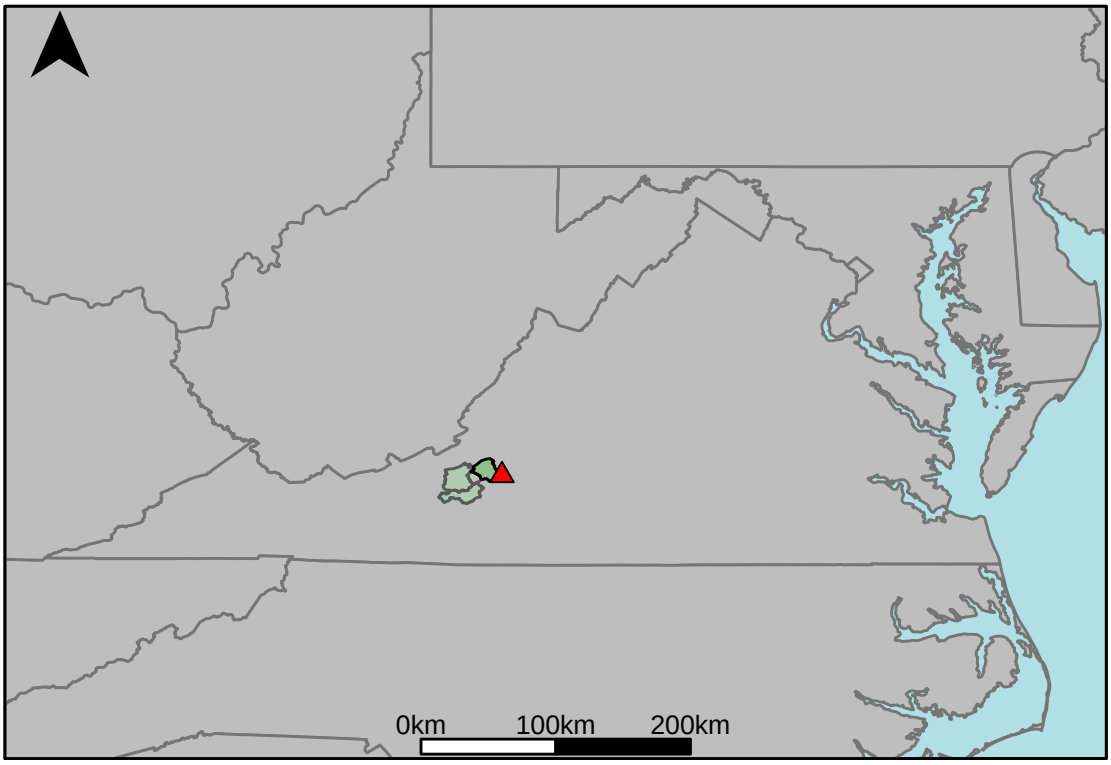
Appendix H.4: USGS Gage 02055000 vs. OR2_7900_7740



This river segment follows part of the flow of the Roanoke River. The gage is located in Roanoke County, VA (Lat 3715'30", Long 7956'20") approximately 1 mile southeast of Roanoke, VA. Drainage area is 384 sq. miles. This gage started taking data in 1899 and is still taking data. There are no known anthropogenic alterations in this area that would affect the flow conditions. The average daily discharge error between the model and gage data for the 20 year timespan was -2.96%, 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	69	62.9	-8.84
Feb. Low Flow	84	72.5	-13.7
Mar. Low Flow	120	152	26.7
Apr. Low Flow	125	180	44
May Low Flow	214	314	46.7
Jun. Low Flow	249	284	14.1
Jul. Low Flow	212	239	12.7
Aug. Low Flow	163	200	22.7
Sep. Low Flow	126	156	23.8
Oct. Low Flow	83	90.3	8.8
Nov. Low Flow	67	71.6	6.87
Dec. Low Flow	59	56.5	-4.24

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	372	383	2.96
Jan. Mean Flow	460	484	5.22
Feb. Mean Flow	580	588	1.38
Mar. Mean Flow	650	665	2.31
Apr. Mean Flow	604	578	-4.3
May Mean Flow	434	445	2.53
Jun. Mean Flow	337	365	8.31
Jul. Mean Flow	204	236	15.7
Aug. Mean Flow	173	183	5.78
Sep. Mean Flow	263	269	2.28
Oct. Mean Flow	170	189	11.2
Nov. Mean Flow	291	300	3.09
Dec. Mean Flow	313	307	-1.92

