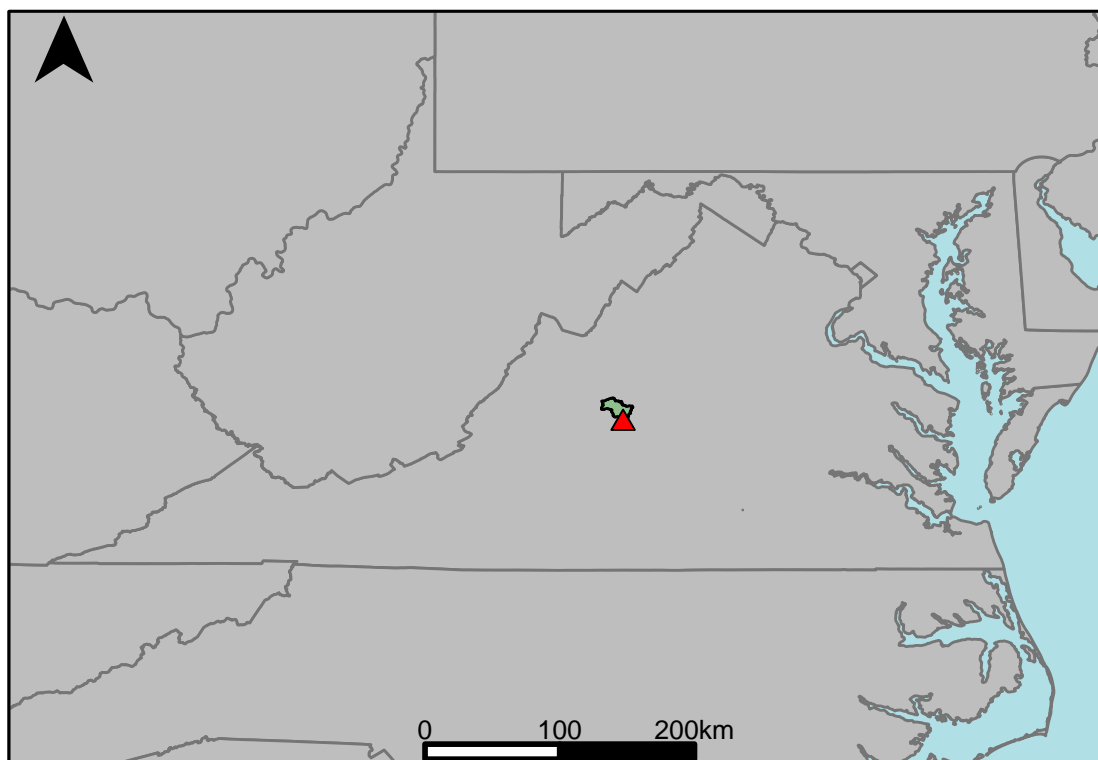# Appendix A.21: USGS Gage 02027000 vs. JL1_6940_7200 Lower James River

This river segment follows part of the flow of the Tye River, a tributary of the James. The gage is located in Nelson County (Lat. 37°42'55.5", Long. -78°58'54.1"), approximately 10 miles northeast of Amherst, VA. Drainage area is 93 sq. miles. This gage started taking data in 1938 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 4.91%, with 54.6% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	23	37.2	61.7
Feb. Low Flow	45	57.6	28
Mar. Low Flow	75	91	21.3
Apr. Low Flow	80	93.2	16.5
May Low Flow	92	110	19.6
Jun. Low Flow	108	116	7.41
Jul. Low Flow	99	71.9	-27.4
Aug. Low Flow	80	54.7	-31.6
Sep. Low Flow	43	34.9	-18.8
Oct. Low Flow	22	18.8	-14.5
Nov. Low Flow	22	31.1	41.4
Dec. Low Flow	17	23.5	38.2

