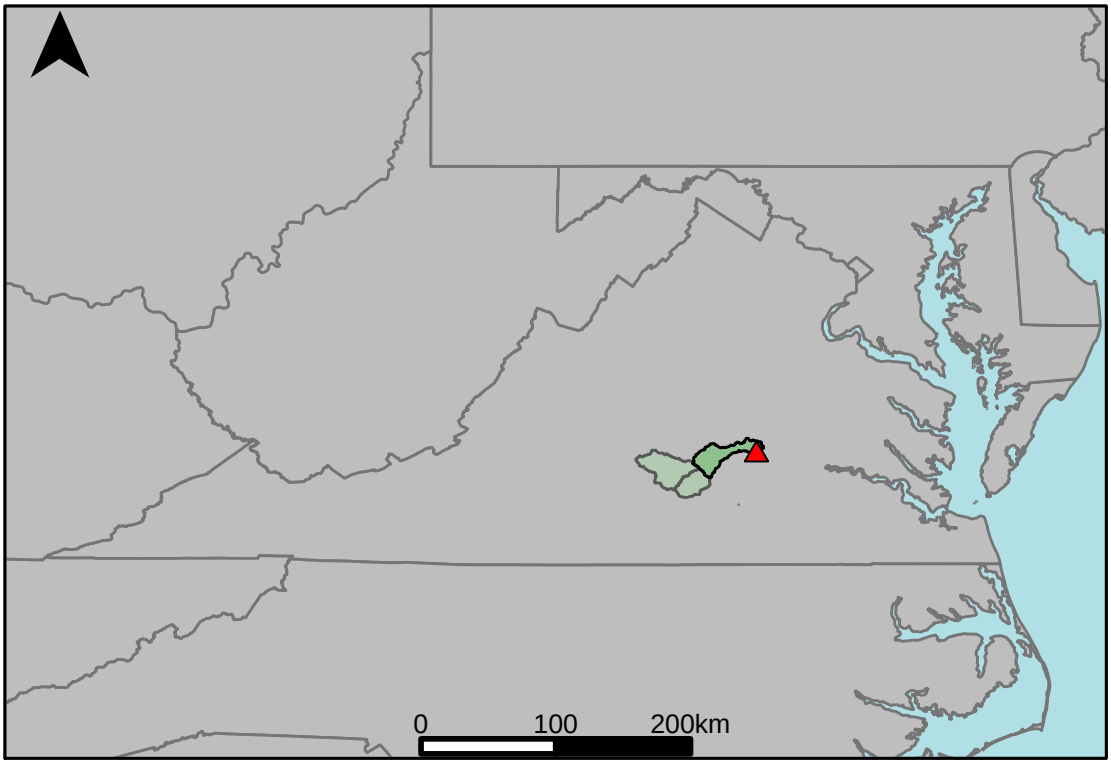
Appendix A.36: USGS Gage 02040000 vs. JA4_7280_7340 Appomattox River



This river segment follows part of the flow of the Appomattox, a tributary of the James. The gage is located in Amelia County (Lat. 37°25'17.5", Long. -77°51'32.0"), approximately 22 miles southwest of Richmond, VA. Drainage area is 725 sq. miles. This gage started taking data in 1926 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 4.26%, with 43.3% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	116	61.4	-47.1
Feb. Low Flow	197	109	-44.7
Mar. Low Flow	277	210	-24.2
Apr. Low Flow	331	349	5.44
May Low Flow	470	540	14.9
Jun. Low Flow	468	479	2.35
Jul. Low Flow	436	355	-18.6
Aug. Low Flow	298	243	-18.5
Sep. Low Flow	189	179	-5.29
Oct. Low Flow	115	91.5	-20.4
Nov. Low Flow	89	80	-10.1
Dec. Low Flow	89	64.6	-27.4

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	705	675	-4.26
Jan. Mean Flow	938	872	-7.04
Feb. Mean Flow	1120	1150	2.68
Mar. Mean Flow	1310	1410	7.63
Apr. Mean Flow	1030	962	-6.6
May Mean Flow	707	678	-4.1
Jun. Mean Flow	456	424	-7.02
Jul. Mean Flow	337	293	-13.1
Aug. Mean Flow	313	253	-19.2
Sep. Mean Flow	502	509	1.39
Oct. Mean Flow	312	325	4.17
Nov. Mean Flow	651	625	-3.99
Dec. Mean Flow	816	635	-22.2

