

Appendix A.19: USGS Gage 02025500 vs. JL6_7160_7440 Lower James River



This river segment follows part of the flow of the James River, a tributary of the James. The gage is located in Bedford County (Lat. $37^{\circ}30'04.5''$, Long. $-79^{\circ}15'45.1''$), approximately 8 miles northwest of Lynchburg, VA. Drainage area is 3256 sq. miles. This gage started taking data in 1927 and is still taking data. There are some diurnal fluctuations caused by powerplants upstream. Flow has been regulated since December 1979 by Lake Moomaw (station 02011795) 117.4 mi upstream; since October 1984 by Back Creek Lake 145.4 mi upstream; and since January 1985 by Little Back Creek Lake 148.5 mi upstream, amount unknown. The average daily discharge error between the model and gage data for the 20 year timespan was -3.02%, with 27.9% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	698	613	-12.2
Feb. Low Flow	920	925	0.54
Mar. Low Flow	1230	1690	37.4
Apr. Low Flow	1370	2030	48.2
May Low Flow	1850	2820	52.4
Jun. Low Flow	2690	2920	8.55
Jul. Low Flow	1960	2080	6.12
Aug. Low Flow	1750	1620	-7.43
Sep. Low Flow	1220	1150	-5.74
Oct. Low Flow	920	680	-26.1
Nov. Low Flow	846	631	-25.4
Dec. Low Flow	719	510	-29.1

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	3640	3750	3.02
Jan. Mean Flow	4770	4760	-0.21
Feb. Mean Flow	5220	6060	16.1
Mar. Mean Flow	6610	6830	3.33
Apr. Mean Flow	5890	5500	-6.62
May Mean Flow	4530	4180	-7.73
Jun. Mean Flow	3140	3240	3.18
Jul. Mean Flow	1650	1670	1.21
Aug. Mean Flow	1390	1440	3.6
Sep. Mean Flow	2230	2760	23.8
Oct. Mean Flow	1710	2050	19.9
Nov. Mean Flow	3220	3320	3.11
Dec. Mean Flow	3440	3420	-0.58

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	1440	1640	13.9
Feb. High Flow	6010	6320	5.16
Mar. High Flow	11600	6400	-44.8
Apr. High Flow	14700	10100	-31.3
May High Flow	9030	9170	1.55
Jun. High Flow	17700	19700	11.3
Jul. High Flow	16300	13700	-16
Aug. High Flow	9290	8340	-10.2
Sep. High Flow	3330	4590	37.8
Oct. High Flow	2860	3580	25.2
Nov. High Flow	1800	2000	11.1
Dec. High Flow	1700	1780	4.71

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	360	202	-43.9
Med. 1 Day Min	650	400	-38.5
Min. 3 Day Min	380	204	-46.3
Med. 3 Day Min	732	409	-44.1
Min. 7 Day Min	409	208	-49.1
Med. 7 Day Min	744	425	-42.9
Min. 30 Day Min	468	237	-49.4
Med. 30 Day Min	849	616	-27.4
Min. 90 Day Min	665	488	-26.6
Med. 90 Day Min	1190	1190	0
7Q10	563	275	-51.2
Year of 90-Day Min. Flow	2002	1999	100
Drought Year Mean	1360	1450	6.62
Mean Baseflow	1900	2140	12.6

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	180000	187000	3.89
Med. 1 Day Max	40200	39100	-2.74
Max. 3 Day Max	106000	102000	-3.77
Med. 3 Day Max	32100	28500	-11.2
Max. 7 Day Max	57300	51500	-10.1
Med. 7 Day Max	21400	19300	-9.81
Max. 30 Day Max	21800	18200	-16.5
Med. 30 Day Max	11300	10300	-8.85
Max. 90 Day Max	12800	13400	4.69
Med. 90 Day Max	6970	6950	-0.29

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	595	312	-47.6
5% Non-Exceedance	738	447	-39.4
50% Non-Exceedance	1920	2290	19.3
95% Non-Exceedance	12100	11600	-4.13
99% Non-Exceedance	25700	26800	4.28
Sept. 10% Non-Exceedance	722	415	-42.5