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	163	155	-4.91
Jan. Mean Flow	217	193	-11.1
Feb. Mean Flow	205	207	0.98
Mar. Mean Flow	254	231	-9.06
Apr. Mean Flow	239	179	-25.1
May Mean Flow	180	154	-14.4
Jun. Mean Flow	134	119	-11.2
Jul. Mean Flow	75.9	88.9	17.1
Aug. Mean Flow	65.4	81.4	24.5
Sep. Mean Flow	137	157	14.6
Oct. Mean Flow	93.4	118	26.3
Nov. Mean Flow	181	165	-8.84
Dec. Mean Flow	185	171	-7.57

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	126	198	57.1
Feb. High Flow	392	460	17.3
Mar. High Flow	420	330	-21.4
Apr. High Flow	582	351	-39.7
May High Flow	334	315	-5.69
Jun. High Flow	518	661	27.6
Jul. High Flow	428	383	-10.5
Aug. High Flow	286	250	-12.6
Sep. High Flow	220	233	5.91
Oct. High Flow	215	139	-35.3
Nov. High Flow	90	123	36.7
Dec. High Flow	114	124	8.77

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	0.53	1	88.7
Med. 1 Day Min	12.8	5.93	-53.7
Min. 3 Day Min	0.55	1.15	110
Med. 3 Day Min	13.1	6.39	-51.2
Min. 7 Day Min	0.61	1.46	141
Med. 7 Day Min	13.9	9.49	-31.7
Min. 30 Day Min	1.45	4.42	205
Med. 30 Day Min	19.5	24.4	25.1
Min. 90 Day Min	4.42	15.5	251
Med. 90 Day Min	45.5	57.4	26.2
7Q10	3.73	1.81	-51.5
Year of 90-Day Min. Flow	2002	1986	100
Drought Year Mean	44.5	51.8	16.4
Mean Baseflow	86.9	88.7	2.07

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	7180	5060	-29.5
Med. 1 Day Max	2170	2060	-5.07
Max. 3 Day Max	3880	2530	-34.8
Med. 3 Day Max	1500	1160	-22.7
Max. 7 Day Max	2250	1540	-31.6
Med. 7 Day Max	995	636	-36.1
Max. 30 Day Max	807	656	-18.7
Med. 30 Day Max	518	341	-34.2
Max. 90 Day Max	618	473	-23.5
Med. 90 Day Max	303	244	-19.5

