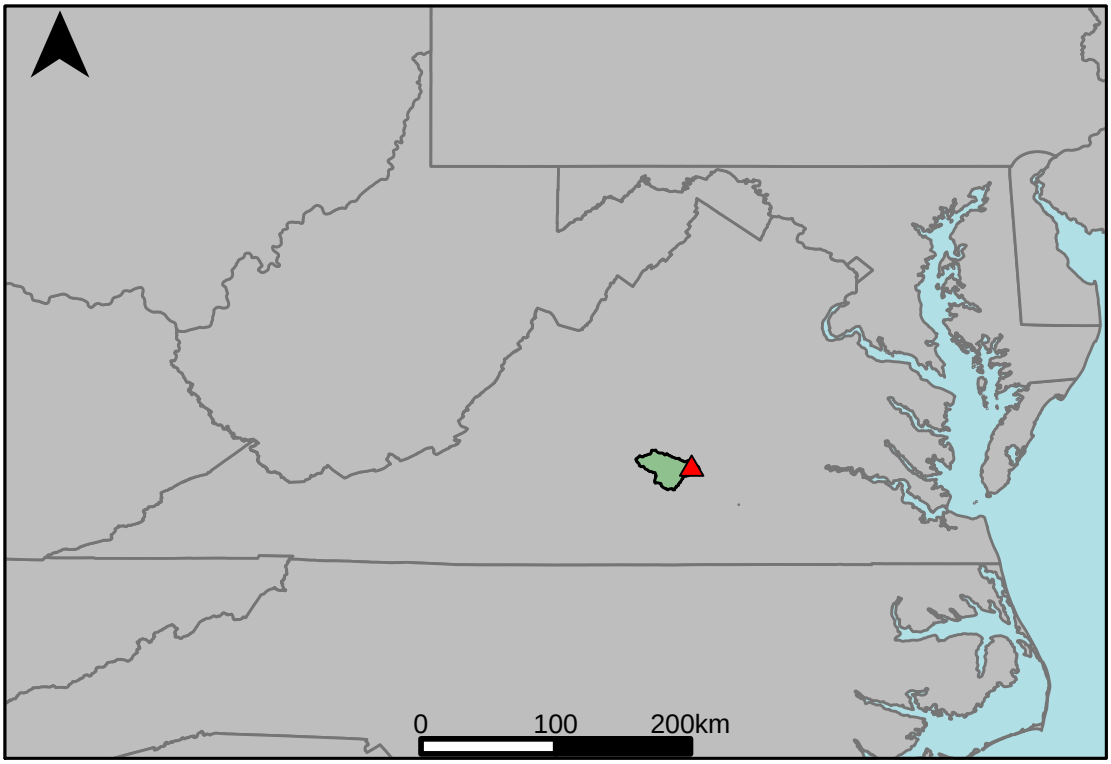
Appendix A.35: USGS Gage 02039500 vs. JA2_7550_7280 Appomattox River



This river segment follows part of the flow of the Appomattox River, a tributary of the James. The gage is located in Prince Edward County (Lat. 37°18'25.5", Long. -78°23'19.0"), approximately 1 mile northeast of Farmville, VA. Drainage area is 302 sq. miles. This gage started taking data in 1926 and is still taking data. There is a diurnal fluctuation at low flow caused by the Prince Edward Mill 0.2 mi upstream. The average daily discharge error between the model and gage data for the 20 year timespan was 3.02%, with 47.1% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	67	31.8	-52.5
Feb. Low Flow	108	54.5	-49.5
Mar. Low Flow	130	105	-19.2
Apr. Low Flow	142	148	4.23
May Low Flow	194	241	24.2
Jun. Low Flow	195	213	9.23
Jul. Low Flow	164	159	-3.05
Aug. Low Flow	122	108	-11.5
Sep. Low Flow	87	75.6	-13.1
Oct. Low Flow	62	47.7	-23.1
Nov. Low Flow	57.5	44.5	-22.6
Dec. Low Flow	60	29	-51.7