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	213	353	65.7
Feb. High Flow	455	756	66.2
Mar. High Flow	829	575	-30.6
Apr. High Flow	1400	1500	7.14
May High Flow	1290	1090	-15.5
Jun. High Flow	2180	2020	-7.34
Jul. High Flow	1390	1150	-17.3
Aug. High Flow	1020	1180	15.7
Sep. High Flow	498	717	44
Oct. High Flow	413	449	8.72
Nov. High Flow	262	388	48.1
Dec. High Flow	208	338	62.5

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	16.3	0	-100
Med. 1 Day Min	50	38.6	-22.8
Min. 3 Day Min	16.8	0.87	-94.8
Med. 3 Day Min	51.7	41.1	-20.5
Min. 7 Day Min	18.5	4.63	-75
Med. 7 Day Min	55.6	43.1	-22.5
Min. 30 Day Min	33.8	13.5	-60.1
Med. 30 Day Min	66.8	63.3	-5.24
Min. 90 Day Min	50.2	25	-50.2
Med. 90 Day Min	111	114	2.7
7Q10	33.9	10.7	-68.4
Year of 90-Day Min. Flow	2002	2002	0
Drought Year Mean	110	67.5	-38.6
Mean Baseflow	184	210	14.1

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	15000	17600	17.3
Med. 1 Day Max	5700	5790	1.58
Max. 3 Day Max	9480	7890	-16.8
Med. 3 Day Max	3680	3390	-7.88
Max. 7 Day Max	5250	3940	-25
Med. 7 Day Max	2310	2110	-8.66
Max. 30 Day Max	2590	2140	-17.4
Med. 30 Day Max	992	1080	8.87
Max. 90 Day Max	1500	1330	-11.3
Med. 90 Day Max	655	676	3.21

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	42.8	12	-72
5% Non-Exceedance	59.5	36.7	-38.3
50% Non-Exceedance	191	224	17.3
95% Non-Exceedance	1120	1110	-0.89
99% Non-Exceedance	2900	3060	5.52
Sept. 10% Non-Exceedance	30.7	56	82.4