Fig. 1: Hydrograph

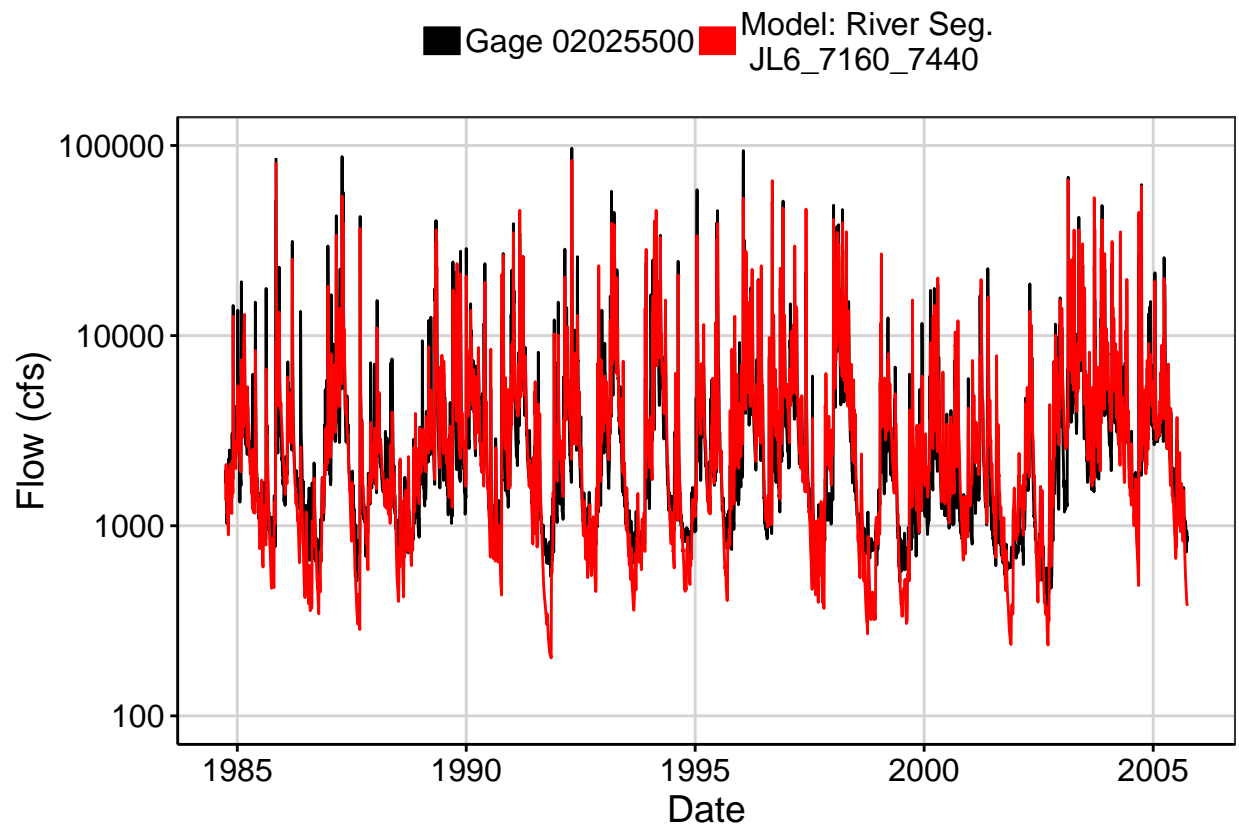


Fig. 2: Zoomed Hydrograph

