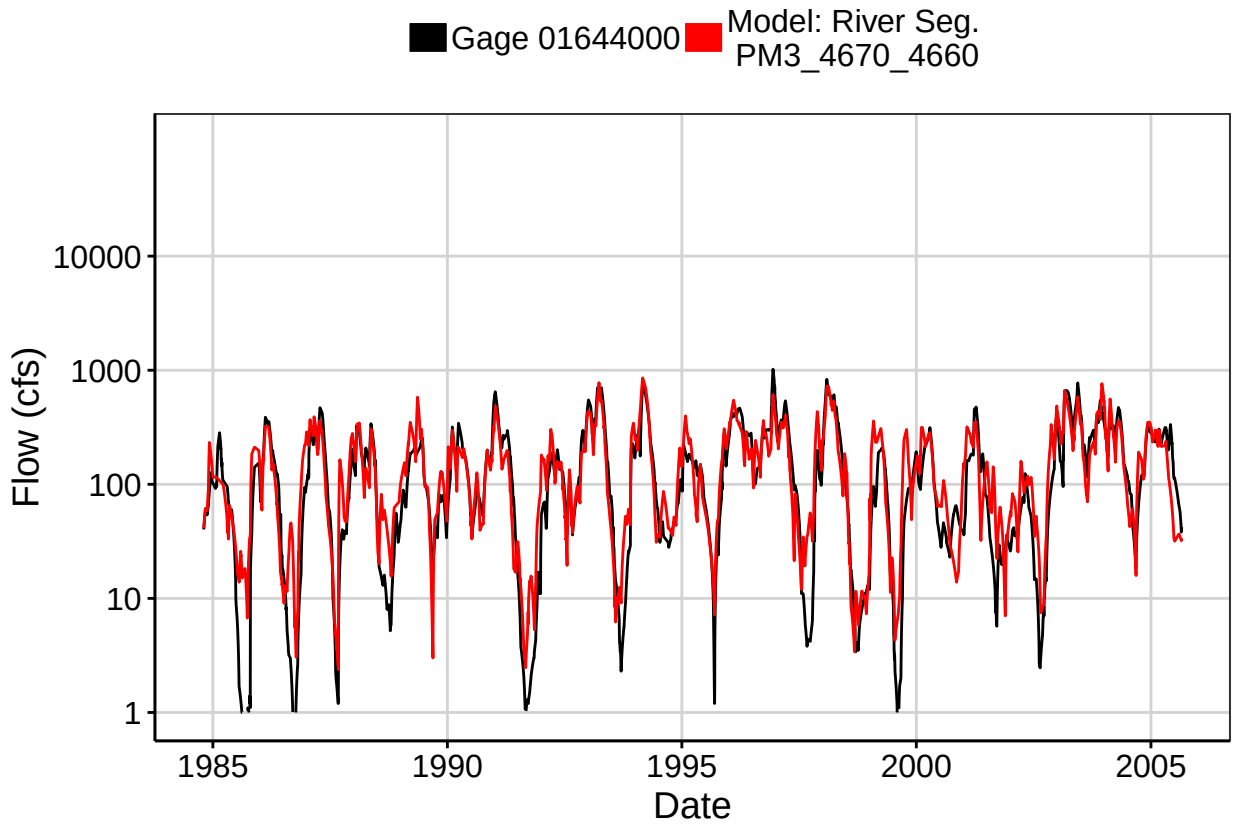


Fig. 5: Combined Baseflow

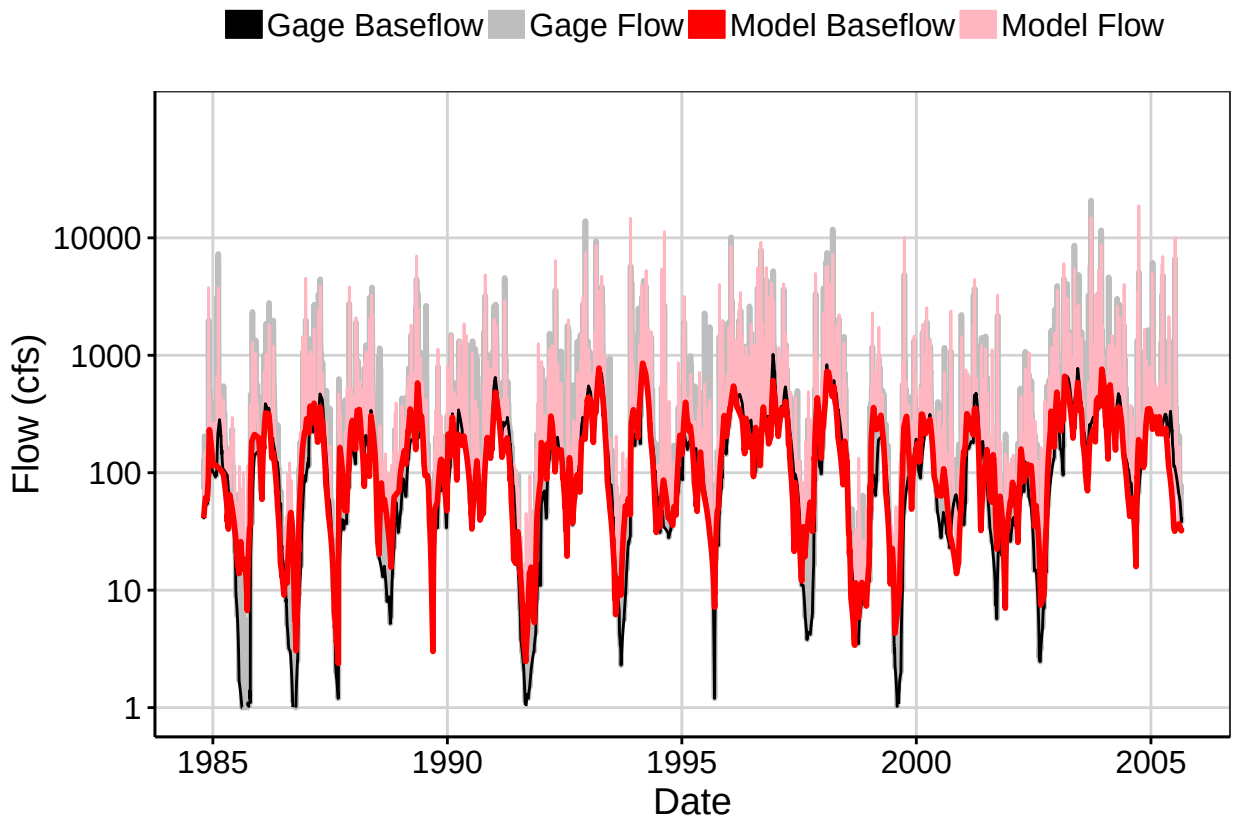


