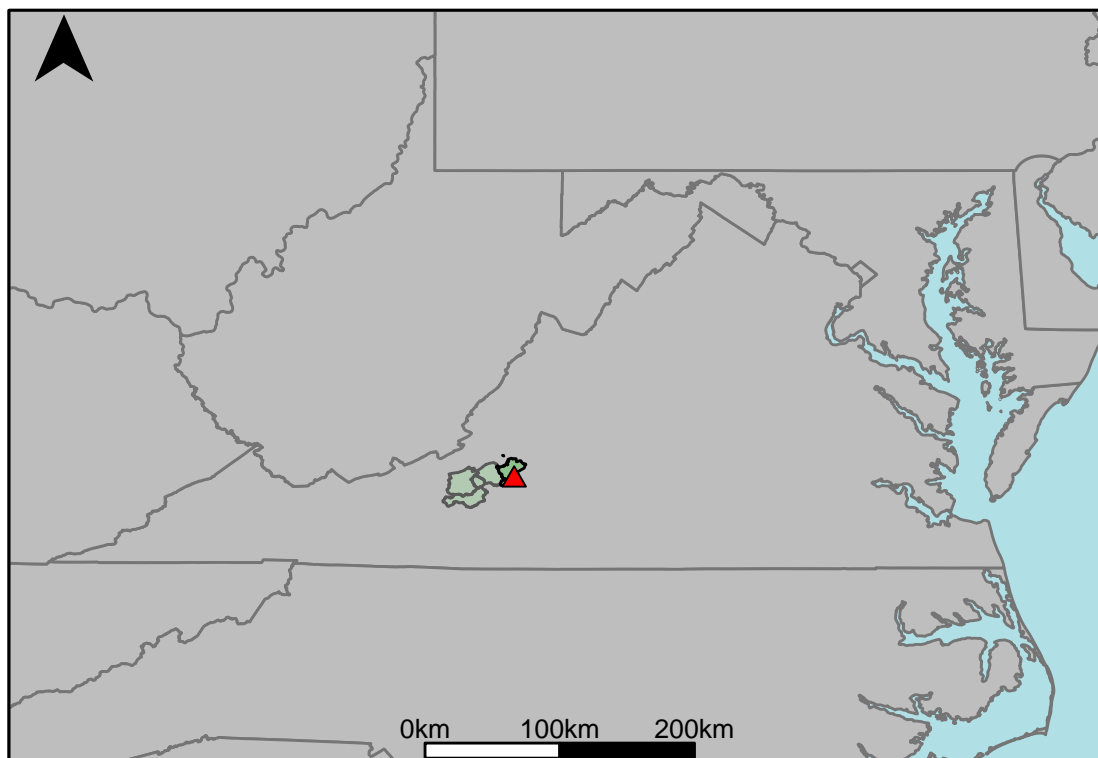


## Appendix H.5: USGS Gage 02056000 vs. OR3\_7740\_8271



This river segment follows part of the flow of the Roanoke River. The gage is located in Roanoke County, VA (Lat 37°15'18", Long 79°52'18") approximately 4 miles southeast of Roanoke, VA. Drainage area is 509 sq. miles. This gage started taking data in 1926 and is still taking data. There is complete regulation of low flow conditions in this area due to a power plant located only 200 ft upstream. There is very little storage at the facility, so excess water frequently overtops the dam. The average daily discharge error between the model and gage data for the 20 year timespan was 4.6%, with 28.7% of its rolling three month time spans above 20% error.

**Table 1: Monthly Low Flows**

	USGS Gage	Model	Pct. Error
Jan. Low Flow	137	65.4	-52.3
Feb. Low Flow	156	104	-33.3
Mar. Low Flow	192	213	10.9
Apr. Low Flow	210	220	4.76
May Low Flow	323	380	17.6
Jun. Low Flow	363	349	-3.86
Jul. Low Flow	315	279	-11.4
Aug. Low Flow	245	236	-3.67
Sep. Low Flow	224	191	-14.7
Oct. Low Flow	178	109	-38.8
Nov. Low Flow	135	88.5	-34.4
Dec. Low Flow	128	63.1	-50.7

