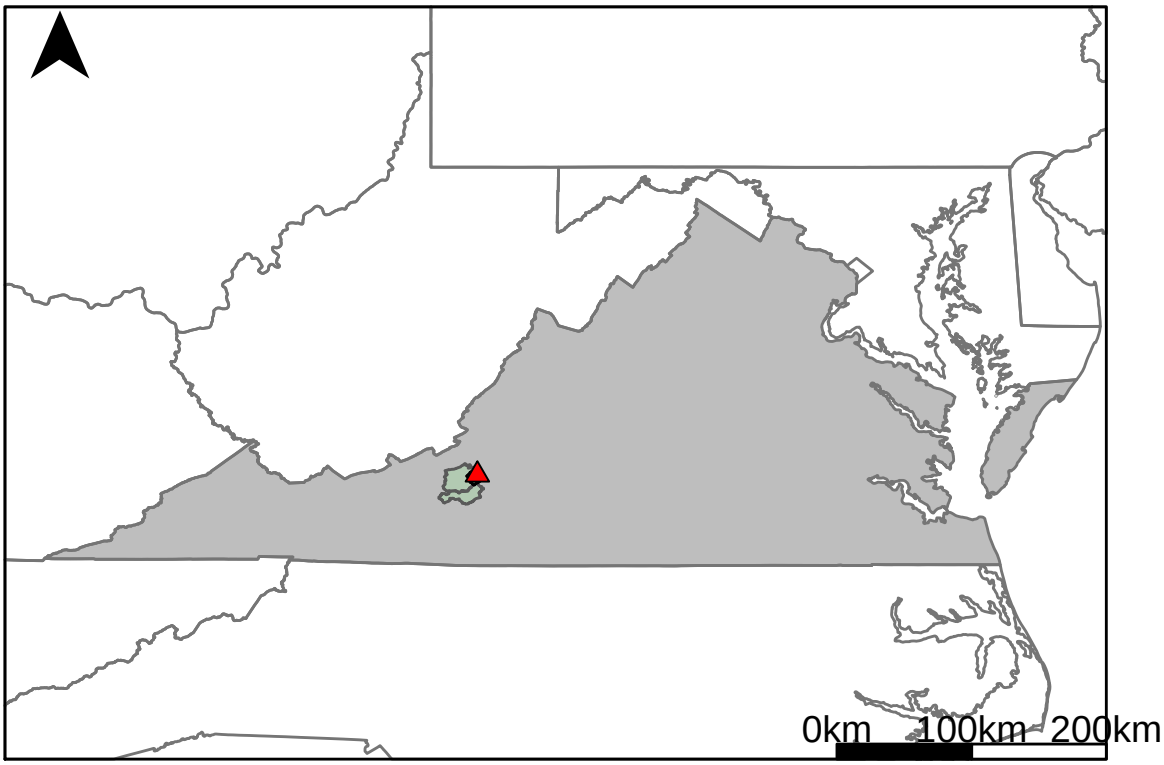
02054530 vs. OR2_8130_7900



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 1.45%, with 38.9% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	61	42.1	31
Feb. Low Flow	72	51.9	27.9
Mar. Low Flow	83	108	-30.1
Apr. Low Flow	85	139	-63.5
May Low Flow	158	235	-48.7
Jun. Low Flow	184	219	-19
Jul. Low Flow	181	175	3.31
Aug. Low Flow	114	159	-39.5
Sep. Low Flow	99	124	-25.3
Oct. Low Flow	73	68.8	5.75
Nov. Low Flow	55	57.8	-5.09
Dec. Low Flow	51	47	7.84

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	276	272	1.45
Jan. Mean Flow	352	347	1.42
Feb. Mean Flow	509	428	15.9
Mar. Mean Flow	543	485	10.7
Apr. Mean Flow	402	415	-3.23
May Mean Flow	283	316	-11.7
Jun. Mean Flow	255	261	-2.35
Jul. Mean Flow	154	162	-5.19
Aug. Mean Flow	121	126	-4.13
Sep. Mean Flow	195	178	8.72
Oct. Mean Flow	94.6	132	-39.5
Nov. Mean Flow	170	209	-22.9
Dec. Mean Flow	245	219	10.6

