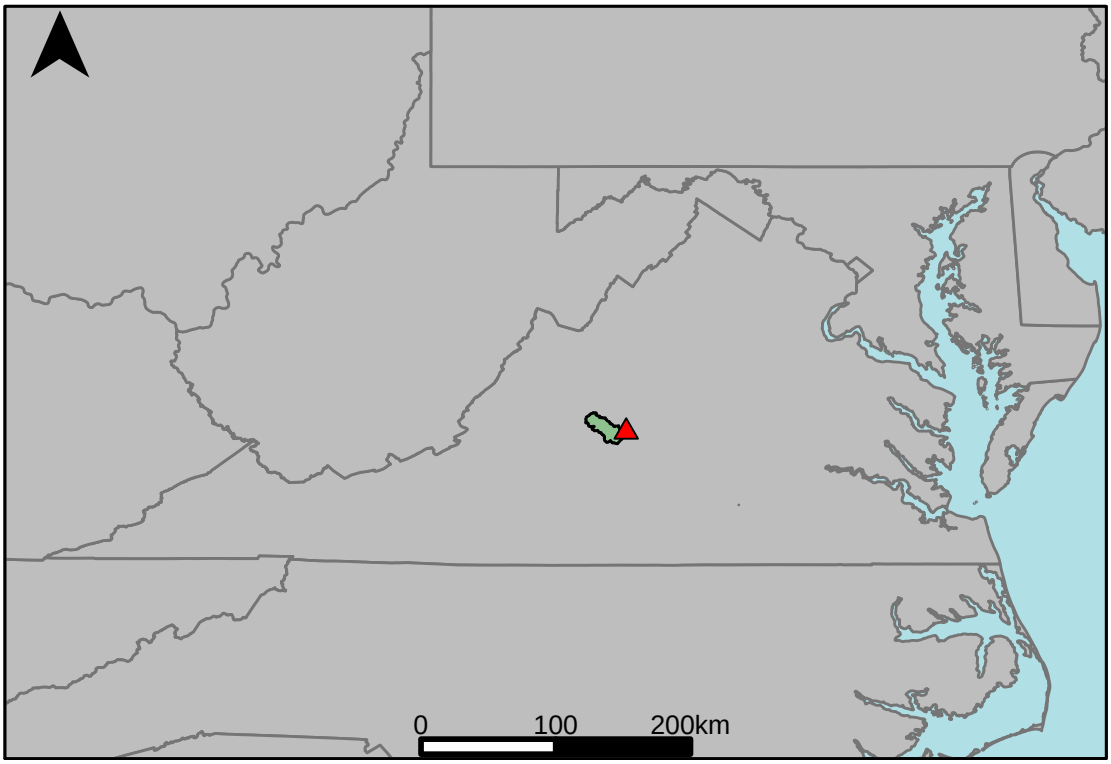
Appendix A.23: USGS Gage 02027800 vs. JL2_7240_7350 Lower James River



This river segment follows part of the flow of the Buffalo River, a tributary of the James. The gage is located in Nelson County (Lat. 37°36'20.5", Long. -78°55'24.1"), approximately 7.2 miles east of Amherst, VA. Drainage area is 148 sq. miles. This gage started taking data in 1960 but was decommissioned in 1995. 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 -4.68%, with 23.3% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	35	27.2	-22.3
Feb. Low Flow	58	40.1	-30.9
Mar. Low Flow	92	89.8	-2.39
Apr. Low Flow	88	104	18.2
May Low Flow	145	159	9.66
Jun. Low Flow	125	132	5.6
Jul. Low Flow	112	122	8.93
Aug. Low Flow	101	126	24.8
Sep. Low Flow	71	83.8	18
Oct. Low Flow	46	47	2.17
Nov. Low Flow	33	37.6	13.9
Dec. Low Flow	28	28.6	2.14

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	171	179	4.68
Jan. Mean Flow	205	202	-1.46
Feb. Mean Flow	204	219	7.35
Mar. Mean Flow	293	315	7.51
Apr. Mean Flow	255	279	9.41
May Mean Flow	219	223	1.83
Jun. Mean Flow	146	188	28.8
Jul. Mean Flow	105	112	6.67
Aug. Mean Flow	78.6	87.2	10.9
Sep. Mean Flow	97.7	98.3	0.61
Oct. Mean Flow	105	106	0.95
Nov. Mean Flow	161	161	0
Dec. Mean Flow	182	164	-9.89