**Table 2: Monthly Average Flows**

	USGS Gage	Model	Pct. Error
Overall Mean Flow	544	519	-4.6
Jan. Mean Flow	639	651	1.88
Feb. Mean Flow	807	785	-2.73
Mar. Mean Flow	909	883	-2.86
Apr. Mean Flow	854	771	-9.72
May Mean Flow	612	596	-2.61
Jun. Mean Flow	515	489	-5.05
Jul. Mean Flow	340	321	-5.59
Aug. Mean Flow	304	246	-19.1
Sep. Mean Flow	413	393	-4.84
Oct. Mean Flow	279	267	-4.3
Nov. Mean Flow	422	426	0.95
Dec. Mean Flow	458	425	-7.21

**Table 3: Monthly High Flows**

	USGS Gage	Model	Pct. Error
Jan. High Flow	364	667	83.2
Feb. High Flow	727	1120	54.1
Mar. High Flow	1050	897	-14.6
Apr. High Flow	1710	1800	5.26
May High Flow	1610	1460	-9.32
Jun. High Flow	2980	2810	-5.7
Jul. High Flow	1700	1530	-10
Aug. High Flow	1440	1460	1.39
Sep. High Flow	727	880	21
Oct. High Flow	621	684	10.1
Nov. High Flow	563	635	12.8
Dec. High Flow	341	533	56.3

**Table 4: Period Low Flows**

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	79.5	0.82	-99
Med. 1 Day Min	114	45	-60.5
Min. 3 Day Min	81	5.03	-93.8
Med. 3 Day Min	122	49.2	-59.7
Min. 7 Day Min	82.4	7.1	-91.4
Med. 7 Day Min	131	54.5	-58.4
Min. 30 Day Min	103	10.5	-89.8
Med. 30 Day Min	153	90	-41.2
Min. 90 Day Min	123	46.5	-62.2
Med. 90 Day Min	205	157	-23.4
7Q10	102	17.9	-82.5
Year of 90-Day Min. Flow	2002	2002	0
Drought Year Mean	176	104	-40.9
Mean Baseflow	283	268	-5.3

**Table 5: Period High Flows**

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	19700	26300	33.5
Med. 1 Day Max	8200	7540	-8.05
Max. 3 Day Max	12500	12500	0
Med. 3 Day Max	4590	4540	-1.09
Max. 7 Day Max	6810	6200	-8.96
Med. 7 Day Max	3060	2900	-5.23
Max. 30 Day Max	3710	2930	-21
Med. 30 Day Max	1400	1450	3.57
Max. 90 Day Max	2130	1830	-14.1
Med. 90 Day Max	918	945	2.94

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	104	18.5	-82.2
5% Non-Exceedance	130	49.2	-62.2
50% Non-Exceedance	302	301	-0.33
95% Non-Exceedance	1490	1530	2.68
99% Non-Exceedance	4280	4370	2.1
Sept. 10% Non-Exceedance	43.2	127	194