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	186	173	6.99
Feb. High Flow	260	515	-98.1
Mar. High Flow	604	293	51.5
Apr. High Flow	1180	1350	-14.4
May High Flow	1100	776	29.5
Jun. High Flow	1720	1930	-12.2
Jul. High Flow	1080	819	24.2
Aug. High Flow	483	794	-64.4
Sep. High Flow	419	552	-31.7
Oct. High Flow	296	262	11.5
Nov. High Flow	173	174	-0.58
Dec. High Flow	134	186	-38.8

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	15.2	0	100
Med. 1 Day Min	47	29.6	37
Min. 3 Day Min	15.9	0	100
Med. 3 Day Min	47.7	29.9	37.3
Min. 7 Day Min	17.7	0	100
Med. 7 Day Min	50.9	31.5	38.1
Min. 30 Day Min	25.9	0.15	99.4
Med. 30 Day Min	57.9	45.3	21.8
Min. 90 Day Min	34.8	10.6	69.5
Med. 90 Day Min	86	75.4	12.3
7Q10	26.2	0.35	98.7
Year of 90-Day Min. Flow	2002	2002	0
Drought Year Mean	77.6	272	-251
Mean Baseflow	136	156	-14.7

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	10500	11600	-10.5
Med. 1 Day Max	5850	3930	32.8
Max. 3 Day Max	6140	5110	16.8
Med. 3 Day Max	3490	2560	26.6
Max. 7 Day Max	3590	2700	24.8
Med. 7 Day Max	1880	1570	16.5
Max. 30 Day Max	1750	1510	13.7
Med. 30 Day Max	769	767	0.26
Max. 90 Day Max	1020	985	3.43
Med. 90 Day Max	498	491	1.41

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	31.5	0	100
5% Non-Exceedance	45.7	24.1	47.3
50% Non-Exceedance	128	158	-23.4
95% Non-Exceedance	841	797	5.23
99% Non-Exceedance	2470	2060	16.6
Sept. 10% Non-Exceedance	14.7	24.7	-68

