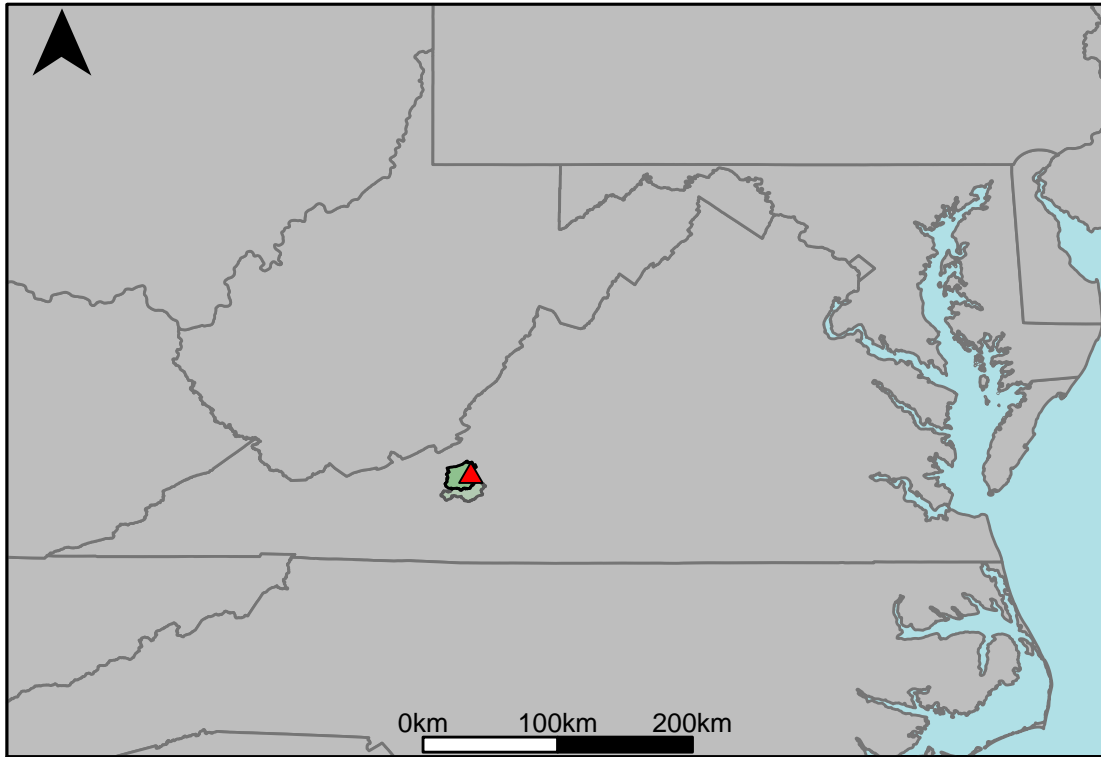


## Appendix H.2: USGS Gage 02054500 vs. OR2\_8020\_8130



This river segment follows part of the flow of the Roanoke River. The gage is located in Montgomery County, VA (Lat 37°14'11", Long 80°12'34") 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 -4.9%, with 34.6% of its rolling three month time spans above 20% error.

**Table 1: Monthly Low Flows**

	USGS Gage	Model	Pct. Error
Jan. Low Flow	48	47.4	-1.25
Feb. Low Flow	60	45.9	-23.5
Mar. Low Flow	79.7	91.5	14.8
Apr. Low Flow	79	122	54.4
May Low Flow	118	217	83.9
Jun. Low Flow	197	226	14.7
Jul. Low Flow	143	198	38.5
Aug. Low Flow	129	160	24
Sep. Low Flow	93	122	31.2
Oct. Low Flow	65	74.3	14.3
Nov. Low Flow	45	55.5	23.3
Dec. Low Flow	46	43	-6.52

**Table 2: Monthly Average Flows**

	USGS Gage	Model	Pct. Error
Overall Mean Flow	245	257	4.9
Jan. Mean Flow	303	318	4.95
Feb. Mean Flow	392	395	0.76
Mar. Mean Flow	444	460	3.6
Apr. Mean Flow	406	402	-0.98
May Mean Flow	290	306	5.52
Jun. Mean Flow	218	256	17.4
Jul. Mean Flow	131	158	20.6
Aug. Mean Flow	112	123	9.82
Sep. Mean Flow	160	163	1.88
Oct. Mean Flow	108	122	13
Nov. Mean Flow	181	188	3.87
Dec. Mean Flow	213	199	-6.57