Fig. 1: Hydrograph

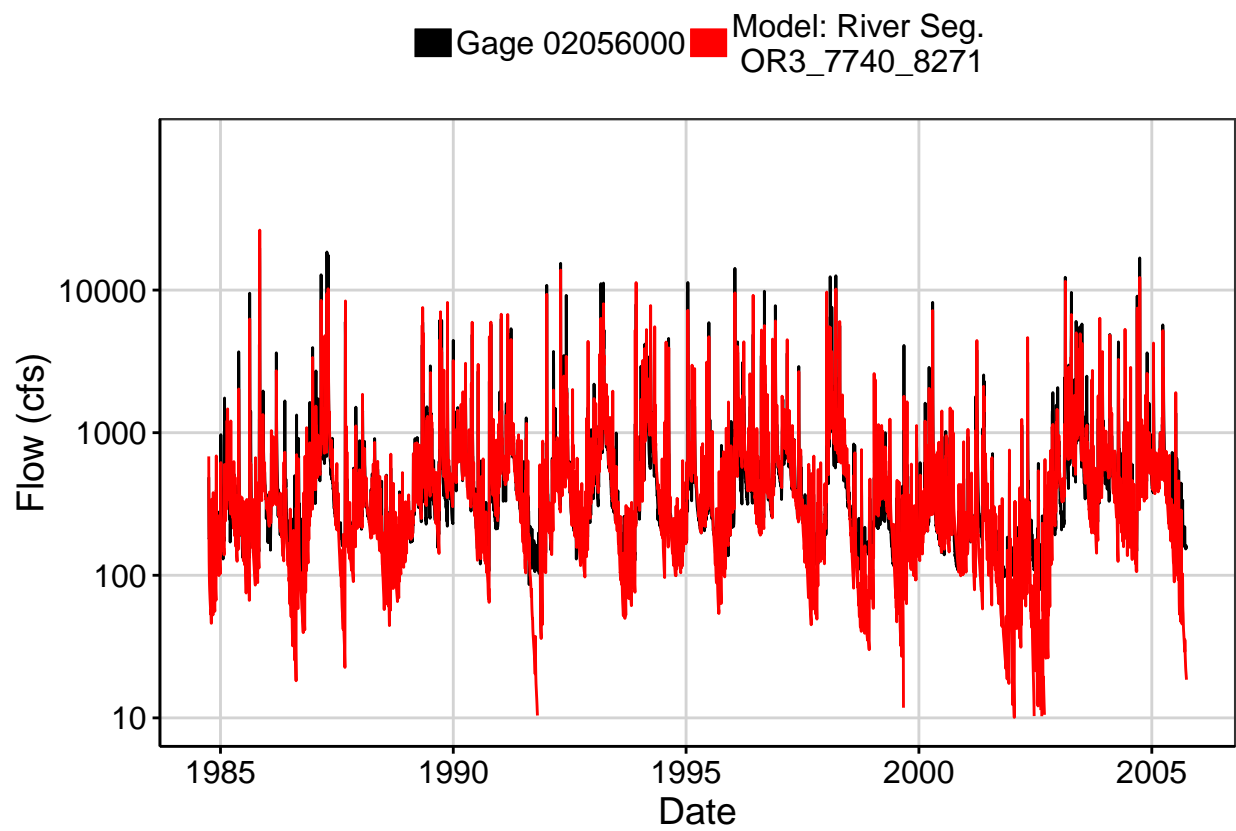


Fig. 2: Zoomed Hydrograph