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	298	289	-3.02
Jan. Mean Flow	402	372	-7.46
Feb. Mean Flow	441	472	7.03
Mar. Mean Flow	539	597	10.8
Apr. Mean Flow	392	398	1.53
May Mean Flow	306	303	-0.98
Jun. Mean Flow	203	194	-4.43
Jul. Mean Flow	153	130	-15
Aug. Mean Flow	152	104	-31.6
Sep. Mean Flow	228	232	1.75
Oct. Mean Flow	153	152	-0.65
Nov. Mean Flow	305	267	-12.5
Dec. Mean Flow	313	264	-15.7

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	310	193	-37.7
Feb. High Flow	869	839	-3.45
Mar. High Flow	936	507	-45.8
Apr. High Flow	1230	1460	18.7
May High Flow	1430	1200	-16.1
Jun. High Flow	1650	2180	32.1
Jul. High Flow	1180	991	-16
Aug. High Flow	755	534	-29.3
Sep. High Flow	368	283	-23.1
Oct. High Flow	279	195	-30.1
Nov. High Flow	446	154	-65.5
Dec. High Flow	234	151	-35.5

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	0.07	4.89	6890
Med. 1 Day Min	49	21.7	-55.7
Min. 3 Day Min	0.07	5.1	7190
Med. 3 Day Min	51.3	22.3	-56.5
Min. 7 Day Min	0.09	5.44	6250
Med. 7 Day Min	52.3	23.7	-54.7
Min. 30 Day Min	5.04	6.62	31.3
Med. 30 Day Min	68.6	33.6	-51
Min. 90 Day Min	17	21.6	27.1
Med. 90 Day Min	103	64.4	-37.5
7Q10	6.82	8.7	27.6
Year of 90-Day Min. Flow	2002	2002	0
Drought Year Mean	74.1	57.2	-22.8
Mean Baseflow	144	146	1.39

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	14800	16400	10.8
Med. 1 Day Max	4490	4290	-4.45
Max. 3 Day Max	7900	8290	4.94
Med. 3 Day Max	2700	2560	-5.19
Max. 7 Day Max	4020	5320	32.3
Med. 7 Day Max	1510	1480	-1.99
Max. 30 Day Max	1780	1750	-1.69
Med. 30 Day Max	728	719	-1.24
Max. 90 Day Max	1220	1320	8.2
Med. 90 Day Max	541	516	-4.62

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	18.4	10.1	-45.1
5% Non-Exceedance	45.2	23.8	-47.3
50% Non-Exceedance	168	152	-9.52
95% Non-Exceedance	903	893	-1.11
99% Non-Exceedance	2690	2570	-4.46
Sept. 10% Non-Exceedance	37	23.2	-37.3