Fig. 1: Hydrograph

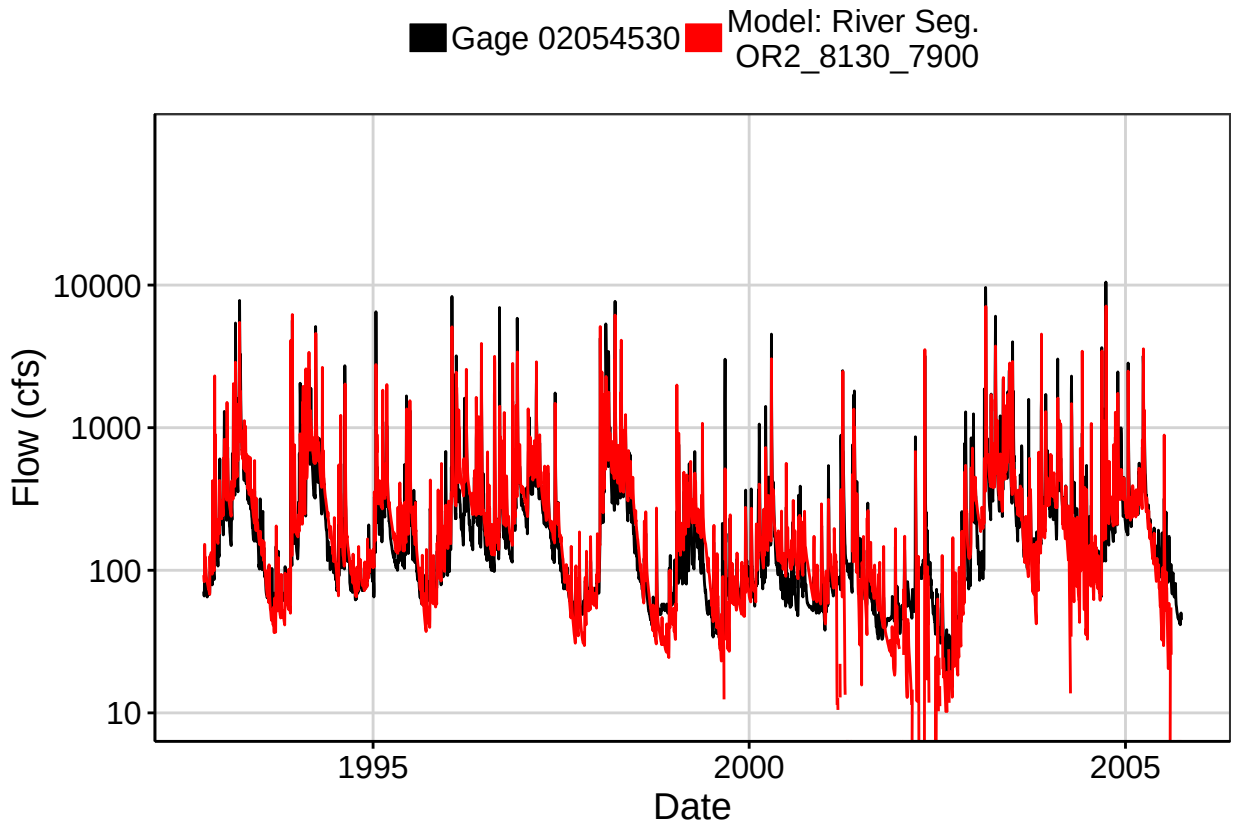


Fig. 2: Zoomed Hydrograph