Fig. 6: Largest Error Segment

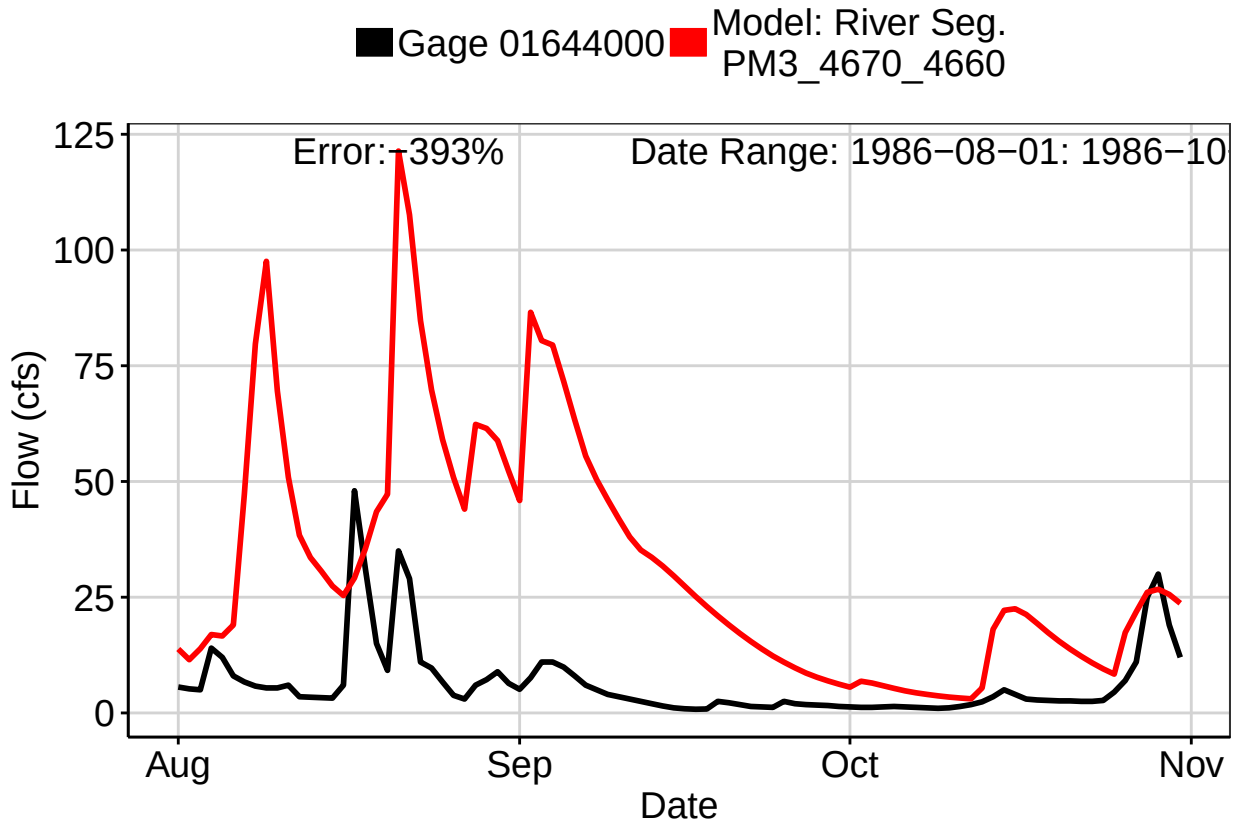