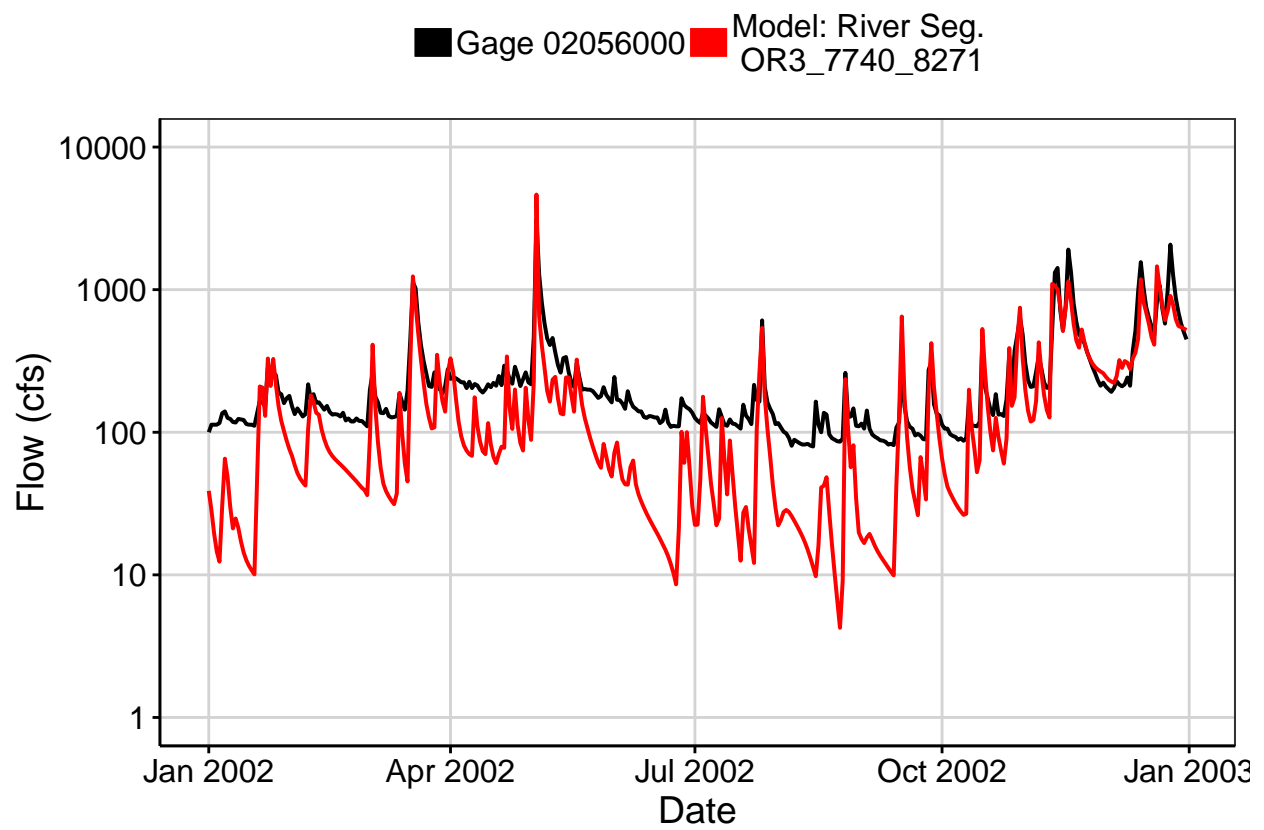


Fig. 3: Flow Exceedance

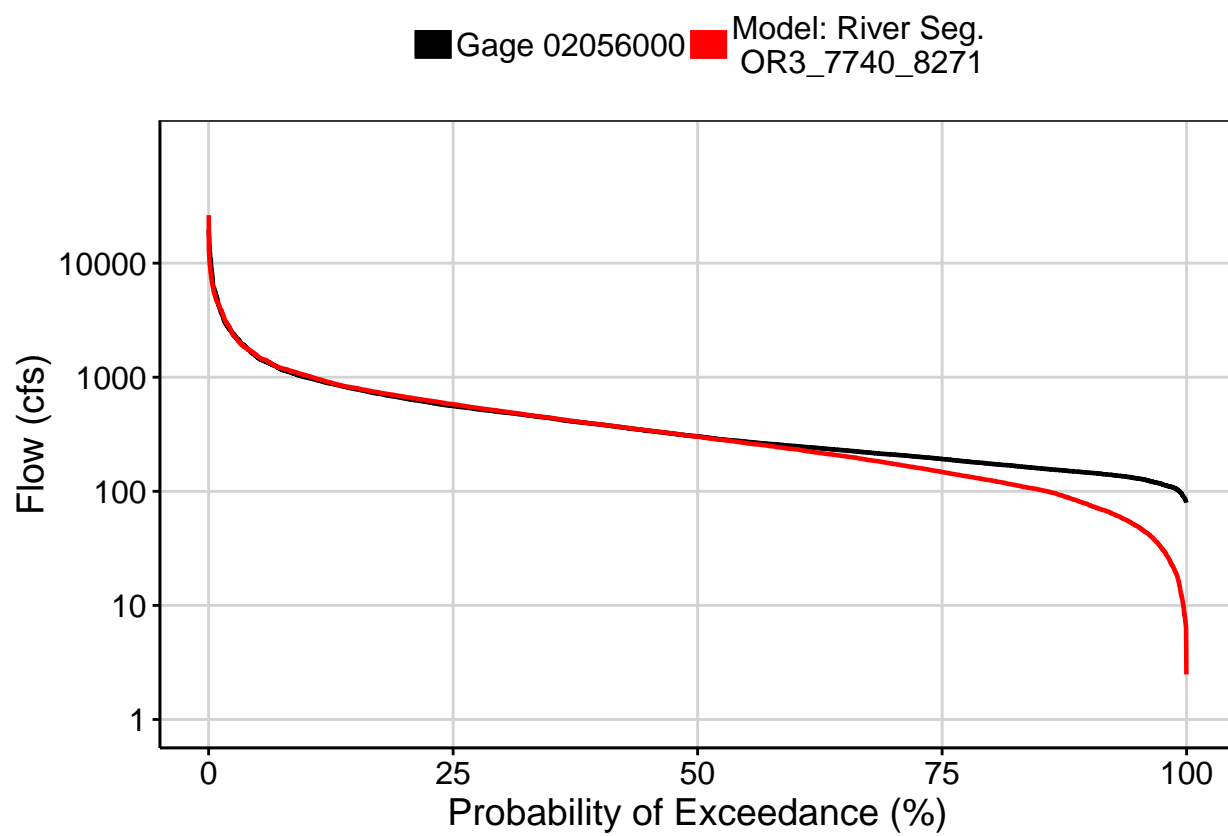