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	636	405	-36.3
Feb. High Flow	1720	1700	-1.16
Mar. High Flow	1500	958	-36.1
Apr. High Flow	2500	2630	5.2
May High Flow	3040	2370	-22
Jun. High Flow	3120	3070	-1.6
Jul. High Flow	3260	2390	-26.7
Aug. High Flow	1680	1200	-28.6
Sep. High Flow	740	487	-34.2
Oct. High Flow	504	411	-18.5
Nov. High Flow	721	355	-50.8
Dec. High Flow	500	265	-47

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	2.6	9.35	260
Med. 1 Day Min	77	44.7	-41.9
Min. 3 Day Min	2.94	9.48	222
Med. 3 Day Min	78.7	46.4	-41
Min. 7 Day Min	4.04	10.2	152
Med. 7 Day Min	83.4	49.1	-41.1
Min. 30 Day Min	9.87	12.1	22.6
Med. 30 Day Min	113	82.9	-26.6
Min. 90 Day Min	26.1	40.4	54.8
Med. 90 Day Min	178	156	-12.4
7Q10	26.5	19.6	-26
Year of 90-Day Min. Flow	2002	2002	0
Drought Year Mean	154	125	-18.8
Mean Baseflow	328	339	3.35

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	13400	20100	50
Med. 1 Day Max	4690	7610	62.3
Max. 3 Day Max	11100	17500	57.7
Med. 3 Day Max	4520	5750	27.2
Max. 7 Day Max	8950	12500	39.7
Med. 7 Day Max	3470	3720	7.2
Max. 30 Day Max	4230	4190	-0.95
Med. 30 Day Max	1820	1640	-9.89
Max. 90 Day Max	2990	3130	4.68
Med. 90 Day Max	1300	1200	-7.69

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	27.2	23	-15.4
5% Non-Exceedance	84.5	52.2	-38.2
50% Non-Exceedance	381	350	-8.14
95% Non-Exceedance	2800	2220	-20.7
99% Non-Exceedance	5010	5760	15
Sept. 10% Non-Exceedance	81.9	47.5	-42

