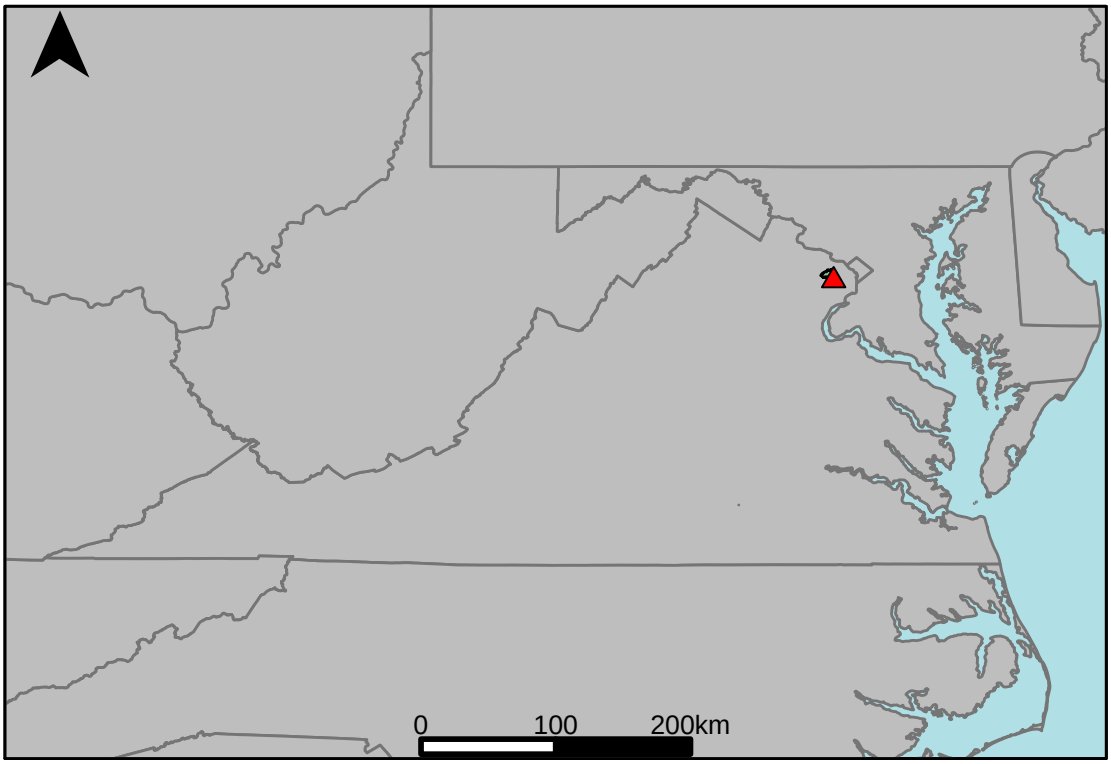
Appendix B.20: USGS Gage 01654000 vs. PL0_5010_5130 Lower Potomac River



This river segment follows part of the flow of the Accotink Creek, a tributary of the Potomac. The gage is located in Fairfax County (Lat. 38°48'46.4", Long. -77°13'41.9"), approximately 7.6 miles west of Alexandria, VA. Drainage area is 23.9 sq. miles. This gage started taking data in 1947 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 -0.67%, with 35.4% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	1.6	1.42	-11.3
Feb. Low Flow	3.5	2.56	-26.9
Mar. Low Flow	5.6	4.78	-14.6
Apr. Low Flow	7.6	7.65	0.66
May Low Flow	9	9.62	6.89
Jun. Low Flow	9.8	8.16	-16.7
Jul. Low Flow	12	6.38	-46.8
Aug. Low Flow	7.9	3.68	-53.4
Sep. Low Flow	4.9	2.33	-52.4
Oct. Low Flow	2.1	0.87	-58.5
Nov. Low Flow	1.2	1.21	0.83
Dec. Low Flow	0.93	1.07	15.1

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	29.8	30	0.67
Jan. Mean Flow	33.9	37.7	11.2
Feb. Mean Flow	33.1	42.9	29.6
Mar. Mean Flow	44.4	50.2	13.1
Apr. Mean Flow	33.8	31.7	-6.21
May Mean Flow	36.4	32.4	-11
Jun. Mean Flow	25.4	21.2	-16.5
Jul. Mean Flow	23.9	20.3	-15.1
Aug. Mean Flow	19.1	17.6	-7.85
Sep. Mean Flow	29.4	25.2	-14.3
Oct. Mean Flow	20	20.3	1.5
Nov. Mean Flow	29.9	29.4	-1.67
Dec. Mean Flow	29	31.3	7.93