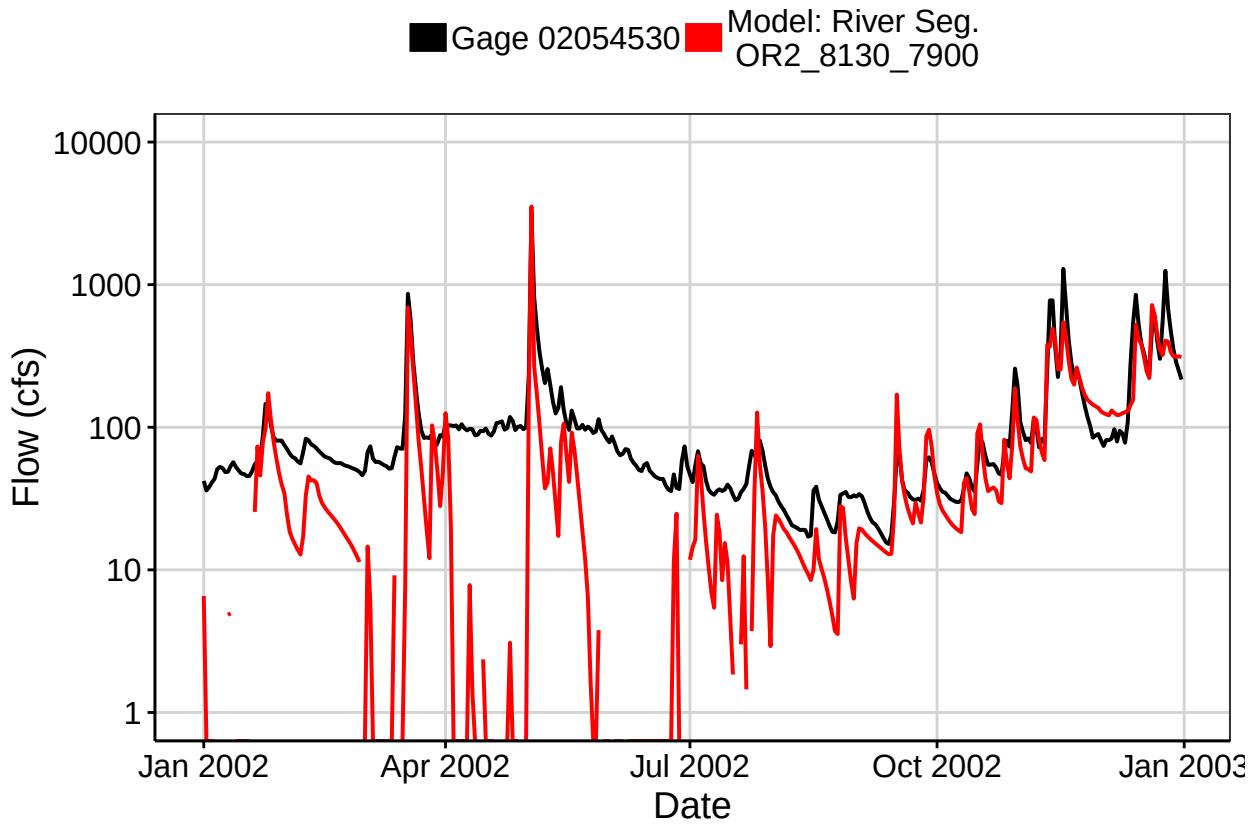


Fig. 3: Flow Exceedance

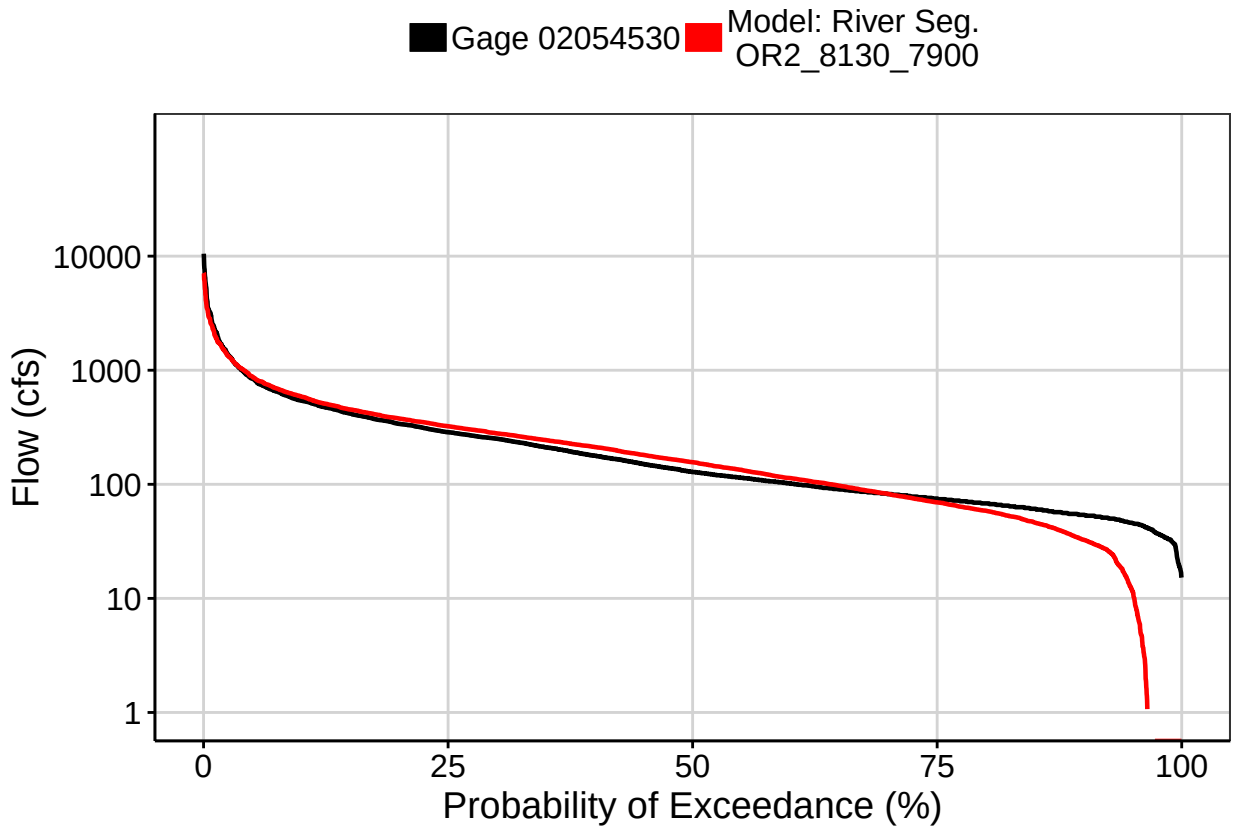