Table 6: Non-Exceedance Flows

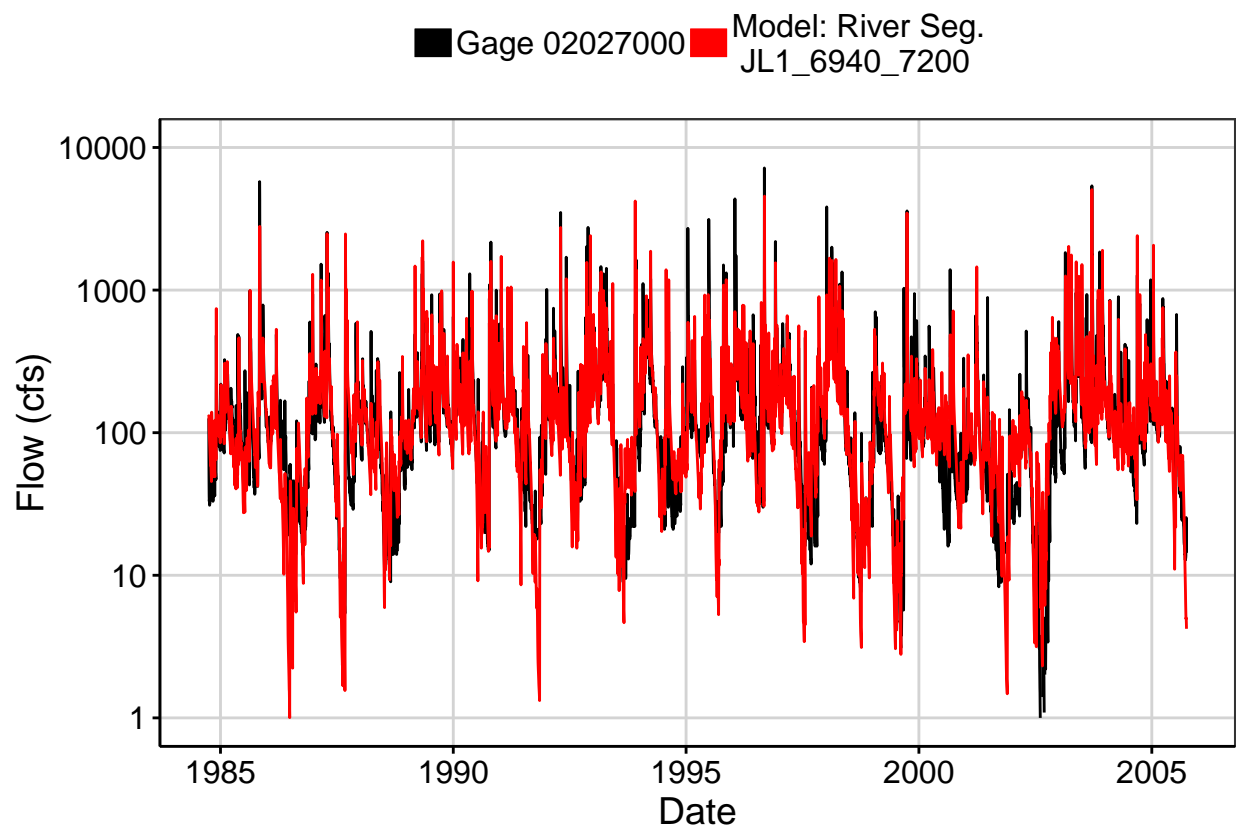|	USGS Gage	Model	Pct. Error
1% Non-Exceedance	4.73	3.61	-23.7
5% Non-Exceedance	15	13	-13.3
50% Non-Exceedance	101	107	5.94
95% Non-Exceedance	500	429	-14.2
99% Non-Exceedance	1070	952	-11
Sept. 10% Non-Exceedance	11	14.5	31.8

