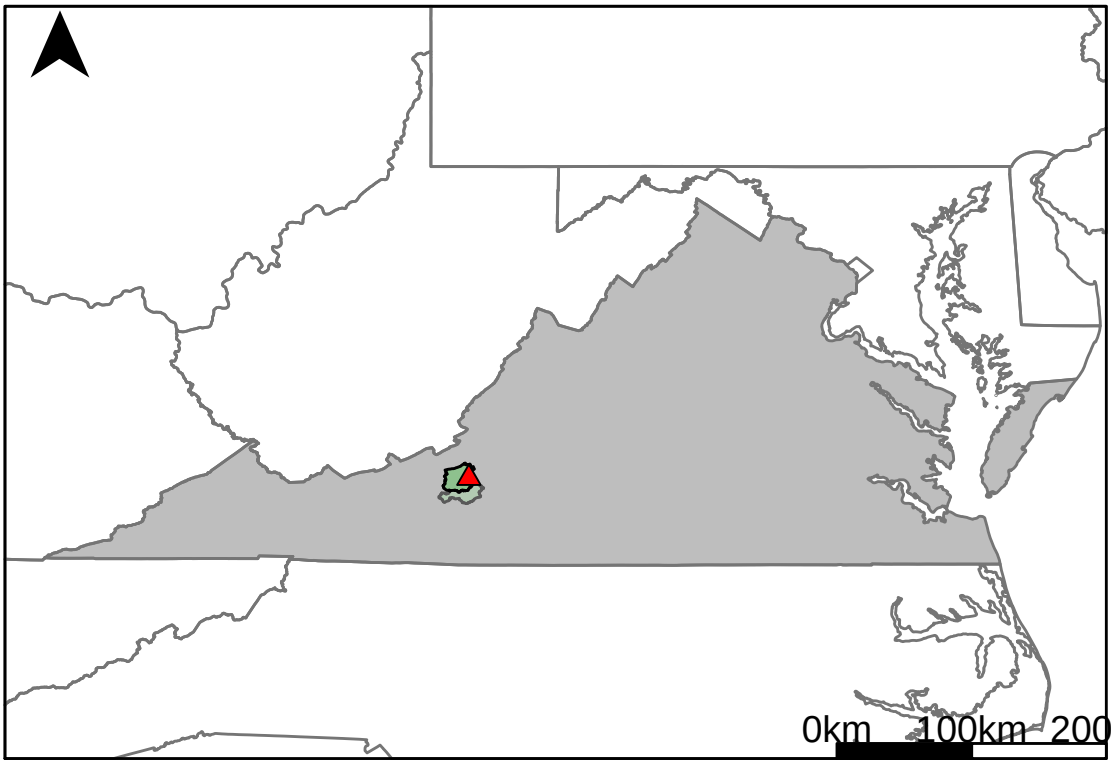
Appendix H.2: USGS Gage 02054500 vs. OR2_8020_8130



This river segment follows part of the flow of the Roanoke River. The gage is located in Montgomery County, VA (Lat 3714'11", Long 8012'34") approximately 21 miles northeast of Radford, VA. Drainage area is 254 sq. miles. This gage started taking data in 1943 and is still taking data. There is a possibility for slight diurnal fluctuations caused by a meat-processing plant upstream. The average daily discharge error between the model and gage data for the 20 year timespan was -5.31%, with 35.8% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	48	47.7	0.62
Feb. Low Flow	60	46.2	23
Mar. Low Flow	79.7	92	-15.4
Apr. Low Flow	79	123	-55.7
May Low Flow	118	218	-84.7
Jun. Low Flow	197	227	-15.2
Jul. Low Flow	143	199	-39.2
Aug. Low Flow	129	161	-24.8
Sep. Low Flow	93	123	-32.3
Oct. Low Flow	65	74.7	-14.9
Nov. Low Flow	45	55.8	-24
Dec. Low Flow	46	43.2	6.09

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	245	258	-5.31
Jan. Mean Flow	303	320	-5.61
Feb. Mean Flow	392	397	-1.28
Mar. Mean Flow	444	462	-4.05
Apr. Mean Flow	406	404	0.49
May Mean Flow	290	307	-5.86
Jun. Mean Flow	218	257	-17.9
Jul. Mean Flow	131	158	-20.6
Aug. Mean Flow	112	124	-10.7
Sep. Mean Flow	160	164	-2.5
Oct. Mean Flow	108	122	-13
Nov. Mean Flow	181	189	-4.42
Dec. Mean Flow	213	200	6.1