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	131	118	-9.92
Feb. High Flow	232	204	-12.1
Mar. High Flow	183	144	-21.3
Apr. High Flow	241	250	3.73
May High Flow	149	142	-4.7
Jun. High Flow	271	283	4.43
Jul. High Flow	192	165	-14.1
Aug. High Flow	179	164	-8.38
Sep. High Flow	131	129	-1.53
Oct. High Flow	160	190	18.8
Nov. High Flow	132	153	15.9
Dec. High Flow	204	167	-18.1

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	0.00	0.00	NaN
Med. 1 Day Min	5.20e-01	4.70e-01	-1.02e+01
Min. 3 Day Min	0.00	1.00e-02	1.53e+15
Med. 3 Day Min	5.40e-01	5.10e-01	-5.40
Min. 7 Day Min	0.00	7.00e-02	-1.13e+15
Med. 7 Day Min	7.30e-01	6.30e-01	-1.46e+01
Min. 30 Day Min	1.09	8.80e-01	-1.95e+01
Med. 30 Day Min	3.59	2.78	-2.26e+01
Min. 90 Day Min	5.15	5.09	-1.17
Med. 90 Day Min	1.23e+01	1.15e+01	-6.50
7Q10	0.00	1.60e-01	6.07e+04
Year of 90-Day Min. Flow	1.99e+03	2.00e+03	1.00e+02
Drought Year Mean	1.59e+01	1.78e+01	1.19e+01
Mean Baseflow	6.84	6.87	4.40e-01

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	1570	1450	-7.64
Med. 1 Day Max	896	550	-38.6
Max. 3 Day Max	759	666	-12.3
Med. 3 Day Max	360	260	-27.8
Max. 7 Day Max	349	334	-4.3
Med. 7 Day Max	174	154	-11.5
Max. 30 Day Max	145	145	0
Med. 30 Day Max	82	76	-7.32
Max. 90 Day Max	98.5	97.9	-0.61
Med. 90 Day Max	46.7	48.3	3.43

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	0.27	0.34	29.2
5% Non-Exceedance	1.3	0.9	-30.9
50% Non-Exceedance	10	10.6	6
95% Non-Exceedance	119	124	4.2
99% Non-Exceedance	361	297	-17.7
Sept. 10% Non-Exceedance	0.63	0.69	10