Fig. 4: Baseflow

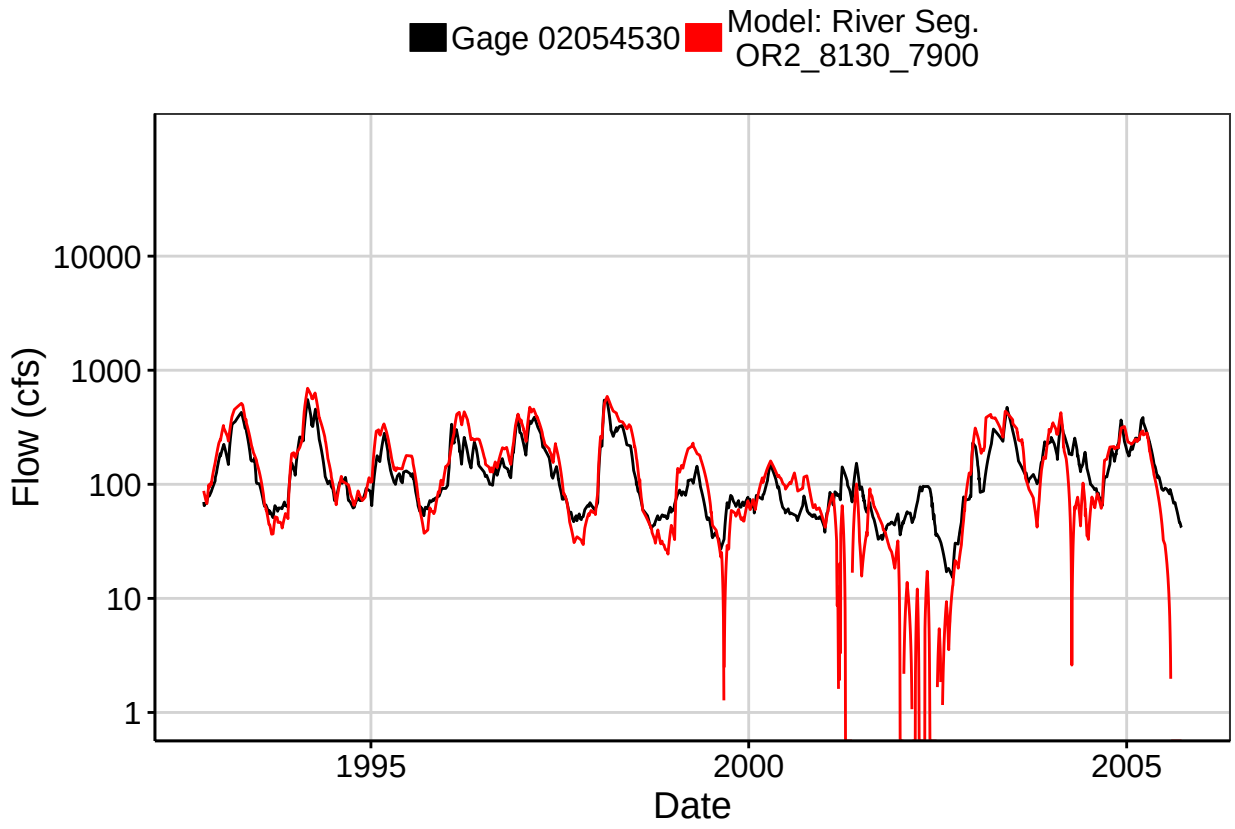


Fig. 5: Combined Baseflow