Fig. 1: Hydrograph

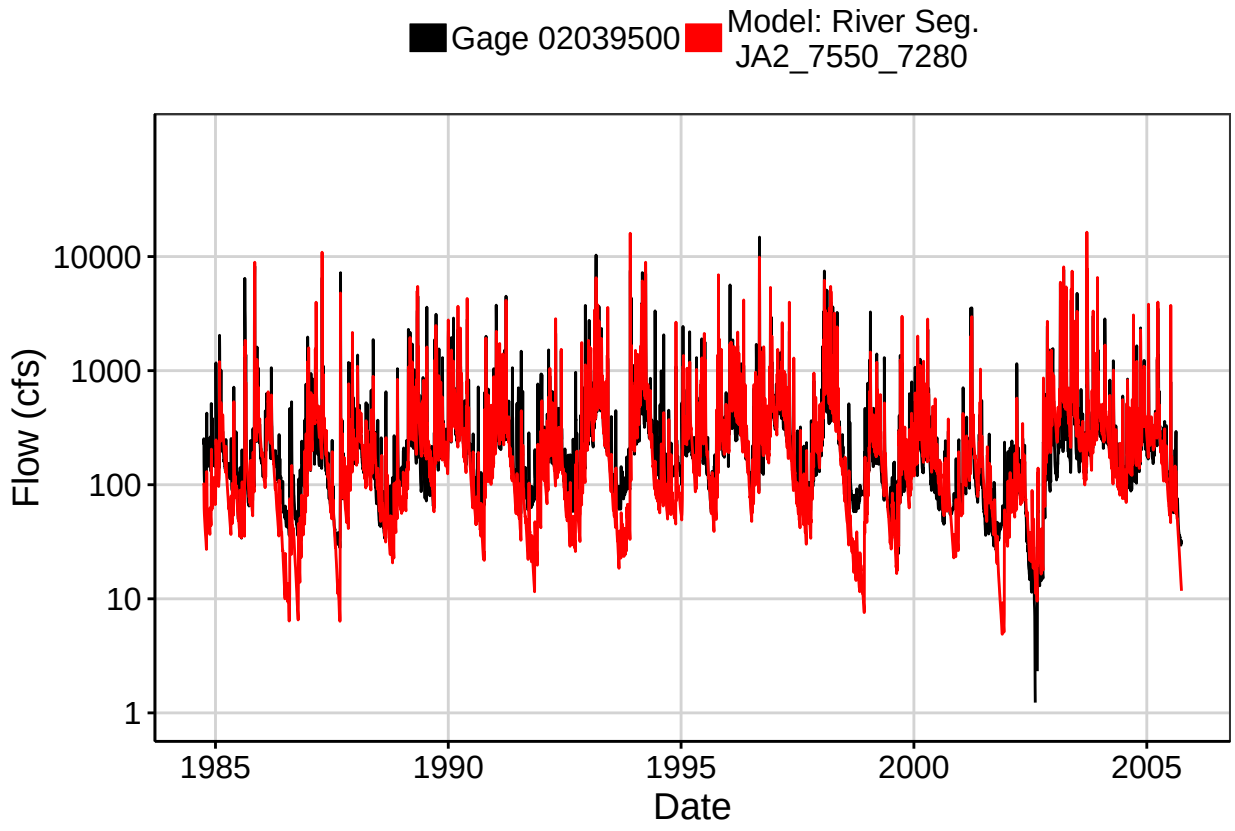


Fig. 2: Zoomed Hydrograph