Fig. 1: Hydrograph

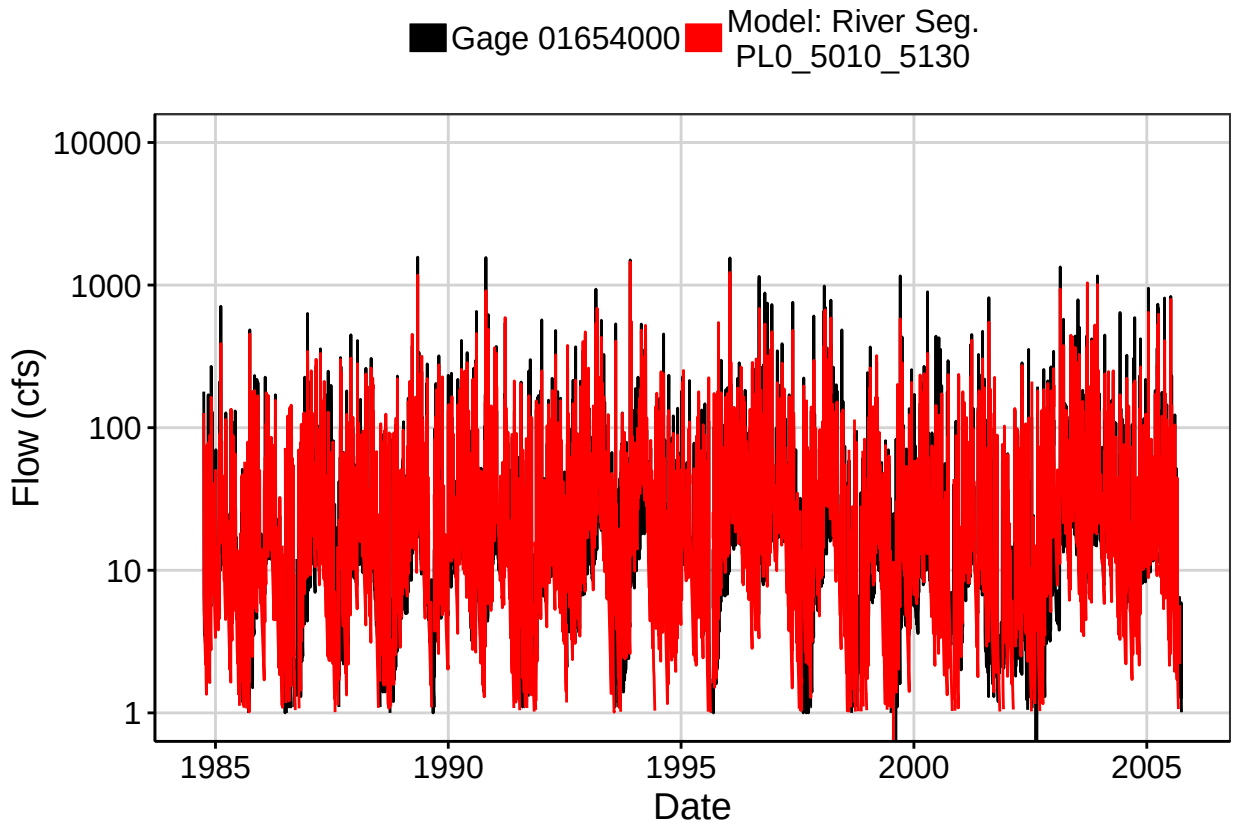


Fig. 2: Zoomed Hydrograph