Fig. 1: Hydrograph

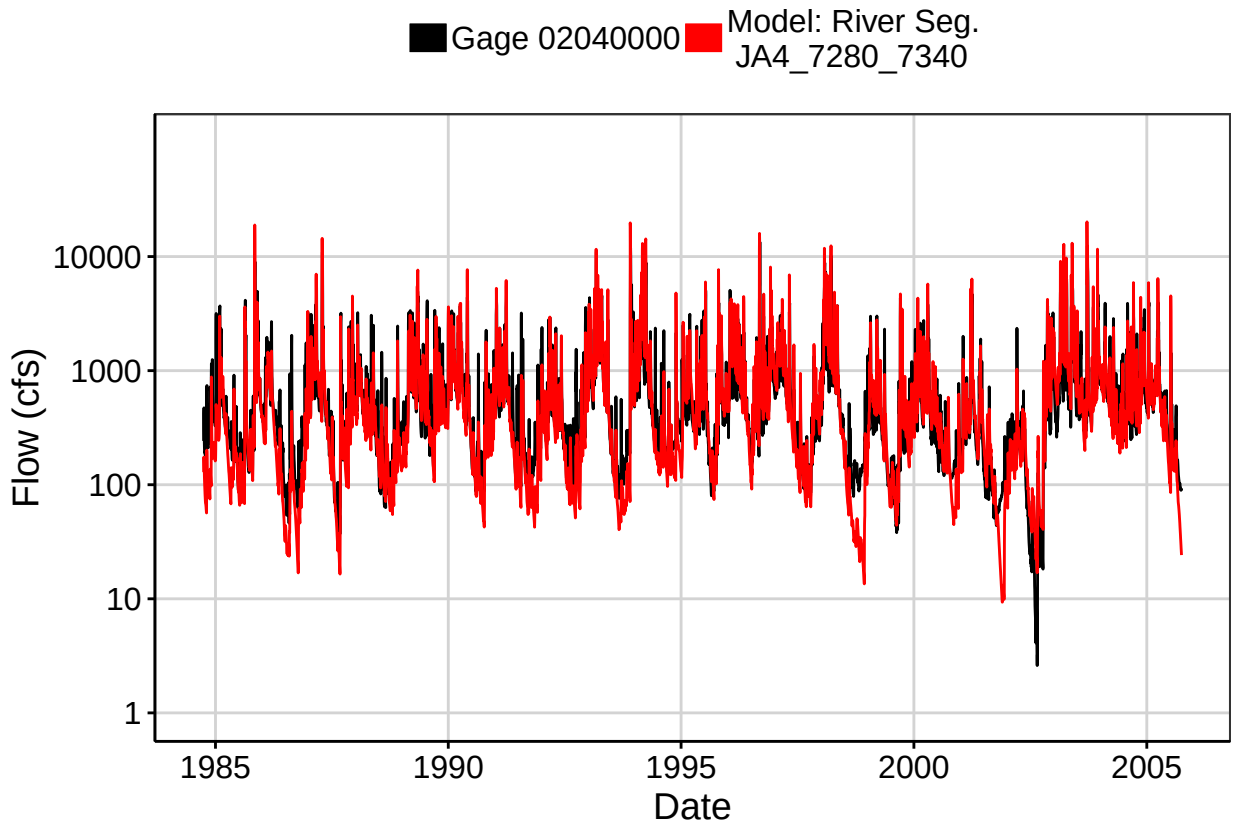


Fig. 2: Zoomed Hydrograph