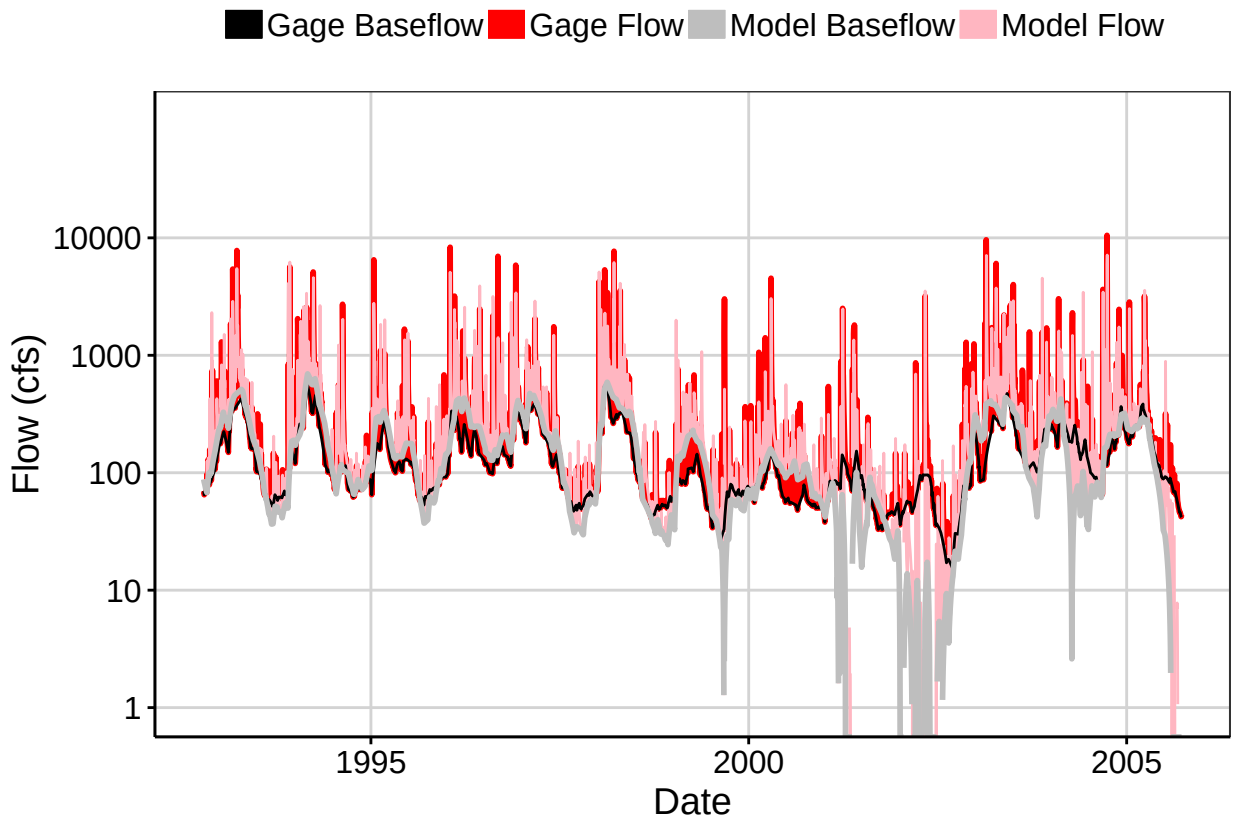


Fig. 6: Largest Error Segment

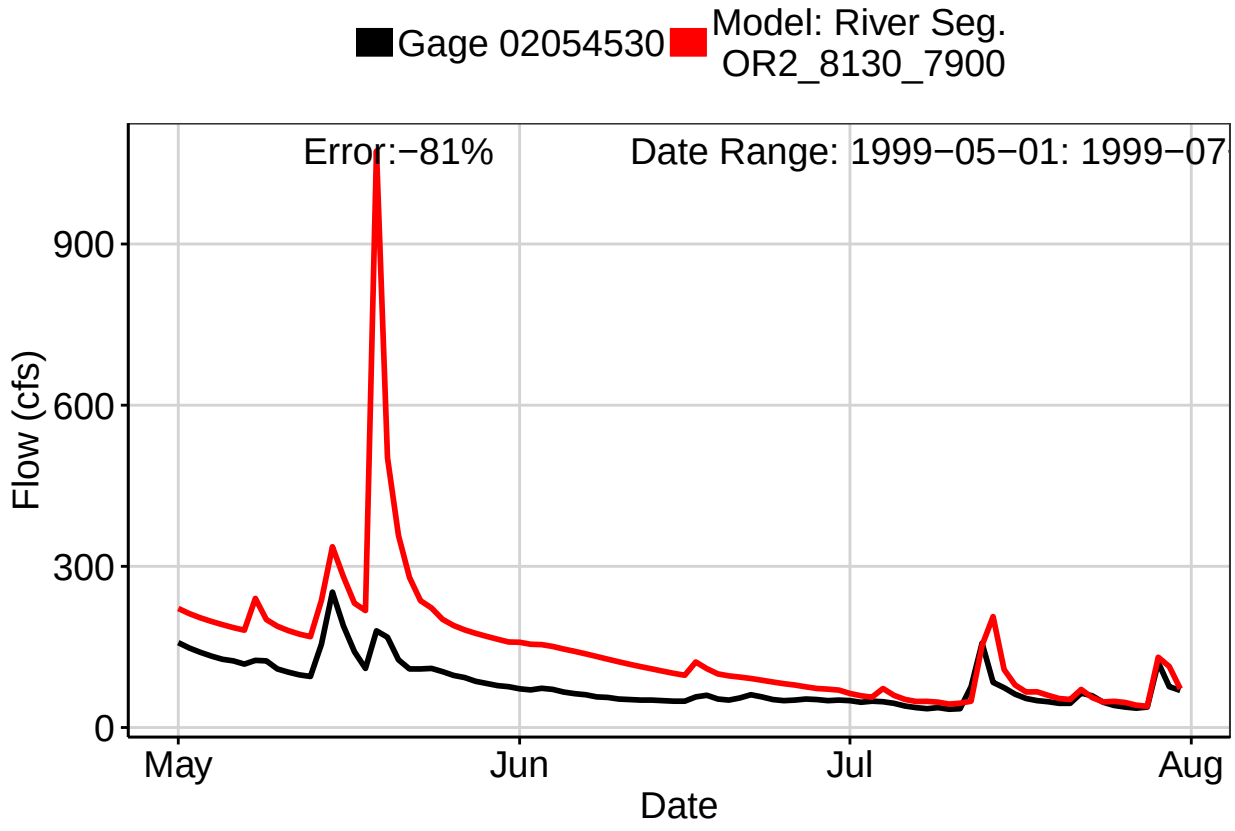