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	94	85.1	-9.47
Feb. High Flow	317	395	24.6
Mar. High Flow	439	351	-20
Apr. High Flow	432	291	-32.6
May High Flow	338	295	-12.7
Jun. High Flow	476	632	32.8
Jul. High Flow	424	471	11.1
Aug. High Flow	370	416	12.4
Sep. High Flow	203	193	-4.93
Oct. High Flow	166	138	-16.9
Nov. High Flow	94	99.5	5.85
Dec. High Flow	102	79.8	-21.8

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	9.5	5.97	-37.2
Med. 1 Day Min	25	17.2	-31.2
Min. 3 Day Min	10.5	6.03	-42.6
Med. 3 Day Min	25.7	18.3	-28.8
Min. 7 Day Min	12.1	6.19	-48.8
Med. 7 Day Min	26.3	19.7	-25.1
Min. 30 Day Min	19.3	7.68	-60.2
Med. 30 Day Min	33.7	28	-16.9
Min. 90 Day Min	28.3	21.6	-23.7
Med. 90 Day Min	59.1	60.7	2.71
7Q10	12.8	7.79	-39.1
Year of 90-Day Min. Flow	1986	1986	0
Drought Year Mean	154	140	-9.09
Mean Baseflow	103	114	10.7

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	5560	5890	5.94
Med. 1 Day Max	3230	3110	-3.72
Max. 3 Day Max	4230	3210	-24.1
Med. 3 Day Max	1940	1600	-17.5
Max. 7 Day Max	2310	1770	-23.4
Med. 7 Day Max	1050	1040	-0.95
Max. 30 Day Max	790	784	-0.76
Med. 30 Day Max	495	623	25.9
Max. 90 Day Max	492	508	3.25
Med. 90 Day Max	366	333	-9.02

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	16.2	8.8	-45.7
5% Non-Exceedance	26	21.6	-16.9
50% Non-Exceedance	117	122	4.27
95% Non-Exceedance	468	480	2.56
99% Non-Exceedance	1100	1170	6.36
Sept. 10% Non-Exceedance	21	20.8	-0.95