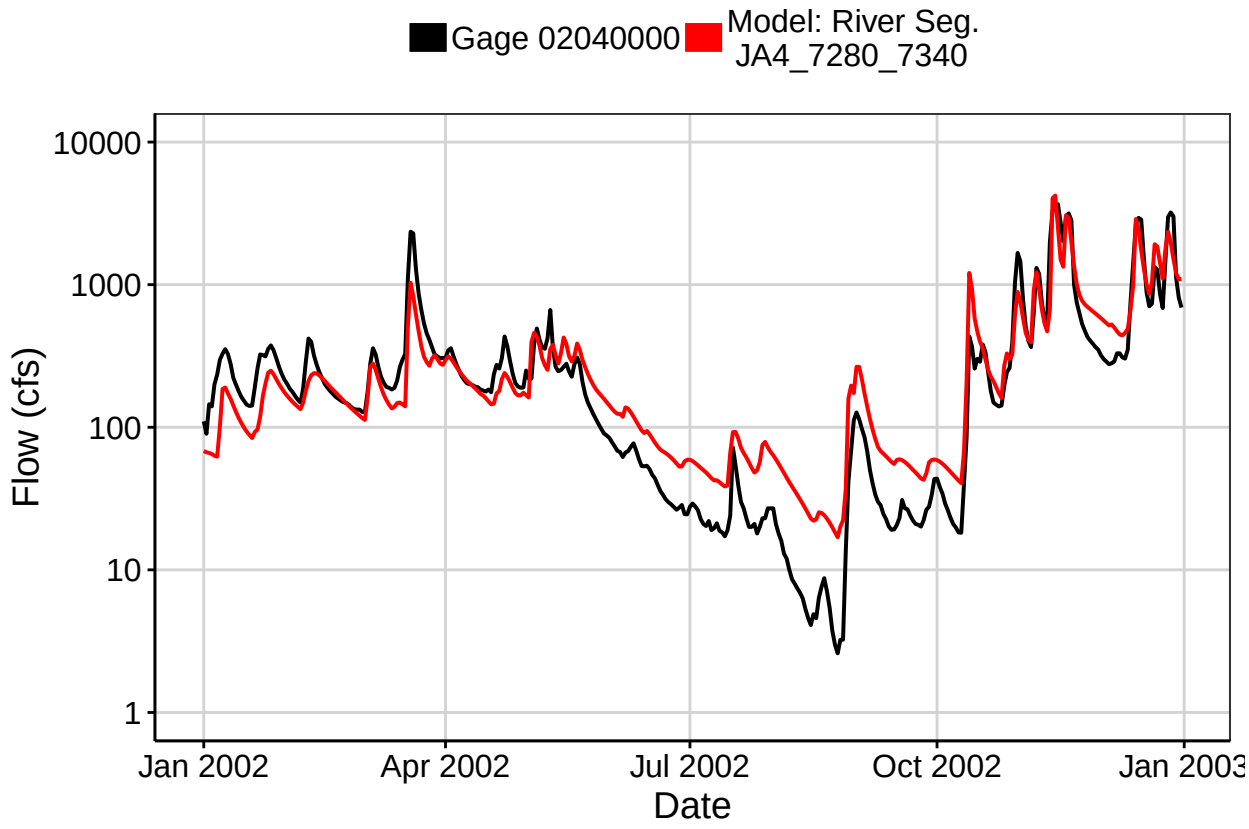


Fig. 3: Flow Exceedance

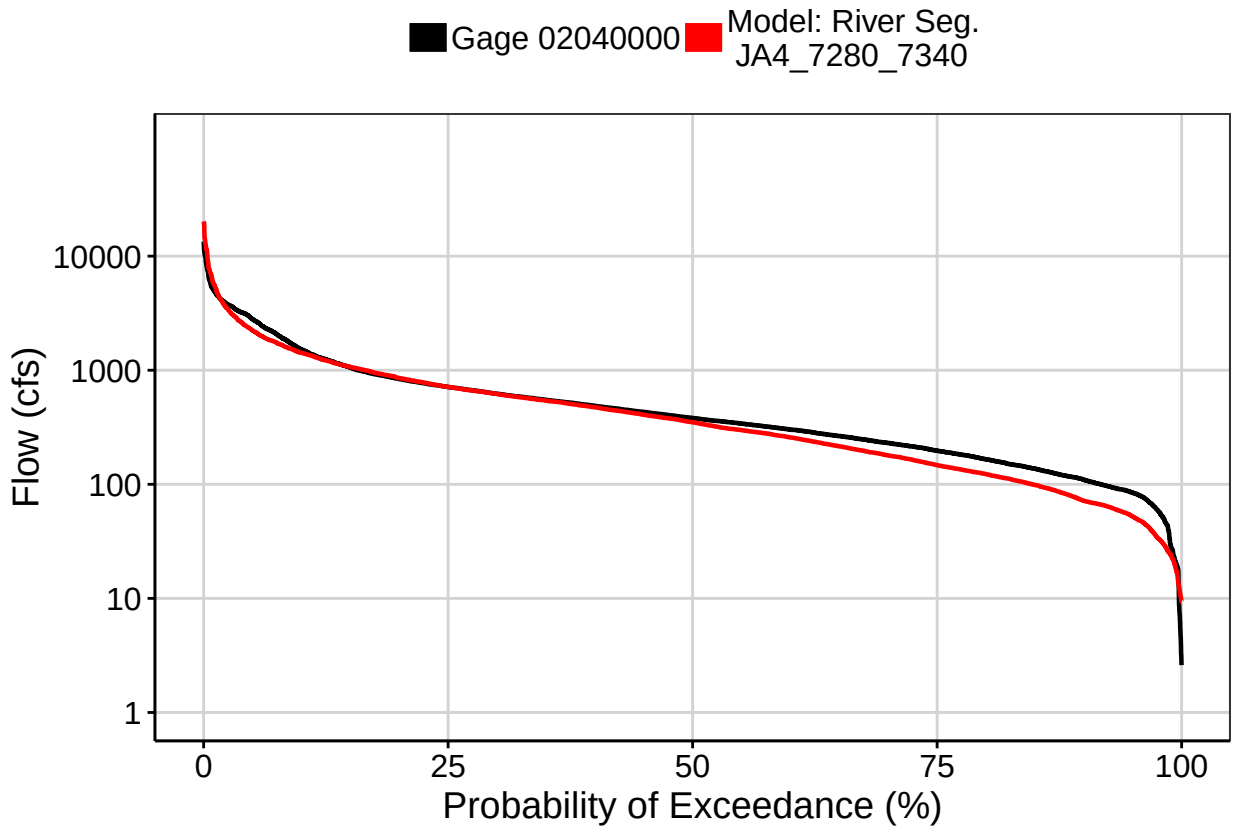