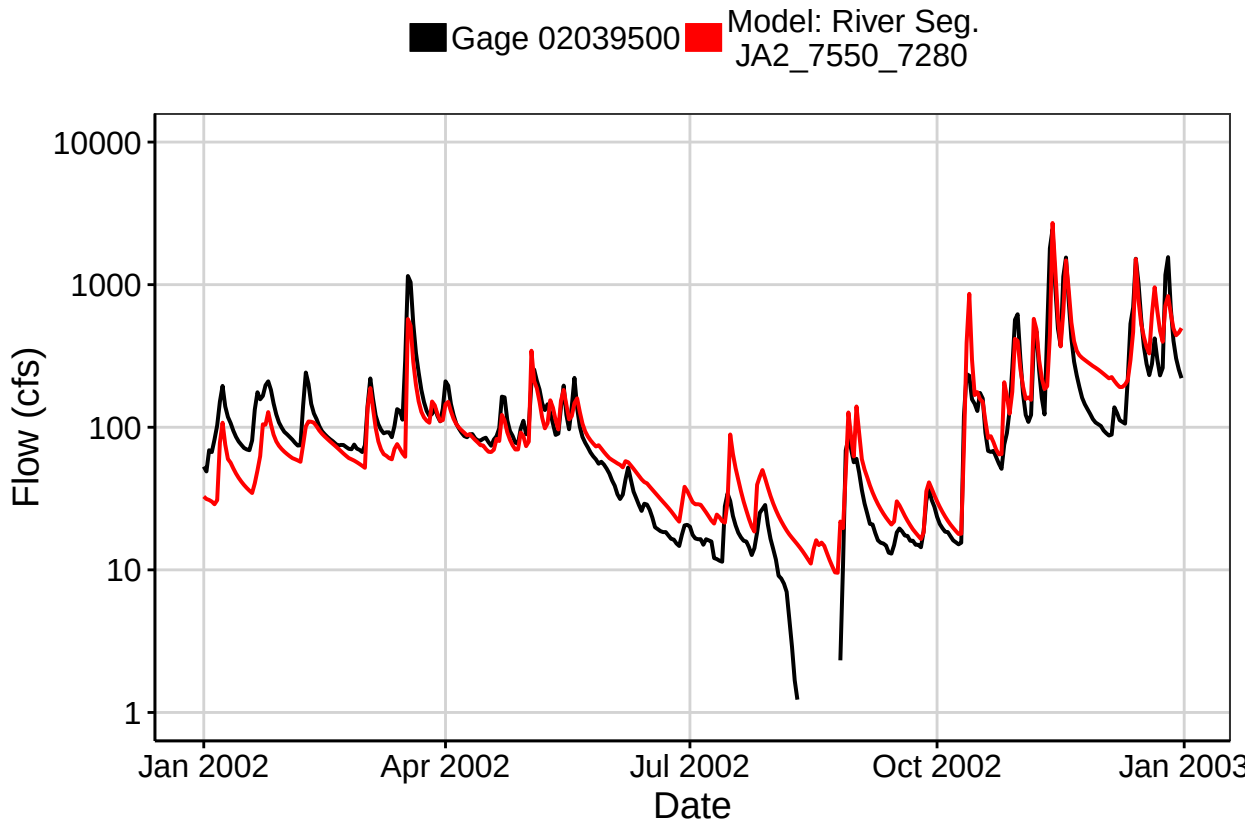


Fig. 3: Flow Exceedance

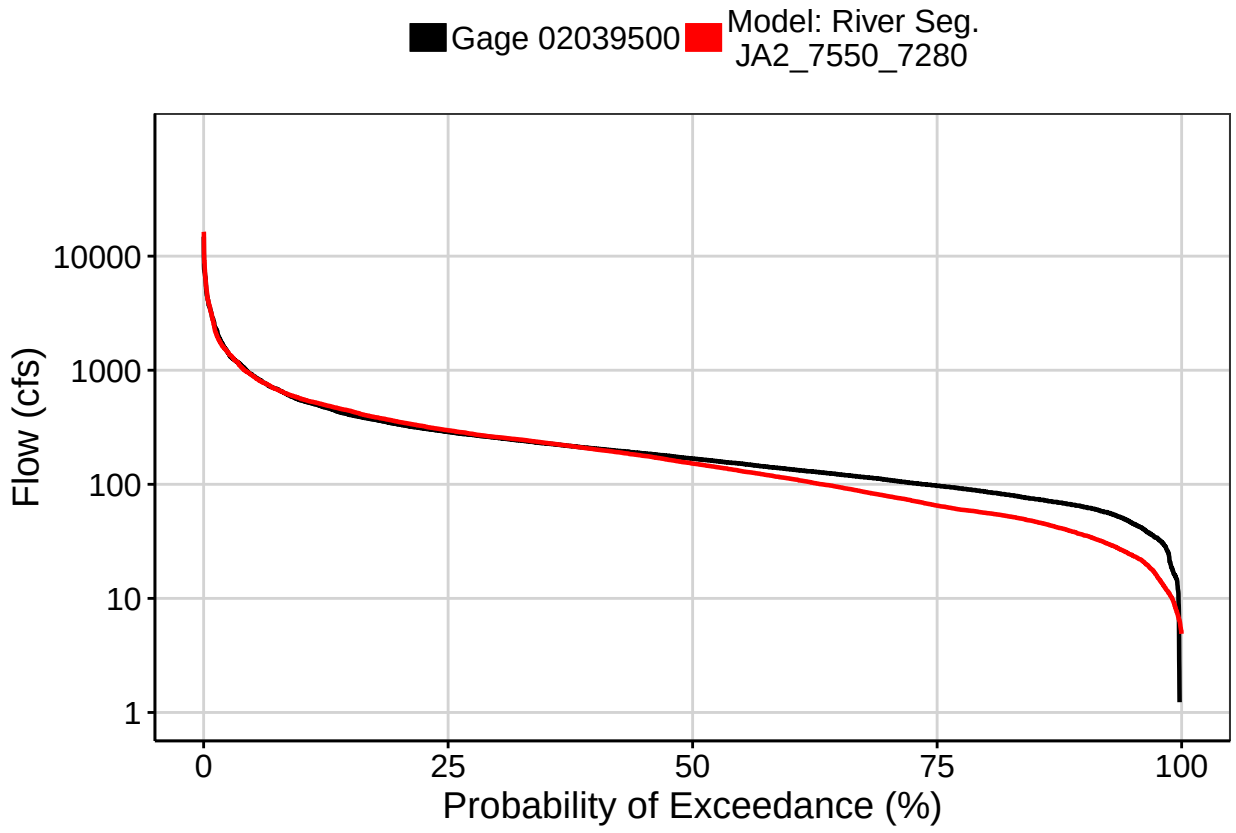