Fig. 7: Second Largest Error Segment

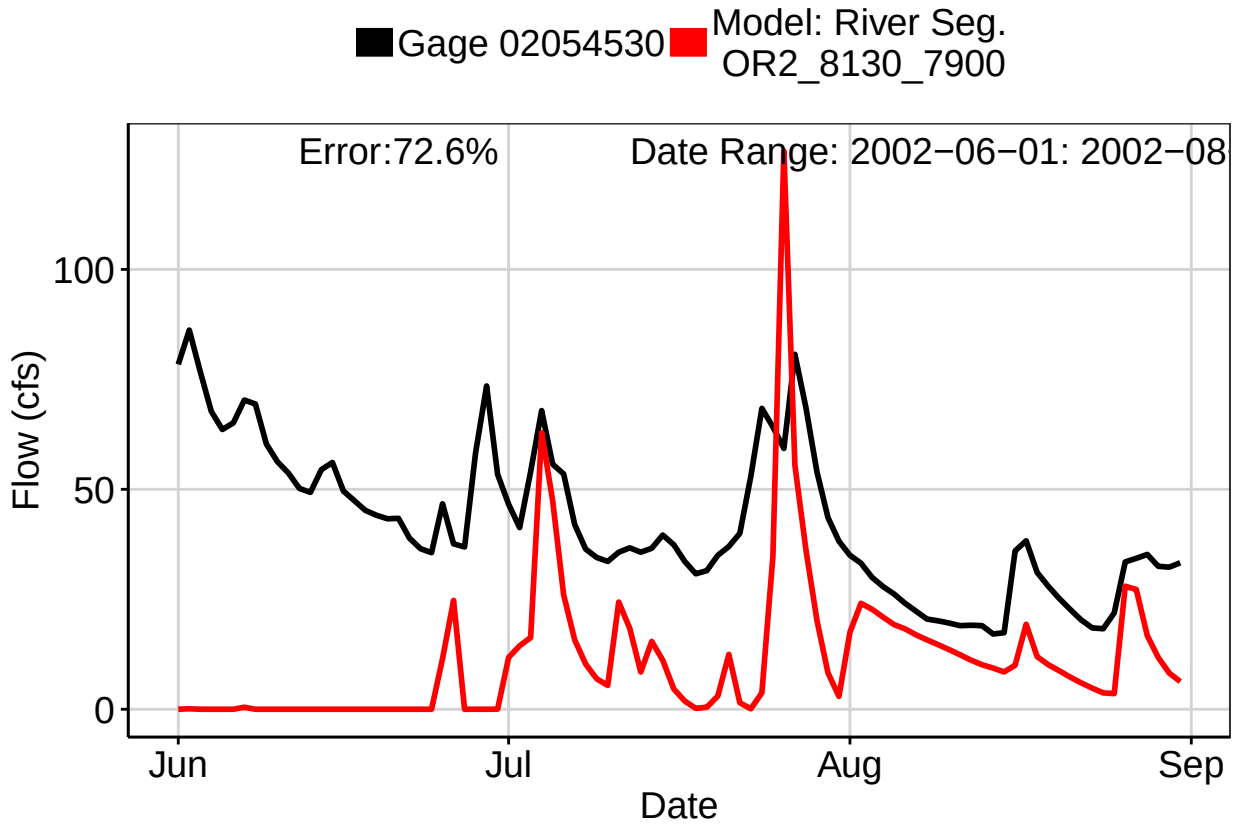