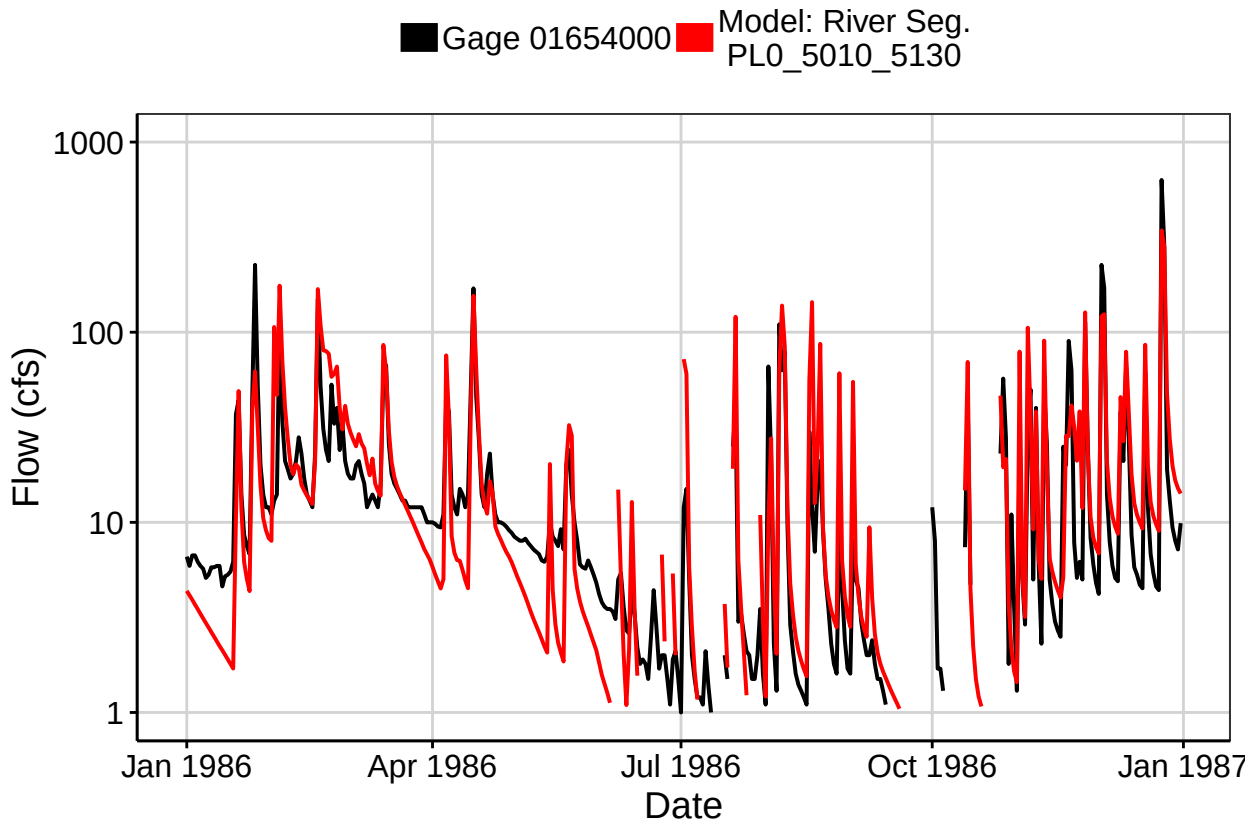


Fig. 3: Flow Exceedance

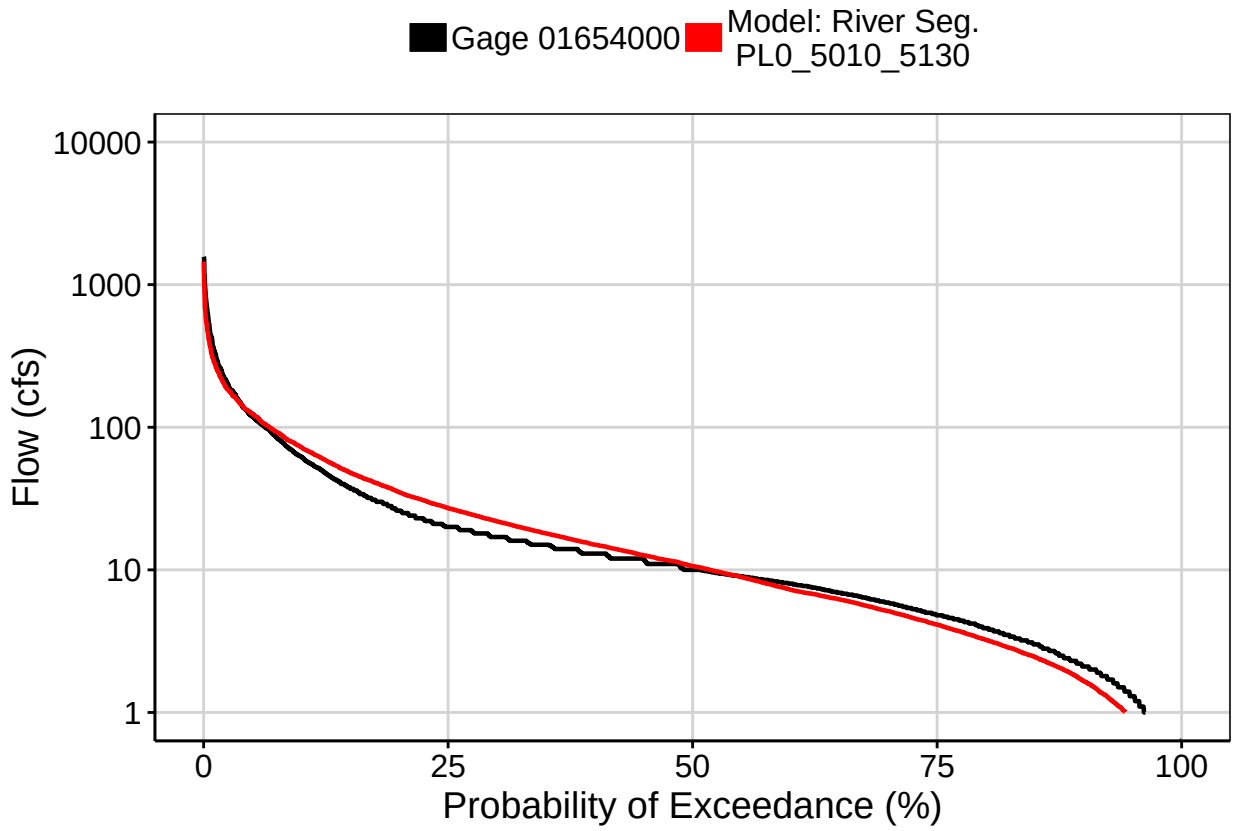