Fig. 1: Hydrograph

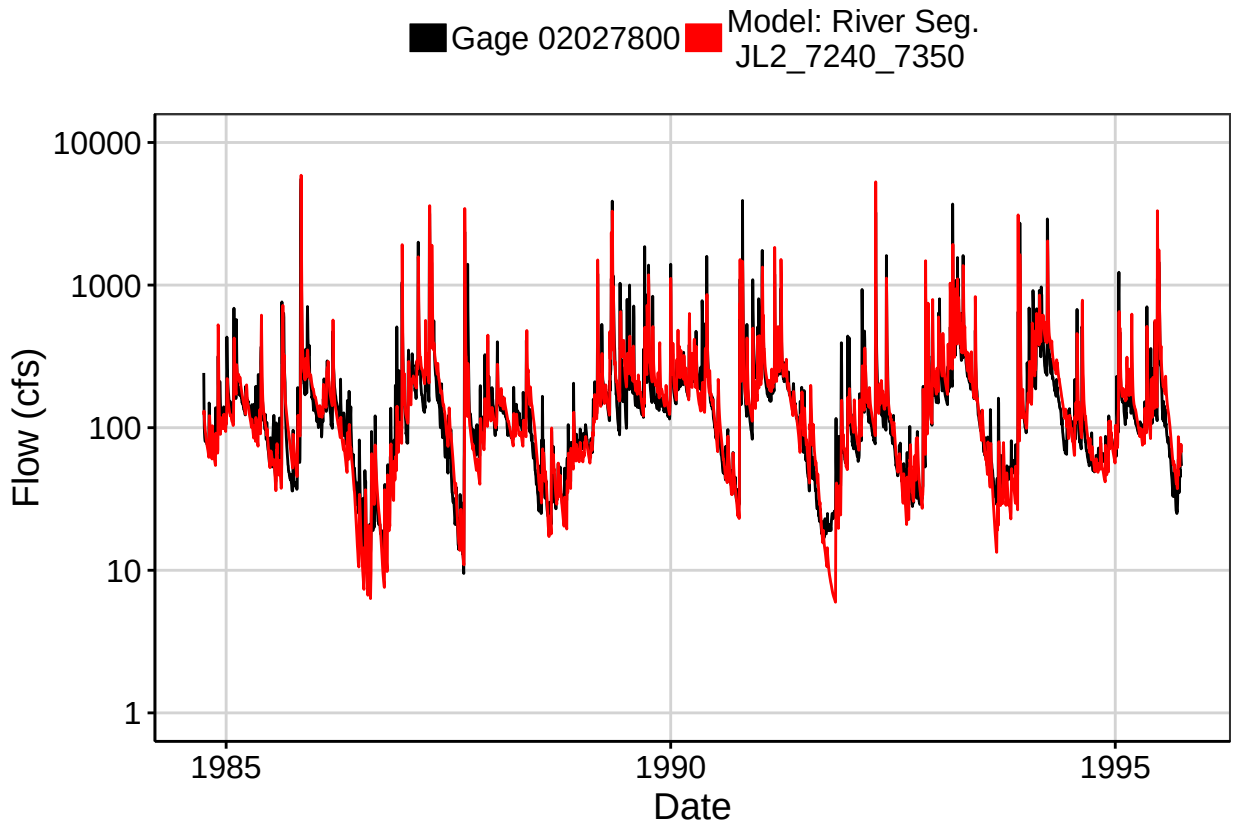


Fig. 2: Zoomed Hydrograph

