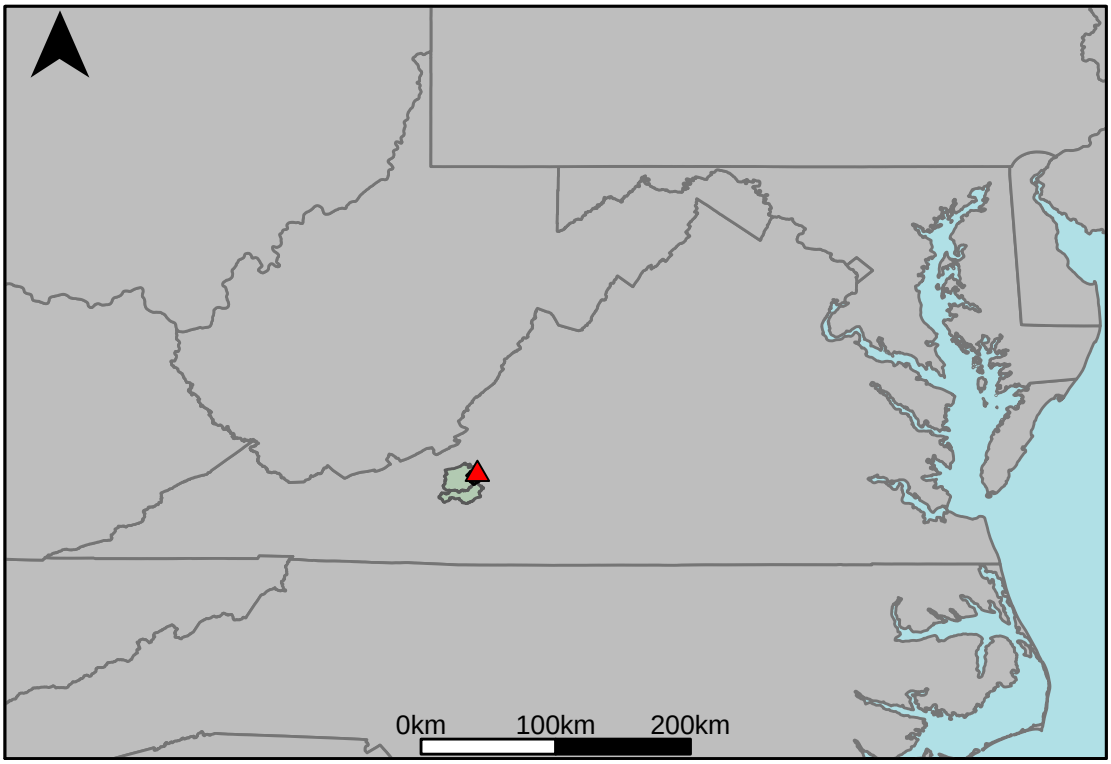
Appendix H.3: USGS Gage 02054530 vs. OR2_8130_7900



This river segment follows part of the flow of the Roanoke River. The gage is located in Roanoke County, VA (Lat 3716'04", Long 8008'23") approximately 5 miles southwest of Salem, VA. Drainage area is 281 sq. miles. This gage started taking data in 1991-12-12 and is still taking data. There is frequent pumping from the river into the Spring Hollow Reservoir approximately two miles below Lafayette and seven miles upstream of Glenvar; this diversion of water is significant enough that the Glenvar gage reads lower than the Lafayette gage. The average daily discharge error between the model and gage data for the 20 year timespan was -0.72%, with 40.3% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	61	41.9	-31.3
Feb. Low Flow	72	55	-23.6
Mar. Low Flow	83	97.7	17.7
Apr. Low Flow	85	153	80
May Low Flow	158	238	50.6
Jun. Low Flow	184	269	46.2
Jul. Low Flow	181	184	1.66
Aug. Low Flow	114	154	35.1
Sep. Low Flow	99	114	15.2
Oct. Low Flow	73	75.3	3.15
Nov. Low Flow	55	58.6	6.55
Dec. Low Flow	51	37	-27.5