Fig. 4: Baseflow

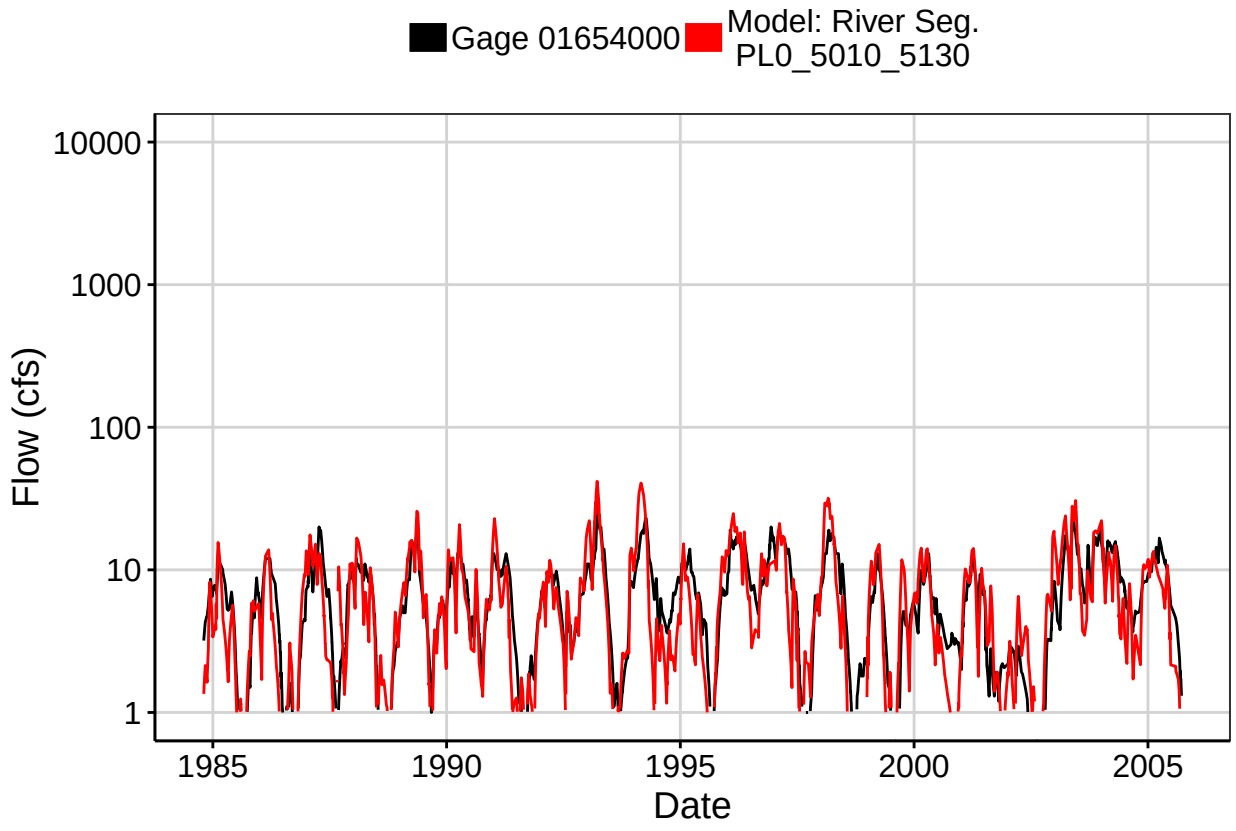


Fig. 5: Combined Baseflow