Fig. 1: Hydrograph

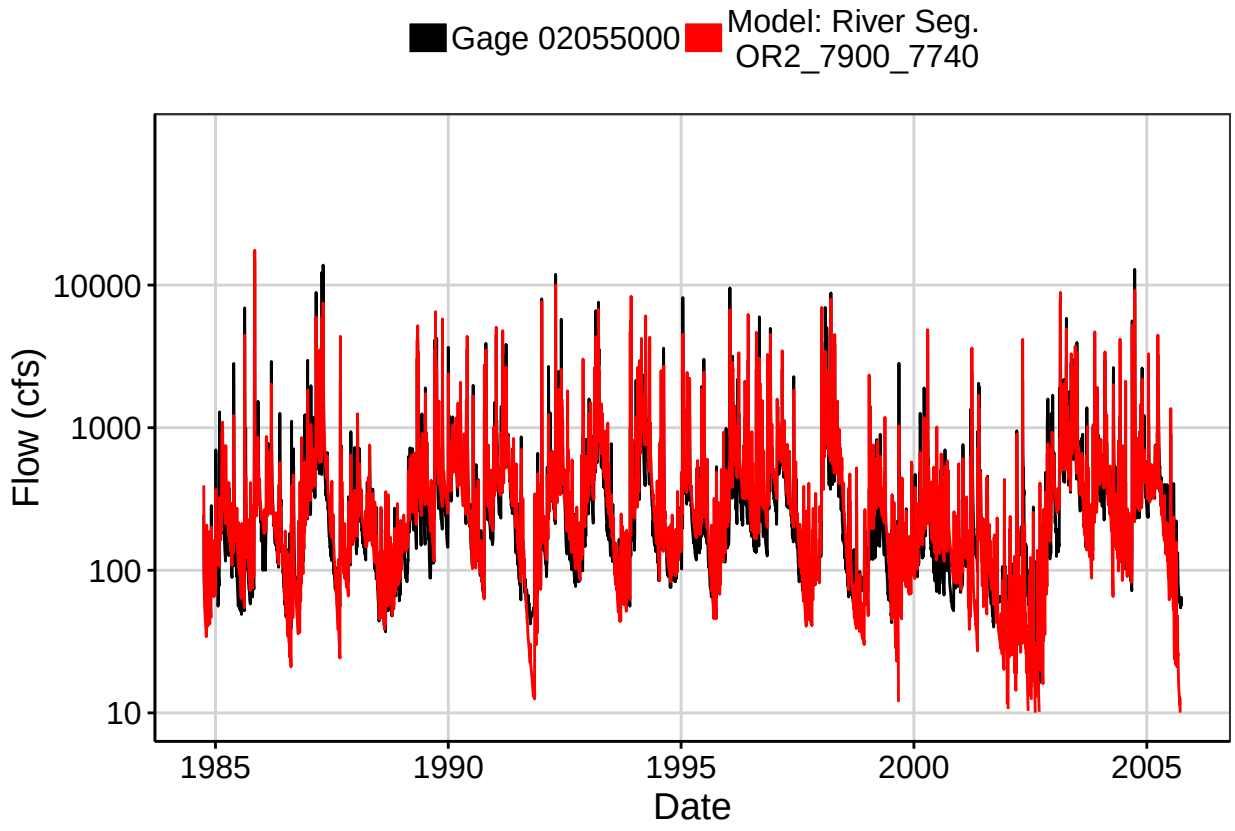


Fig. 2: Zoomed Hydrograph