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	159	176	-10.7
Feb. High Flow	344	491	-42.7
Mar. High Flow	509	286	43.8
Apr. High Flow	1040	1290	-24
May High Flow	913	703	23
Jun. High Flow	1160	1900	-63.8
Jul. High Flow	837	850	-1.55
Aug. High Flow	677	755	-11.5
Sep. High Flow	362	477	-31.8
Oct. High Flow	279	244	12.5
Nov. High Flow	165	158	4.24
Dec. High Flow	147	176	-19.7

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	14	9.61	31.4
Med. 1 Day Min	36.9	28.8	22
Min. 3 Day Min	14.3	9.66	32.4
Med. 3 Day Min	38	29.6	22.1
Min. 7 Day Min	15.2	9.87	35.1
Med. 7 Day Min	39.4	31.4	20.3
Min. 30 Day Min	22.1	12.3	44.3
Med. 30 Day Min	49.5	42.7	13.7
Min. 90 Day Min	31.9	34.8	-9.09
Med. 90 Day Min	75.6	73.3	3.04
7Q10	26.4	16.6	37.1
Year of 90-Day Min. Flow	2002	2002	0
Drought Year Mean	73.8	258	-250
Mean Baseflow	126	155	-23

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	7480	9990	-33.6
Med. 1 Day Max	4510	3620	19.7
Max. 3 Day Max	5090	4590	9.82
Med. 3 Day Max	2630	2350	10.6
Max. 7 Day Max	2870	2410	16
Med. 7 Day Max	1570	1430	8.92
Max. 30 Day Max	1510	1340	11.3
Med. 30 Day Max	684	690	-0.88
Max. 90 Day Max	920	891	3.15
Med. 90 Day Max	465	463	0.43

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	29.9	22.3	25.4
5% Non-Exceedance	40	34.8	13
50% Non-Exceedance	130	156	-20
95% Non-Exceedance	731	723	1.09
99% Non-Exceedance	1920	1920	0
Sept. 10% Non-Exceedance	32.2	32.2	0