Fig. 4: Baseflow

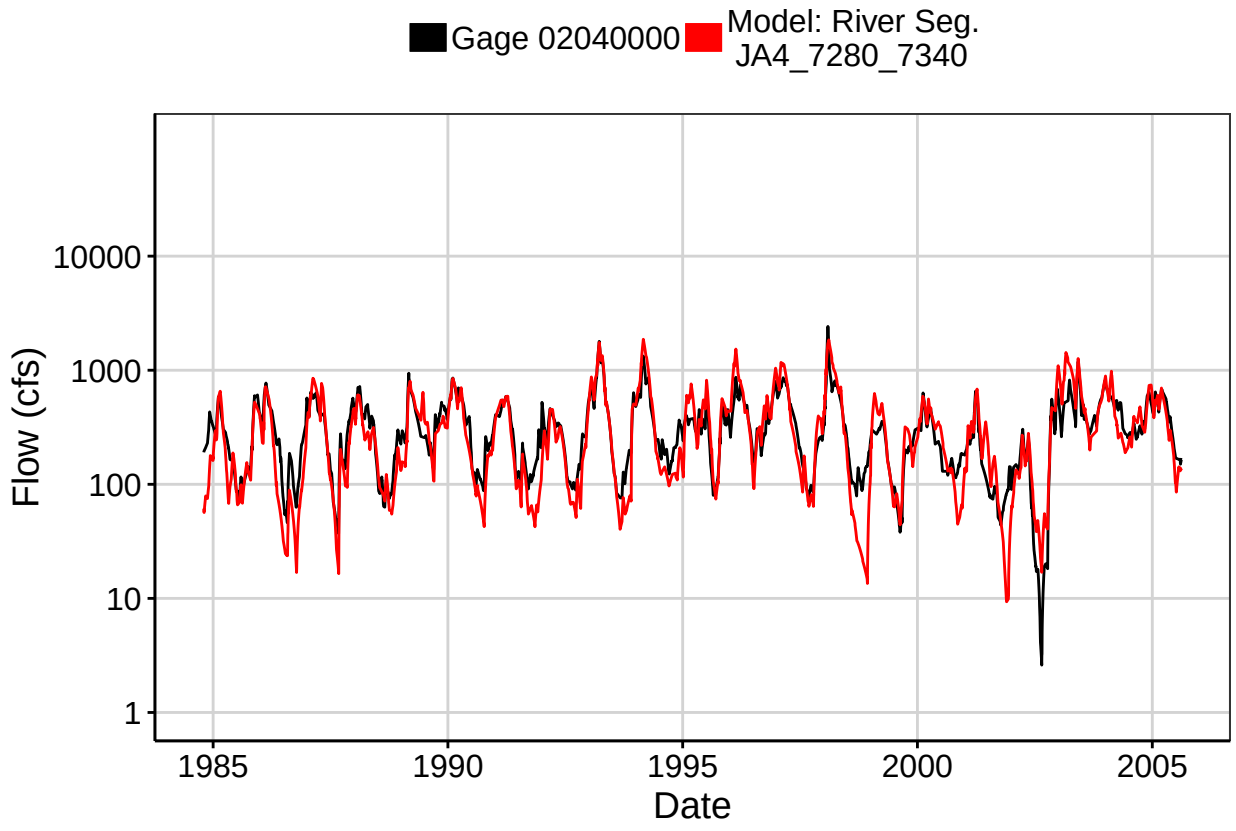


Fig. 5: Combined Baseflow