**Table 3: Monthly High Flows**

	USGS Gage	Model	Pct. Error
Jan. High Flow	159	175	10.1
Feb. High Flow	344	488	41.9
Mar. High Flow	509	284	-44.2
Apr. High Flow	1040	1290	24
May High Flow	913	699	-23.4
Jun. High Flow	1160	1890	62.9
Jul. High Flow	837	845	0.96
Aug. High Flow	677	751	10.9
Sep. High Flow	362	474	30.9
Oct. High Flow	279	243	-12.9
Nov. High Flow	165	157	-4.85
Dec. High Flow	147	175	19

**Table 4: Period Low Flows**

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	14	9.56	-31.7
Med. 1 Day Min	36.9	28.7	-22.2
Min. 3 Day Min	14.3	9.61	-32.8
Med. 3 Day Min	38	29.5	-22.4
Min. 7 Day Min	15.2	9.82	-35.4
Med. 7 Day Min	39.4	31.3	-20.6
Min. 30 Day Min	22.1	12.3	-44.3
Med. 30 Day Min	49.5	42.5	-14.1
Min. 90 Day Min	31.9	34.6	8.46
Med. 90 Day Min	75.6	72.9	-3.57
7Q10	26.4	16.5	-37.5
Year of 90-Day Min. Flow	2002	2002	0
Drought Year Mean	73.8	86.7	17.5
Mean Baseflow	126	154	22.2

**Table 5: Period High Flows**

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	7480	9930	32.8
Med. 1 Day Max	4510	3600	-20.2
Max. 3 Day Max	5090	4570	-10.2
Med. 3 Day Max	2630	2340	-11
Max. 7 Day Max	2870	2390	-16.7
Med. 7 Day Max	1570	1430	-8.92
Max. 30 Day Max	1510	1330	-11.9
Med. 30 Day Max	684	686	0.29
Max. 90 Day Max	920	886	-3.7
Med. 90 Day Max	465	460	-1.08

**Table 6: Non-Exceedance Flows**

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	29.9	22.1	-26.1
5% Non-Exceedance	40	34.6	-13.5
50% Non-Exceedance	130	155	19.2
95% Non-Exceedance	731	719	-1.64
99% Non-Exceedance	1920	1910	-0.52
Sept. 10% Non-Exceedance	32	38	18.8