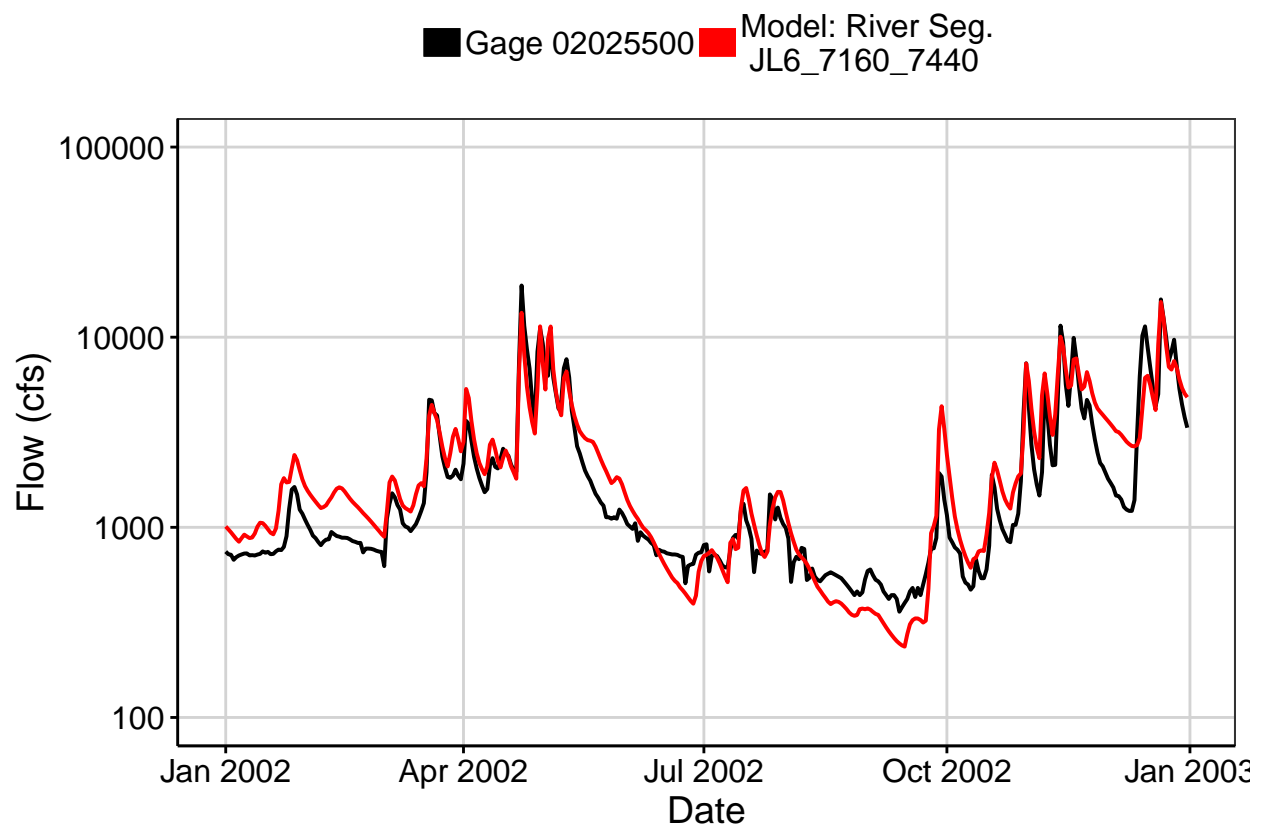


Fig. 3: Flow Exceedance