Fig. 1: Hydrograph

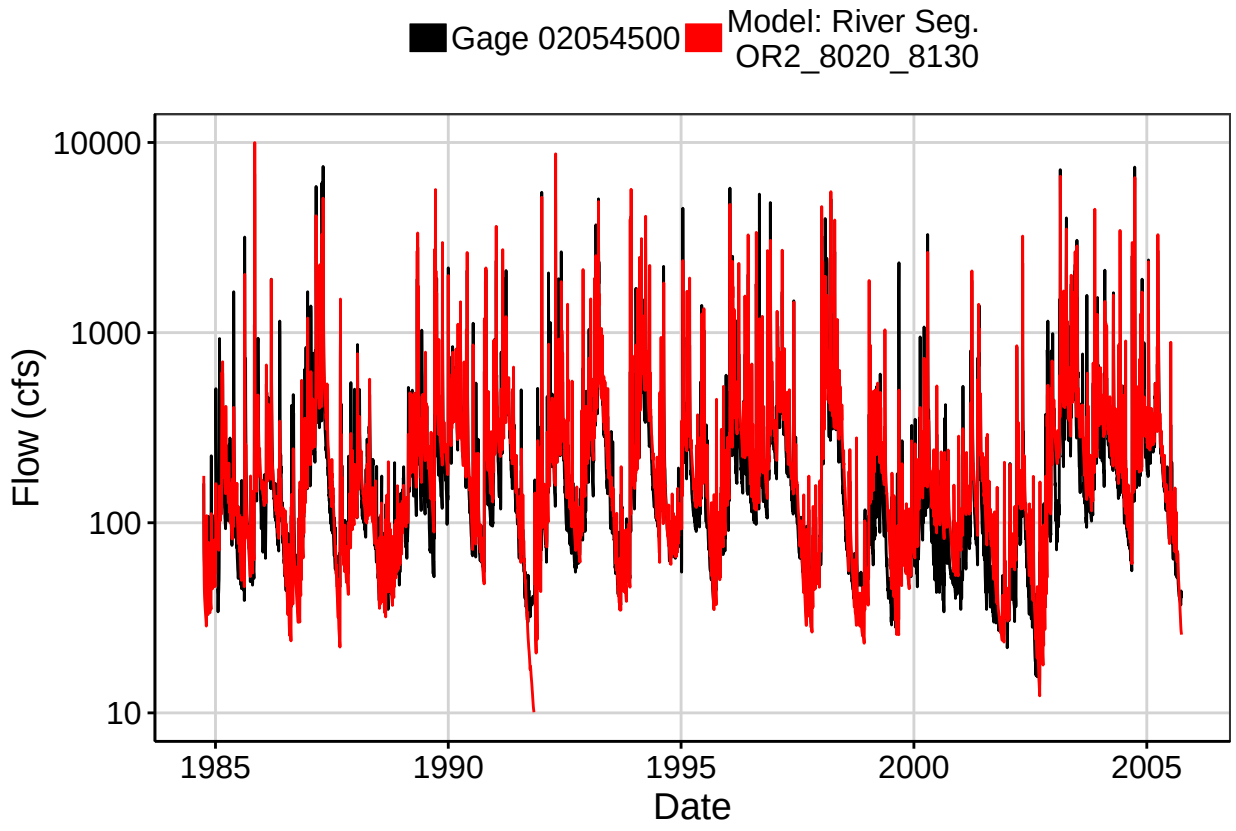


Fig. 2: Zoomed Hydrograph