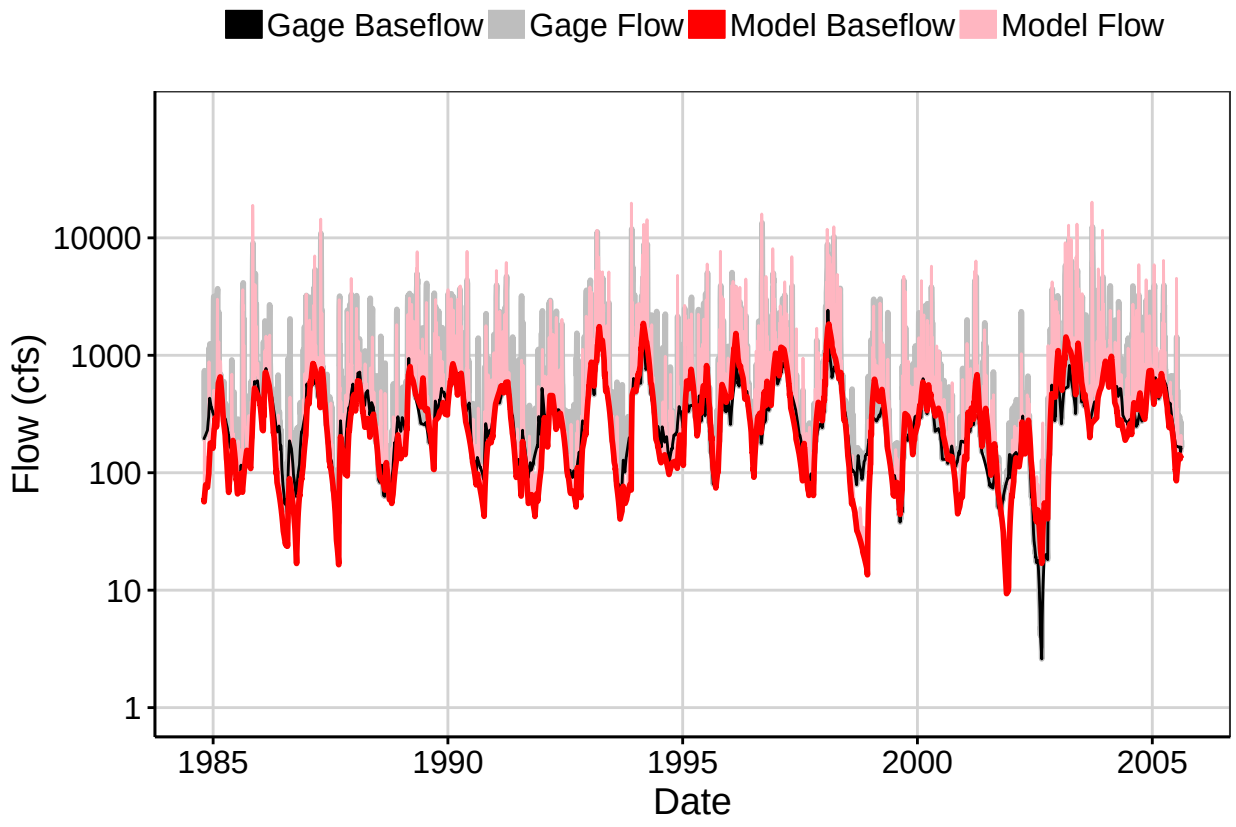


Fig. 6: Largest Error Segment

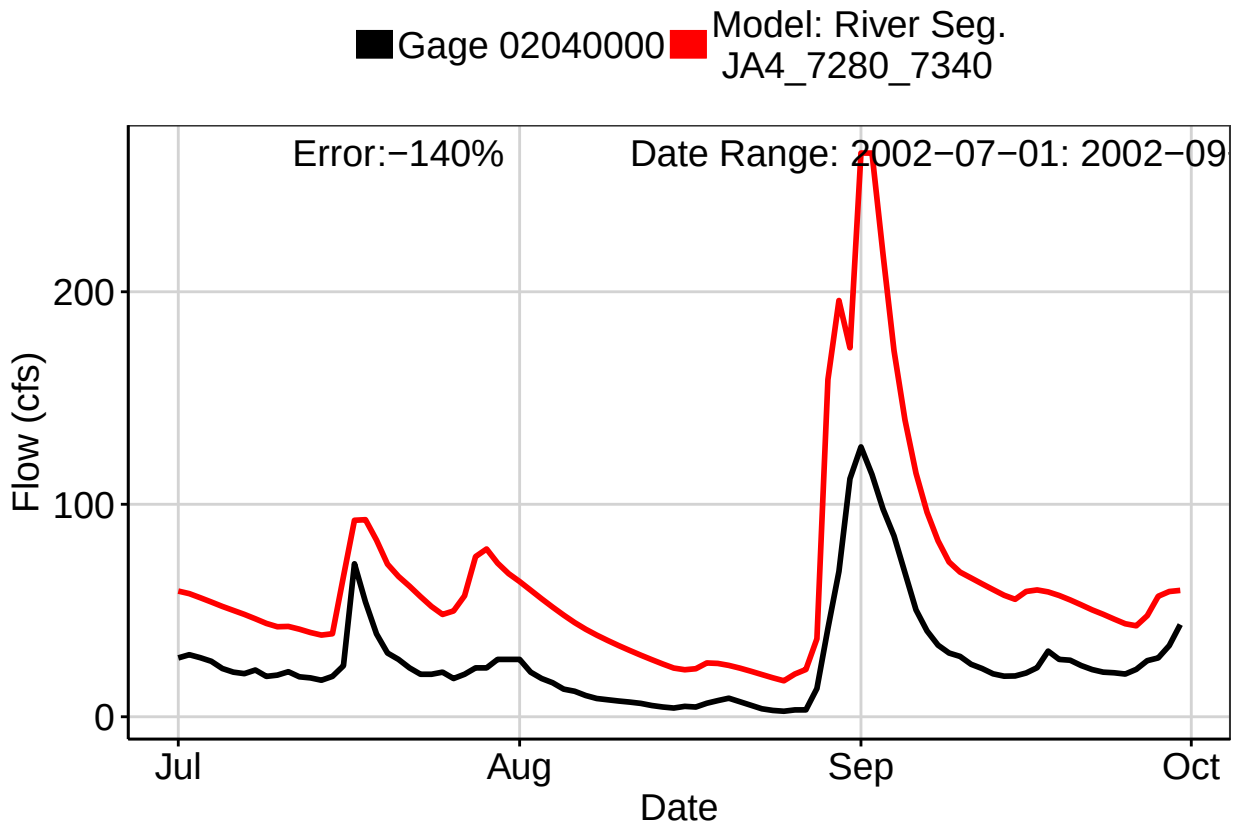


