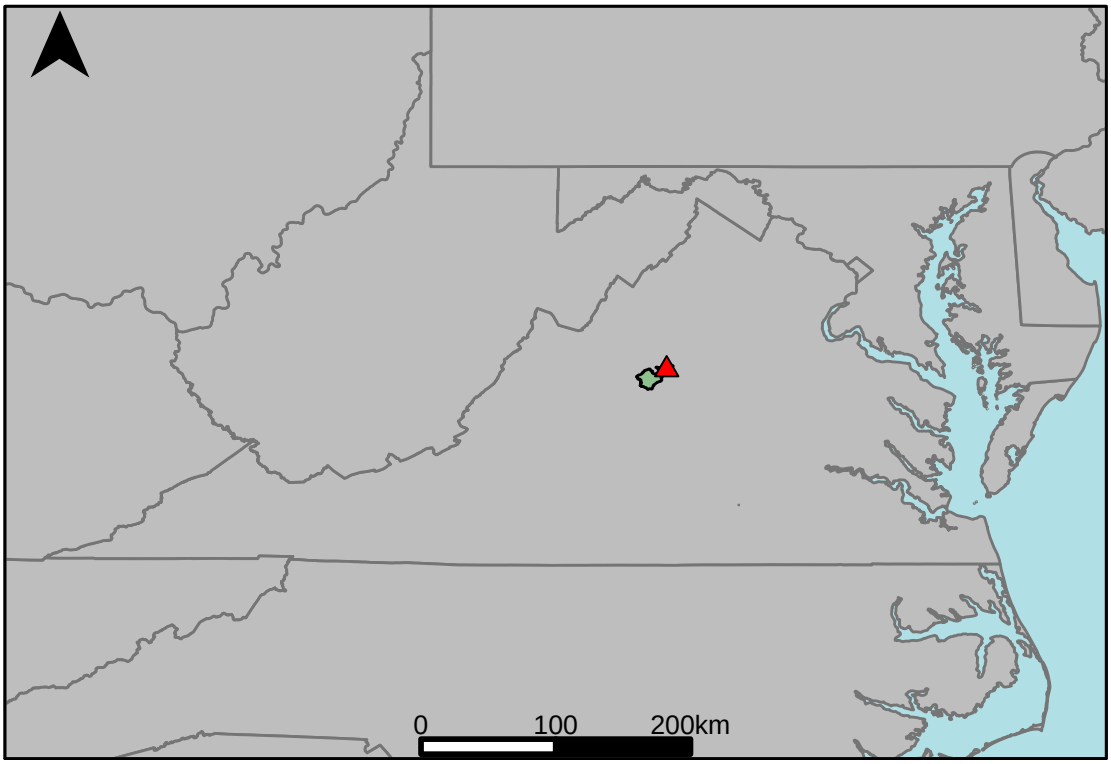
Appendix A.28: USGS Gage 02031000 vs. JL1_6560_6440 Lower James River



This river segment follows part of the flow of the Mechums River, a tributary of the James. The gage is located in Albemarle County (Lat. 38°06'09.5", Long. -78°35'34.1"), approximately 7.7 miles northwest of Charlottesville, VA. Drainage area is 95.3 sq. miles. This gage started taking data in 1942 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%, with 46.2% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	21	17.7	-15.7
Feb. Low Flow	36	30.7	-14.7
Mar. Low Flow	47	46.2	-1.7
Apr. Low Flow	54	66.2	22.6
May Low Flow	75	88.9	18.5
Jun. Low Flow	79	77.3	-2.15
Jul. Low Flow	77.5	49.5	-36.1
Aug. Low Flow	55	36	-34.5
Sep. Low Flow	31	35	12.9
Oct. Low Flow	27	8.57	-68.3
Nov. Low Flow	17	12.1	-28.8
Dec. Low Flow	15	5.99	-60.1

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	107	107	0
Jan. Mean Flow	139	135	-2.88
Feb. Mean Flow	138	160	15.9
Mar. Mean Flow	159	180	13.2
Apr. Mean Flow	146	128	-12.3
May Mean Flow	118	105	-11
Jun. Mean Flow	90.7	75.9	-16.3
Jul. Mean Flow	63.2	75.5	19.5
Aug. Mean Flow	41.7	44	5.52
Sep. Mean Flow	105	107	1.9
Oct. Mean Flow	62.3	64.3	3.21
Nov. Mean Flow	116	109	-6.03
Dec. Mean Flow	113	106	-6.19