Fig. 7: Second Largest Error Segment

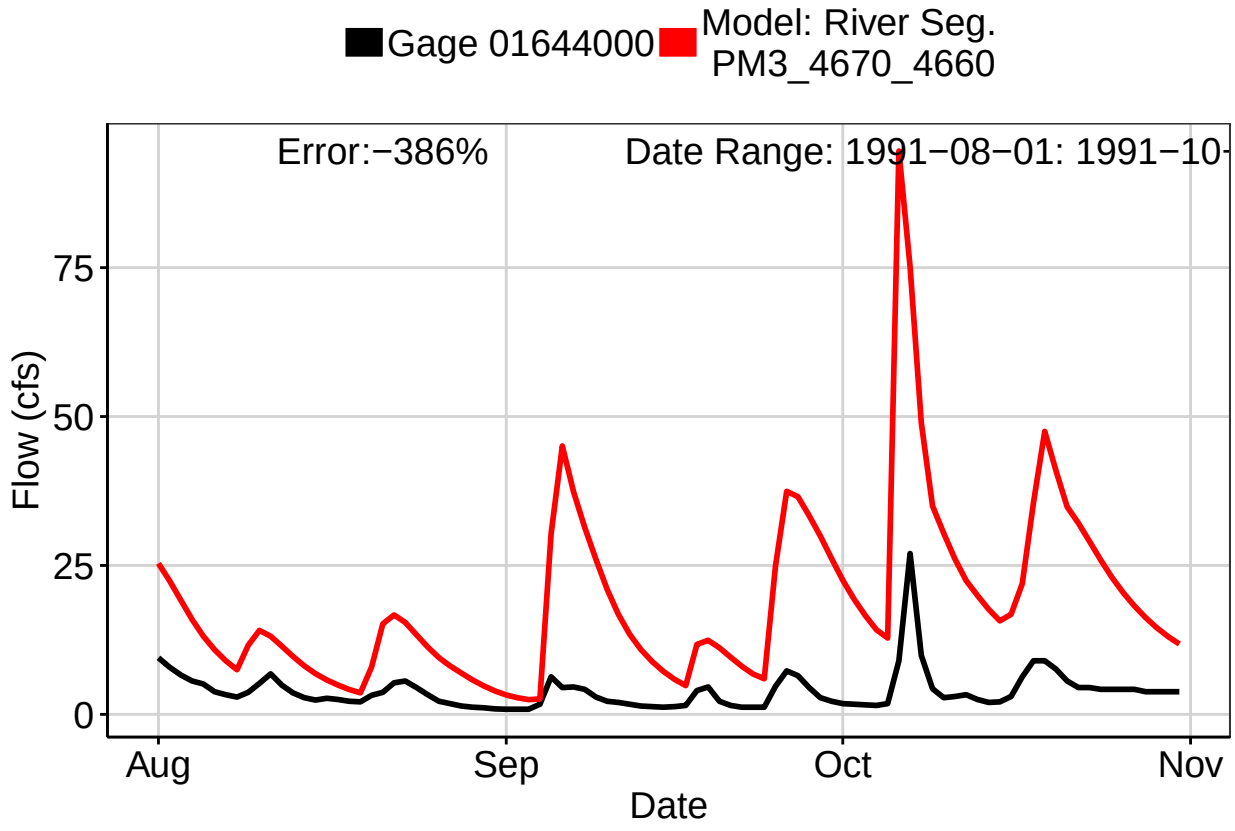