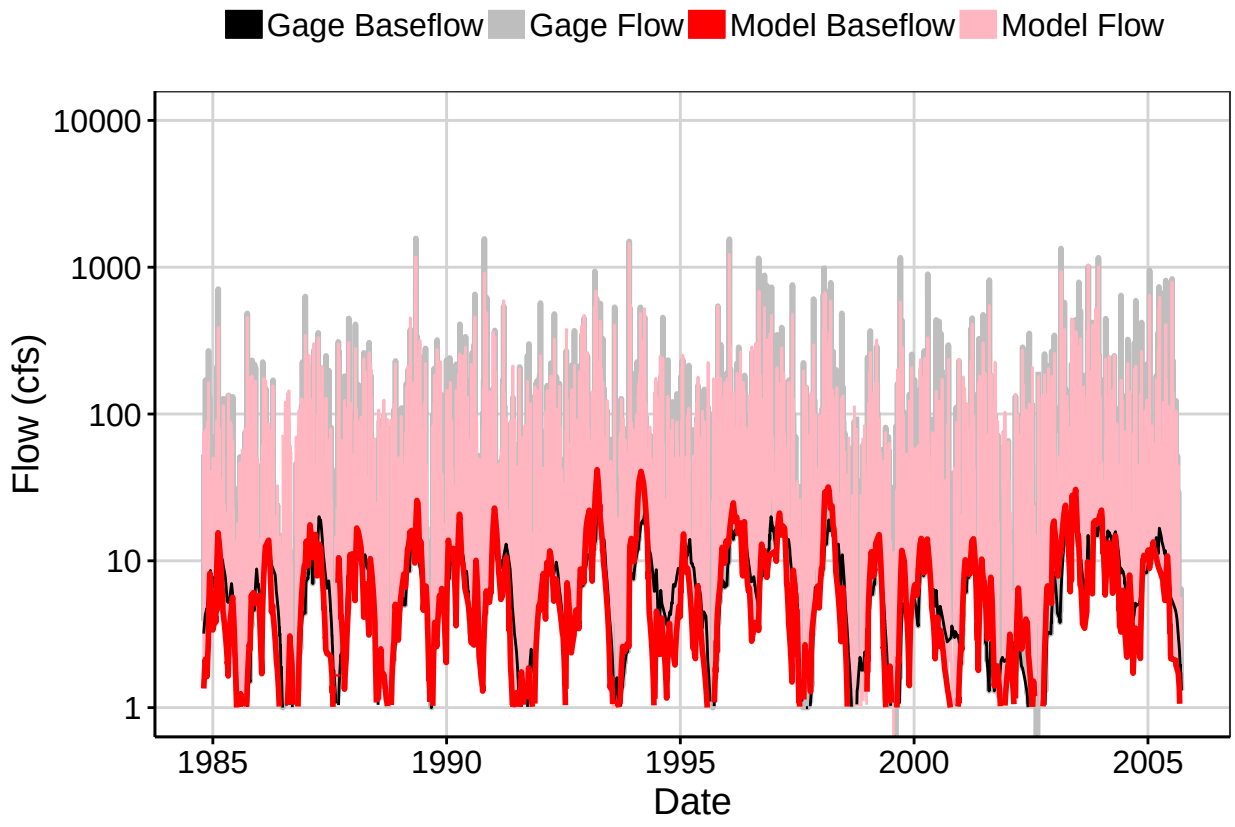


Fig. 6: Largest Error Segment

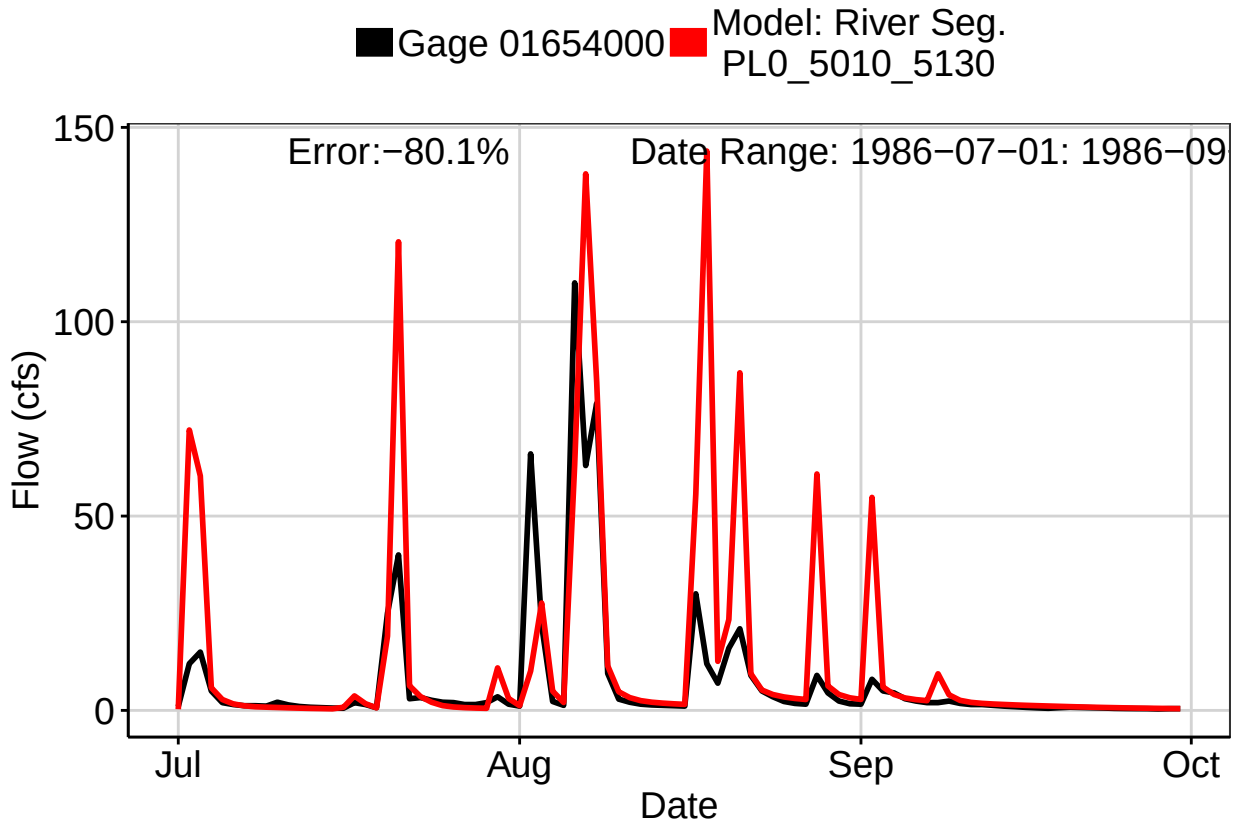