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	95	106	11.6
Feb. High Flow	267	265	-0.75
Mar. High Flow	275	278	1.09
Apr. High Flow	380	334	-12.1
May High Flow	244	243	-0.41
Jun. High Flow	392	561	43.1
Jul. High Flow	230	257	11.7
Aug. High Flow	194	200	3.09
Sep. High Flow	220	195	-11.4
Oct. High Flow	126	197	56.3
Nov. High Flow	79	76.2	-3.54
Dec. High Flow	65	126	93.8

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	0.00	1.00e-01	Inf
Med. 1 Day Min	1.20e+01	3.41	-7.16e+01
Min. 3 Day Min	0.00	1.30e-01	2.09e+14
Med. 3 Day Min	1.23e+01	3.90	-6.83e+01
Min. 7 Day Min	0.00	1.80e-01	1.85e+15
Med. 7 Day Min	1.31e+01	4.91	-6.25e+01
Min. 30 Day Min	3.00e-02	1.49	4.66e+03
Med. 30 Day Min	1.85e+01	9.57	-4.83e+01
Min. 90 Day Min	8.30e-01	6.39	6.69e+02
Med. 90 Day Min	3.63e+01	2.68e+01	-2.62e+01
7Q10	0.00	9.10e-01	3.85e+07
Year of 90-Day Min. Flow	2.00e+03	2.00e+03	1.00e+02
Drought Year Mean	1.50e+01	1.73e+01	1.53e+01
Mean Baseflow	5.64e+01	5.75e+01	1.95

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	7400	7620	2.97
Med. 1 Day Max	1930	2020	4.66
Max. 3 Day Max	3430	3180	-7.29
Med. 3 Day Max	872	1140	30.7
Max. 7 Day Max	1920	1730	-9.9
Med. 7 Day Max	656	620	-5.49
Max. 30 Day Max	652	593	-9.05
Med. 30 Day Max	298	254	-14.8
Max. 90 Day Max	398	411	3.27
Med. 90 Day Max	186	186	0

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	1.12	1.69	50.9
5% Non-Exceedance	12	5.24	-56.3
50% Non-Exceedance	66	65.7	-0.46
95% Non-Exceedance	303	304	0.33
99% Non-Exceedance	803	838	4.36
Sept. 10% Non-Exceedance	9.98	4.89	-51