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	276	278	0.72
Jan. Mean Flow	352	375	6.53
Feb. Mean Flow	509	505	-0.79
Mar. Mean Flow	543	529	-2.58
Apr. Mean Flow	402	384	-4.48
May Mean Flow	283	291	2.83
Jun. Mean Flow	255	274	7.45
Jul. Mean Flow	154	162	5.19
Aug. Mean Flow	121	128	5.79
Sep. Mean Flow	195	172	-11.8
Oct. Mean Flow	94.6	105	11
Nov. Mean Flow	170	193	13.5
Dec. Mean Flow	245	236	-3.67

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	186	157	-15.6
Feb. High Flow	260	542	108
Mar. High Flow	604	291	-51.8
Apr. High Flow	1180	1500	27.1
May High Flow	1100	1600	45.5
Jun. High Flow	1720	2460	43
Jul. High Flow	1080	1110	2.78
Aug. High Flow	483	790	63.6
Sep. High Flow	419	579	38.2
Oct. High Flow	296	261	-11.8
Nov. High Flow	173	174	0.58
Dec. High Flow	134	185	38.1

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	15.2	0	-100
Med. 1 Day Min	47	29.5	-37.2
Min. 3 Day Min	15.9	0	-100
Med. 3 Day Min	47.7	29.7	-37.7
Min. 7 Day Min	17.7	0	-100
Med. 7 Day Min	50.9	31.4	-38.3
Min. 30 Day Min	25.9	0.15	-99.4
Med. 30 Day Min	57.9	45.1	-22.1
Min. 90 Day Min	34.8	10.6	-69.5
Med. 90 Day Min	86	79.3	-7.79
7Q10	26.2	0	-100
Year of 90-Day Min. Flow	2002	2002	0
Drought Year Mean	77.6	39.9	-48.6
Mean Baseflow	136	155	14

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	10500	7100	-32.4
Med. 1 Day Max	5850	3550	-39.3
Max. 3 Day Max	6140	5090	-17.1
Med. 3 Day Max	3490	2550	-26.9
Max. 7 Day Max	3590	2360	-34.3
Med. 7 Day Max	1880	1560	-17
Max. 30 Day Max	1750	1320	-24.6
Med. 30 Day Max	769	801	4.16
Max. 90 Day Max	1020	980	-3.92
Med. 90 Day Max	498	488	-2.01

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	31.5	0	-100
5% Non-Exceedance	45.7	11.4	-75.1
50% Non-Exceedance	128	155	21.1
95% Non-Exceedance	841	871	3.57
99% Non-Exceedance	2470	2250	-8.91
Sept. 10% Non-Exceedance	14.7	40.9	178