Fig. 7: Second Largest Error Segment

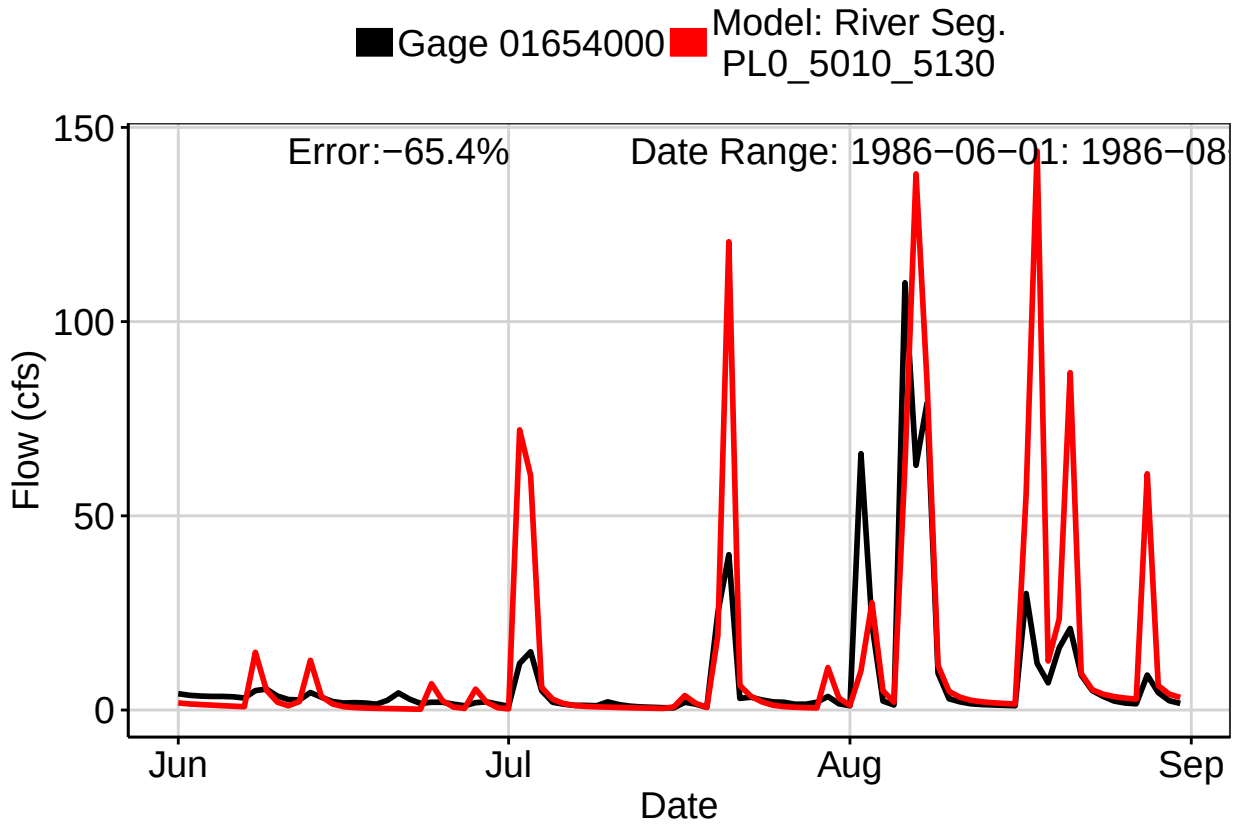