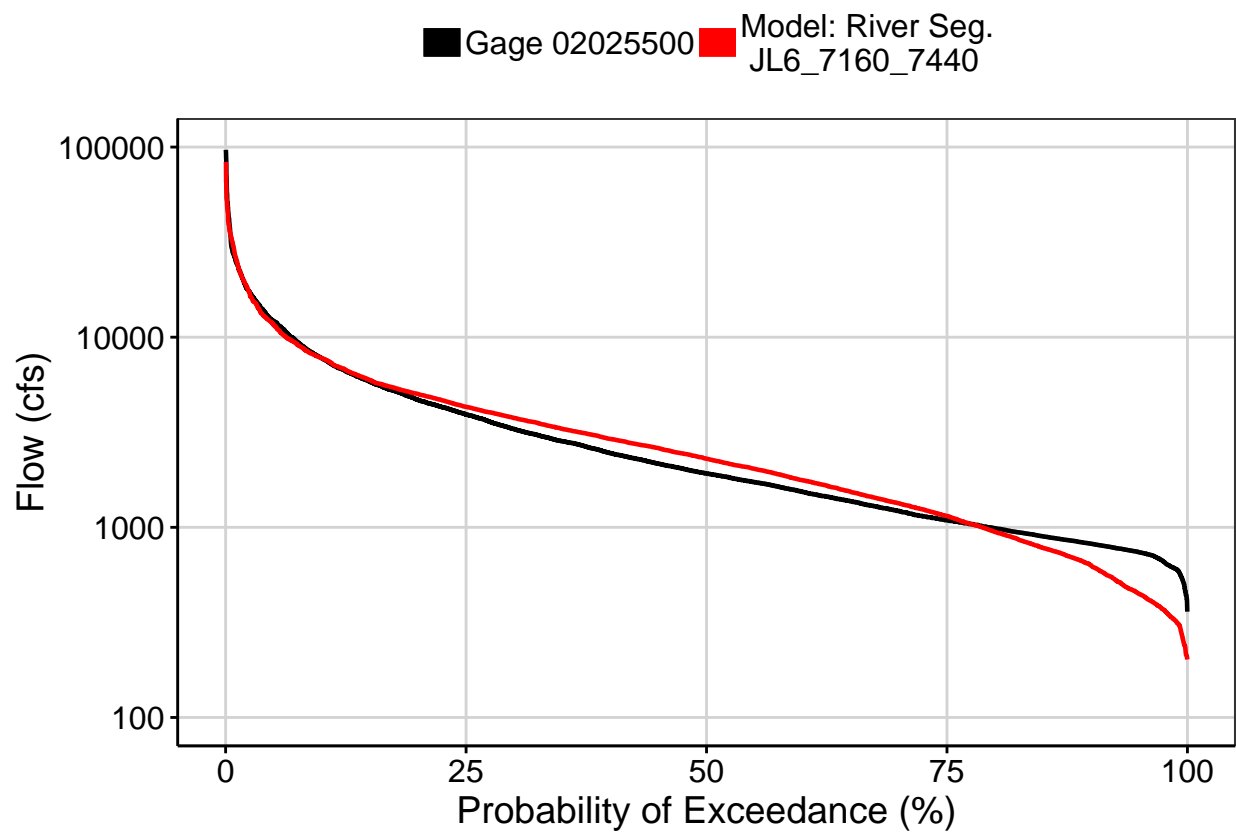


Fig. 4: Baseflow

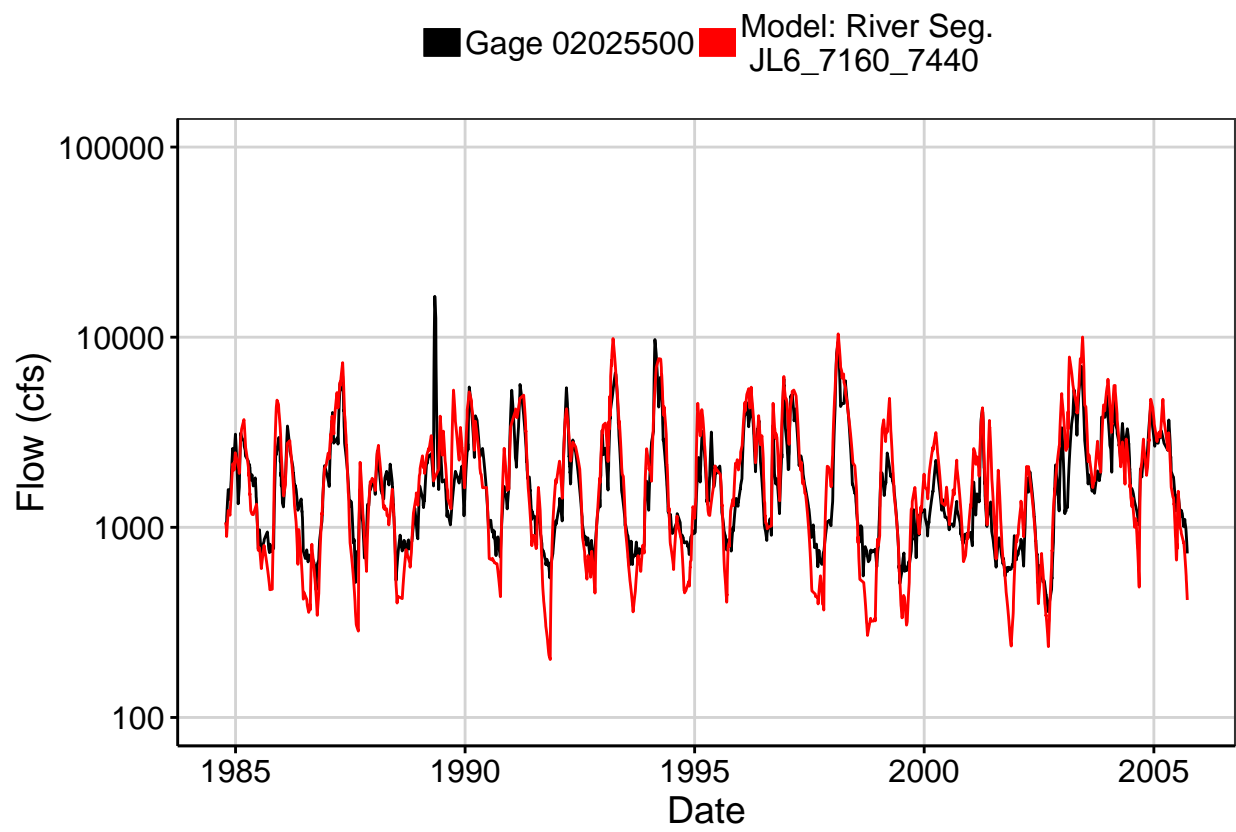