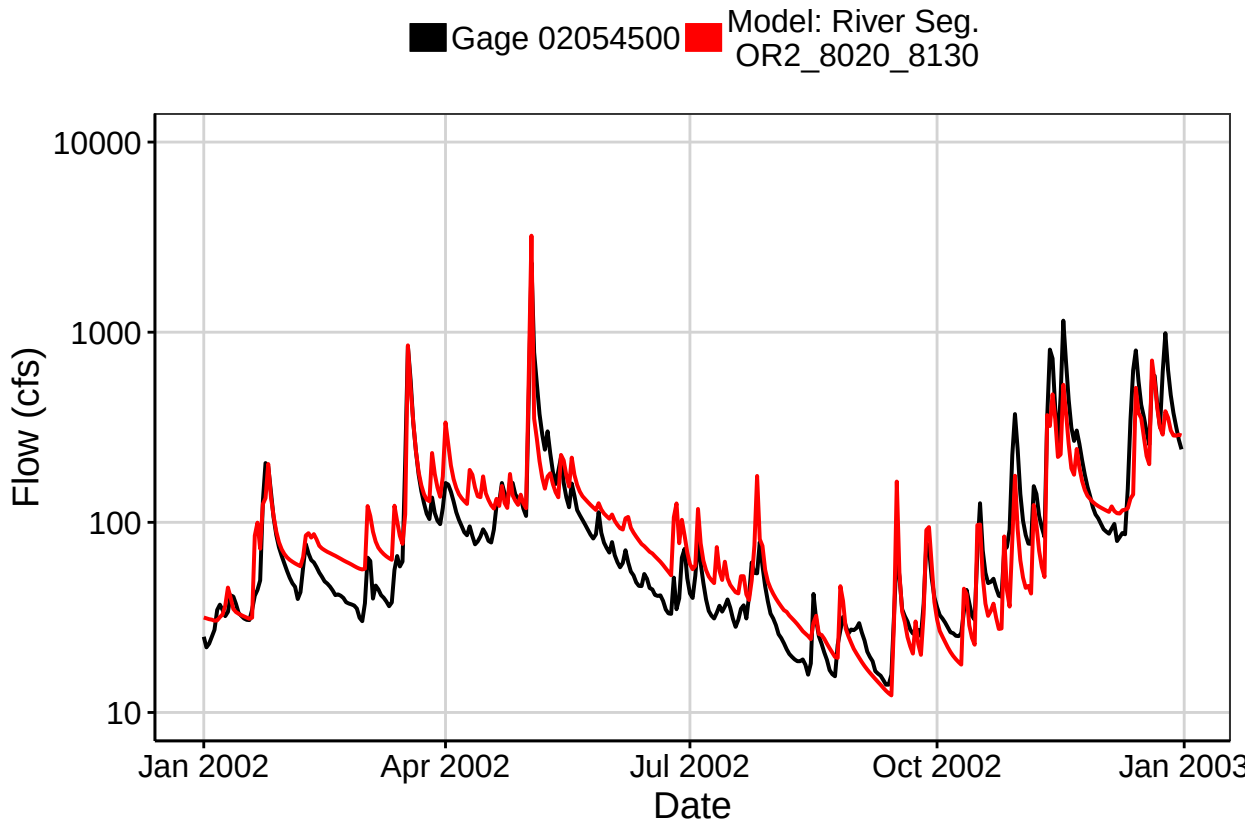


Fig. 3: Flow Exceedance

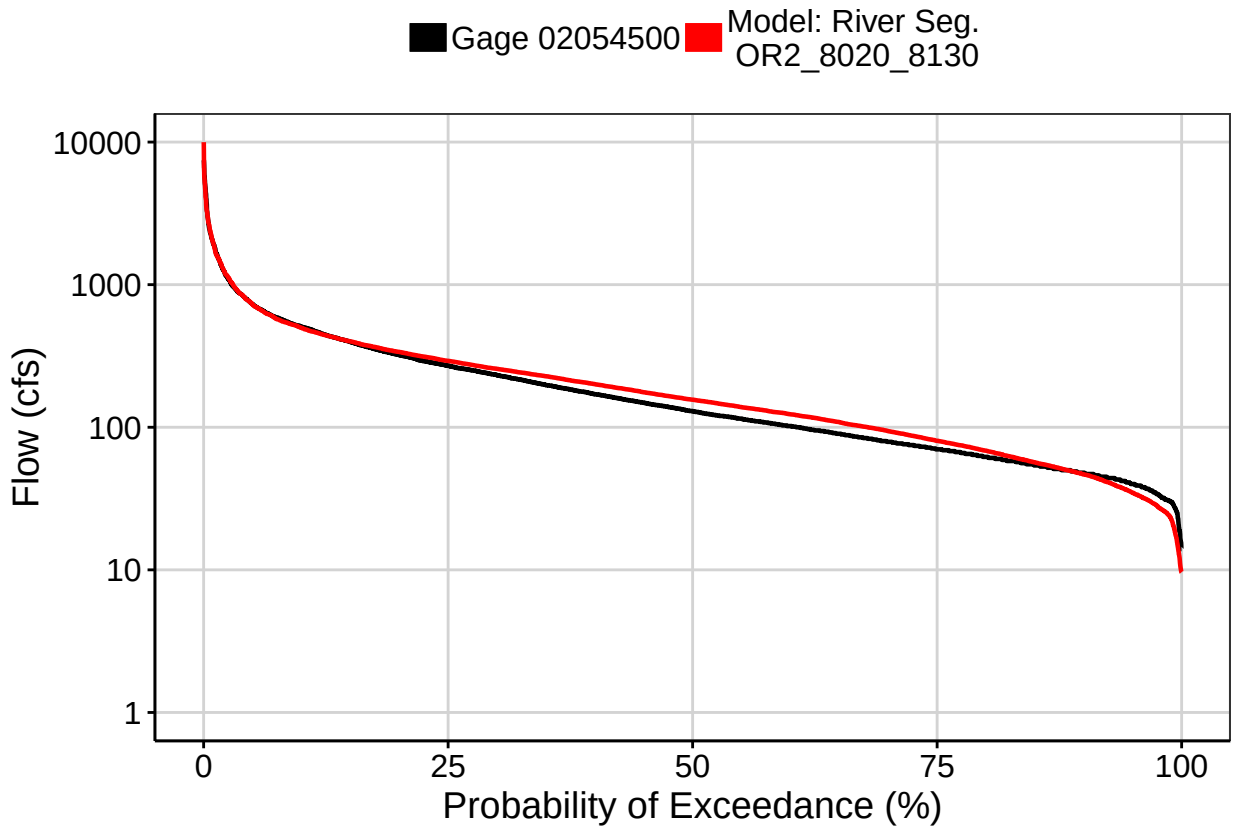