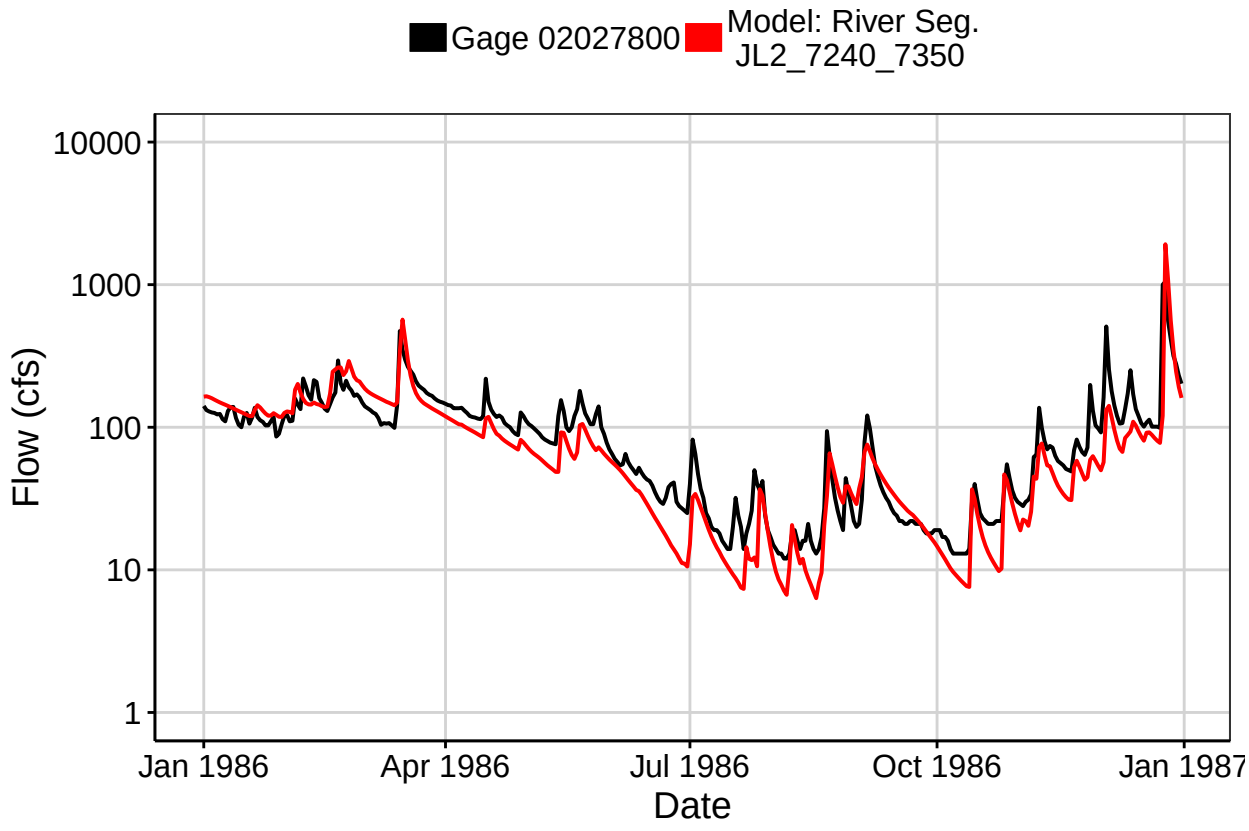


Fig. 3: Flow Exceedance

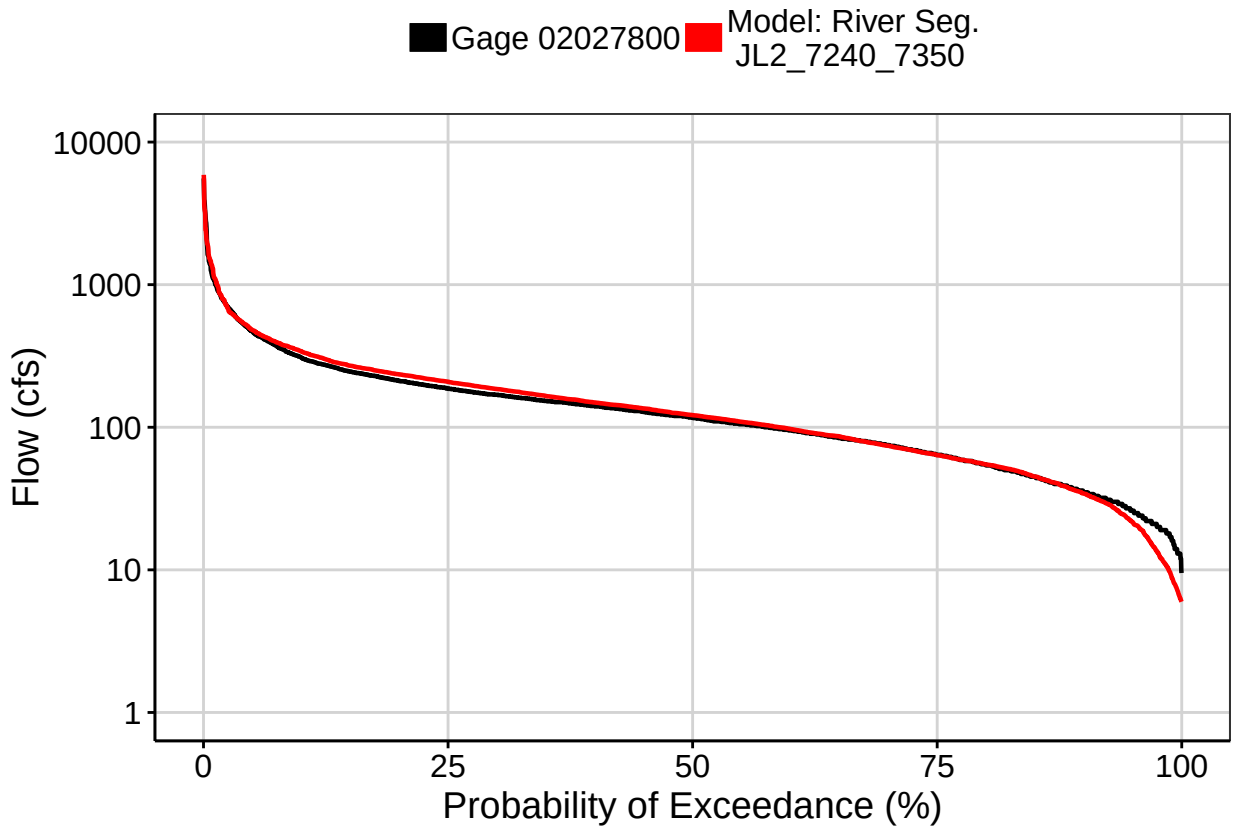