**Fig. 1: Hydrograph**

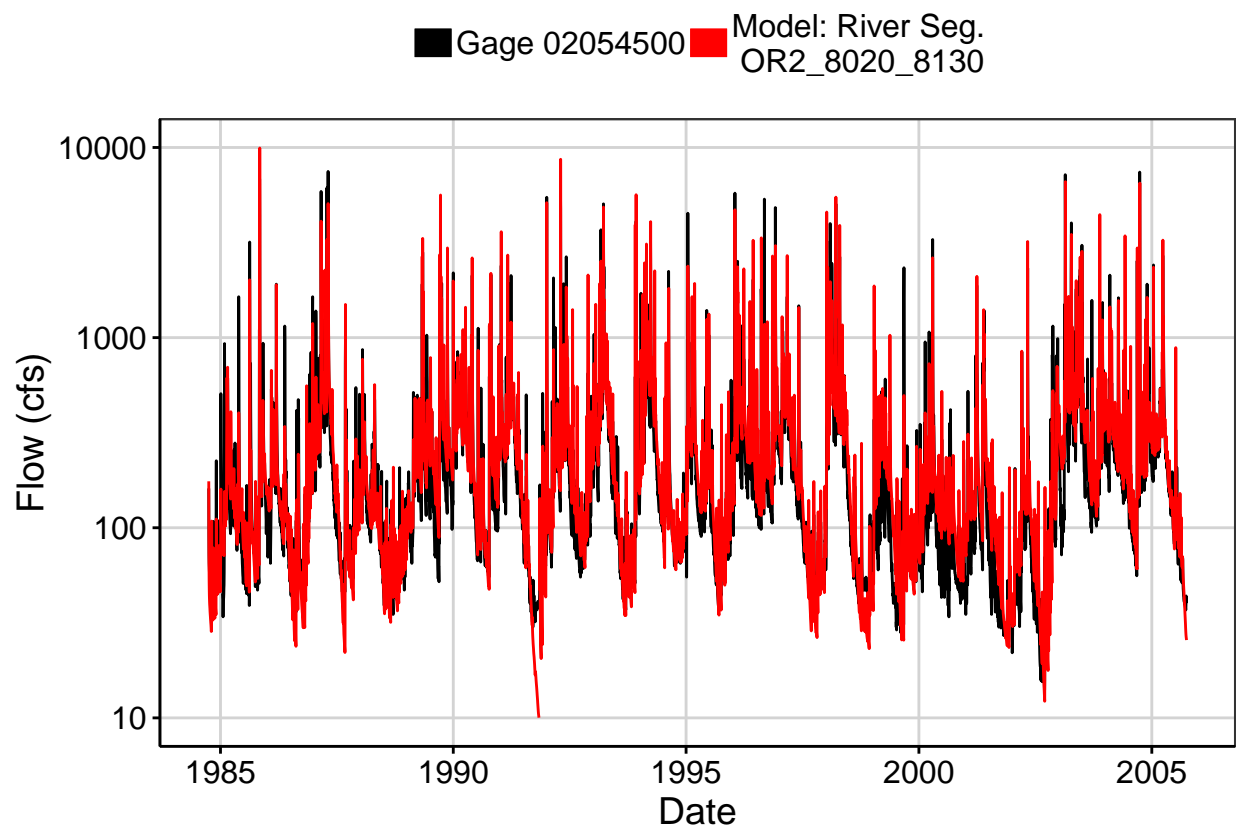


Fig. 2: Zoomed Hydrograph