Fig. 1: Hydrograph

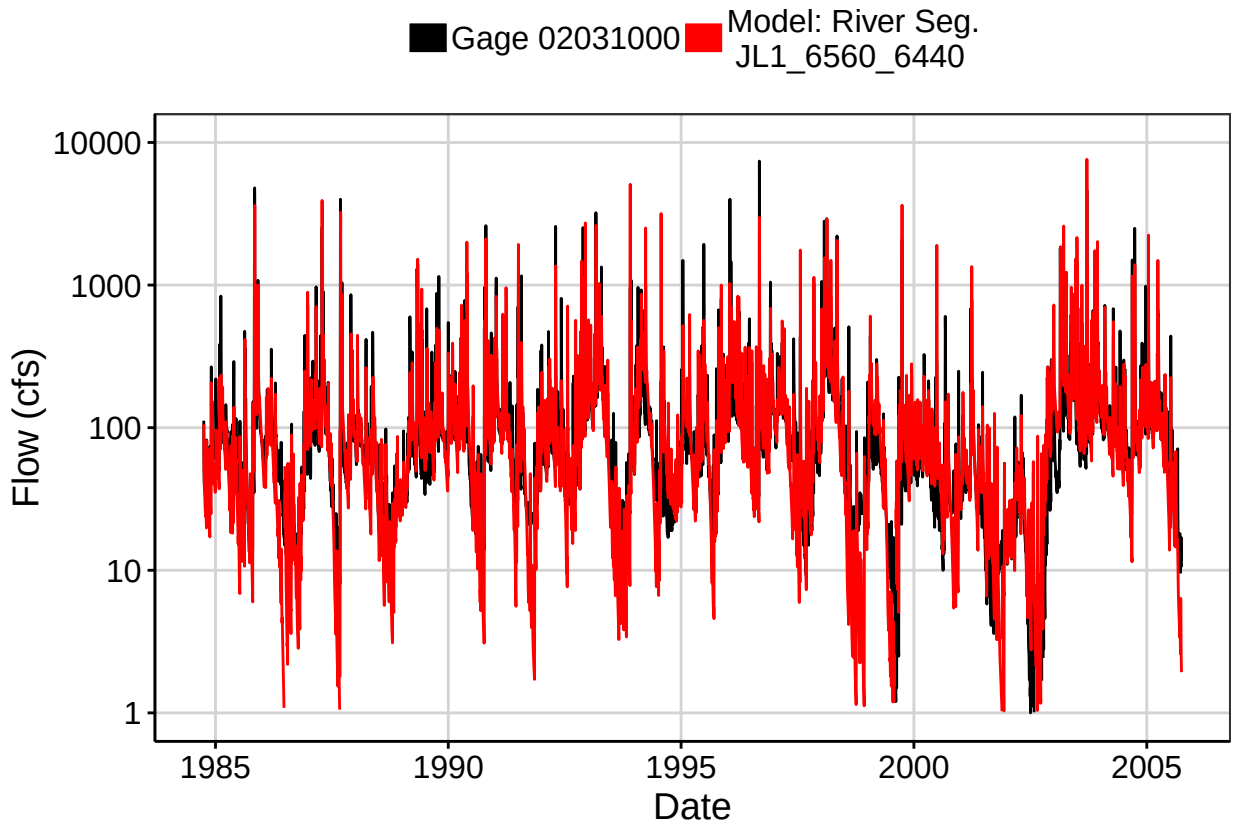


Fig. 2: Zoomed Hydrograph