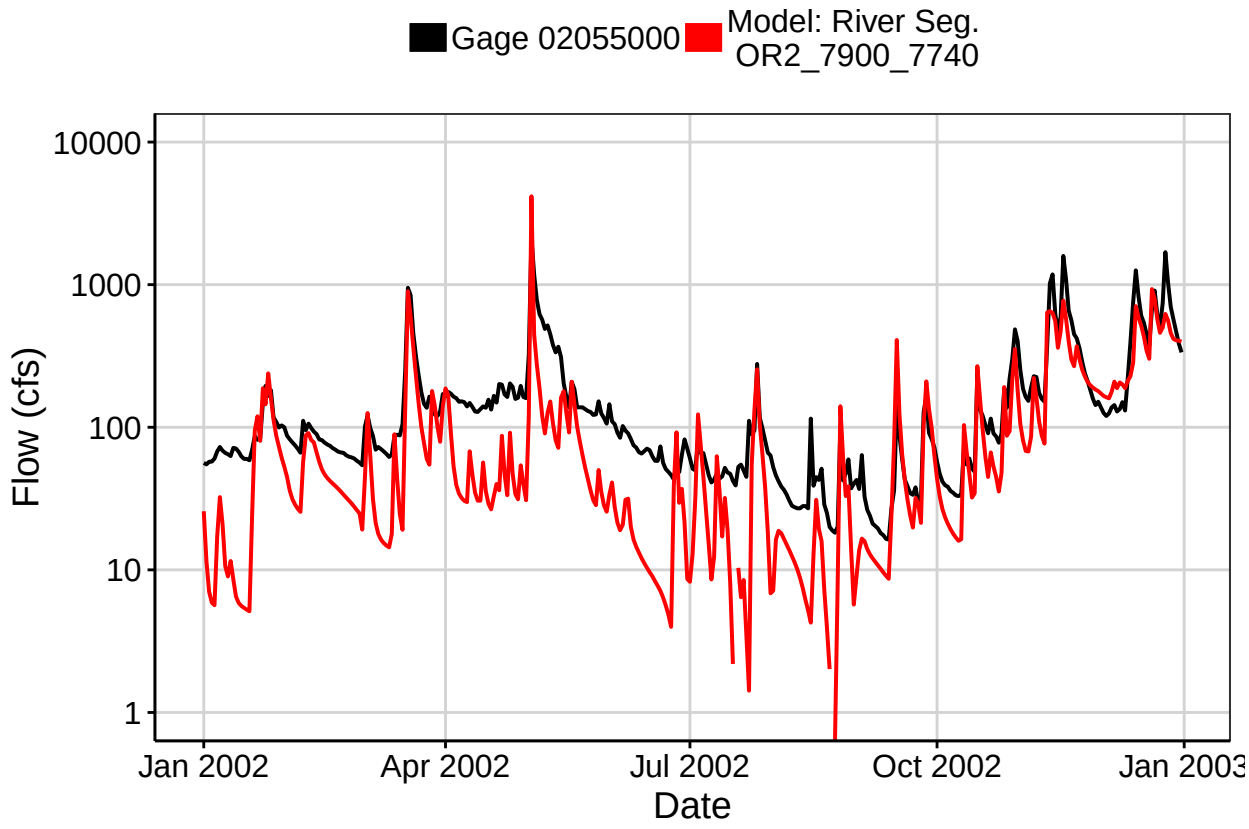


Fig. 3: Flow Exceedance

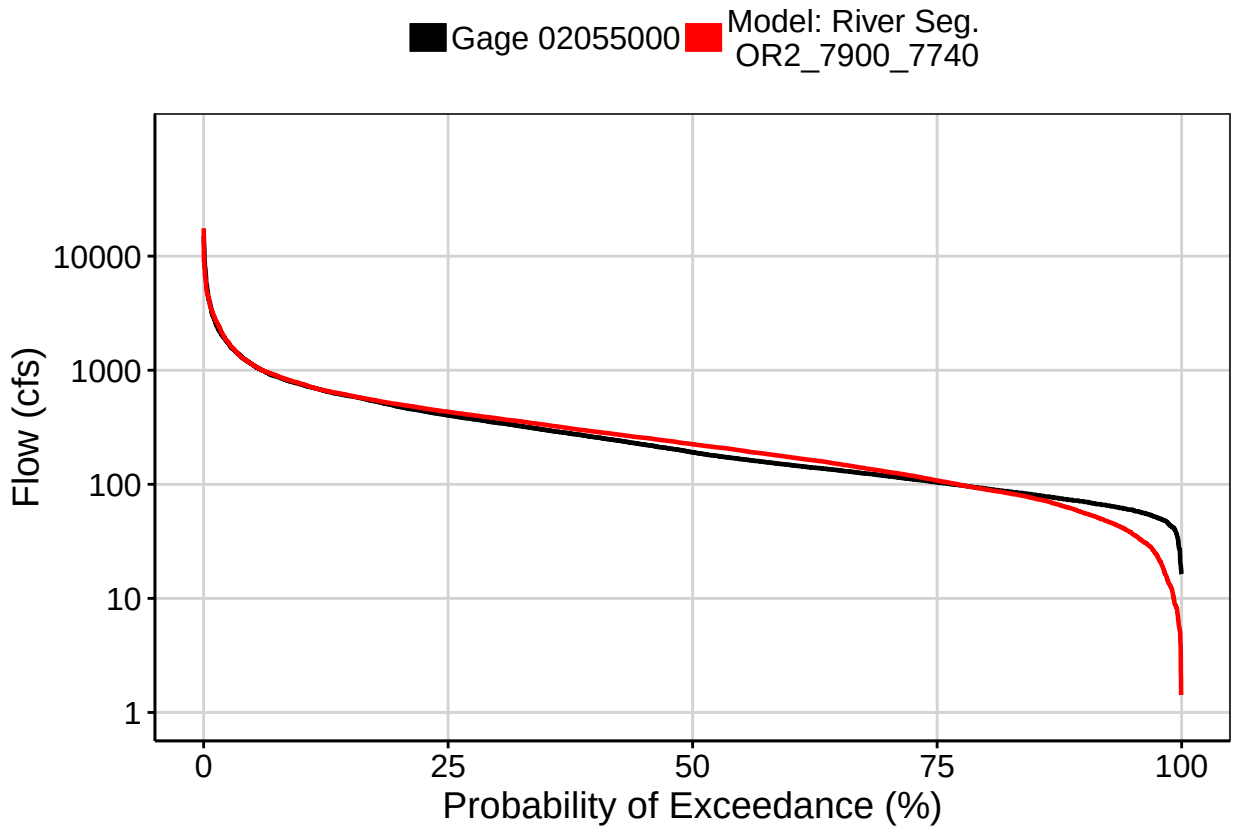