Fig. 5: Combined Baseflow

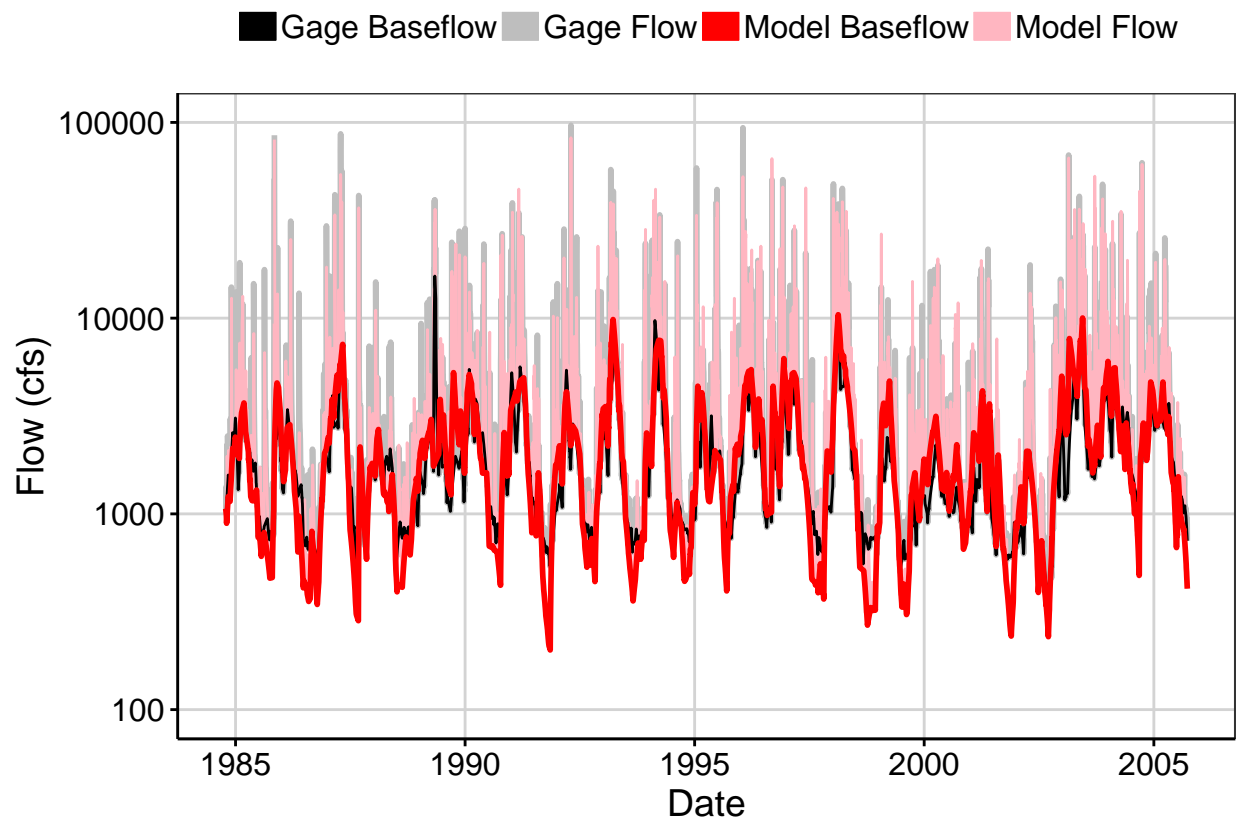