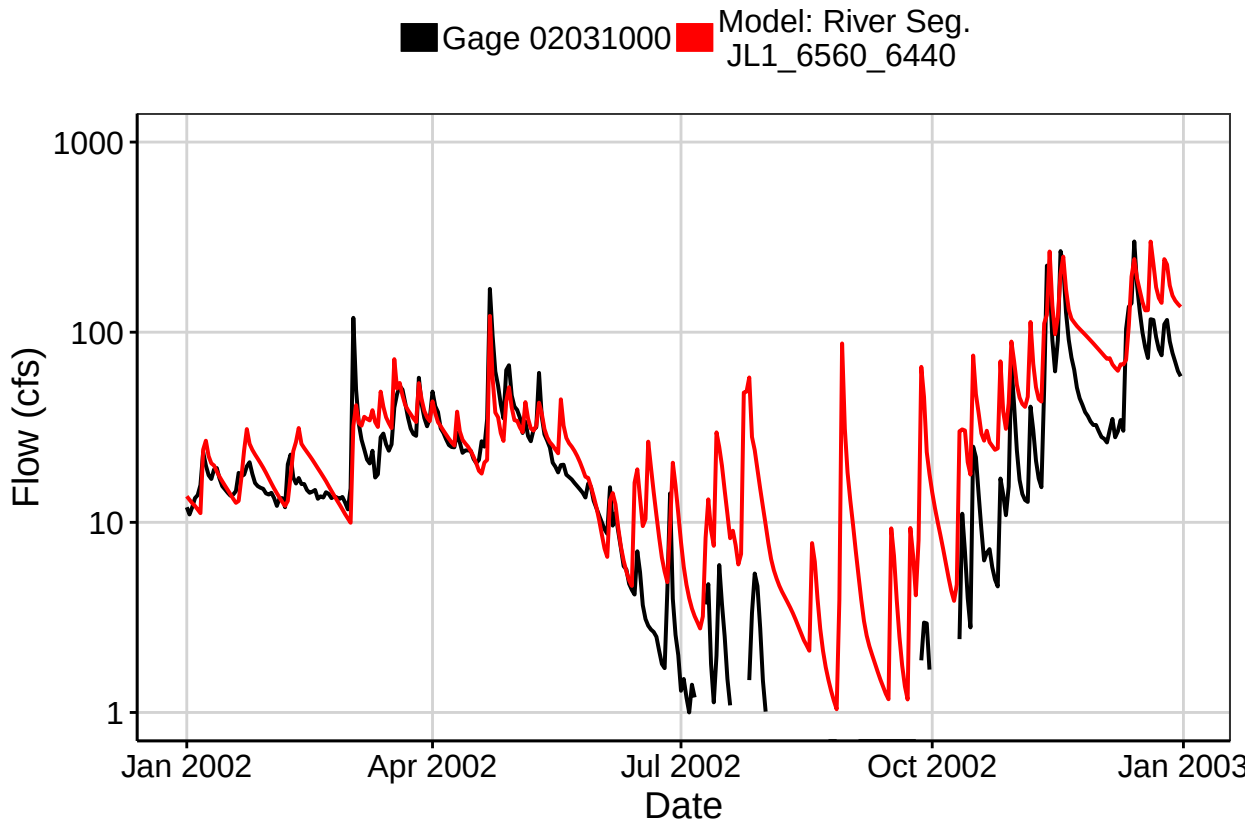


Fig. 3: Flow Exceedance

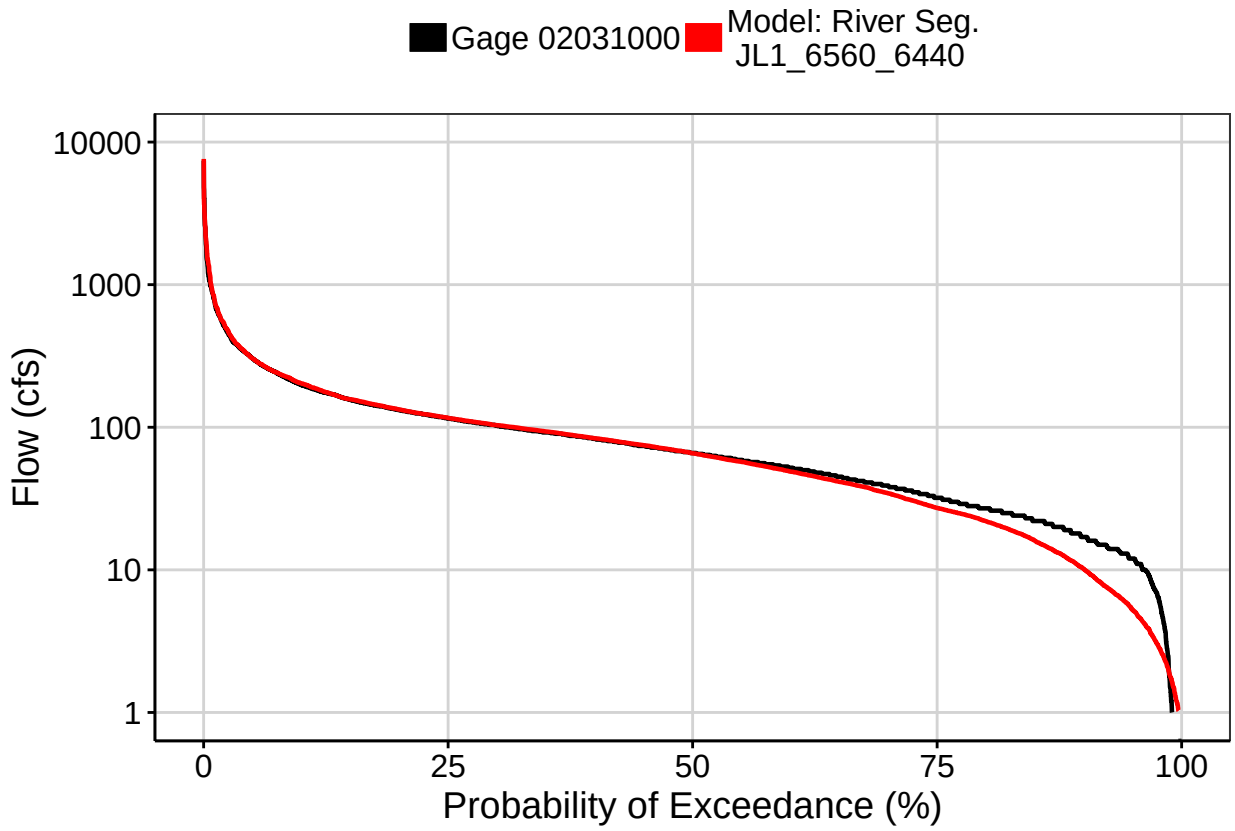