Fig. 4: Baseflow

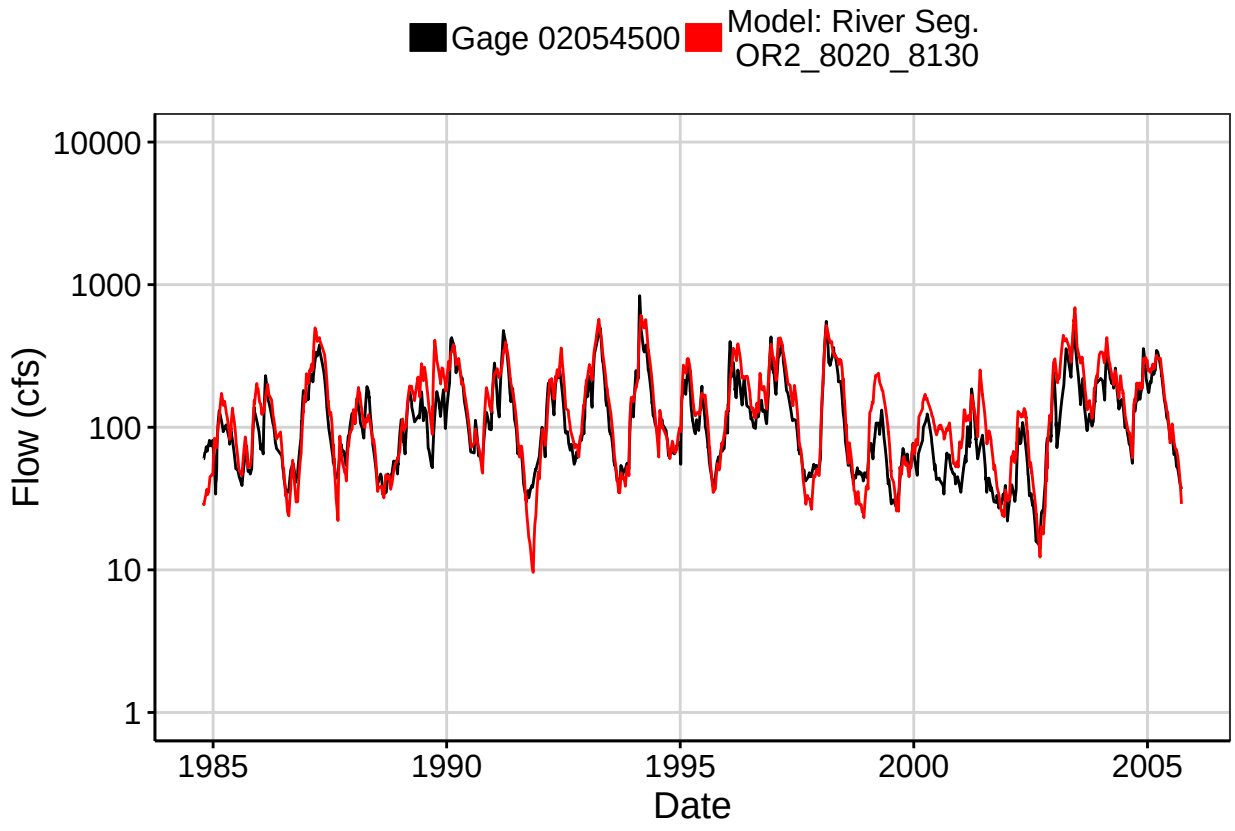


Fig. 5: Combined Baseflow