Fig. 1: Hydrograph

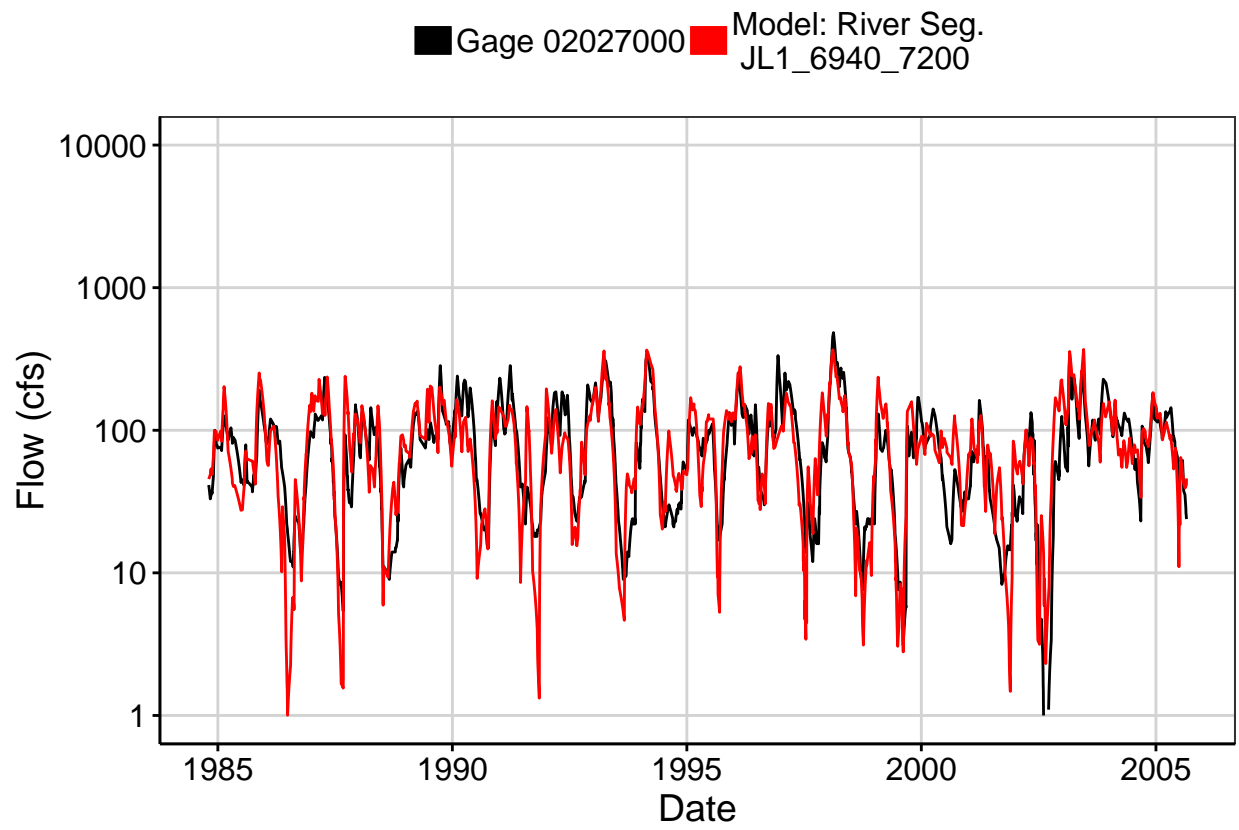# Fig. 2: Zoomed Hydrograph