Fig. 1: Hydrograph

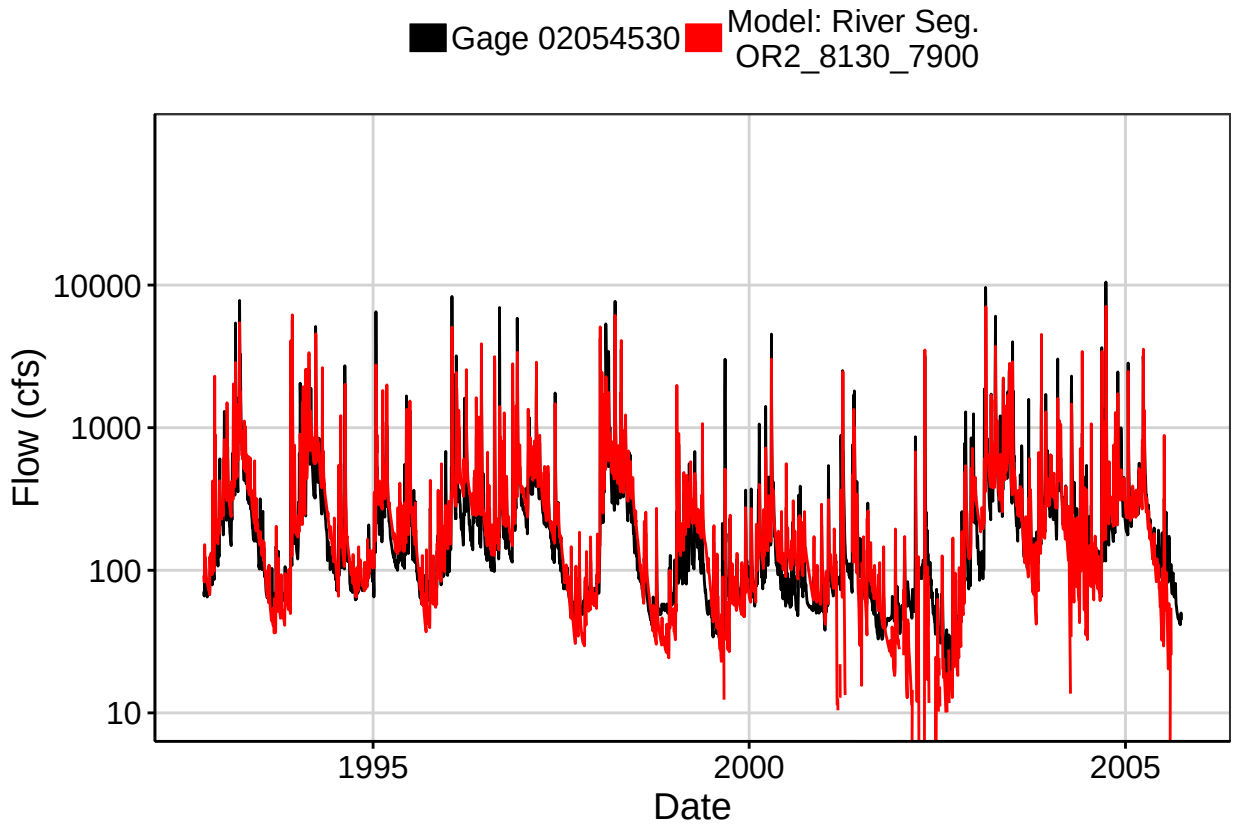


Fig. 2: Zoomed Hydrograph