Fig. 4: Baseflow

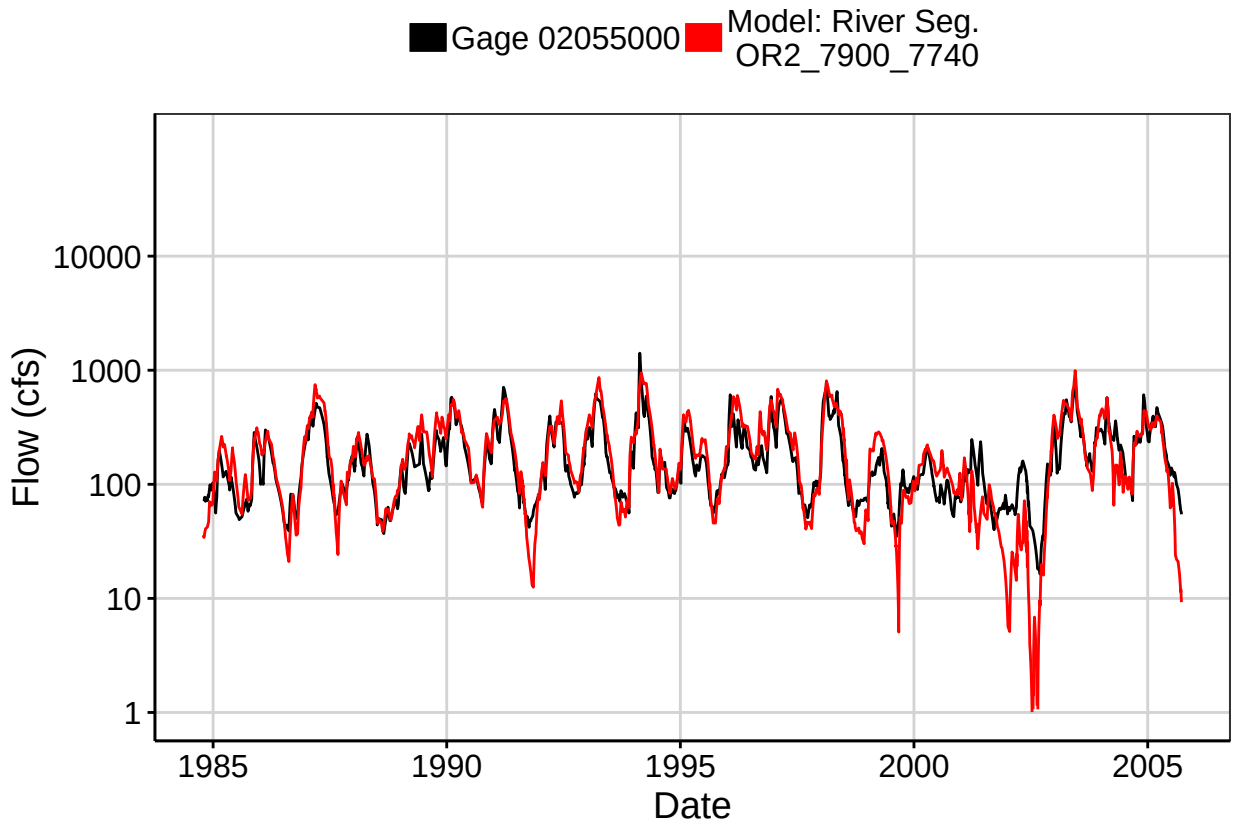


Fig. 5: Combined Baseflow