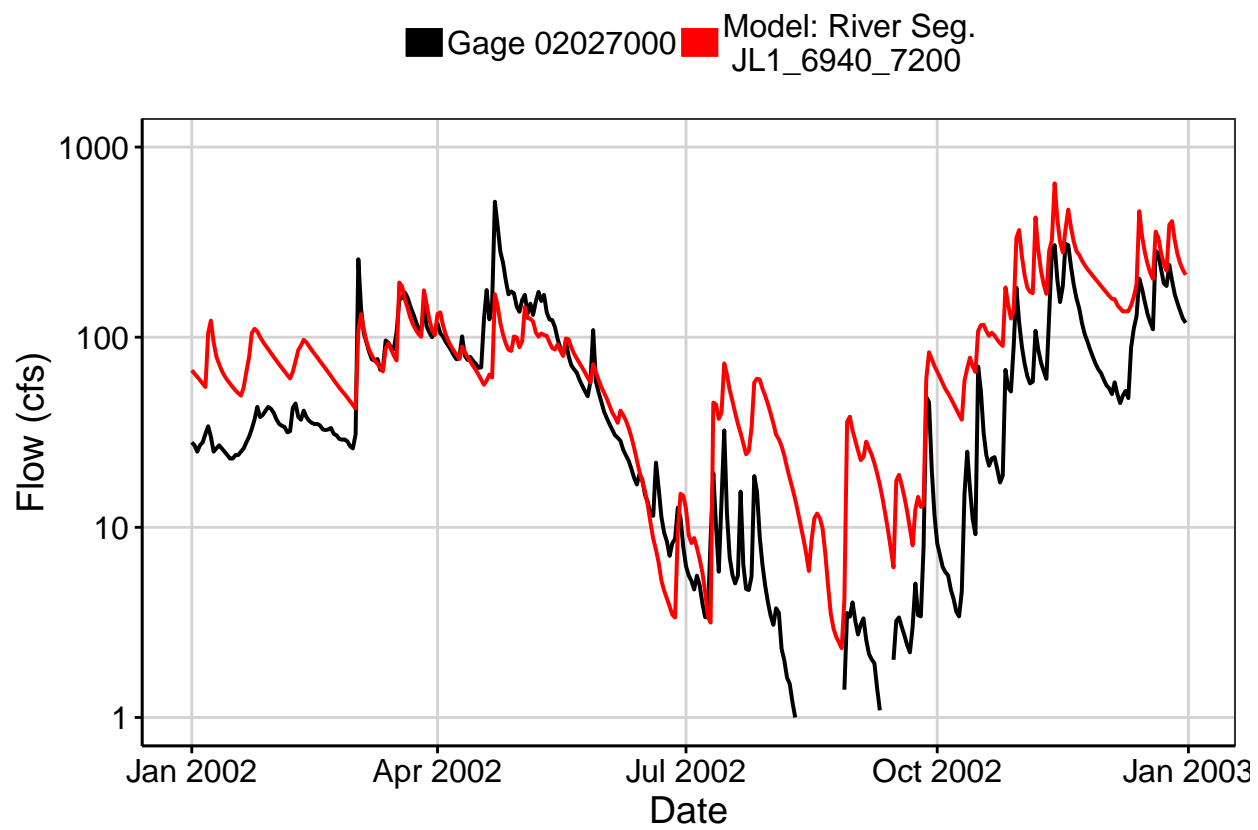
Fig. 3: Flow Exceedance