Fig. 4: Baseflow

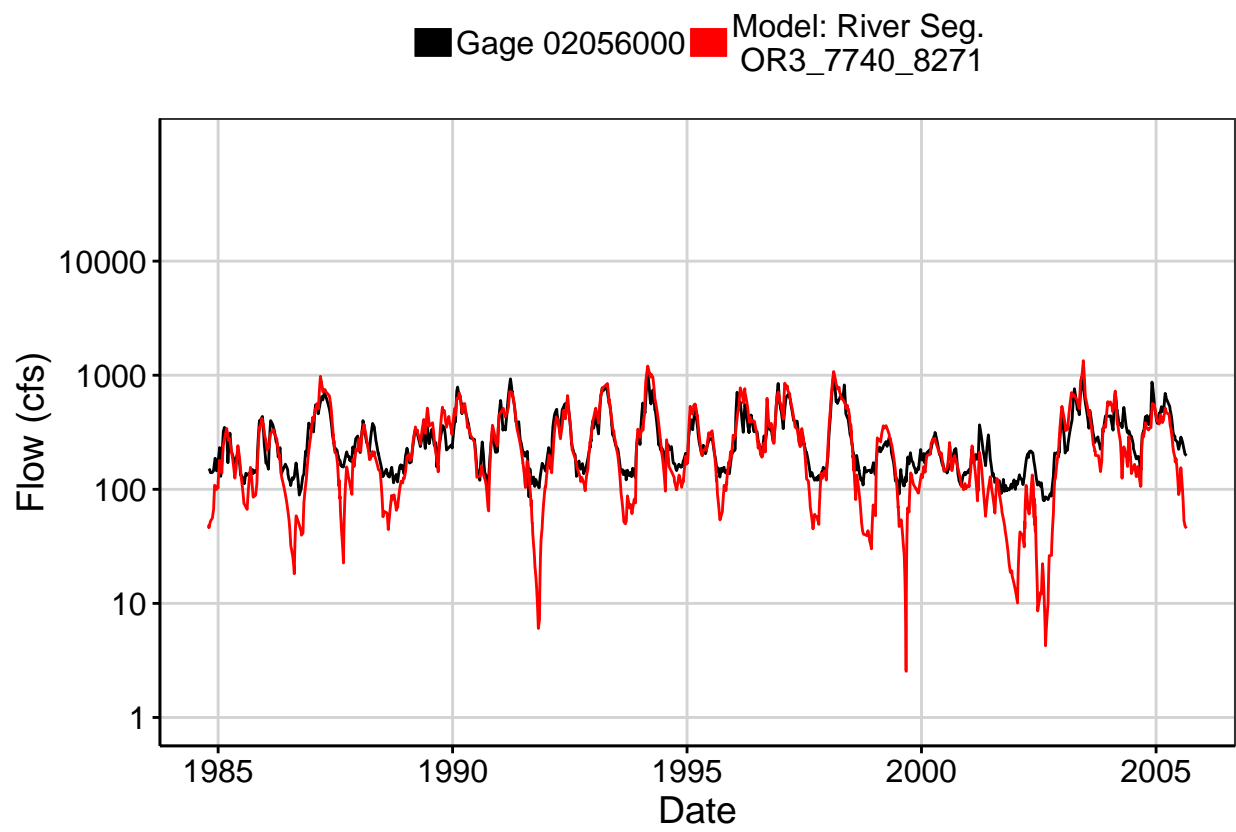


Fig. 5: Combined Baseflow