Fig. 4: Baseflow

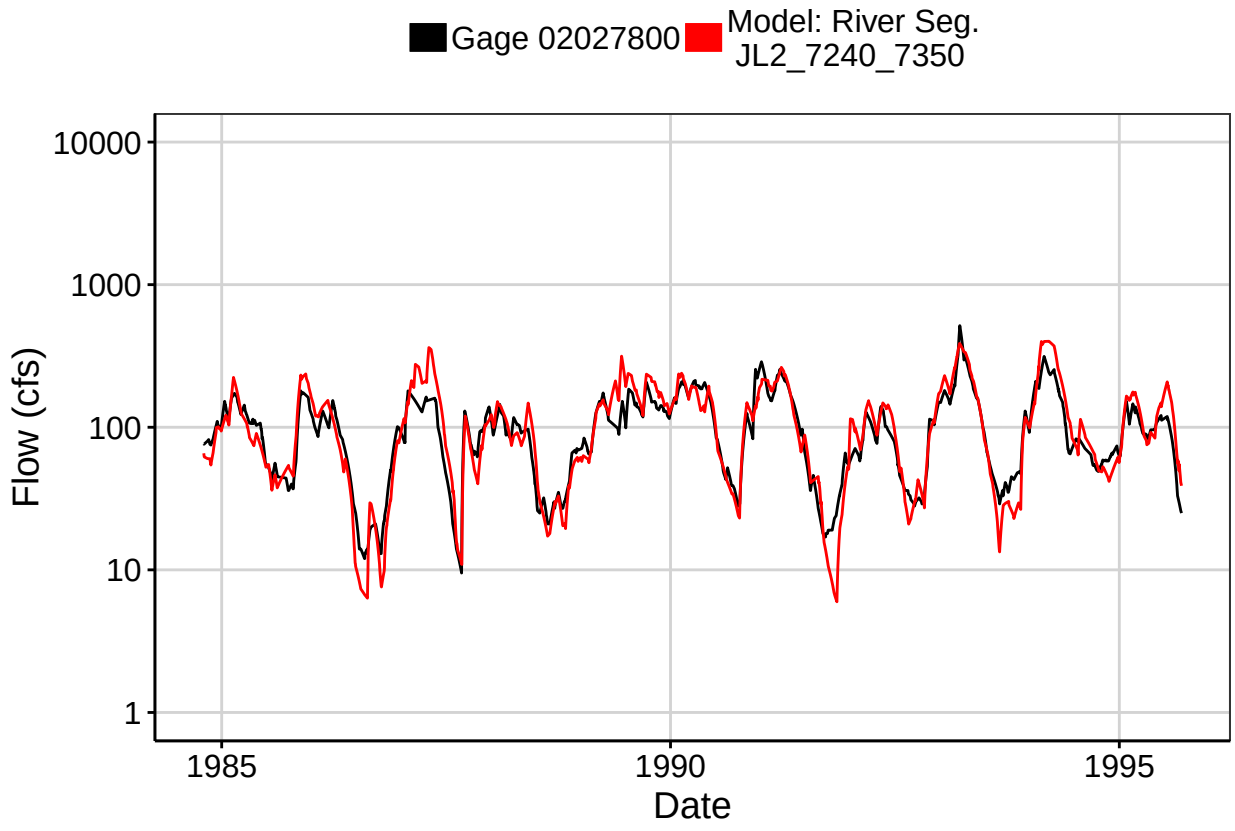


Fig. 5: Combined Baseflow