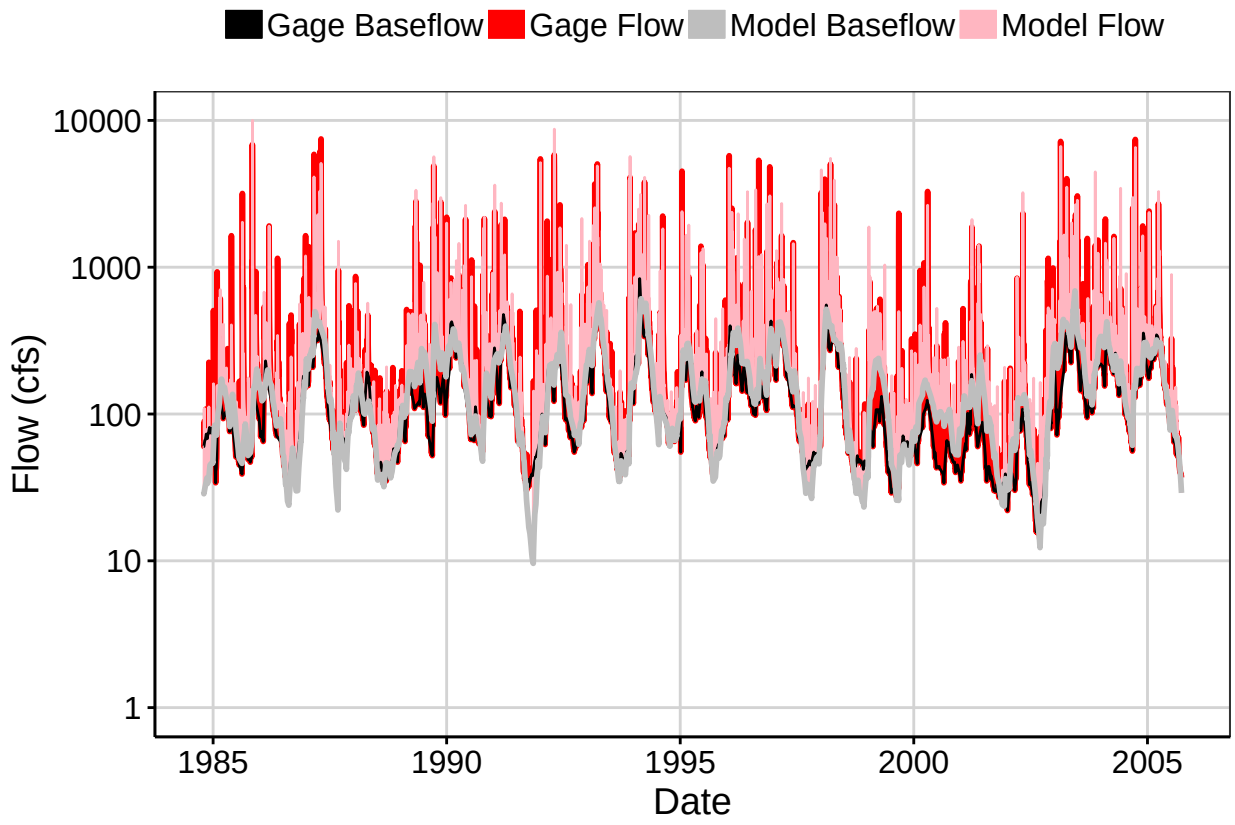


Fig. 6: Largest Error Segment

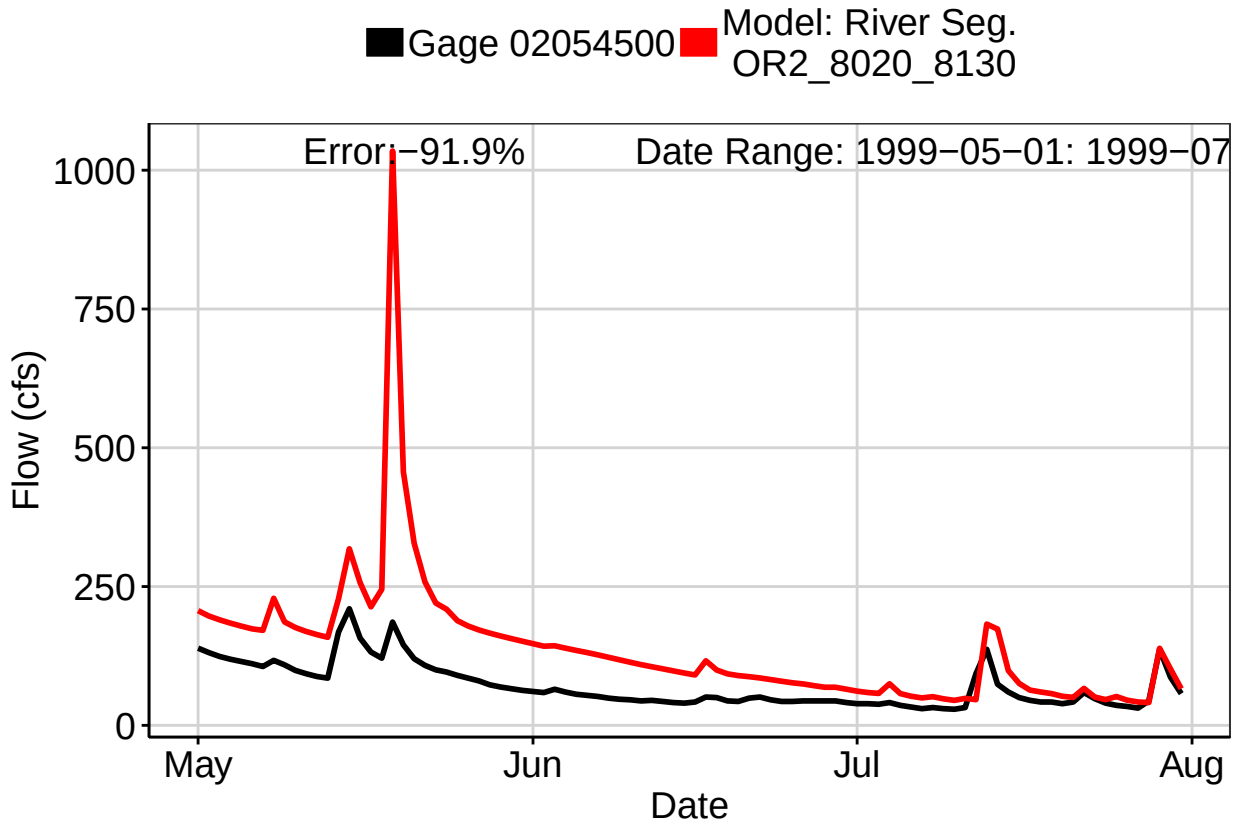