Fig. 4: Baseflow

Legend: ■ Gage 02027000   ■ Model: River Seg. JL1_6940_7200

Fig. 5: Combined Baseflow
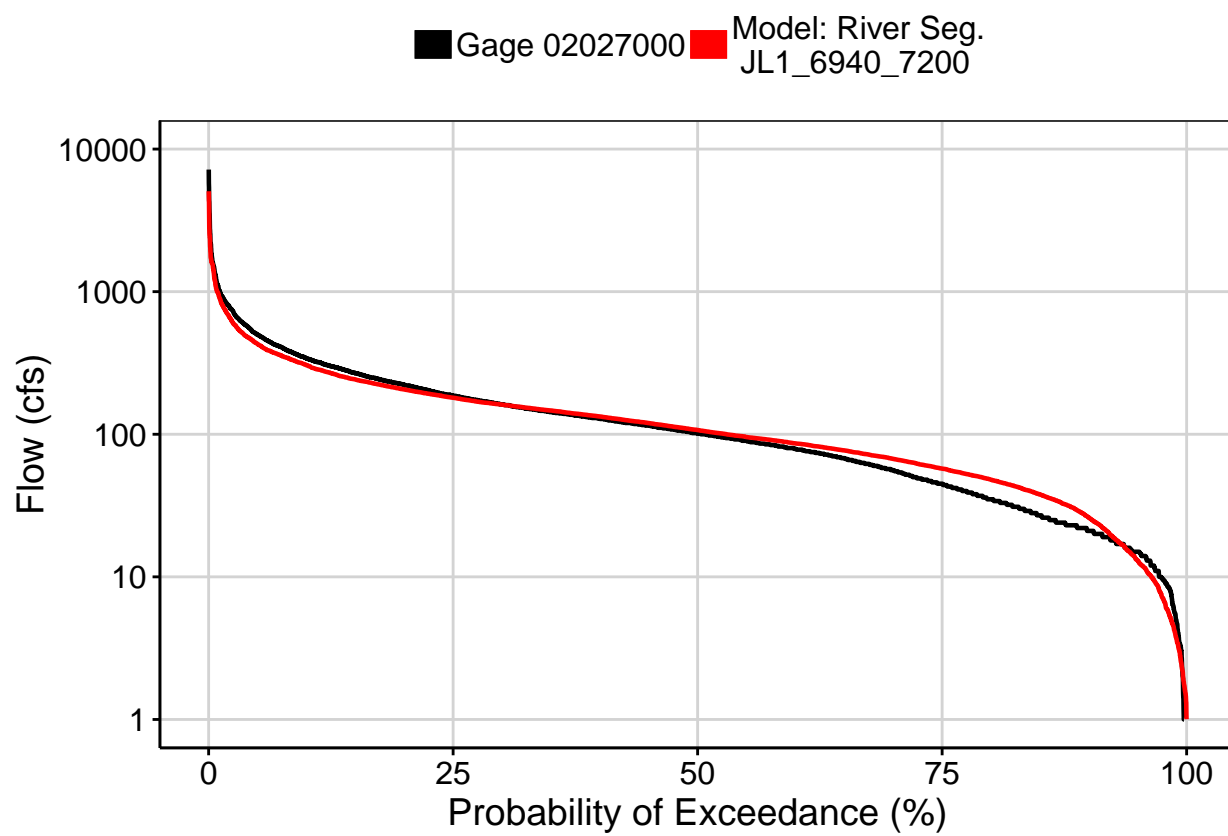
Legend: Gage Baseflow, Gage Flow, Model Baseflow, Model Flow