Fig. 8: Third Largest Error Segment

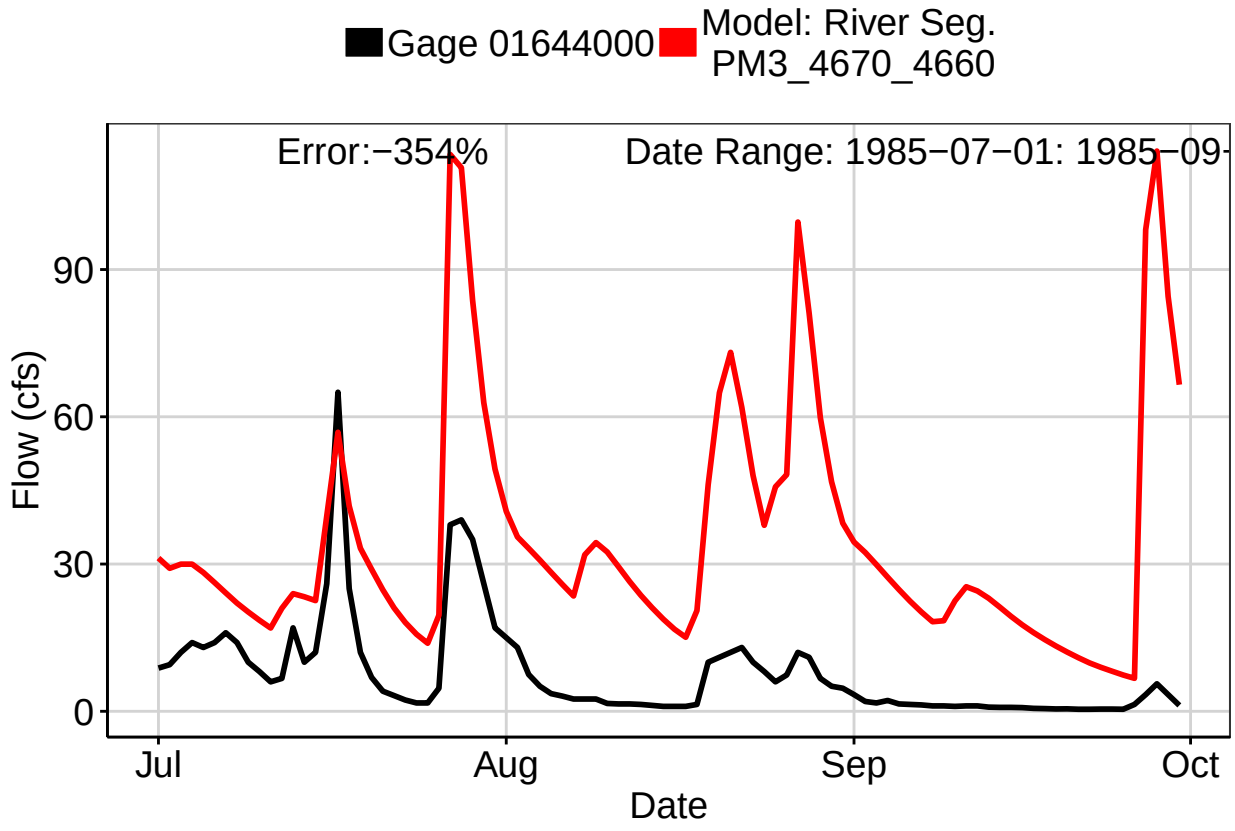


Fig. 9: Residuals Plot