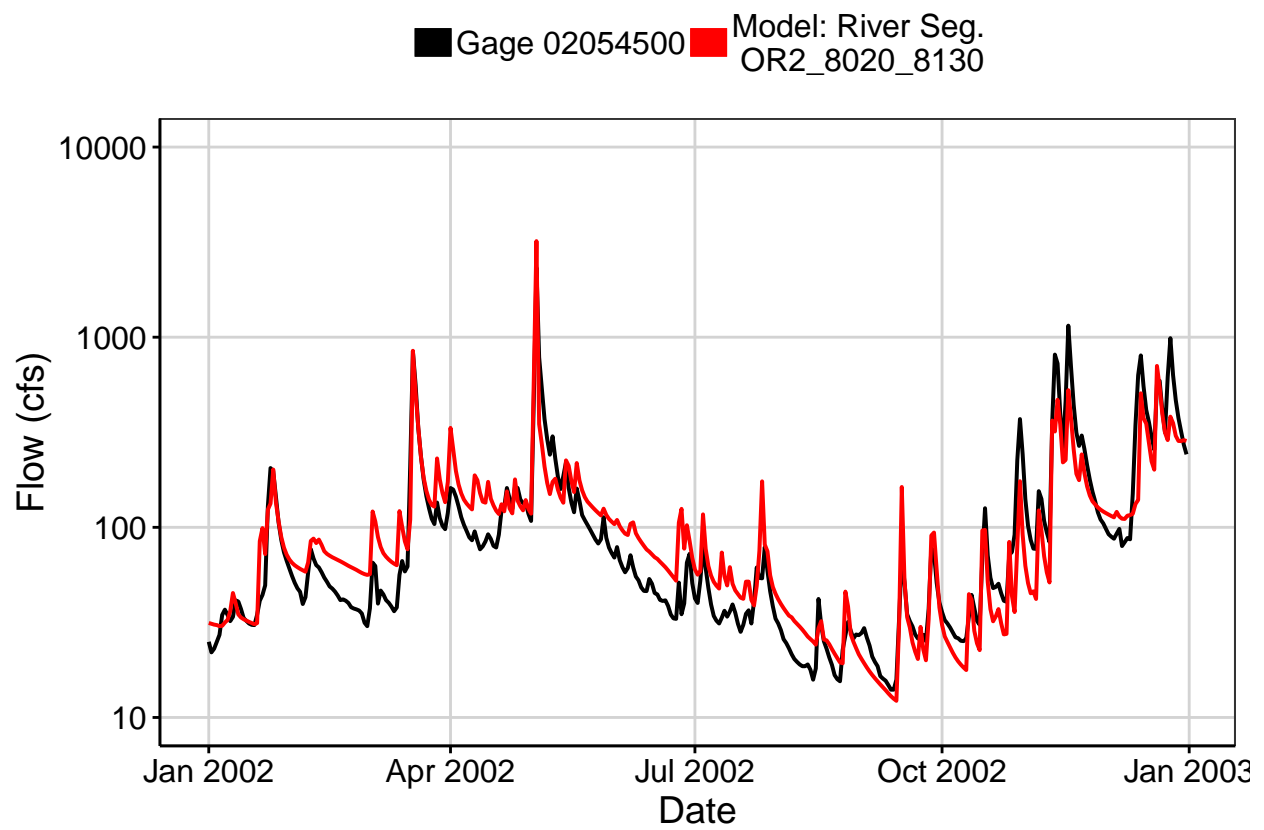


Fig. 3: Flow Exceedance

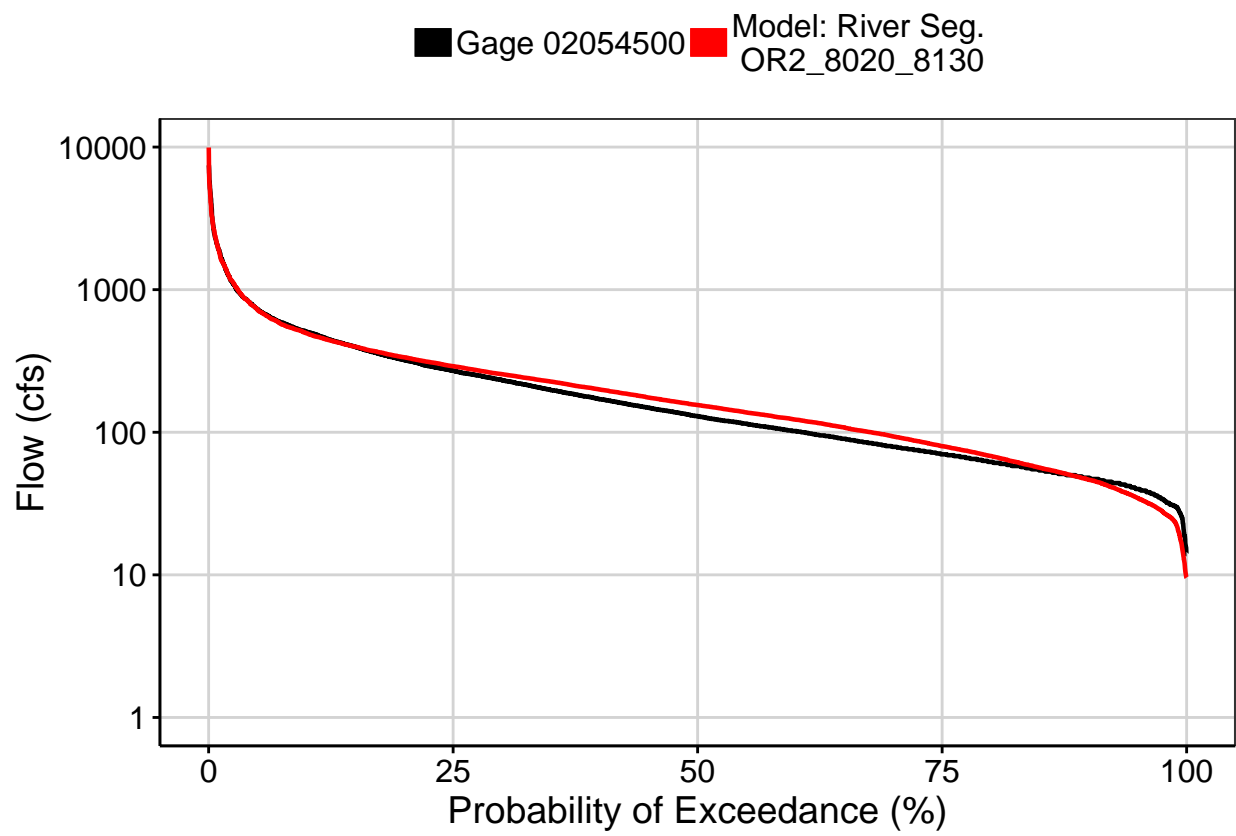