Fig. 7: Second Largest Error Segment

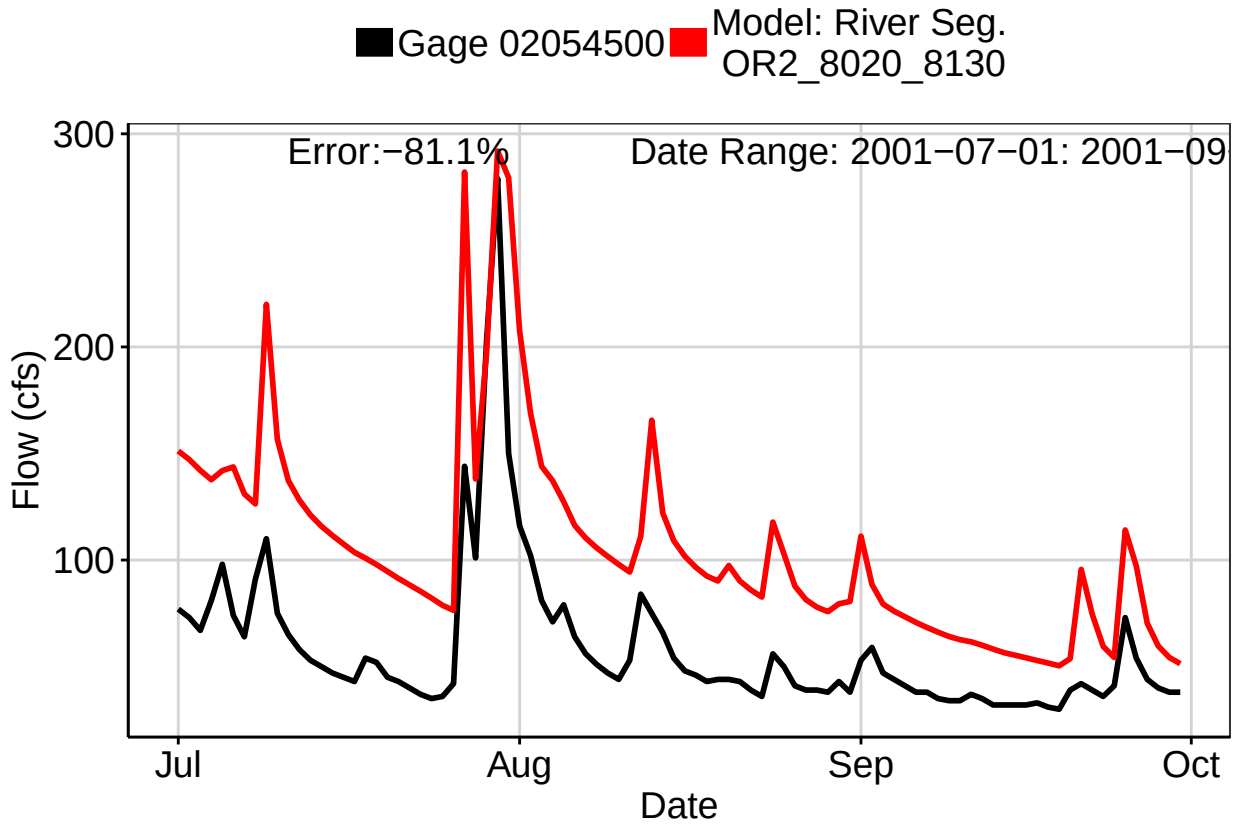