Fig. 4: Baseflow

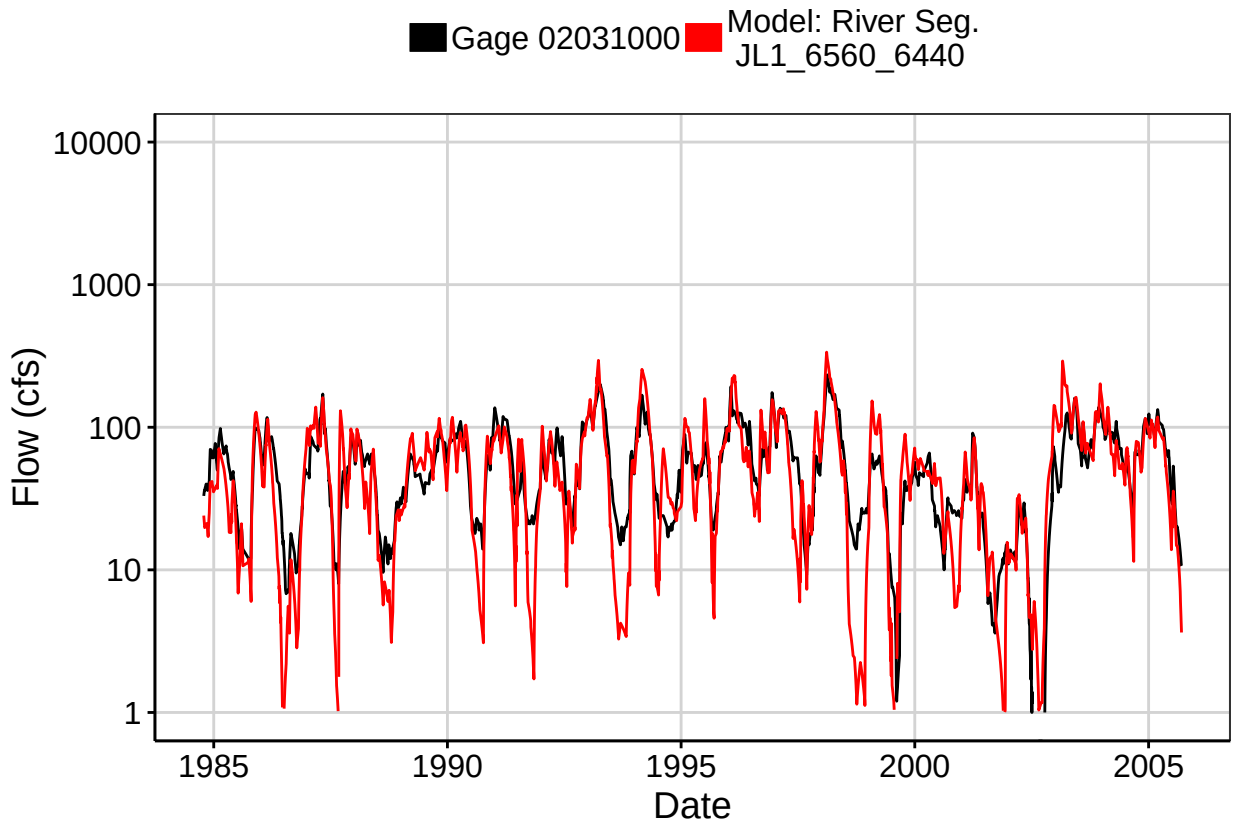


Fig. 5: Combined Baseflow