Fig. 4: Baseflow

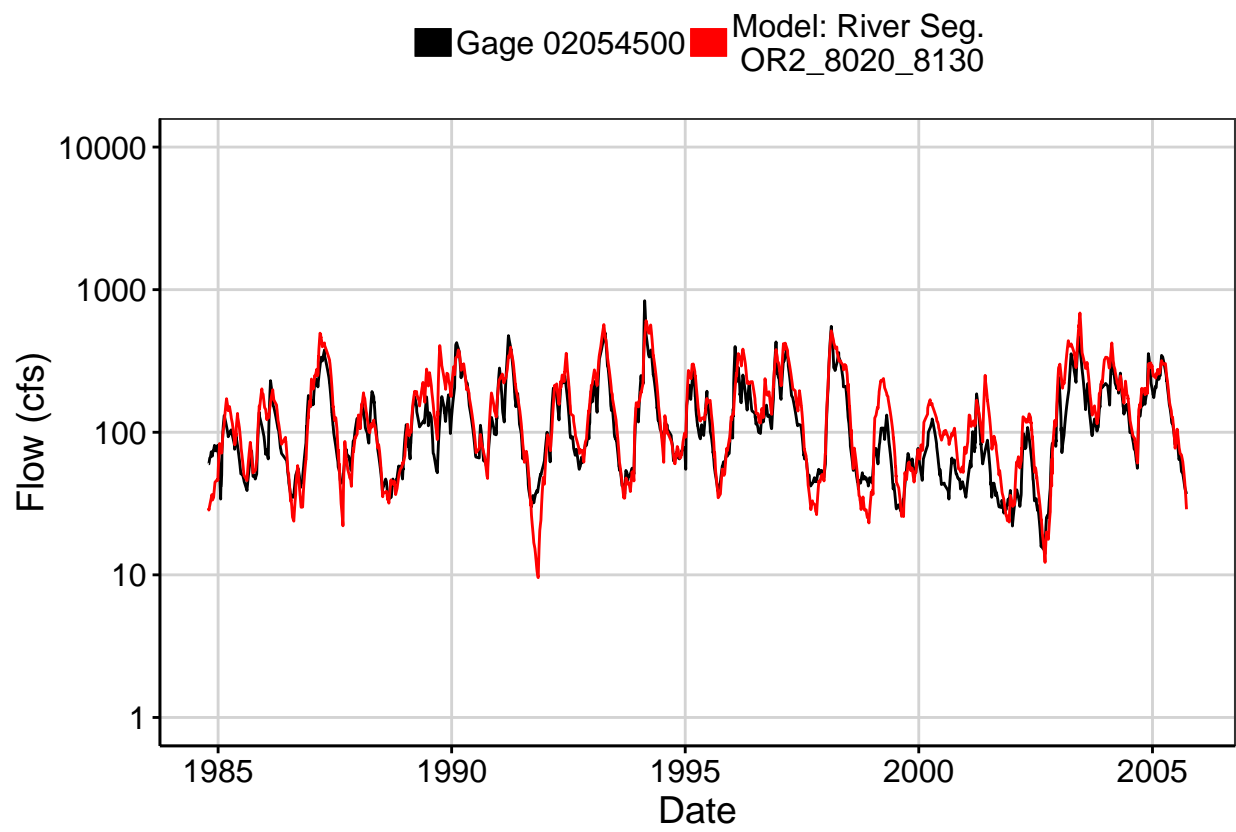


Fig. 5: Combined Baseflow