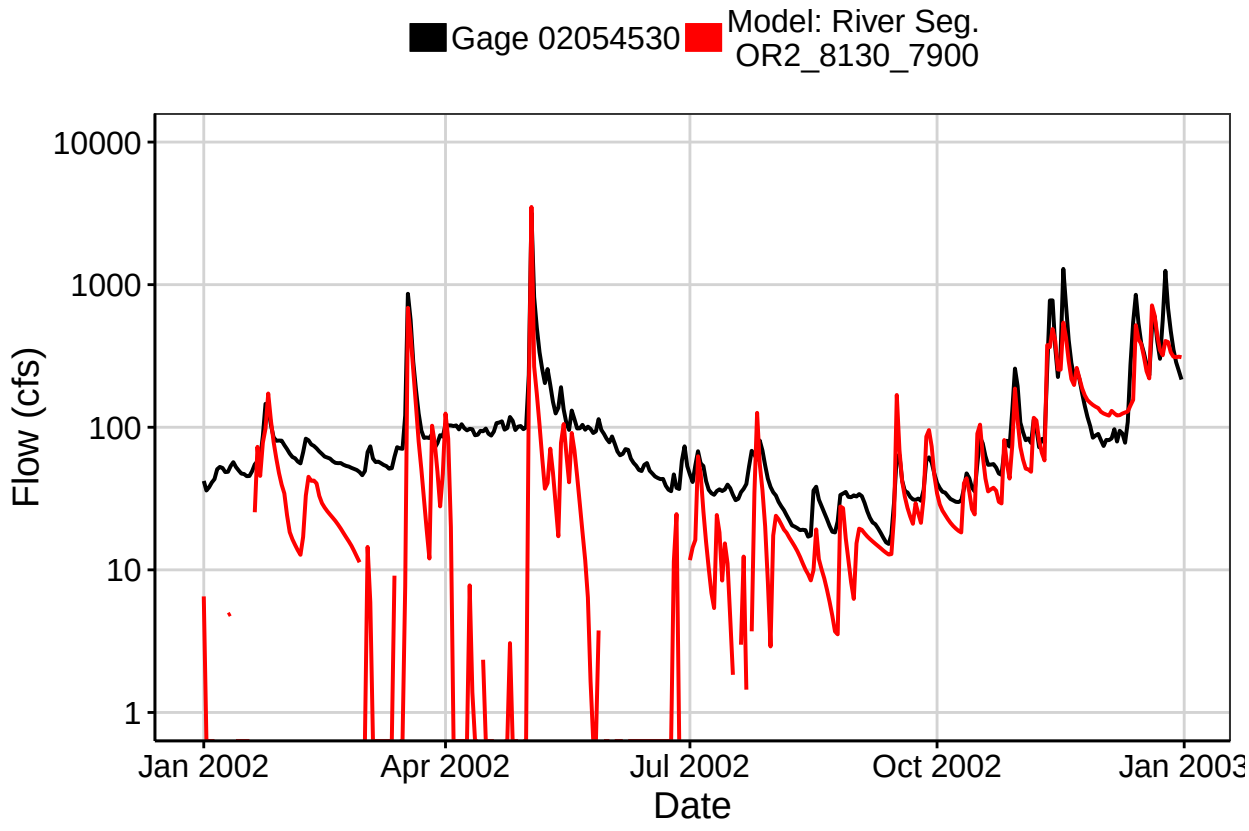


Fig. 3: Flow Exceedance

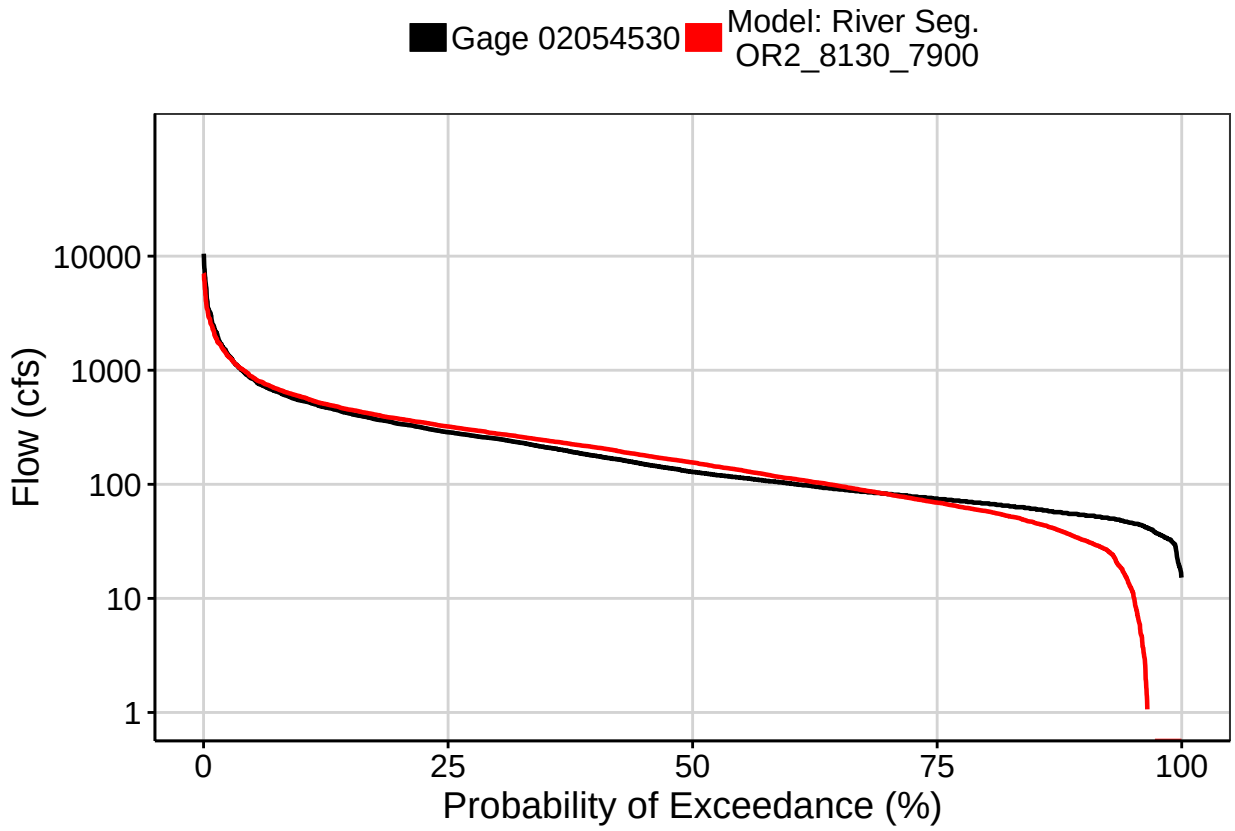