Fig. 4: Baseflow

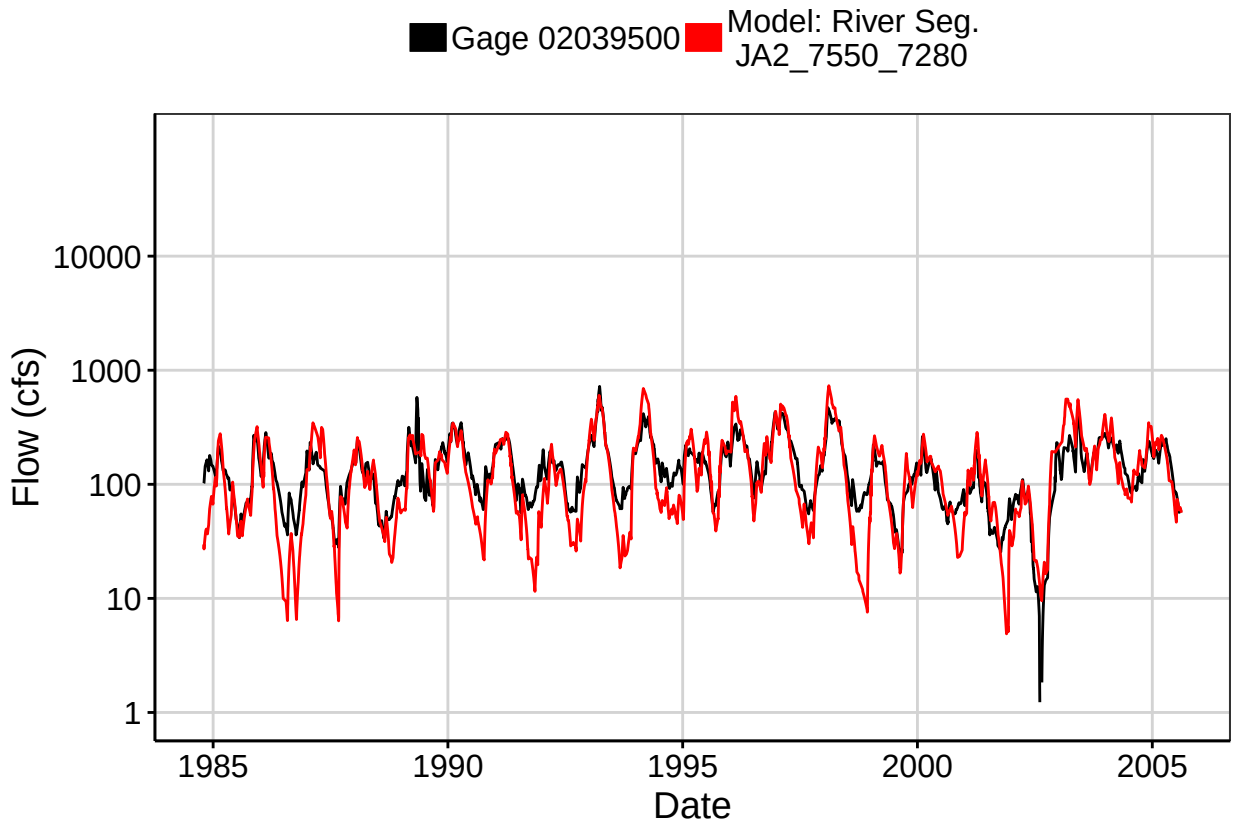


Fig. 5: Combined Baseflow