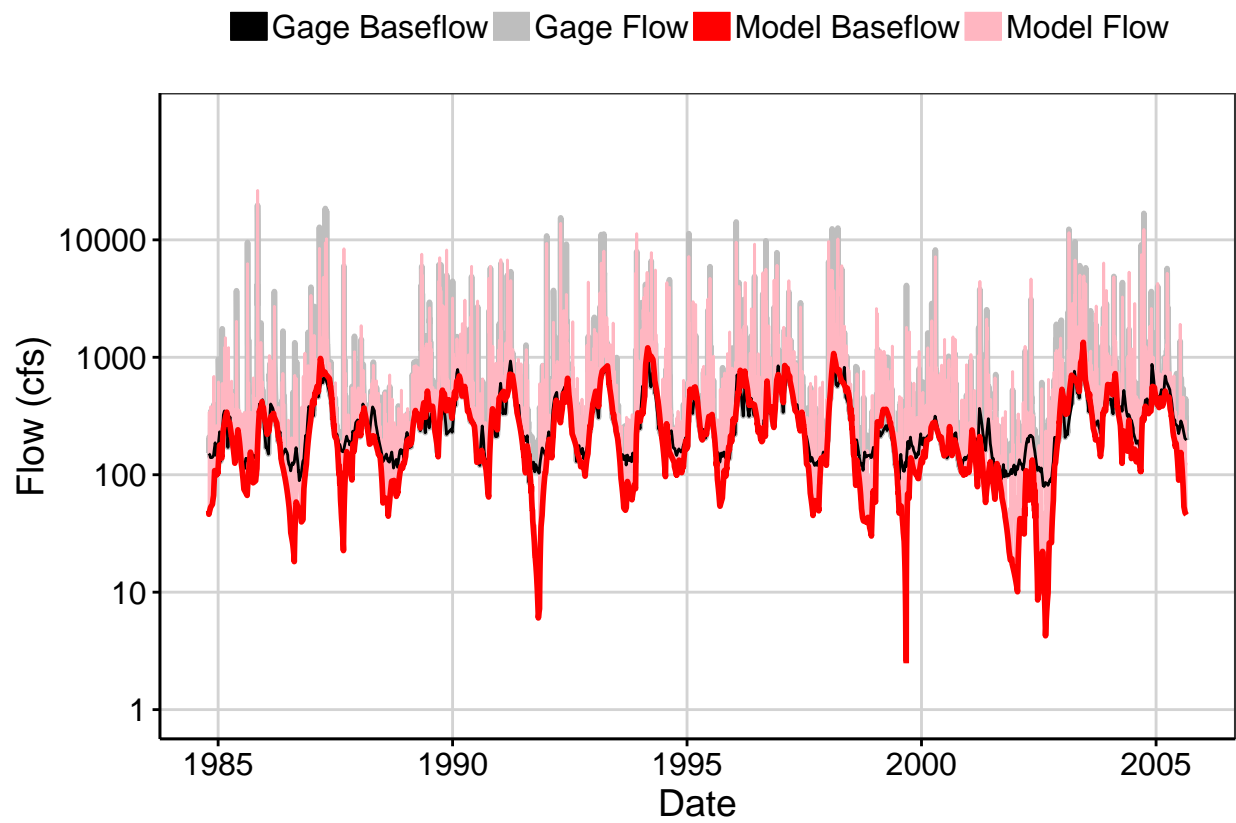




Fig. 6: Largest Error Segment

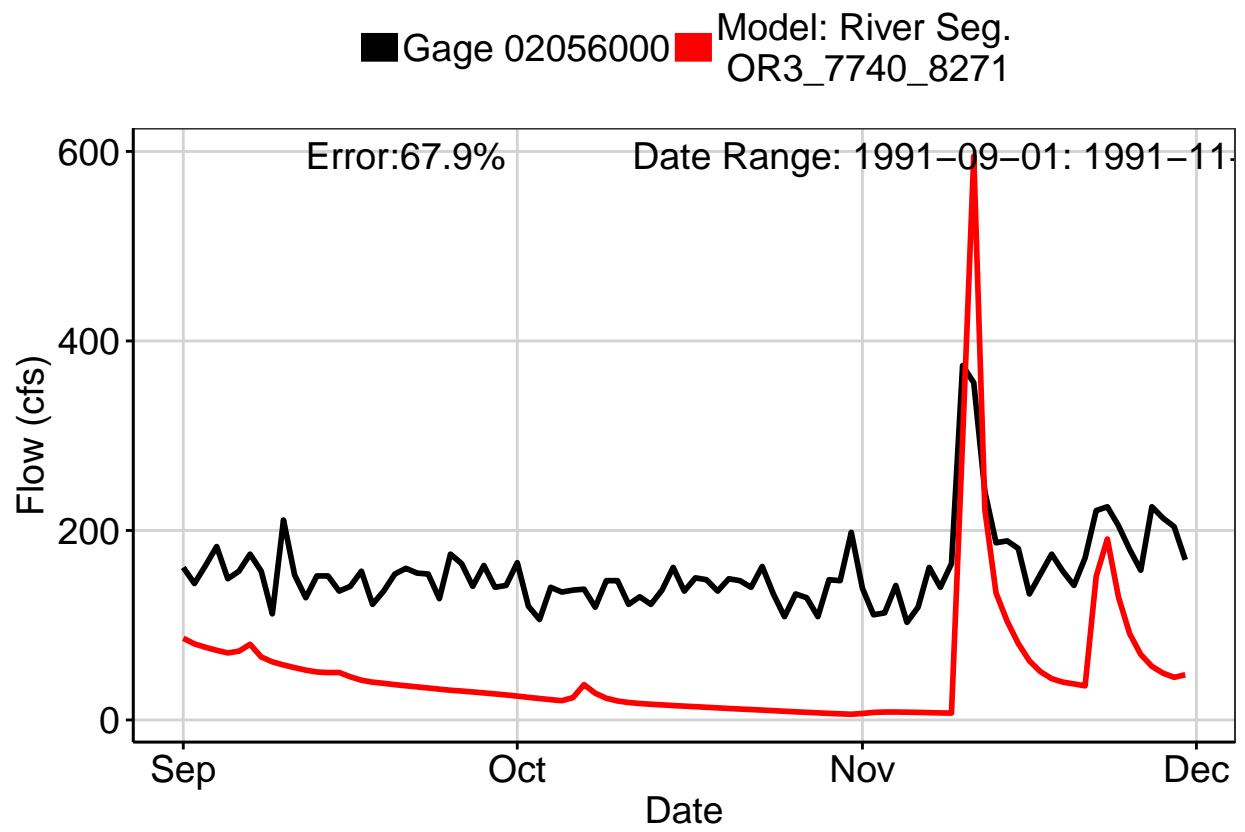