Fig. 4: Baseflow

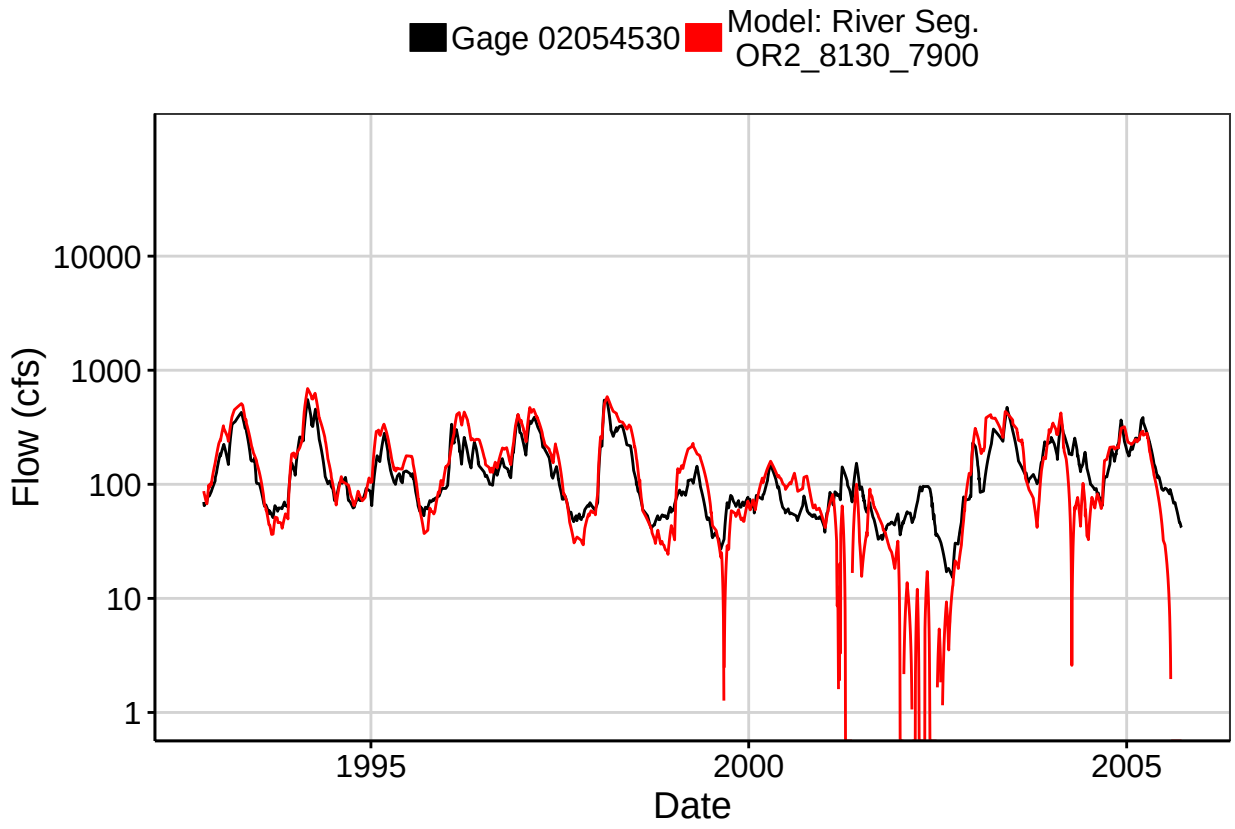


Fig. 5: Combined Baseflow