Fig. 6: Largest Error Segment

Gage 02027000   Model: River Seg. JL1_6940_7200

Error:−342%   Date Range: 2002−07−01: 2002−09−
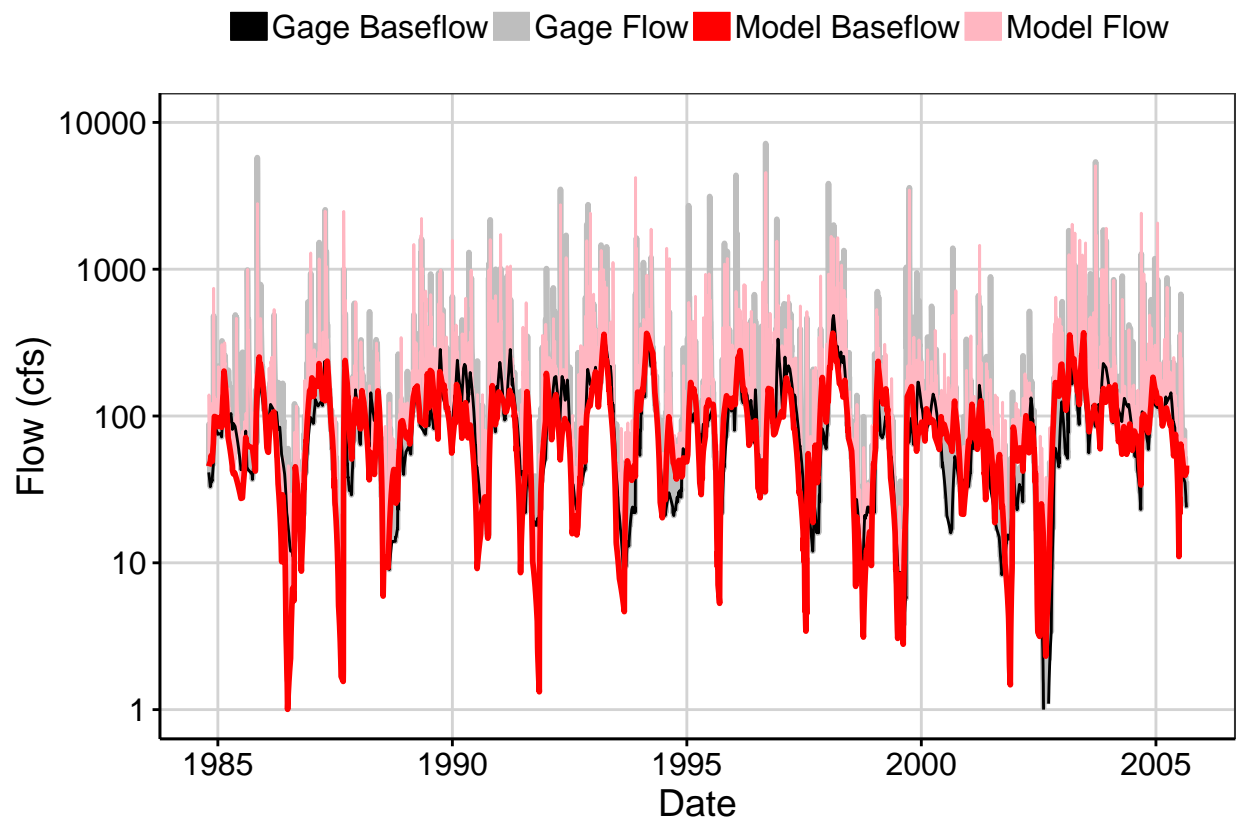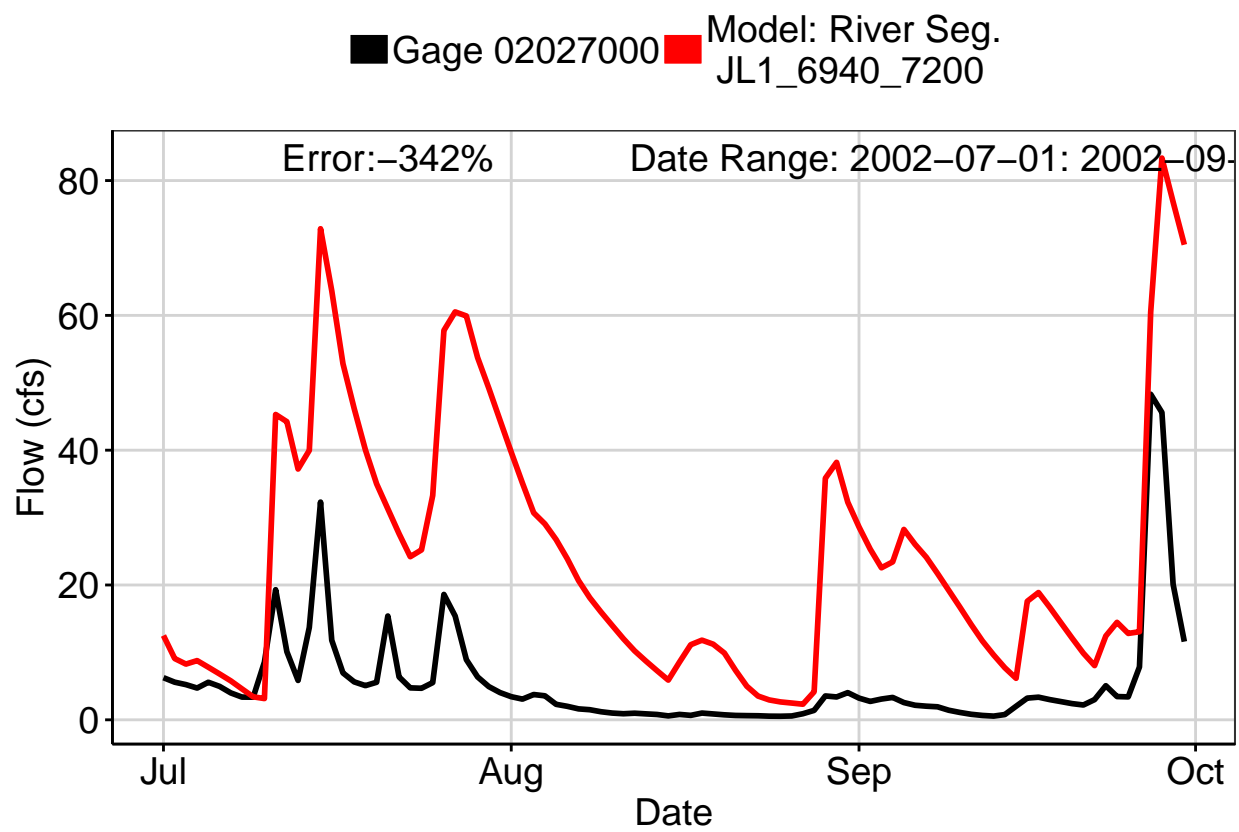