Fig. 7: Second Largest Error Segment

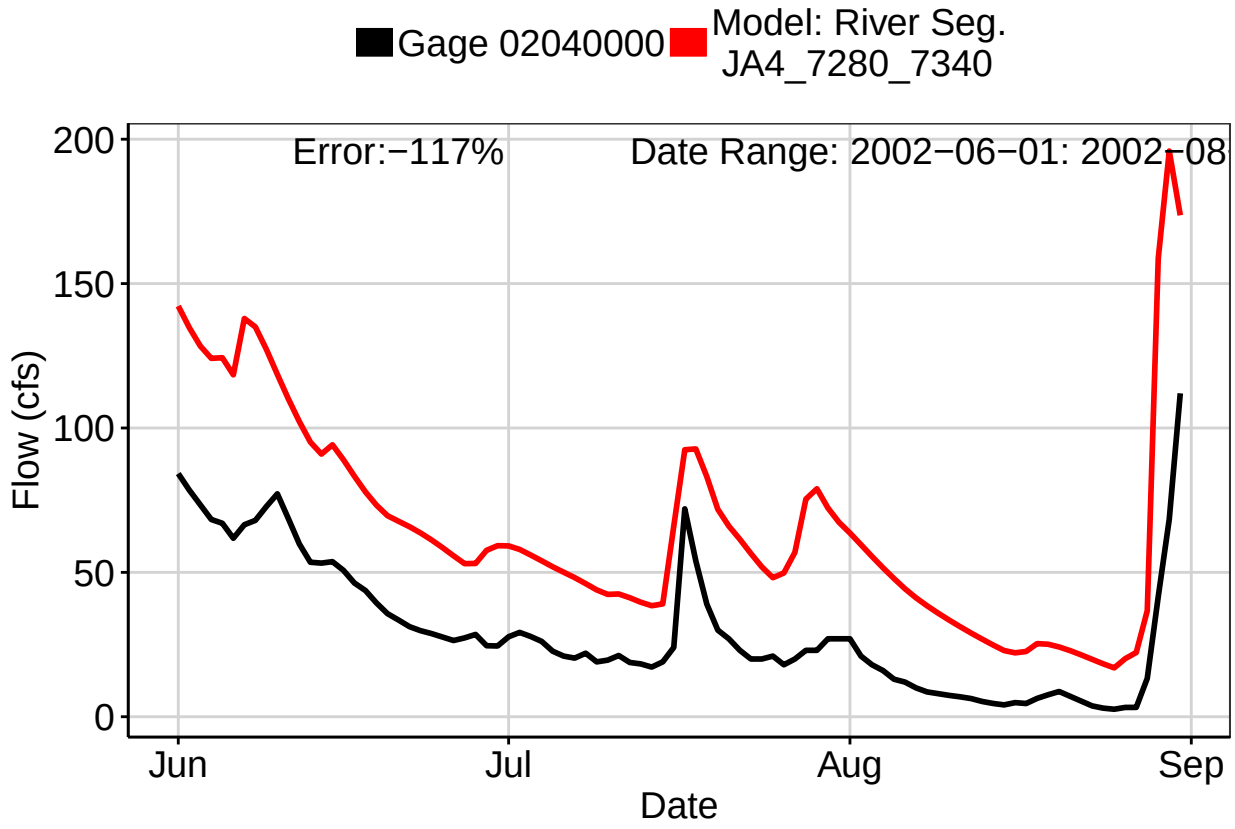