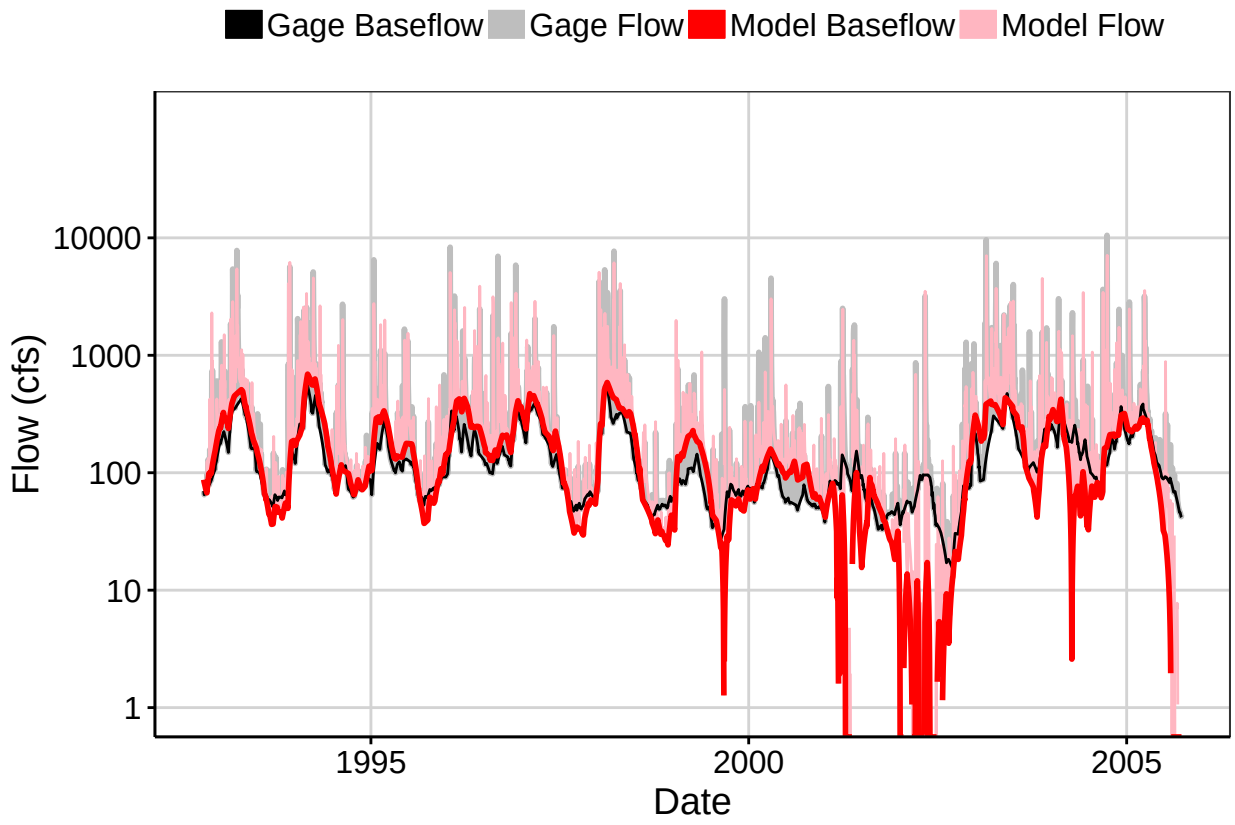


Fig. 6: Largest Error Segment

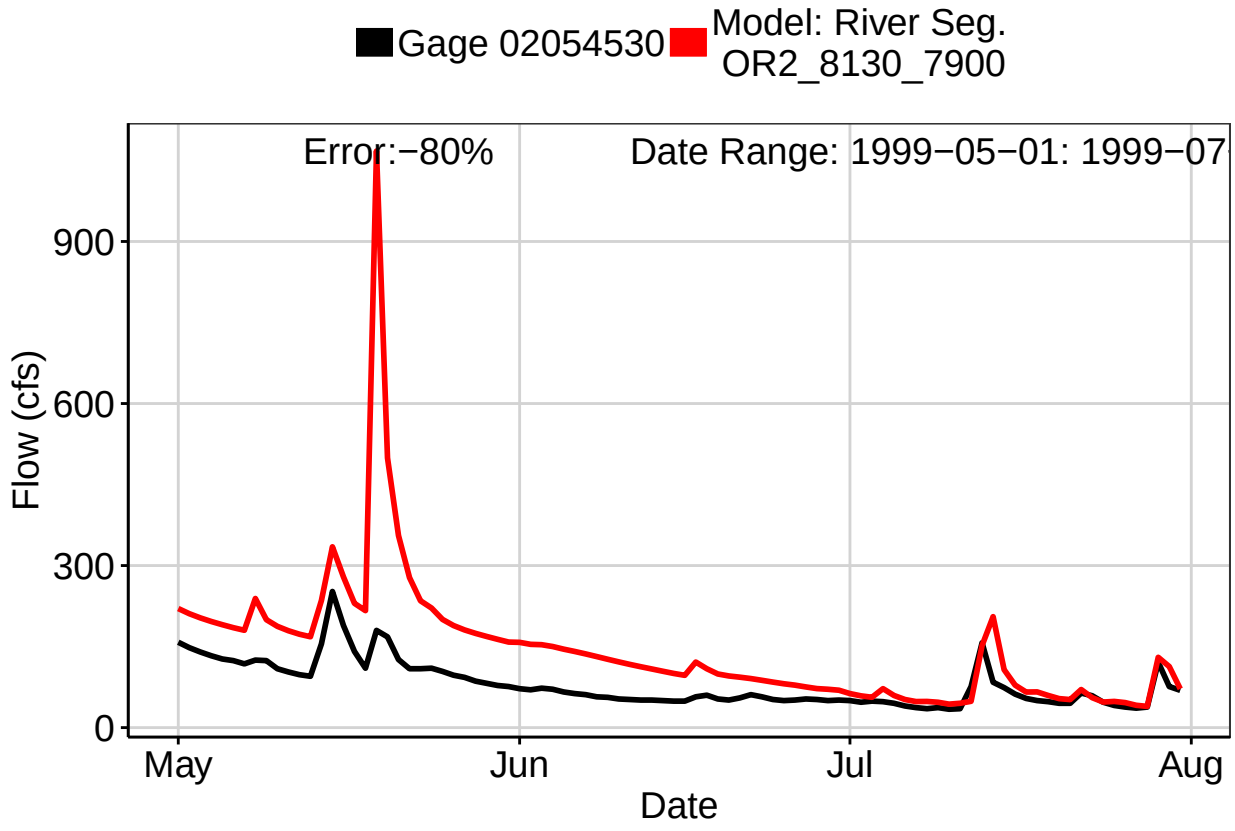