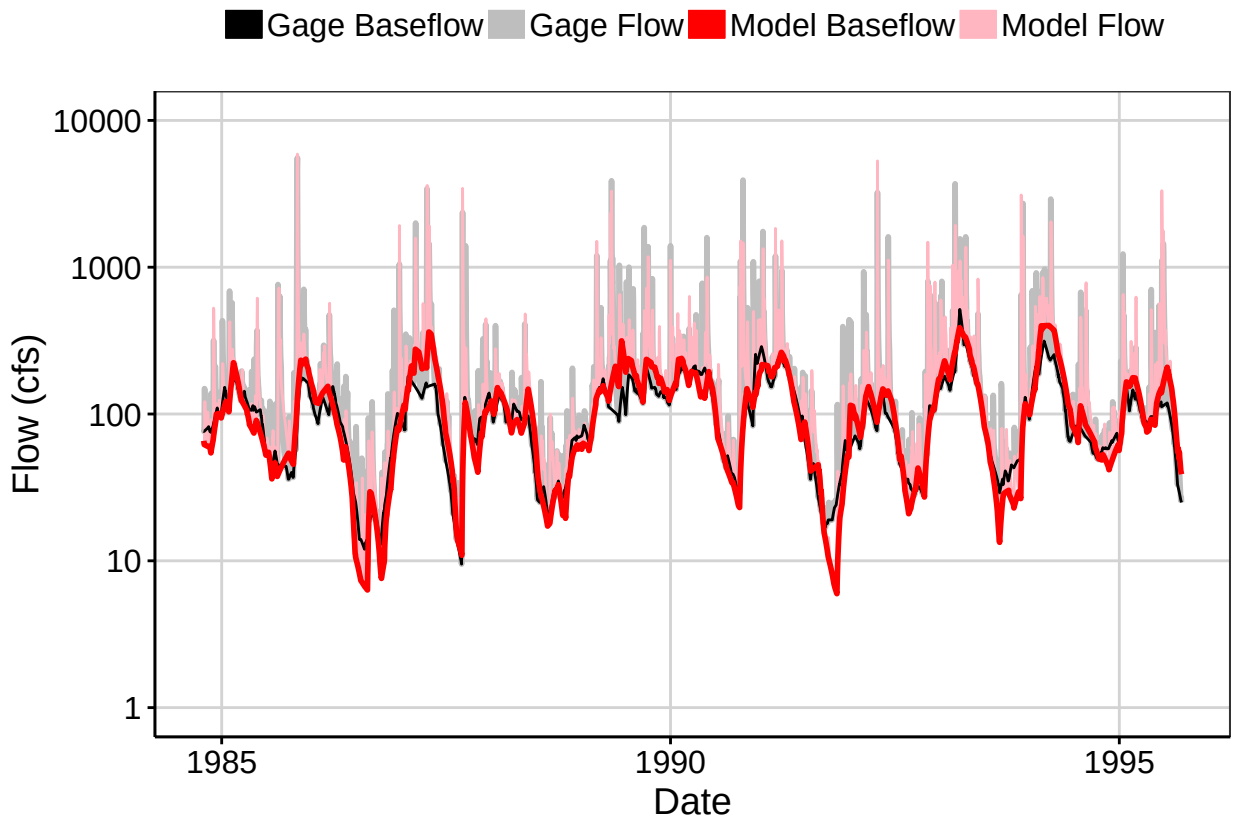


Fig. 6: Largest Error Segment

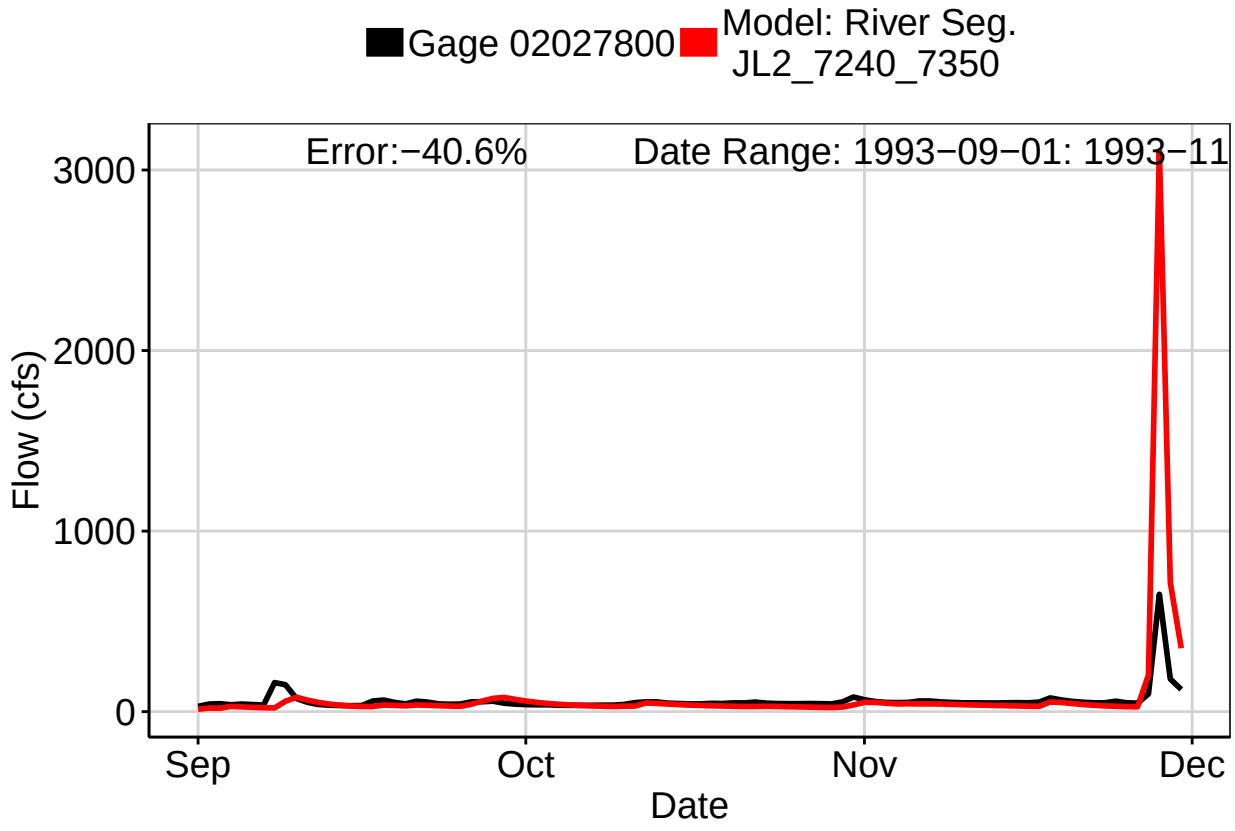