Fig. 8: Third Largest Error Segment

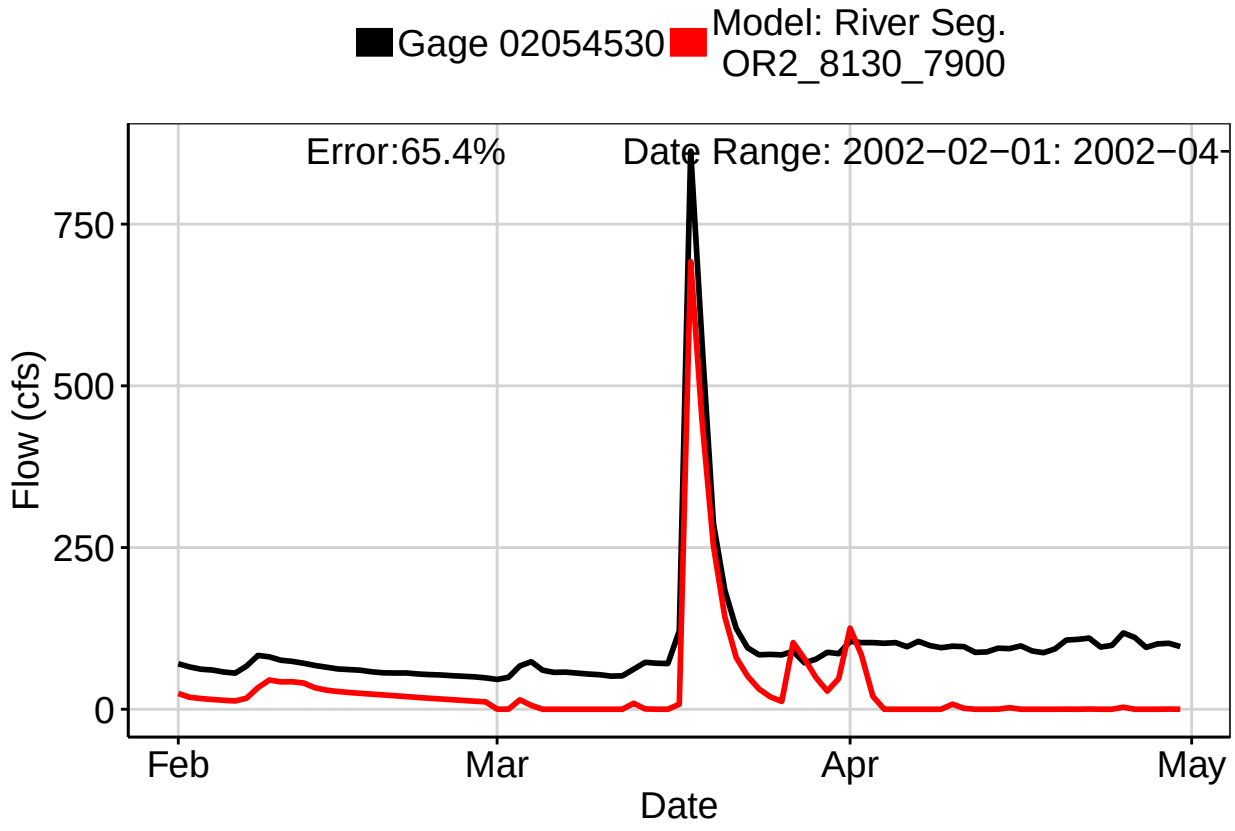


Fig. 9: Residuals Plot