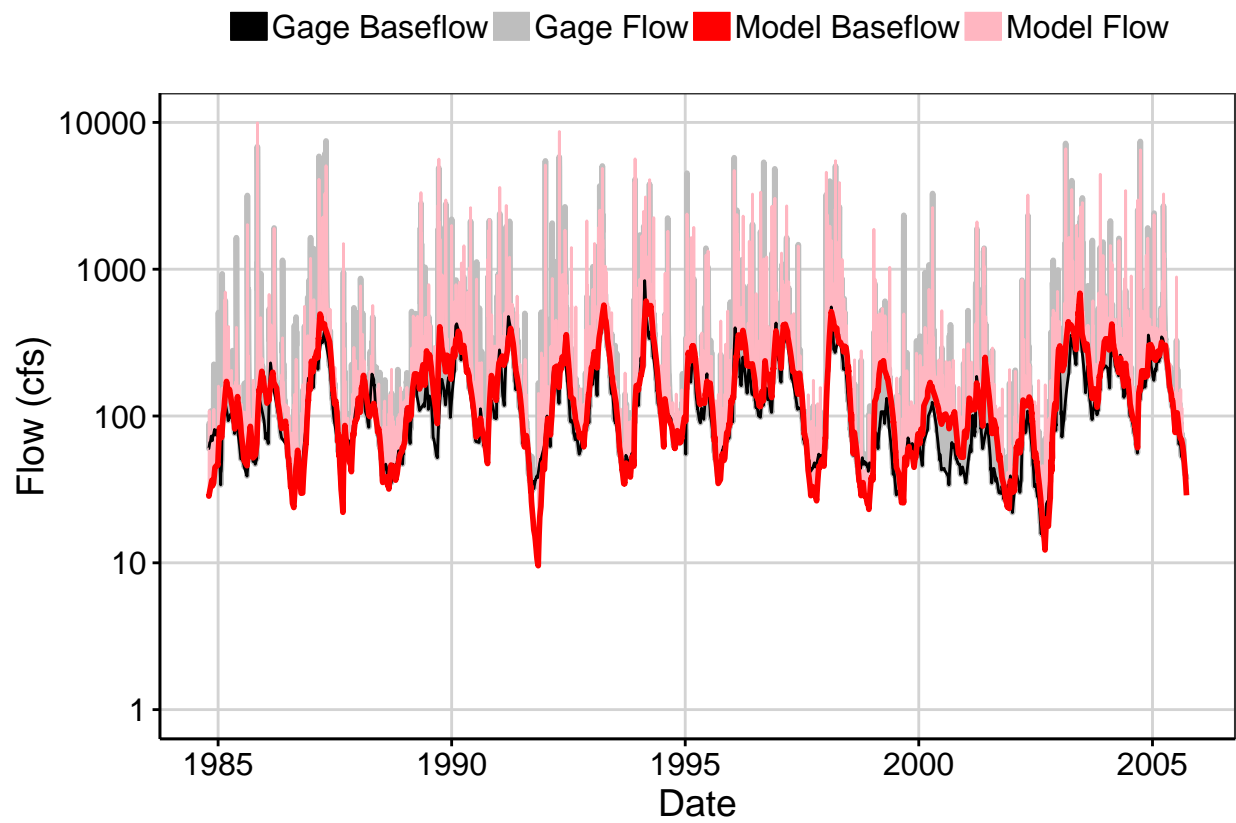




Fig. 6: Largest Error Segment

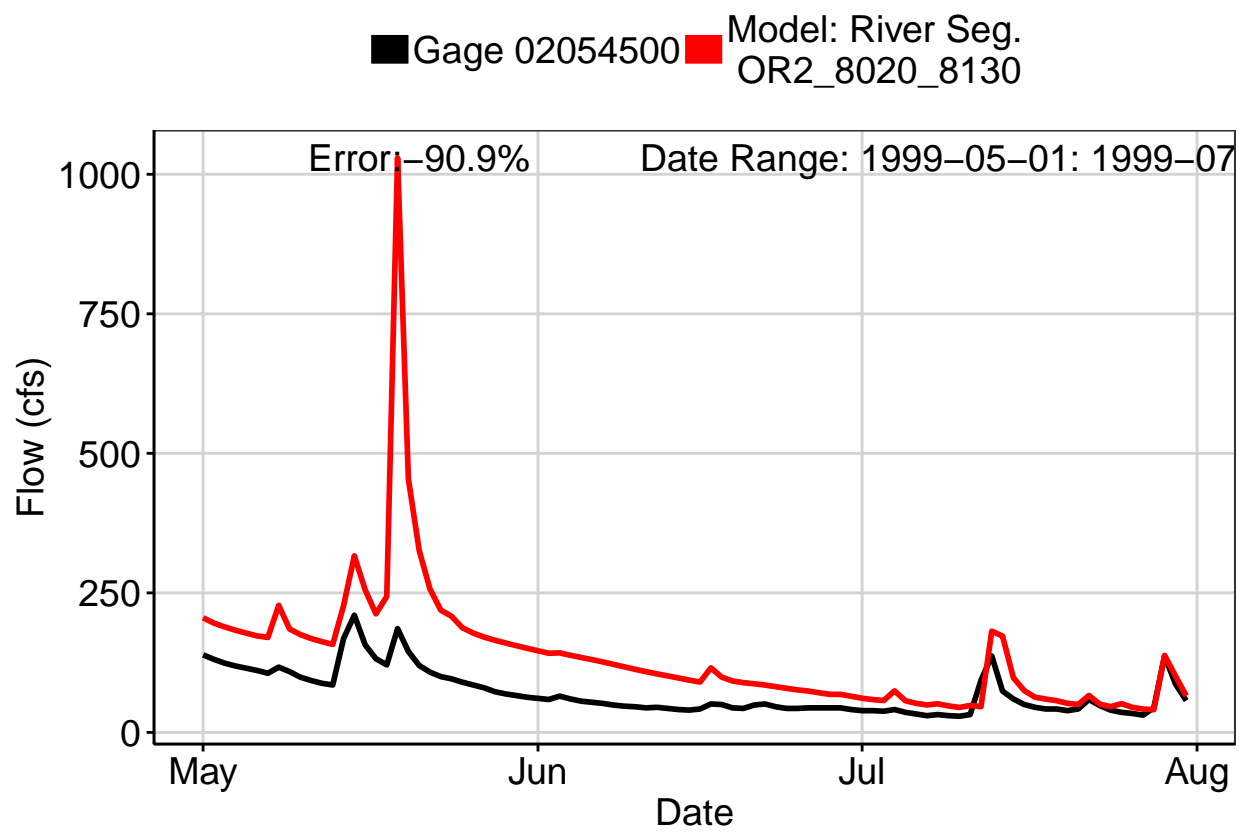