Fig. 8: Third Largest Error Segment

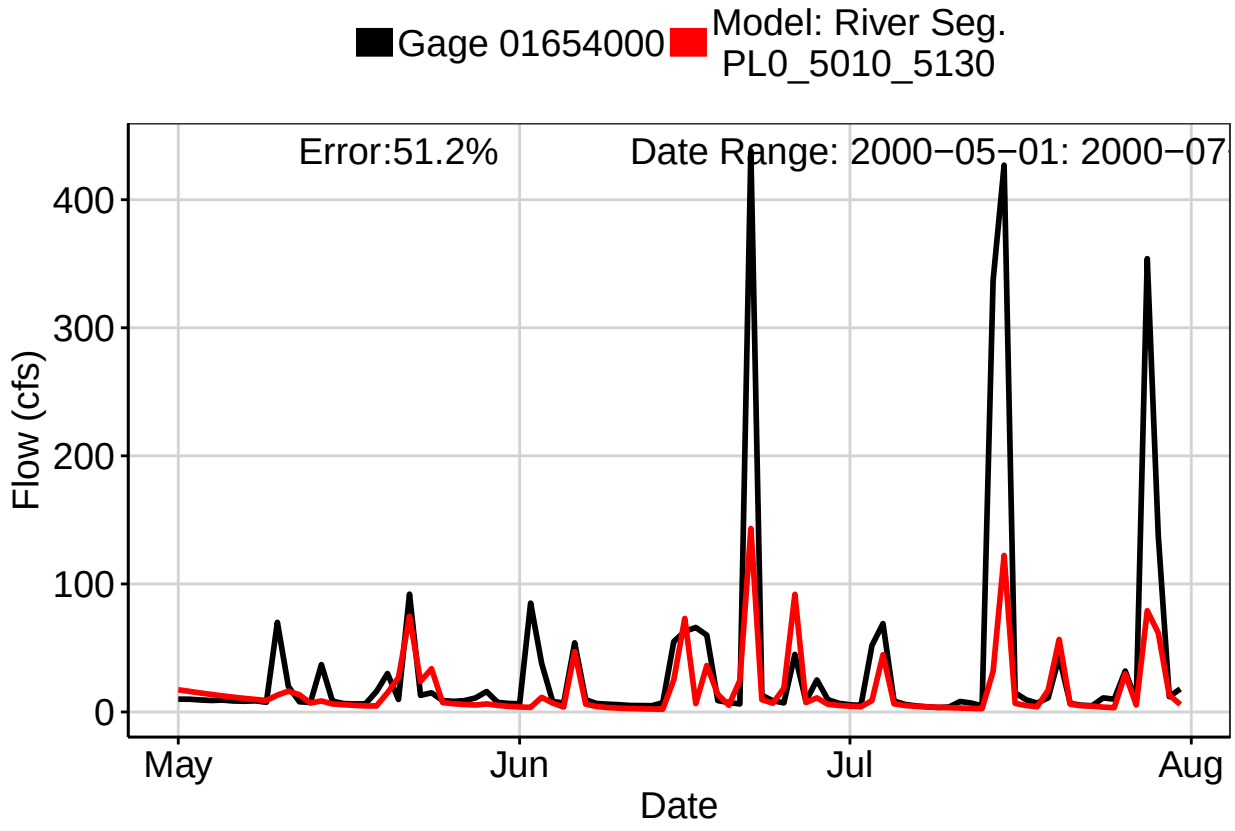


Fig. 9: Residuals Plot