Fig. 7: Second Largest Error Segment

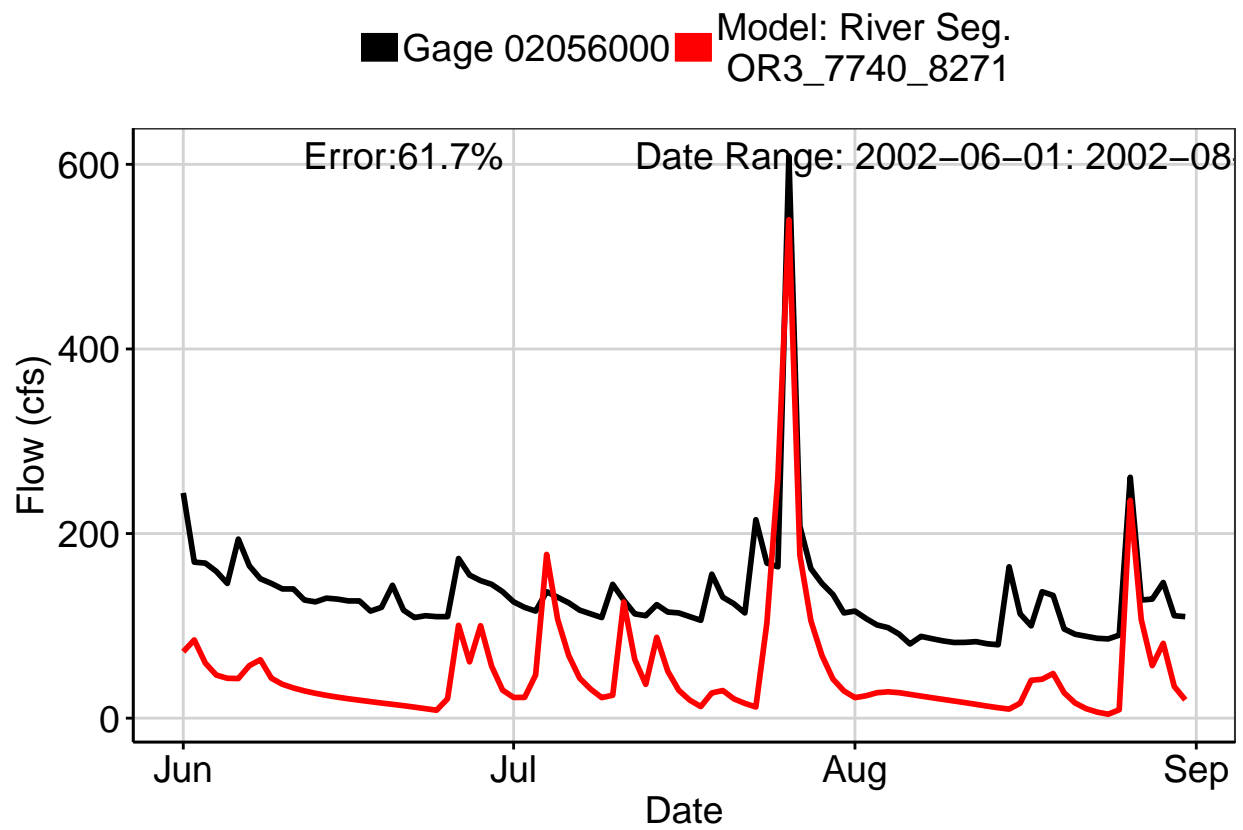