Fig. 7: Second Largest Error Segment

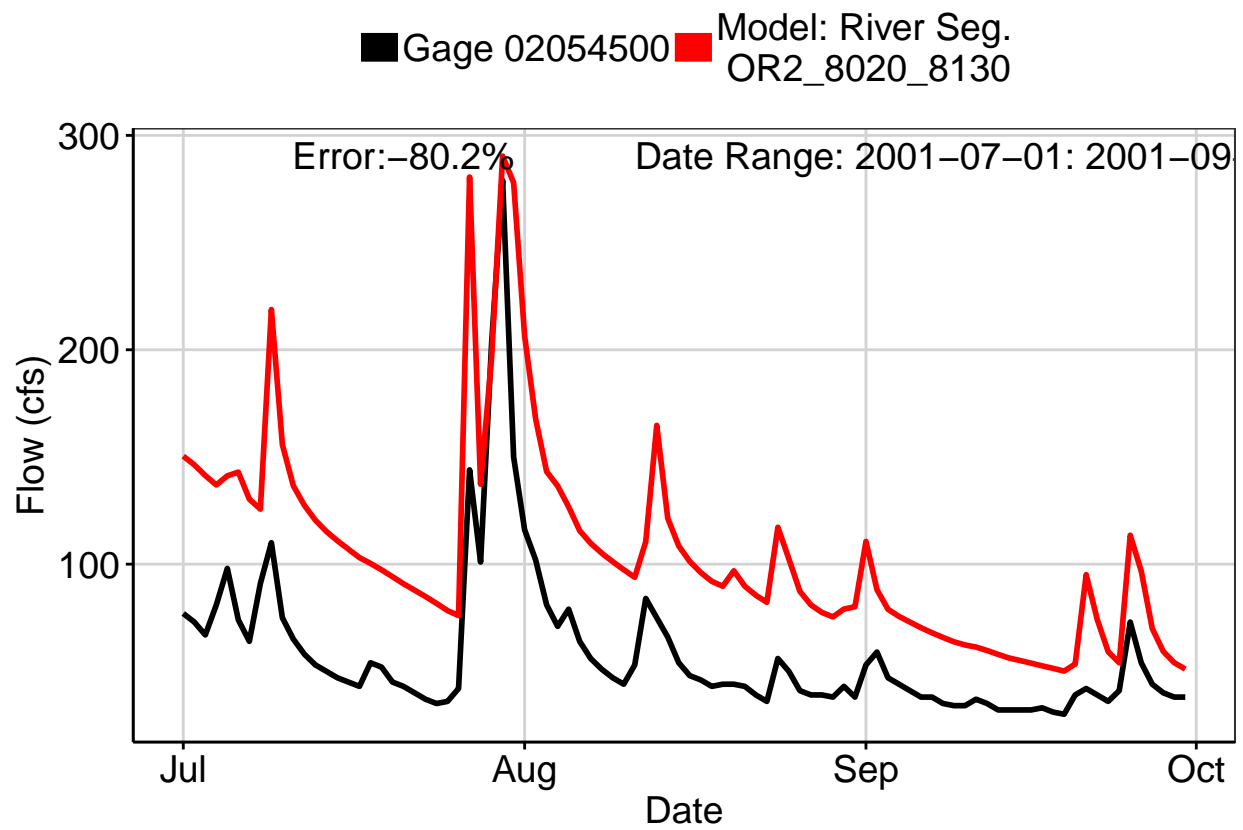


