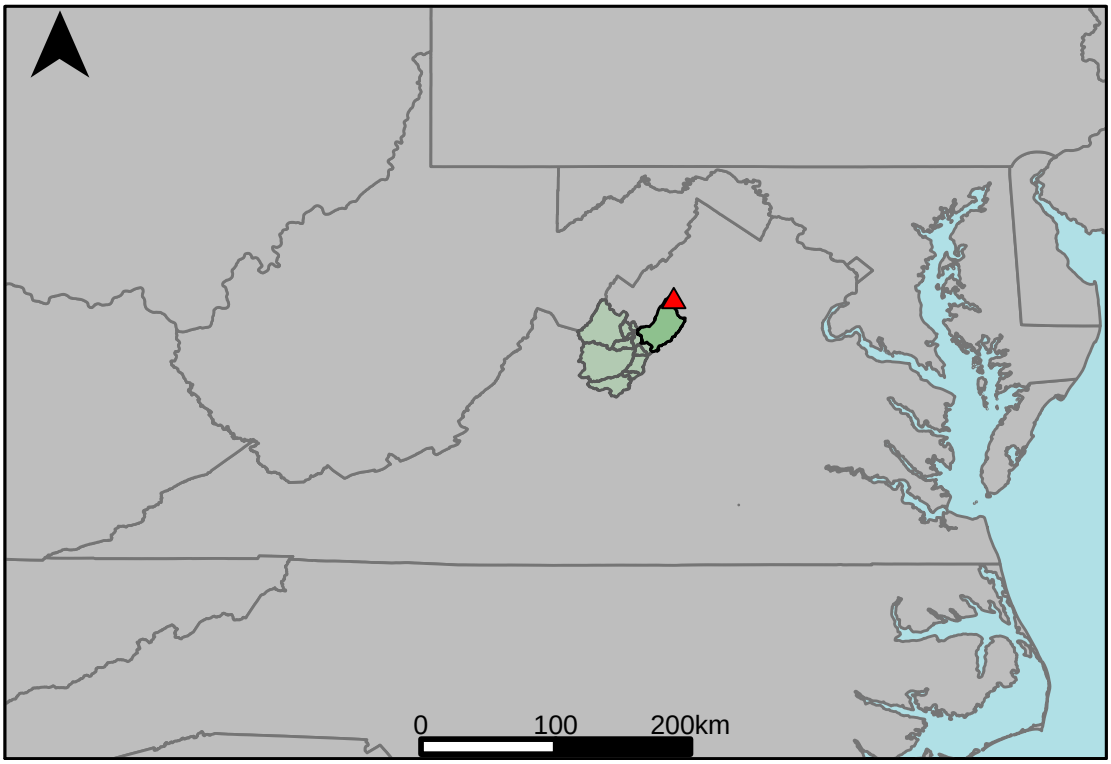
Appendix B.10: USGS Gage 01629500 vs. PS4_5840_5240 Shenandoah River



This river segment follows part of the flow of the South Fork of Shenandoah, a tributary of the Potomac. The gage is located in Page County (Lat. 38°38'46.4", Long. -78°32'05.0"), approximately 4.5 miles west of Luray, VA. Drainage area is 1372 sq. miles. This gage started taking data in 1925 and is still taking data. Diurnal fluctuations at low and medium flow are caused by powerplant 10 mi upstream. The average daily discharge error between the model and gage data for the 20 year timespan was 1.99%, with 29.2% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	346	254	-26.6
Feb. Low Flow	411	427	3.89
Mar. Low Flow	600	670	11.7
Apr. Low Flow	676	789	16.7
May Low Flow	785	969	23.4
Jun. Low Flow	990	1020	3.03
Jul. Low Flow	871	924	6.08
Aug. Low Flow	741	871	17.5
Sep. Low Flow	555	611	10.1
Oct. Low Flow	430	411	-4.42
Nov. Low Flow	373	344	-7.77
Dec. Low Flow	339	247	-27.1