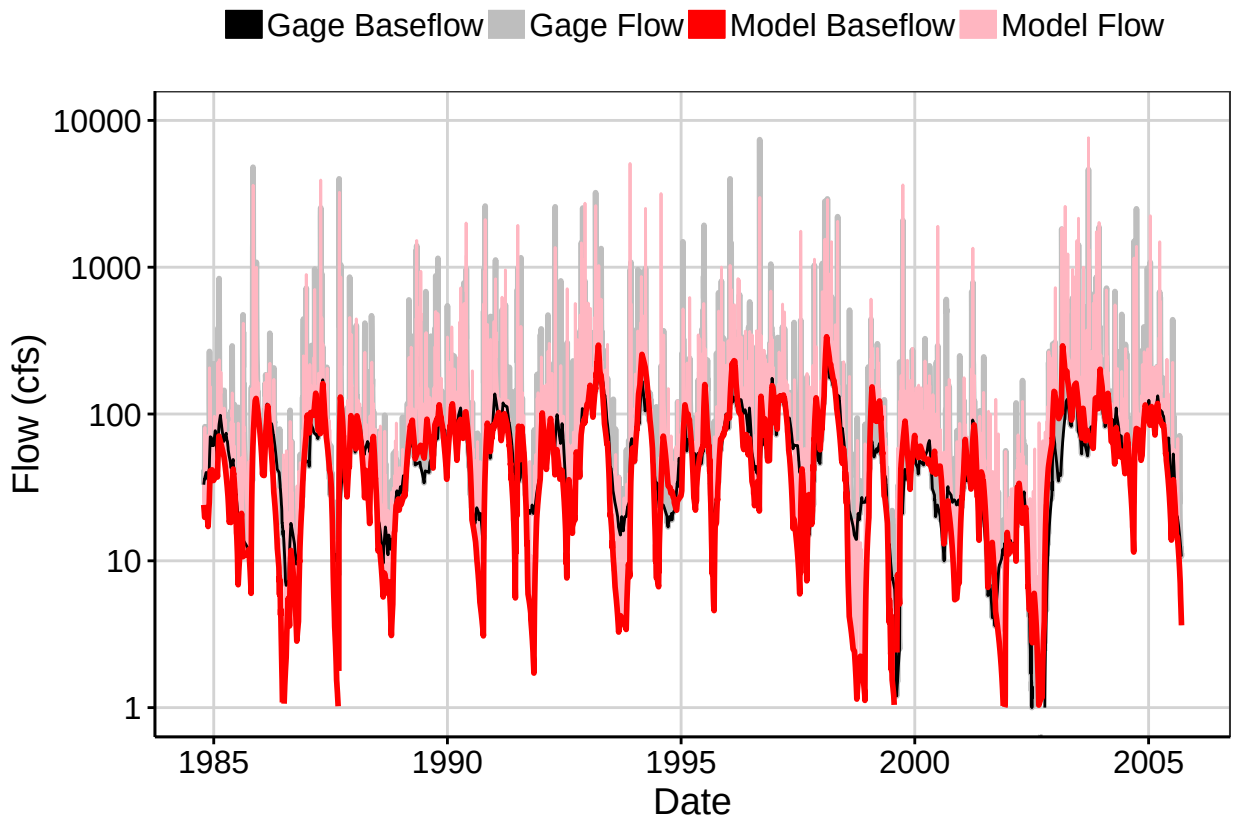


Fig. 6: Largest Error Segment

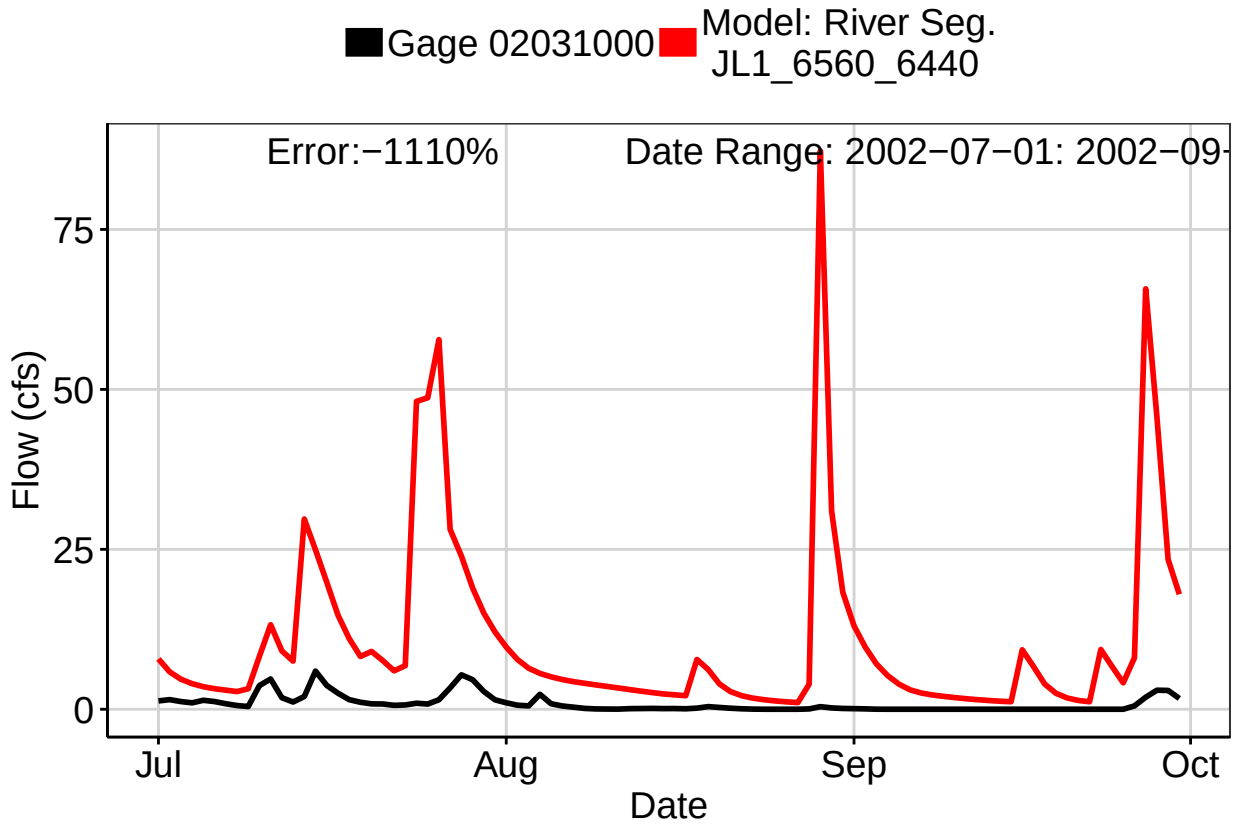