Fig. 7: Second Largest Error Segment

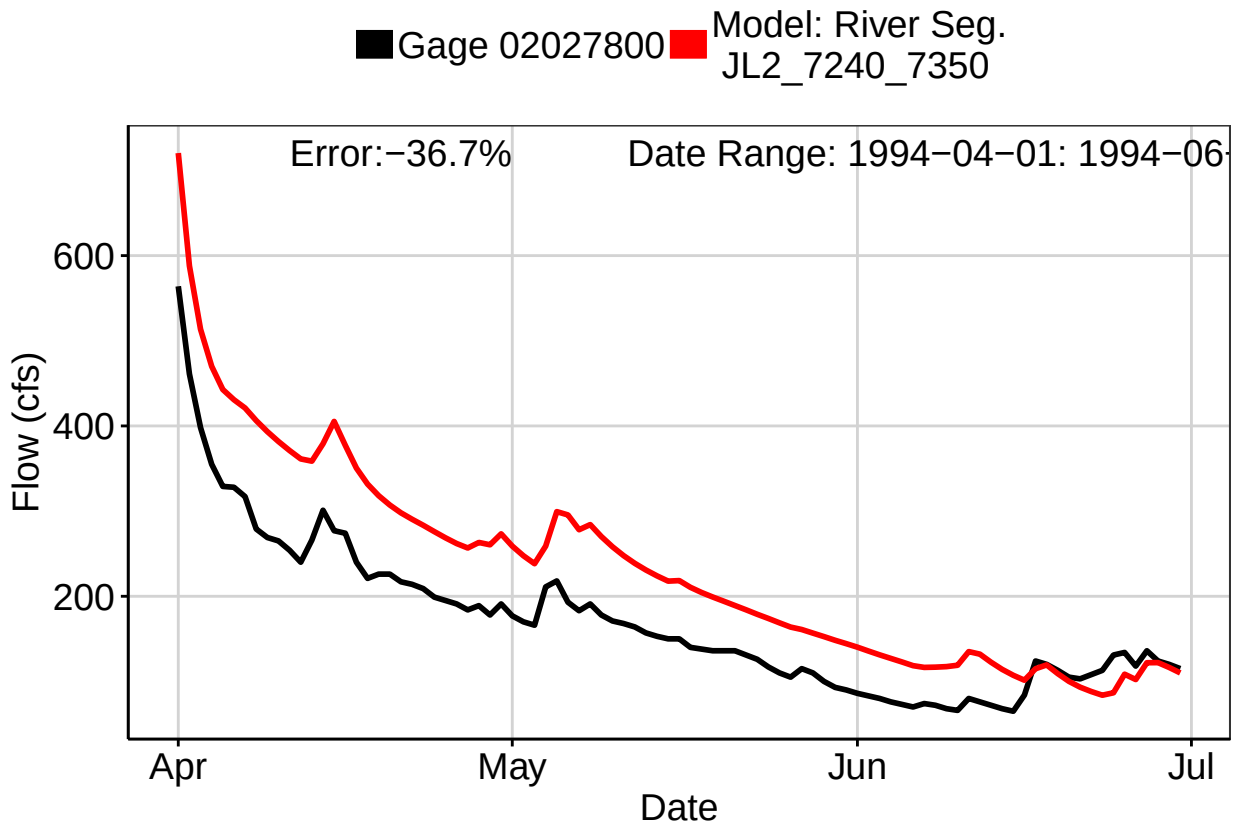