Fig. 6: Largest Error Segment

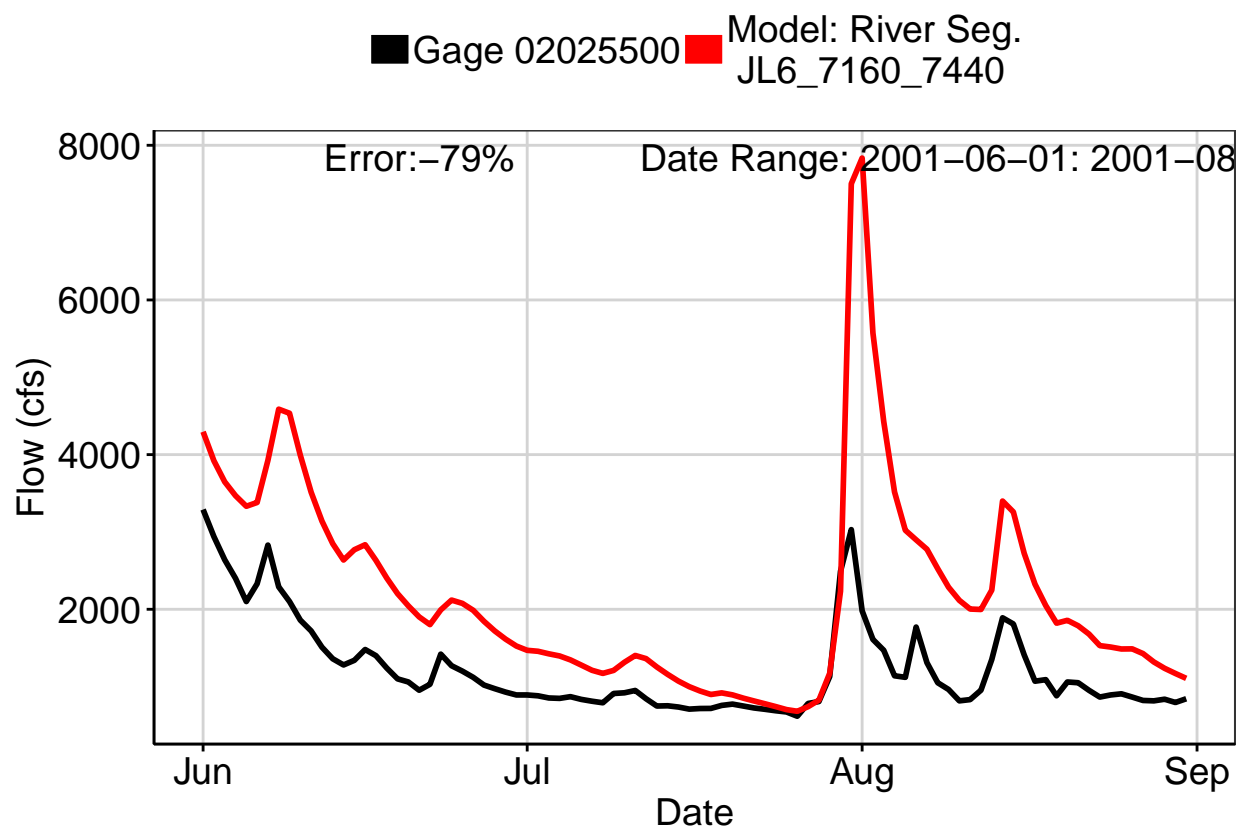


Fig. 7: Second