Fig. 7: Second Largest Error Segment

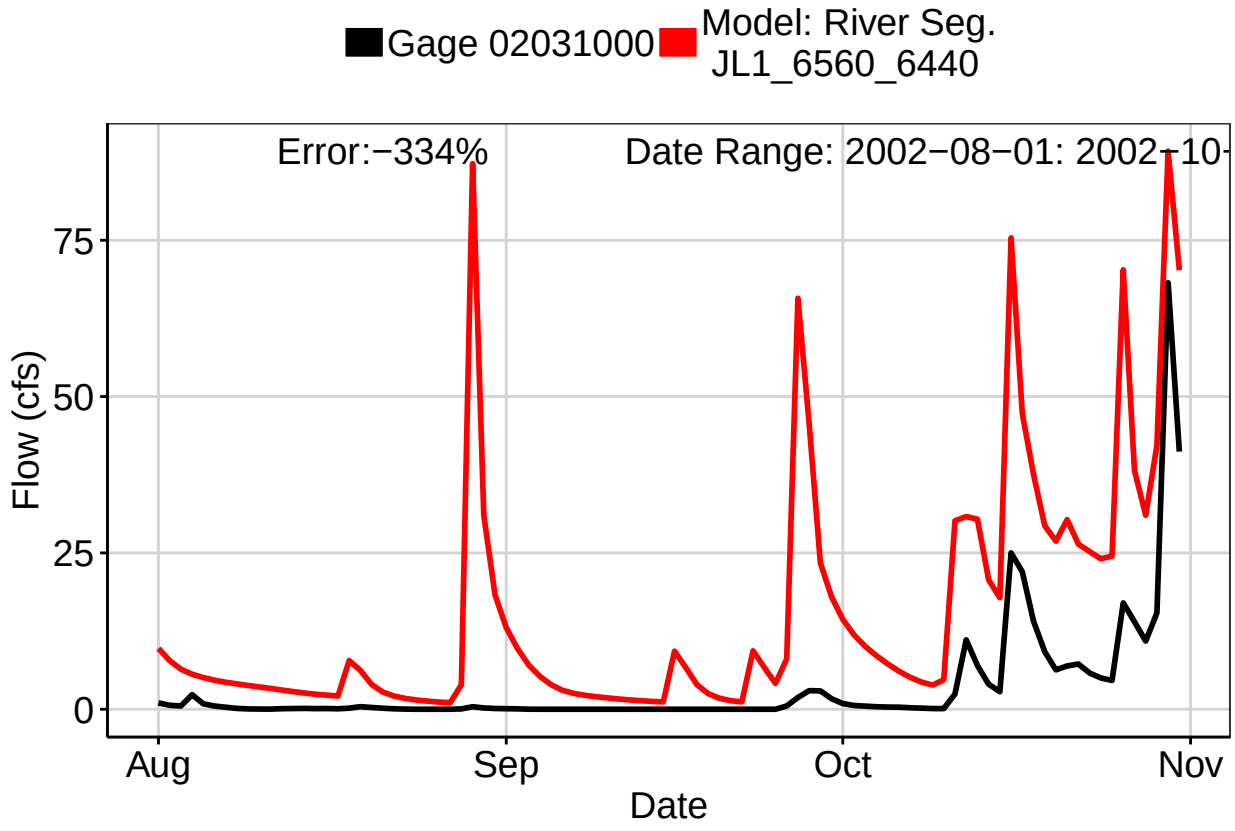