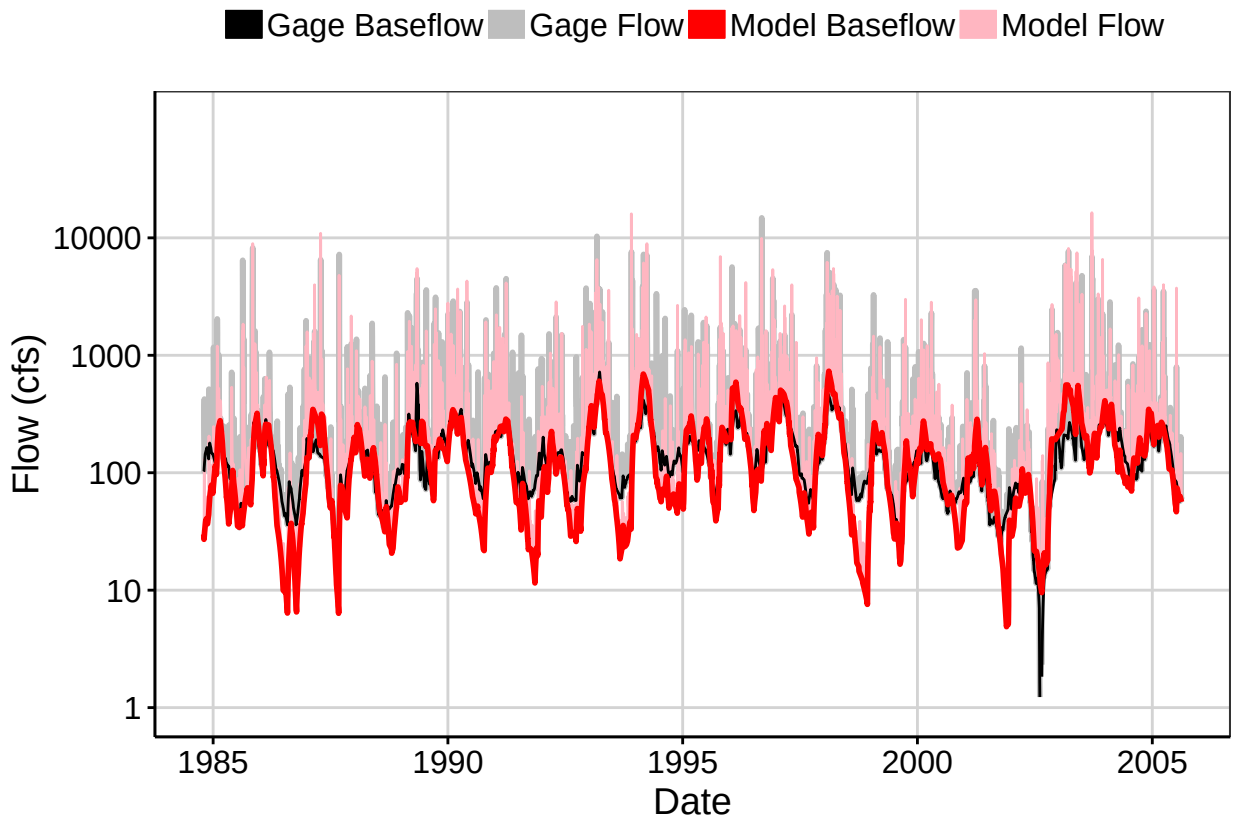


Fig. 6: Largest Error Segment

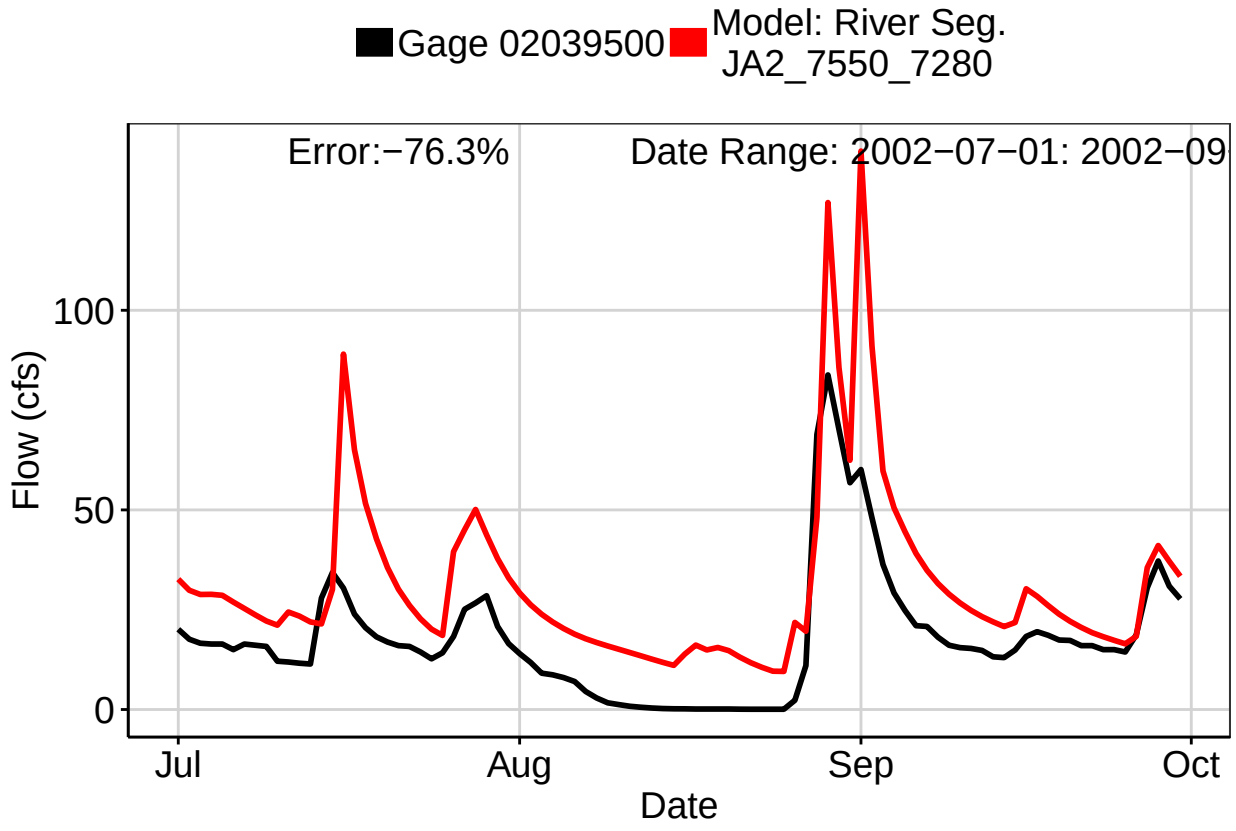