Fig. 8: Third Largest Error Segment

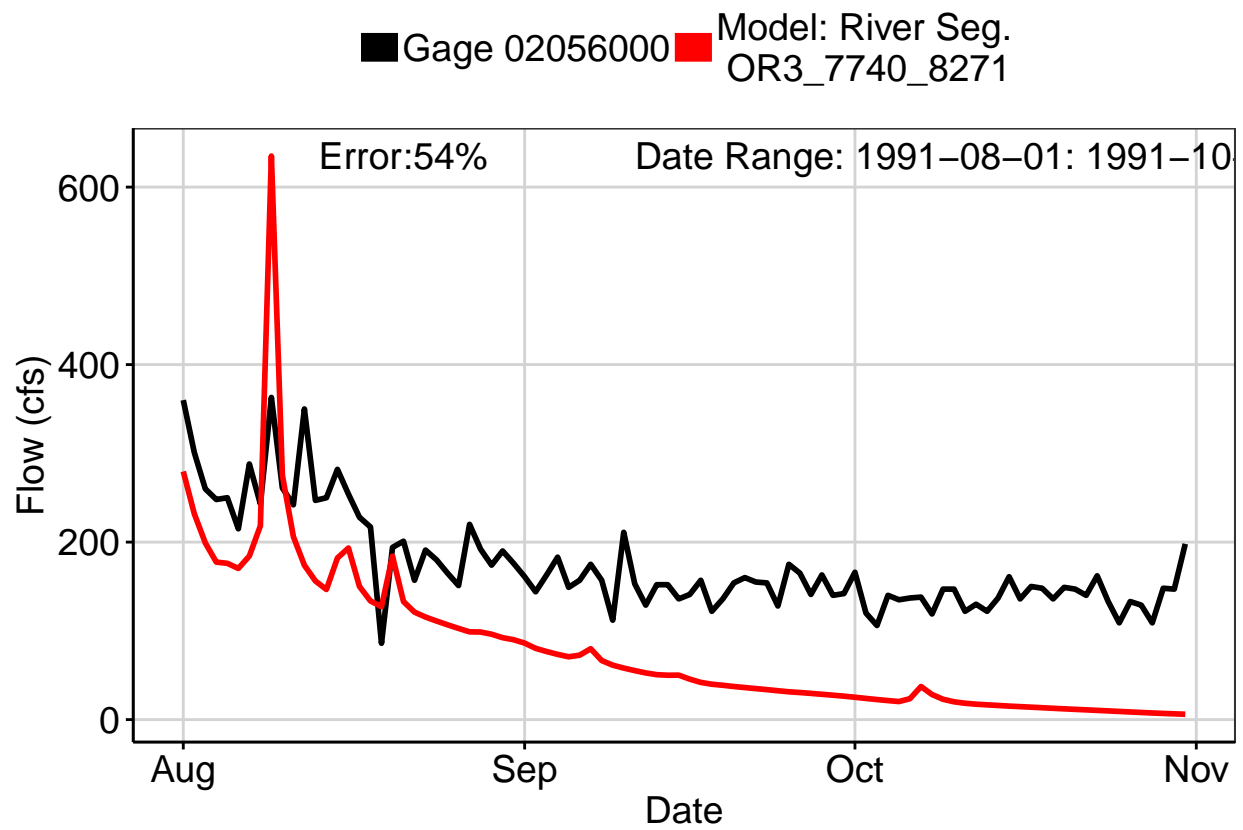


Fig. 9: Residuals Plot