Fig. 8: Third Largest Error Segment

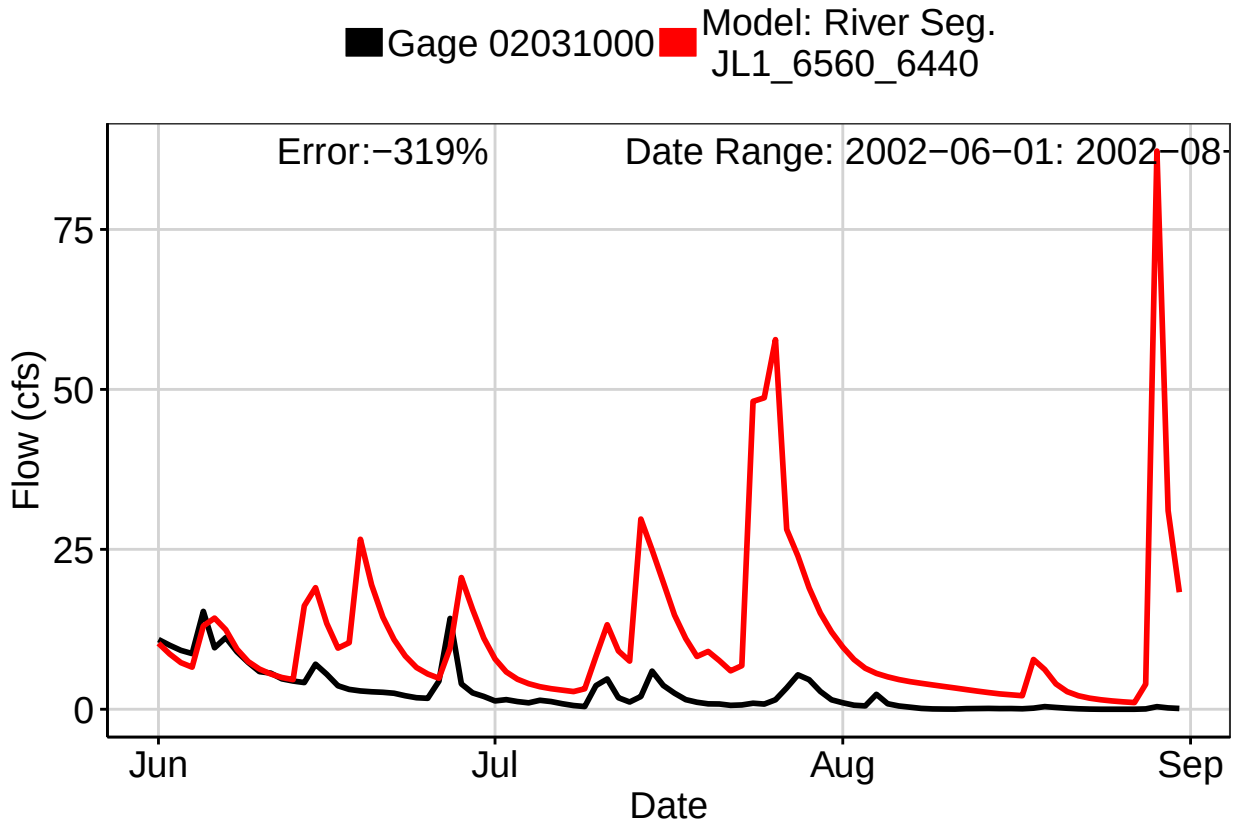


Fig. 9: Residuals Plot