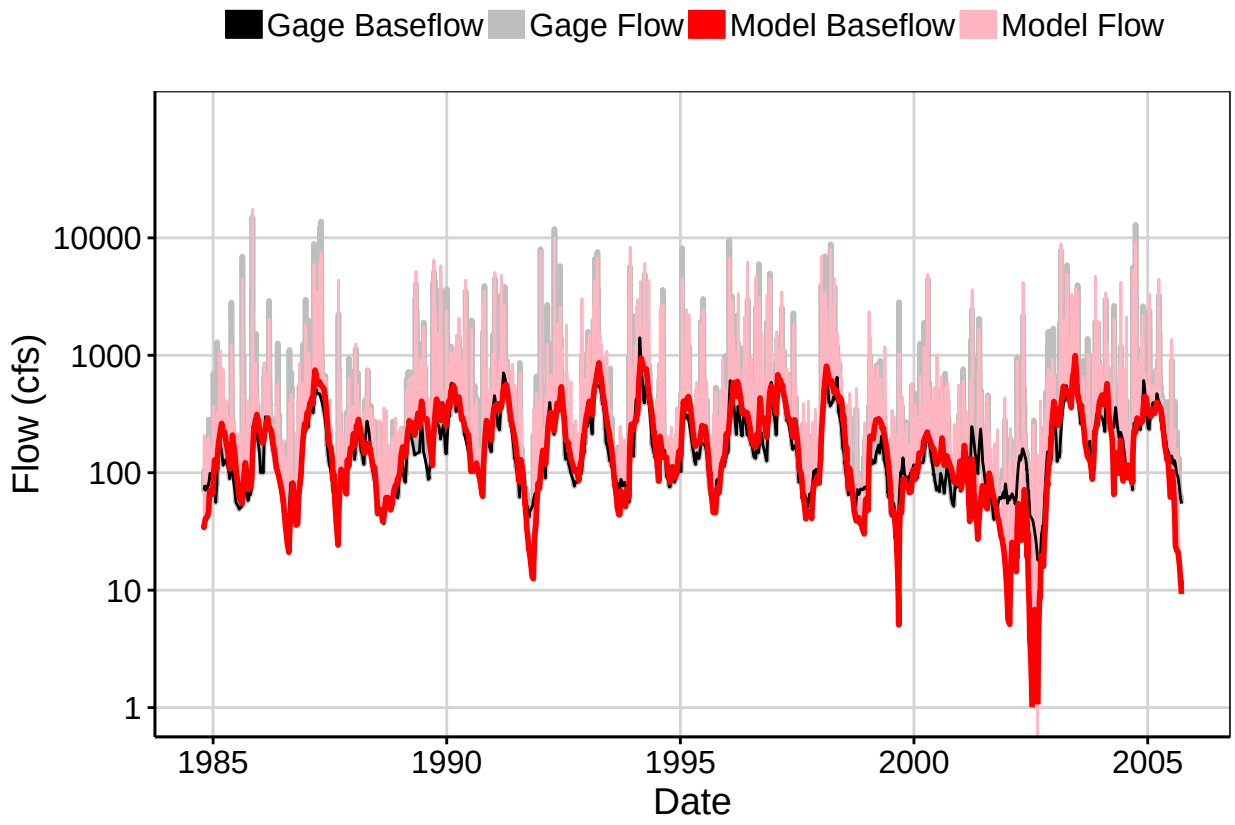


Fig. 6: Largest Error Segment

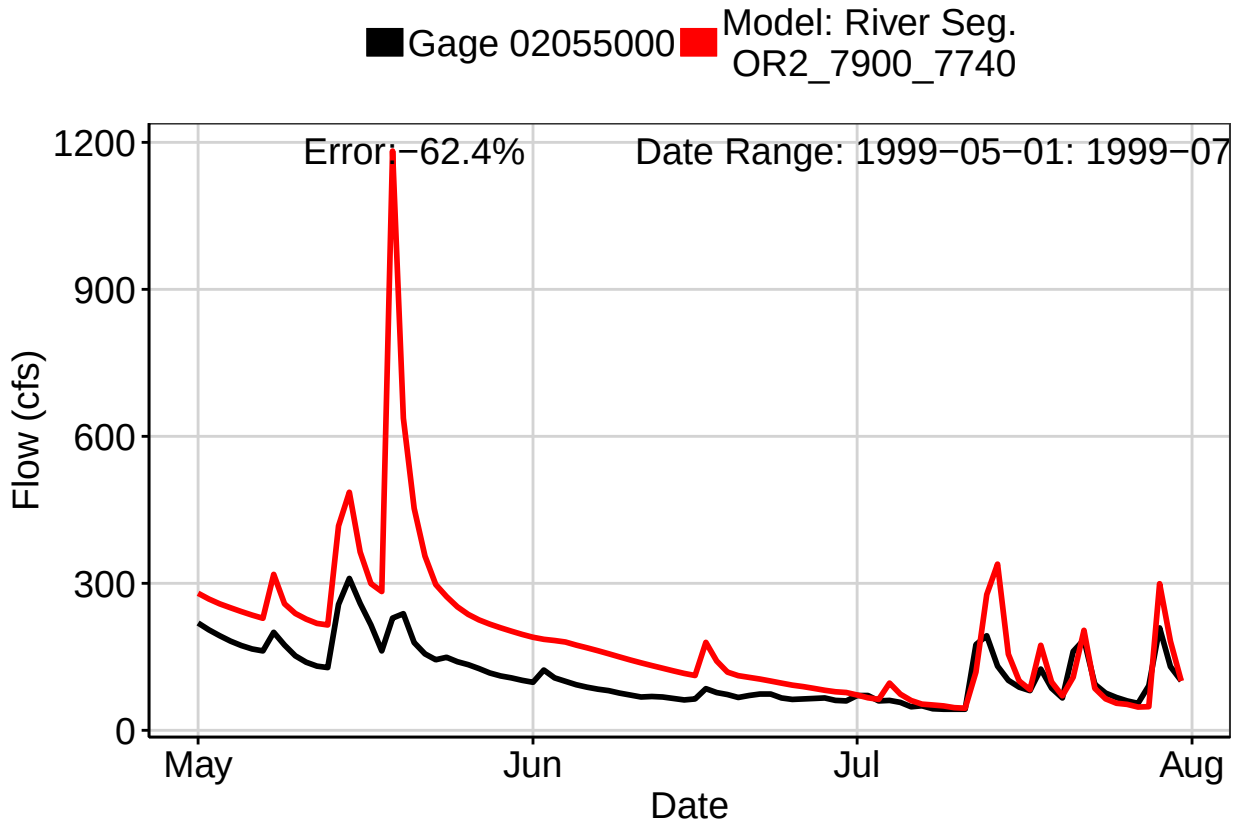