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	1510	1480	-1.99
Jan. Mean Flow	1910	1680	-12
Feb. Mean Flow	1980	2130	7.58
Mar. Mean Flow	2530	2540	0.4
Apr. Mean Flow	2230	2050	-8.07
May Mean Flow	1690	1580	-6.51
Jun. Mean Flow	1230	1220	-0.81
Jul. Mean Flow	746	900	20.6
Aug. Mean Flow	713	742	4.07
Sep. Mean Flow	1430	1410	-1.4
Oct. Mean Flow	860	913	6.16
Nov. Mean Flow	1410	1370	-2.84
Dec. Mean Flow	1390	1260	-9.35

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	932	1120	20.2
Feb. High Flow	3670	2580	-29.7
Mar. High Flow	4090	2340	-42.8
Apr. High Flow	3650	3950	8.22
May High Flow	2690	2070	-23
Jun. High Flow	6410	5960	-7.02
Jul. High Flow	4700	4100	-12.8
Aug. High Flow	2950	2160	-26.8
Sep. High Flow	1620	1990	22.8
Oct. High Flow	1400	1720	22.9
Nov. High Flow	908	1300	43.2
Dec. High Flow	732	761	3.96

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	163	77.5	-52.5
Med. 1 Day Min	308	199	-35.4
Min. 3 Day Min	165	79.4	-51.9
Med. 3 Day Min	313	200	-36.1
Min. 7 Day Min	168	83.3	-50.4
Med. 7 Day Min	325	205	-36.9
Min. 30 Day Min	185	106	-42.7
Med. 30 Day Min	366	288	-21.3
Min. 90 Day Min	215	183	-14.9
Med. 90 Day Min	515	505	-1.94
7Q10	231	108	-53.2
Year of 90-Day Min. Flow	2002	1999	100
Drought Year Mean	440	411	-6.59
Mean Baseflow	820	884	7.8

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	84400	61800	-26.8
Med. 1 Day Max	15300	12200	-20.3
Max. 3 Day Max	53300	45200	-15.2
Med. 3 Day Max	11300	9370	-17.1
Max. 7 Day Max	28500	24800	-13
Med. 7 Day Max	7310	7440	1.78
Max. 30 Day Max	10200	7970	-21.9
Med. 30 Day Max	4130	3740	-9.44
Max. 90 Day Max	7000	5860	-16.3
Med. 90 Day Max	2590	2420	-6.56

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	217	113	-47.9
5% Non-Exceedance	298	194	-34.9
50% Non-Exceedance	850	961	13.1
95% Non-Exceedance	4620	4340	-6.06
99% Non-Exceedance	10800	9490	-12.1
Sept. 10% Non-Exceedance	319	189	-40.8