Fig. 7: Second Largest Error Segment

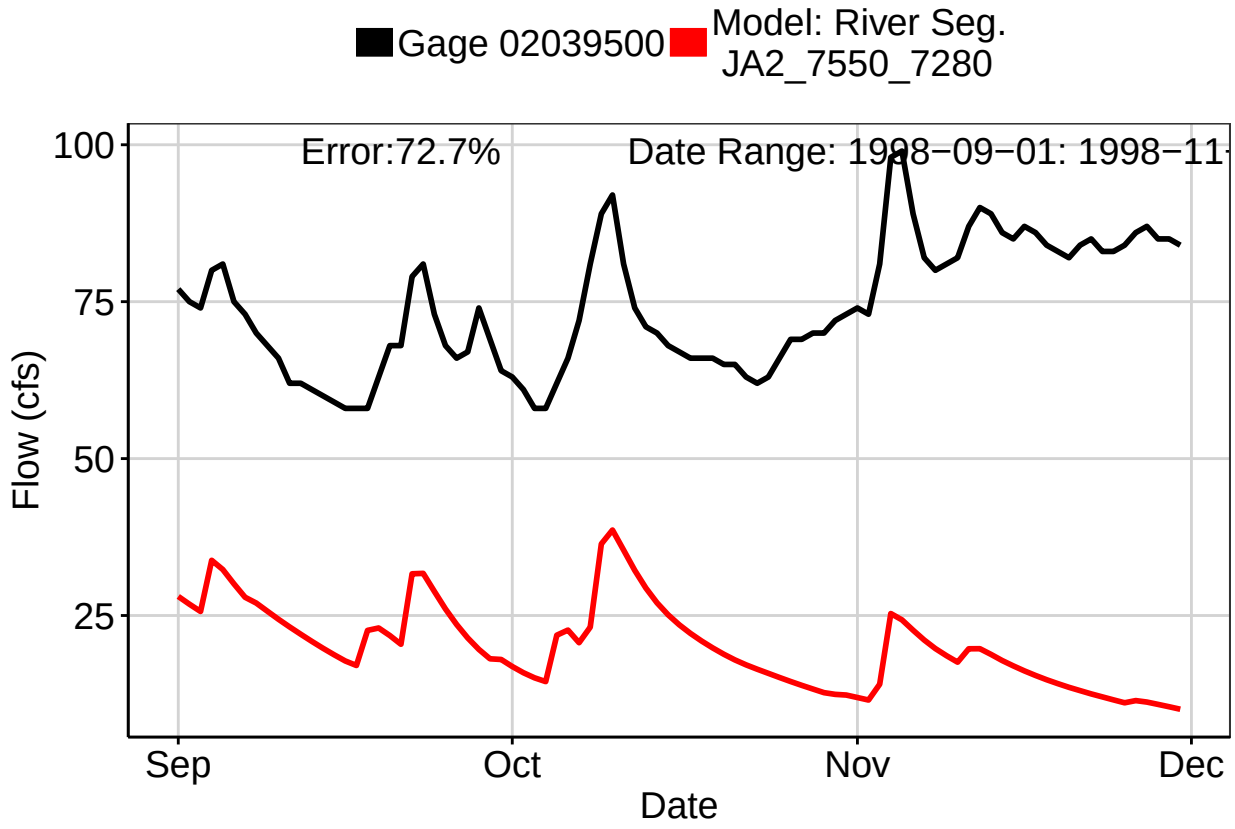