Fig. 7: Second Largest Error Segment

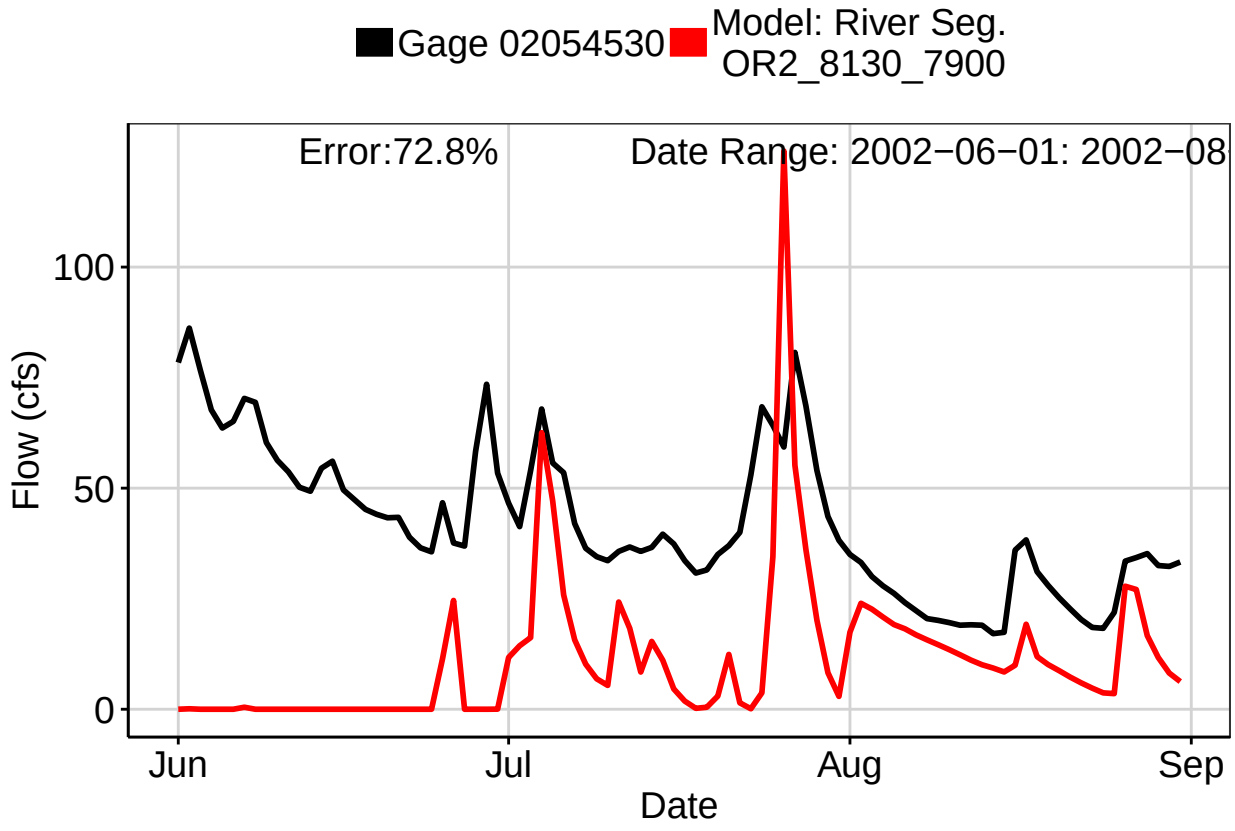