Fig. 7: Second Largest Error Segment
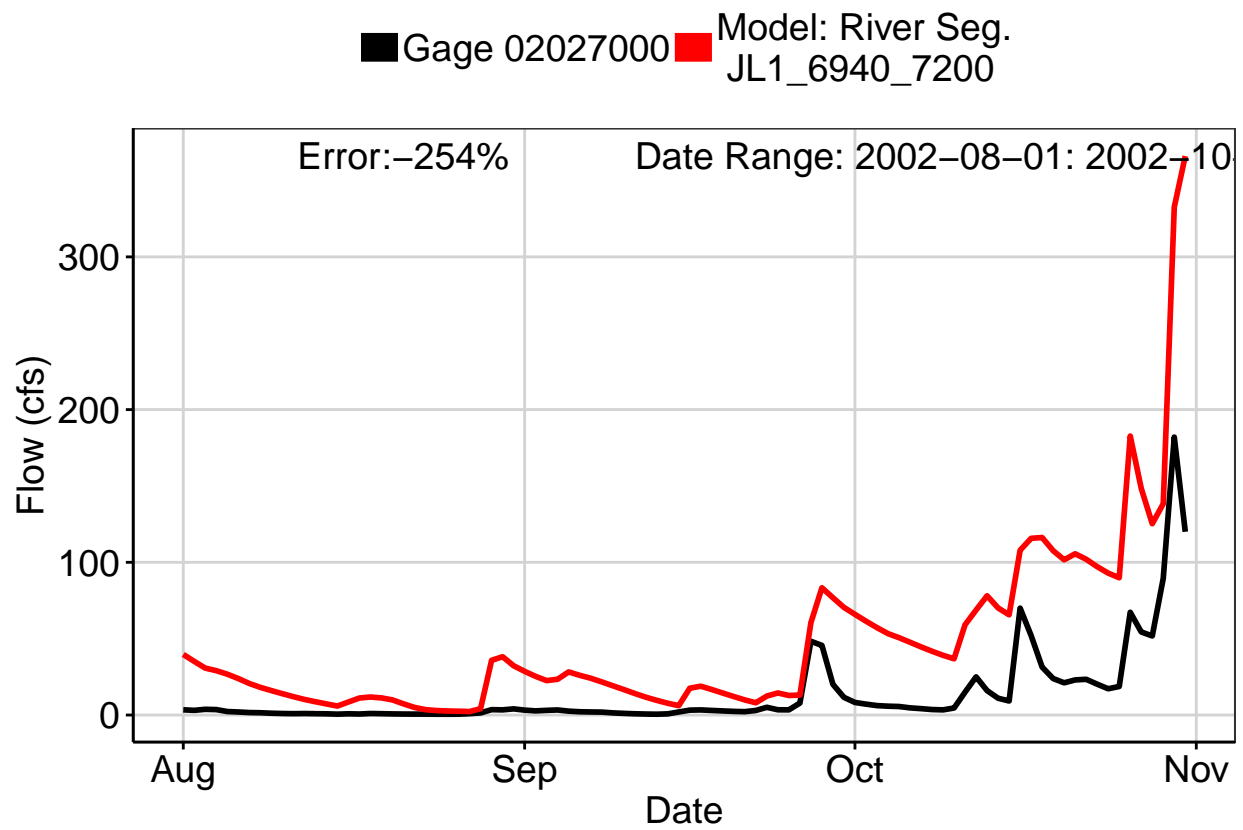
■ Gage 02027000 ■ Model: River Seg.
JL1_6940_7200

Fig. 8: Third Largest Error Segment

Fig. 9: Residuals Plot