Fig. 8: Third Largest Error Segment

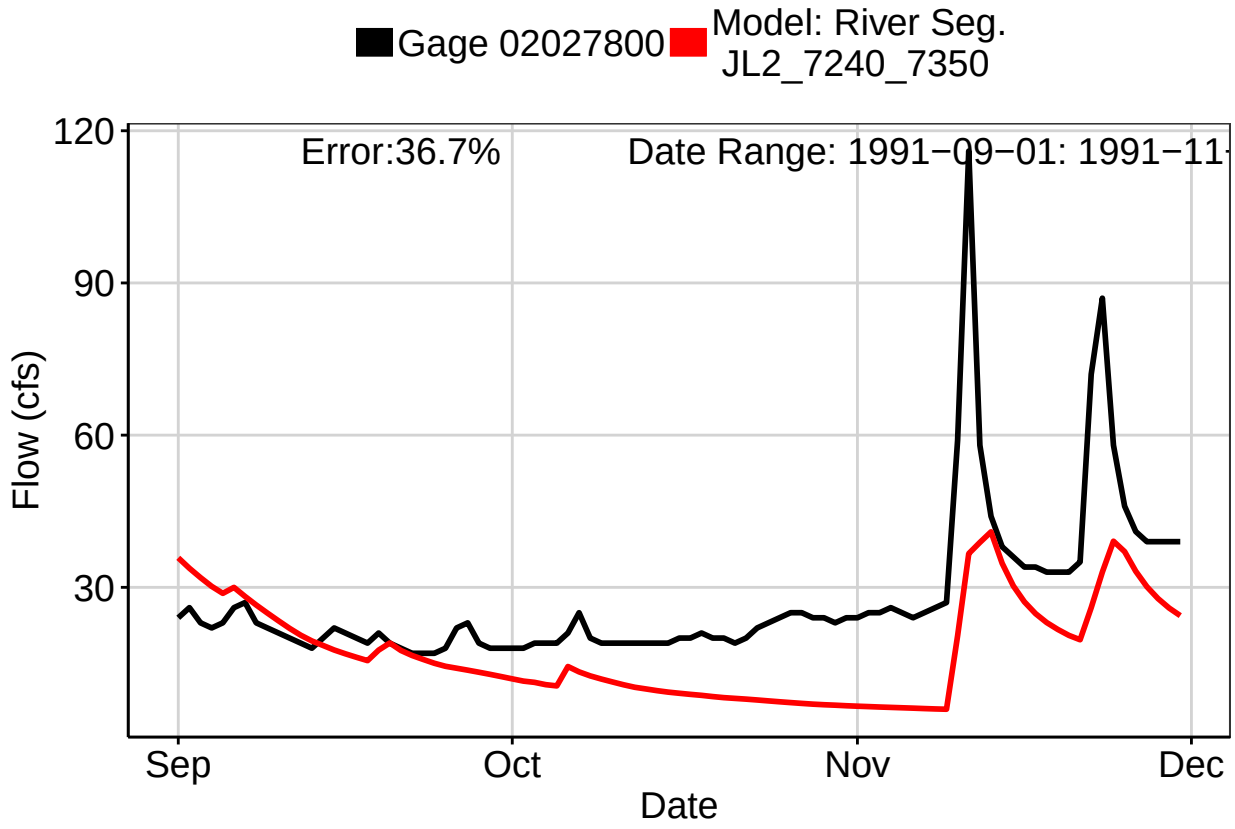


Fig. 9: Residuals Plot