Fig. 8: Third Largest Error Segment

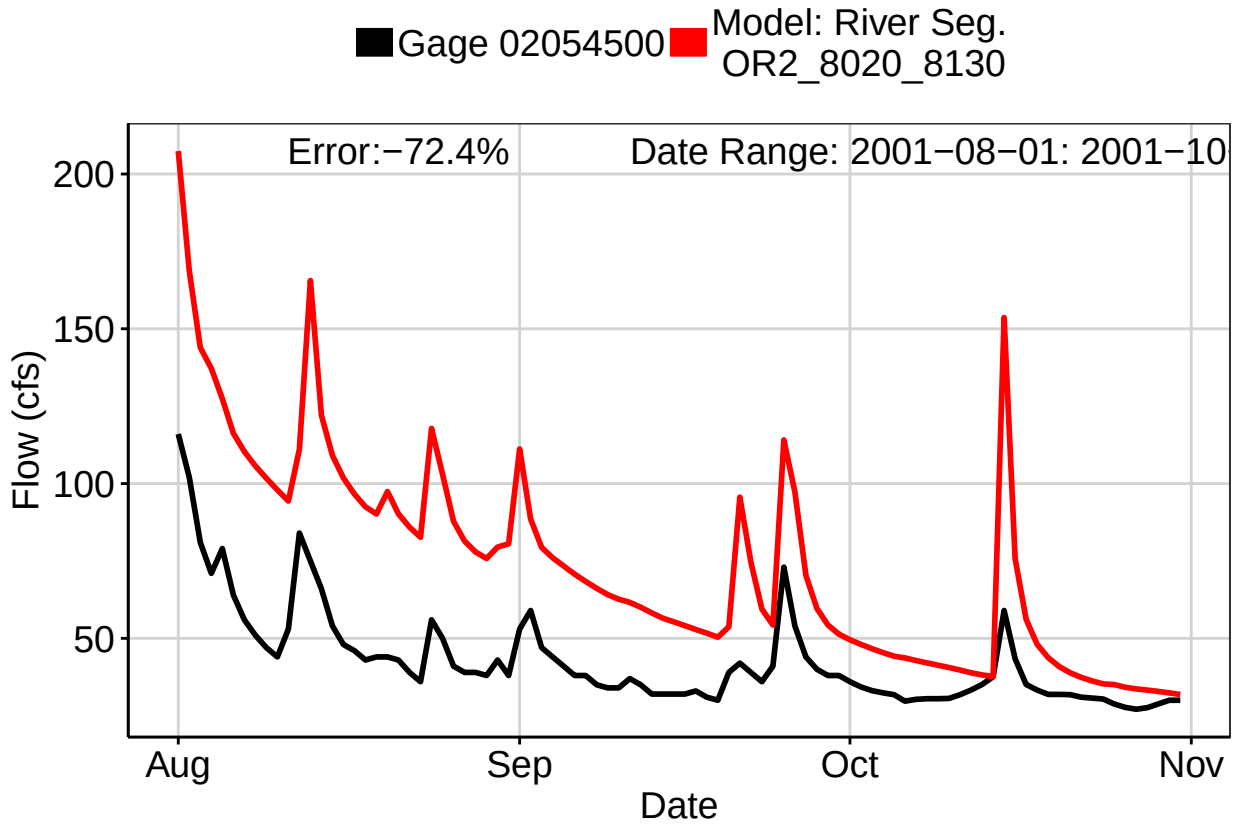


Fig. 9: Residuals Plot