Fig. 1: Hydrograph

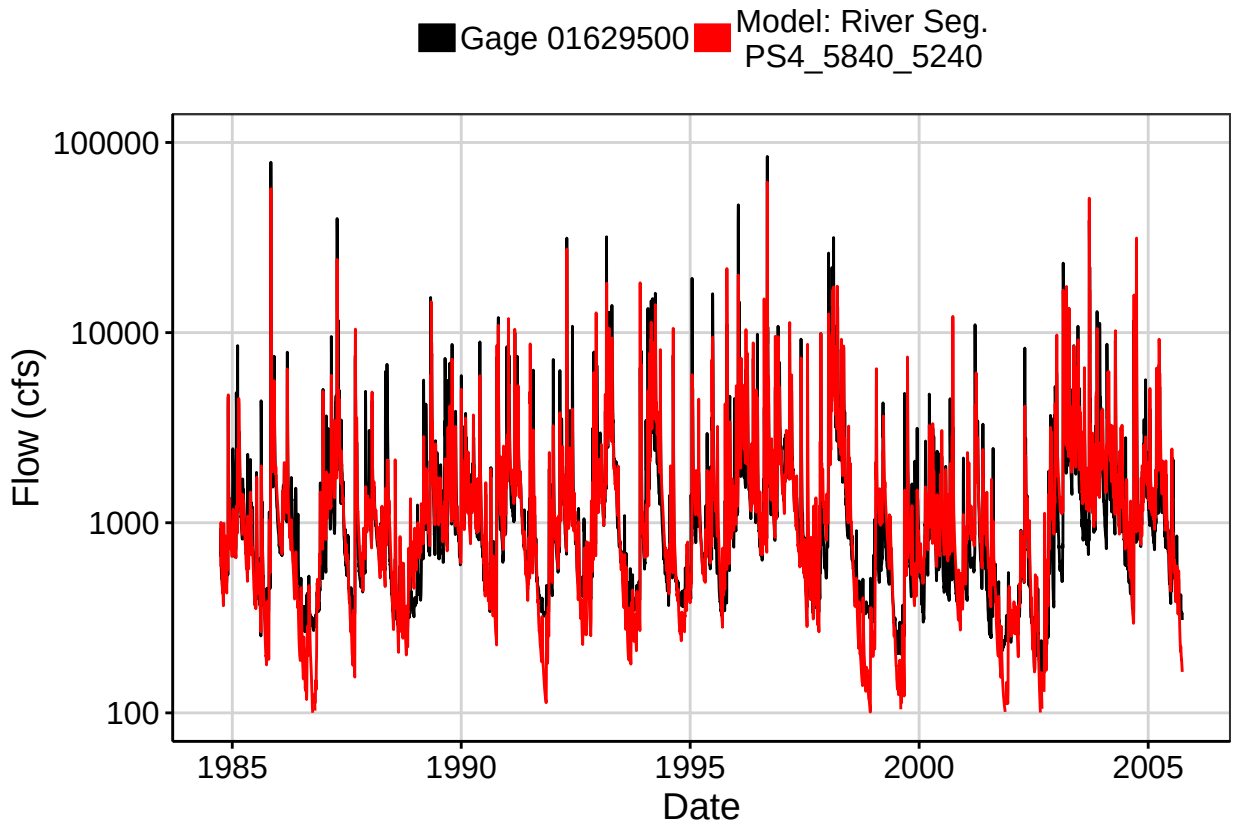


Fig. 2: Zoomed Hydrograph