Fig. 8: Third Largest Error Segment

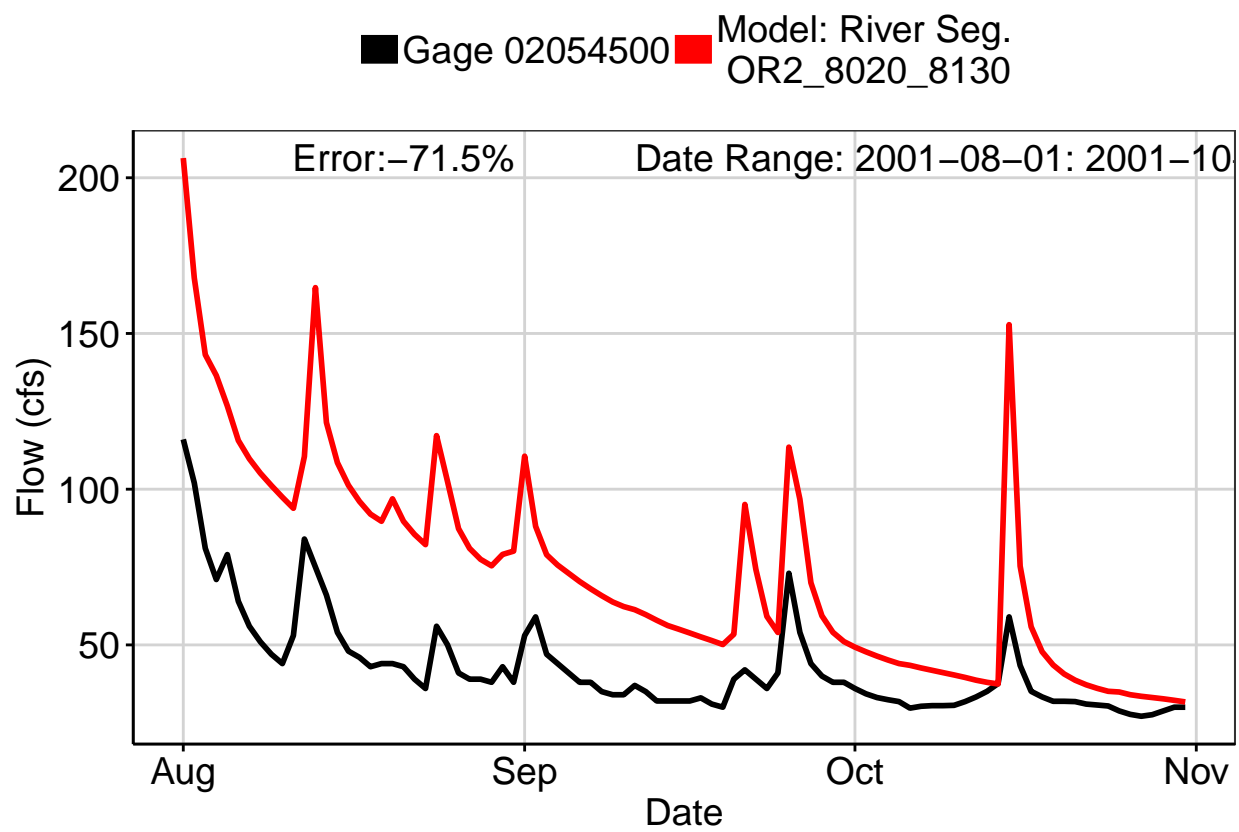


Fig. 9: Residuals Plot