Fig. 8: Third Largest Error Segment

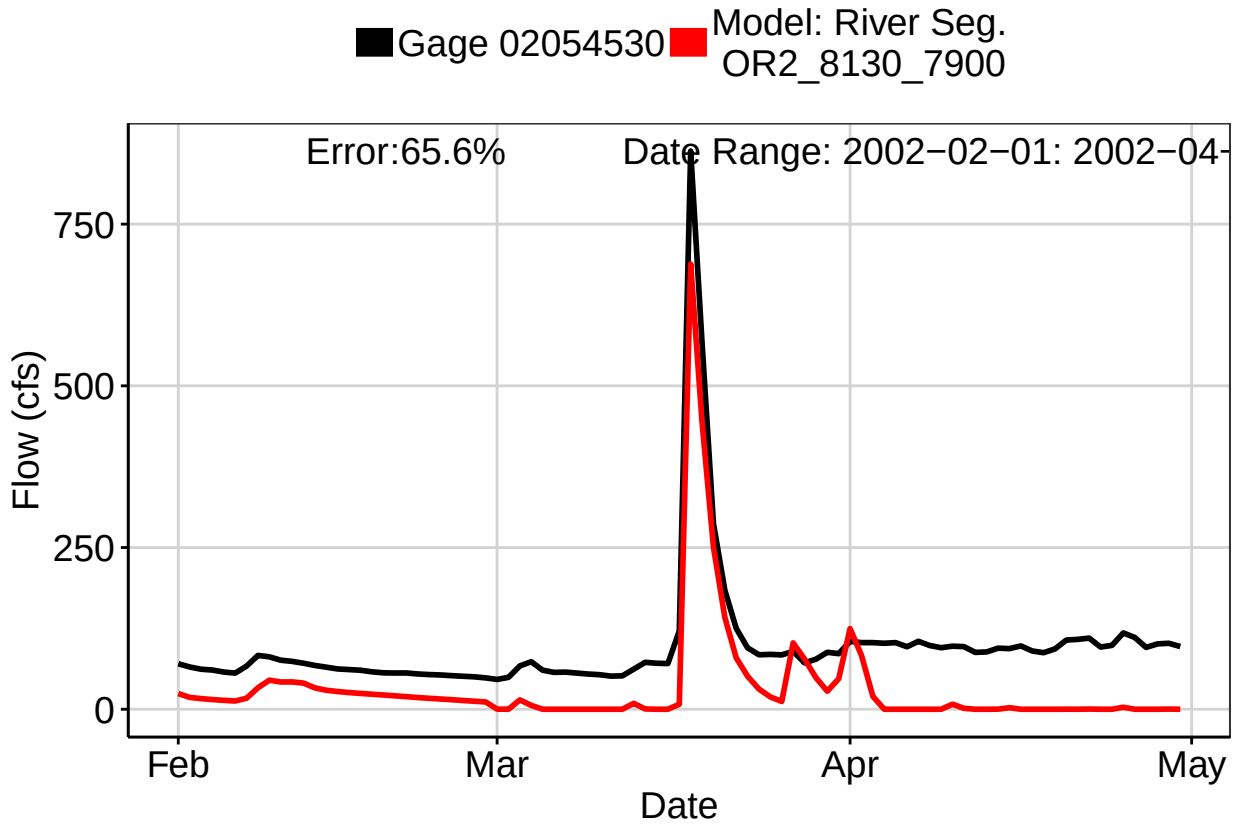


Fig. 9: Residuals Plot