Fig. 8: Third Largest Error Segment

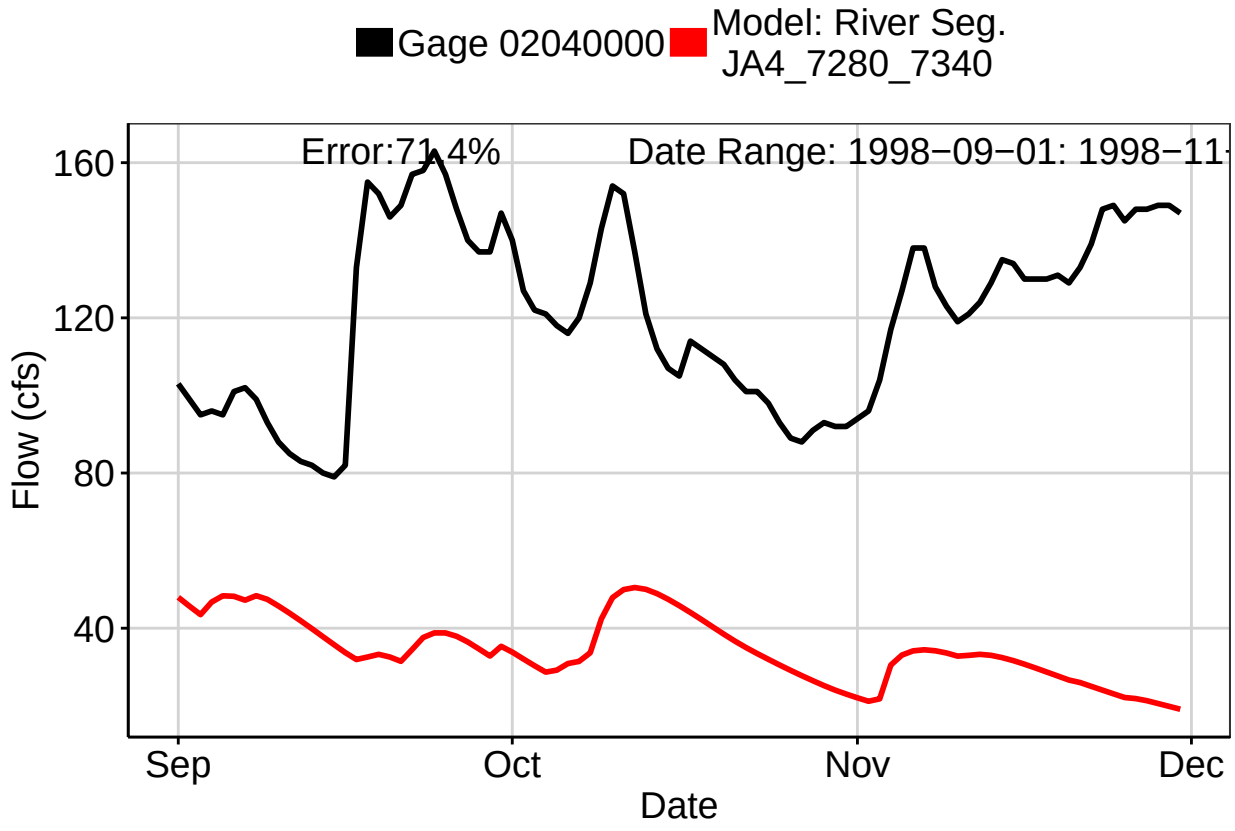


Fig. 9: Residuals Plot