Fig. 7: Second Largest Error Segment

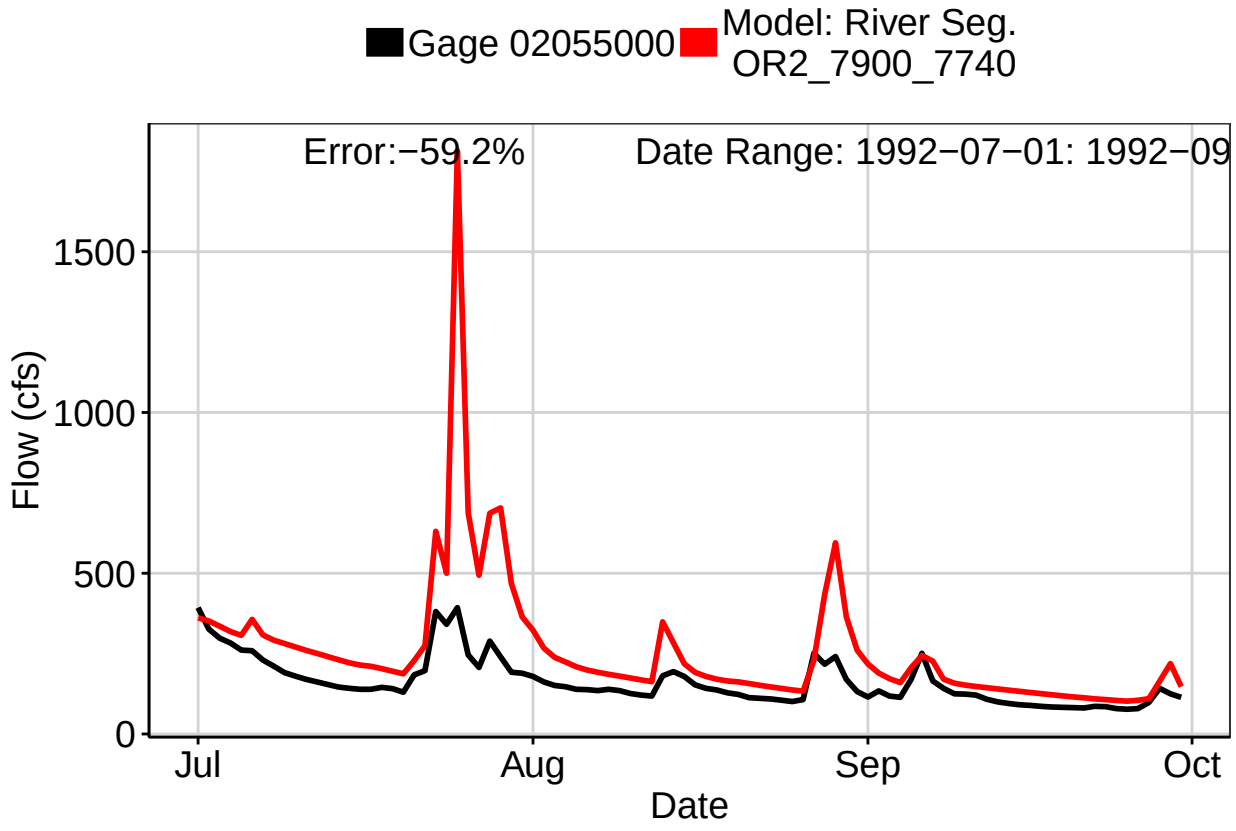