Largest Error Segment

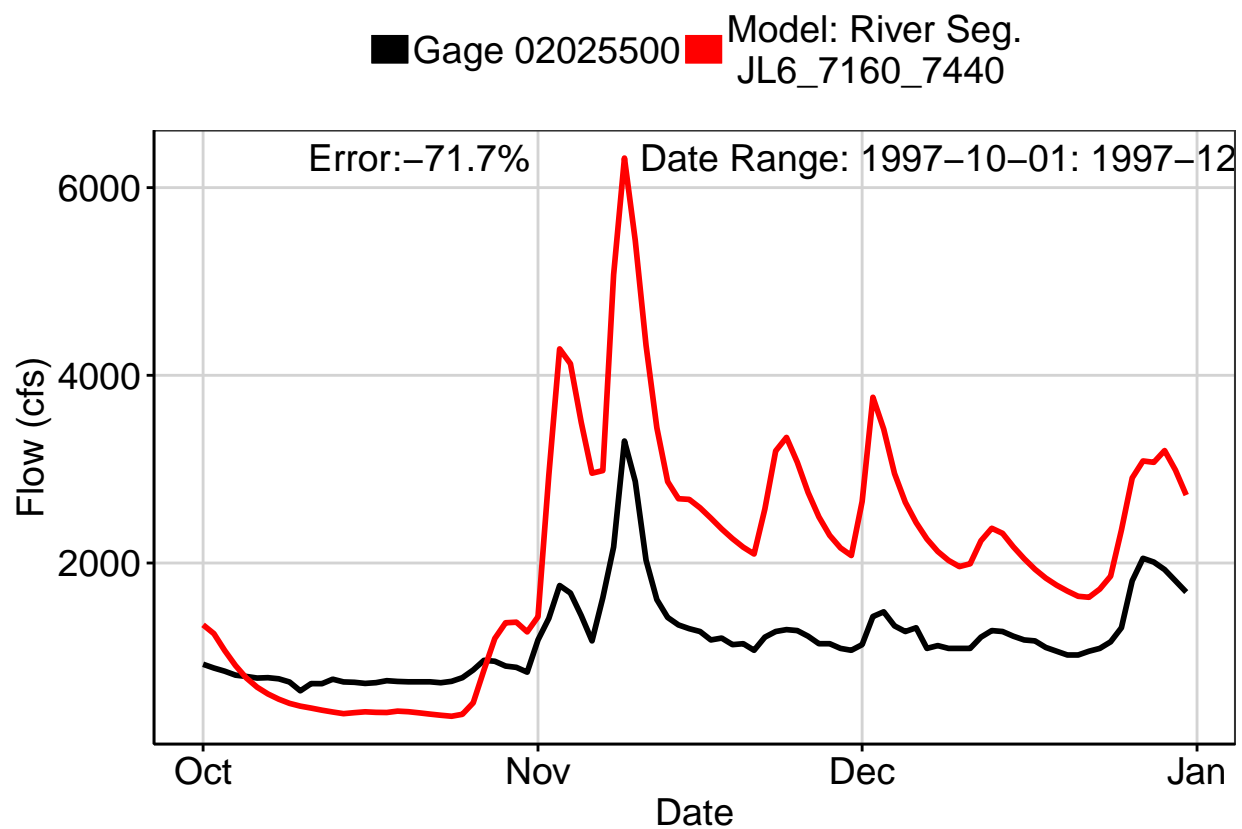


Fig. 8: Third Largest