Fig. 8: Third Largest Error Segment

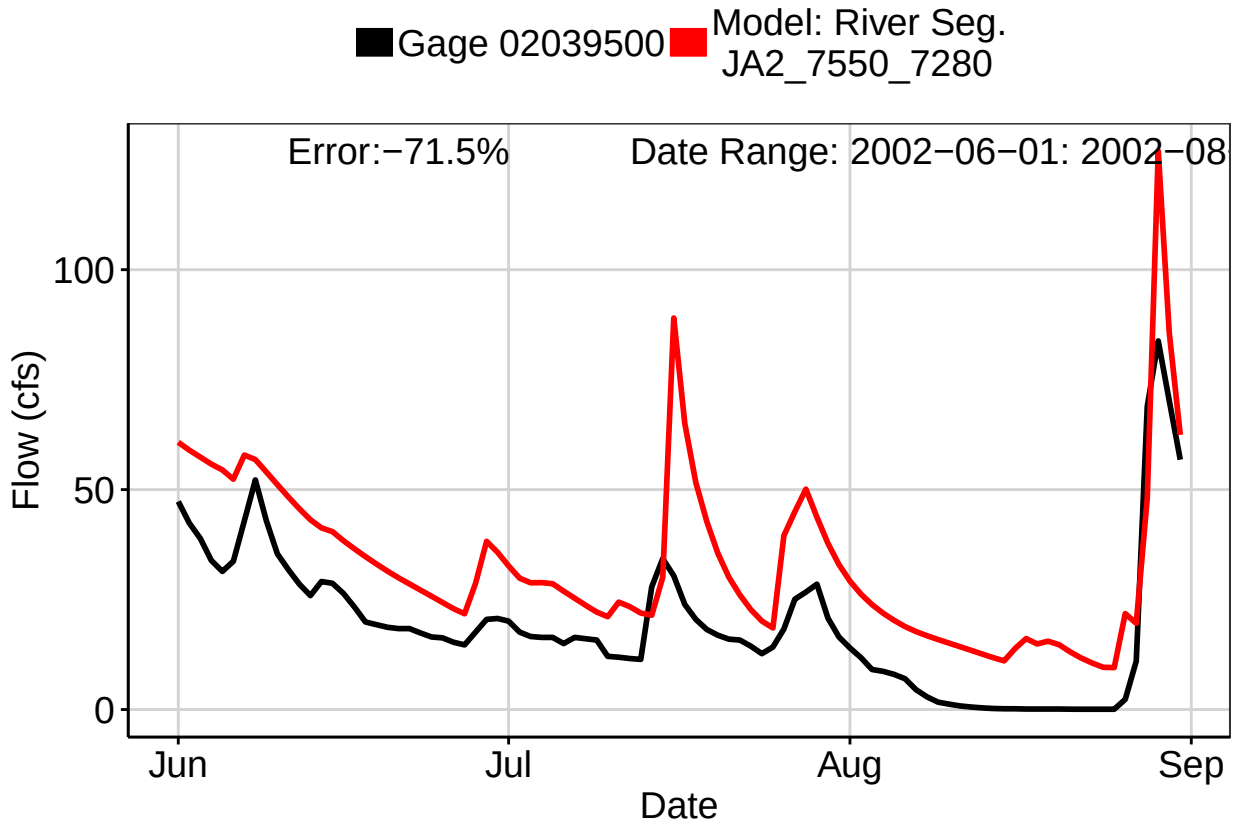


Fig. 9: Residuals Plot