Fig. 8: Third Largest Error Segment

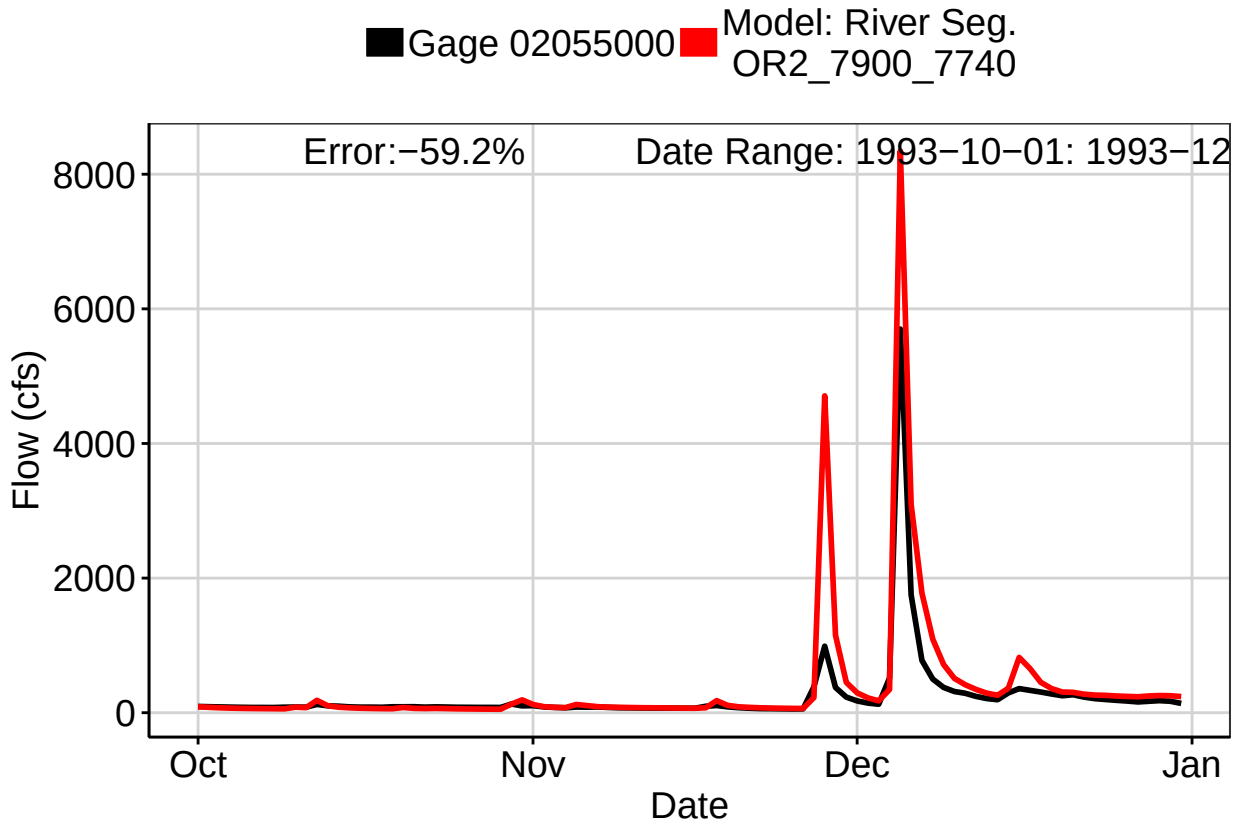


Fig. 9: Residuals Plot