Error Segment

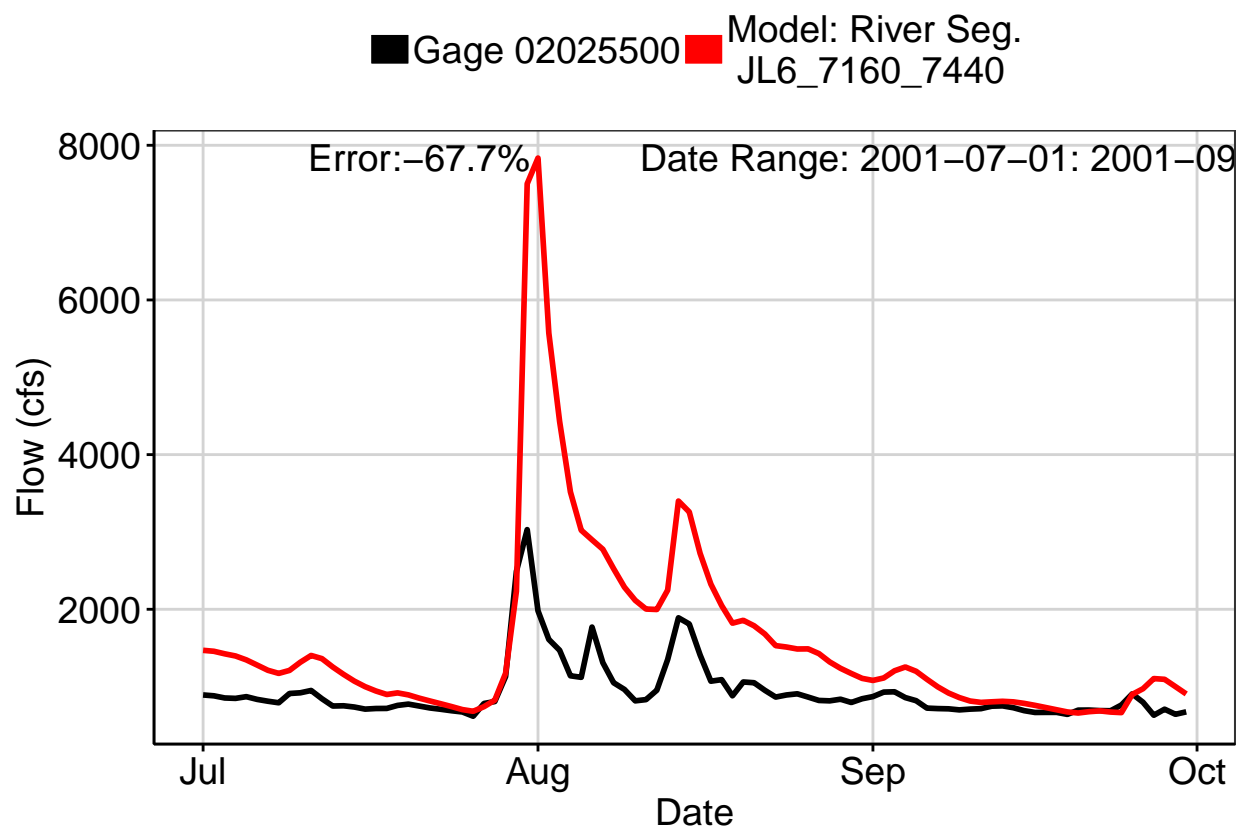


Fig. 9: Residuals Plot