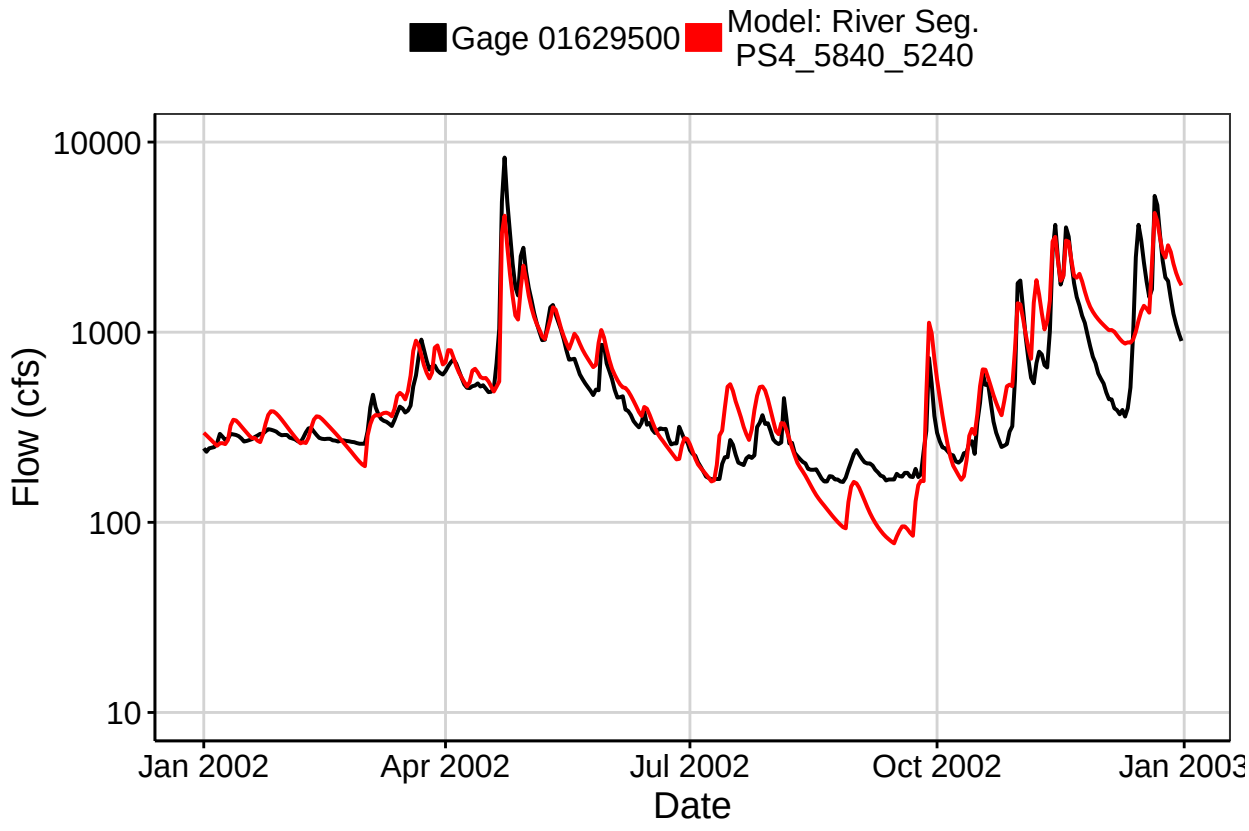


Fig. 3: Flow Exceedance

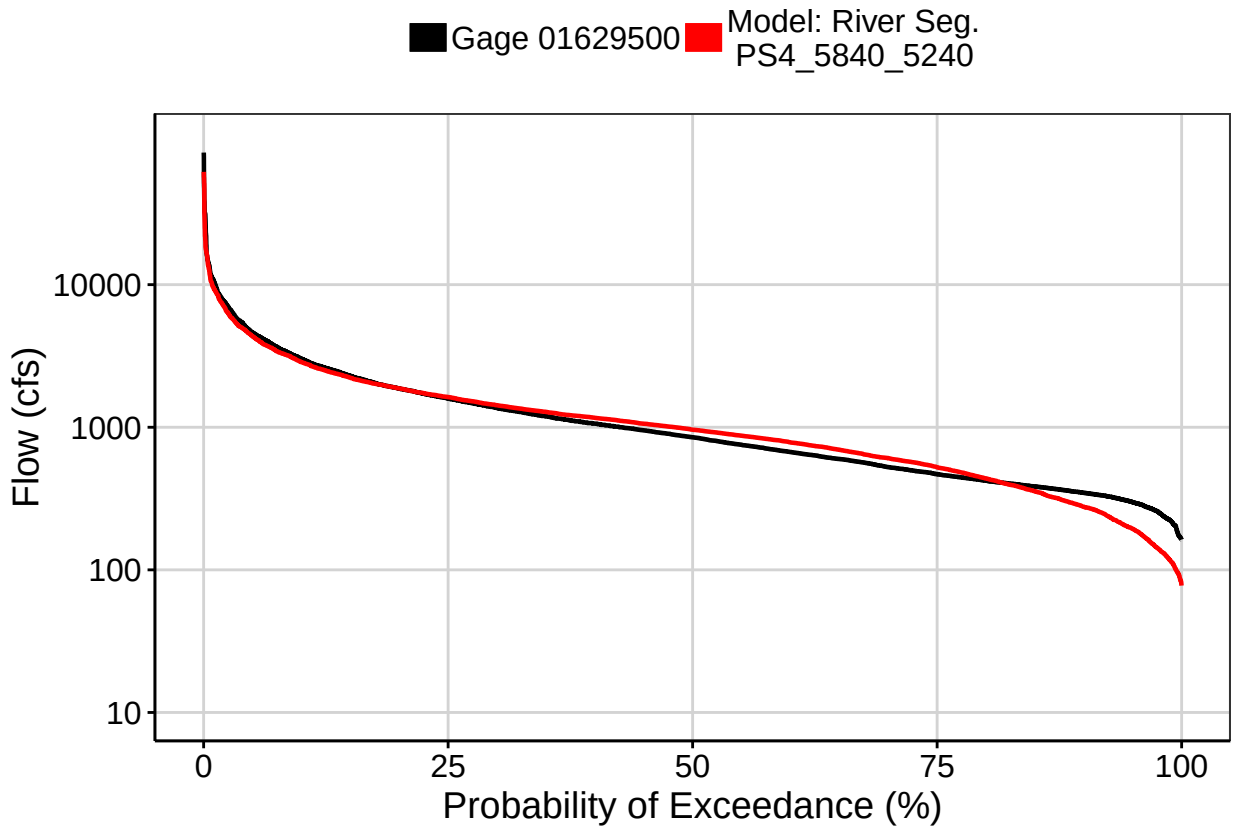


Fig. 4: Baseflow

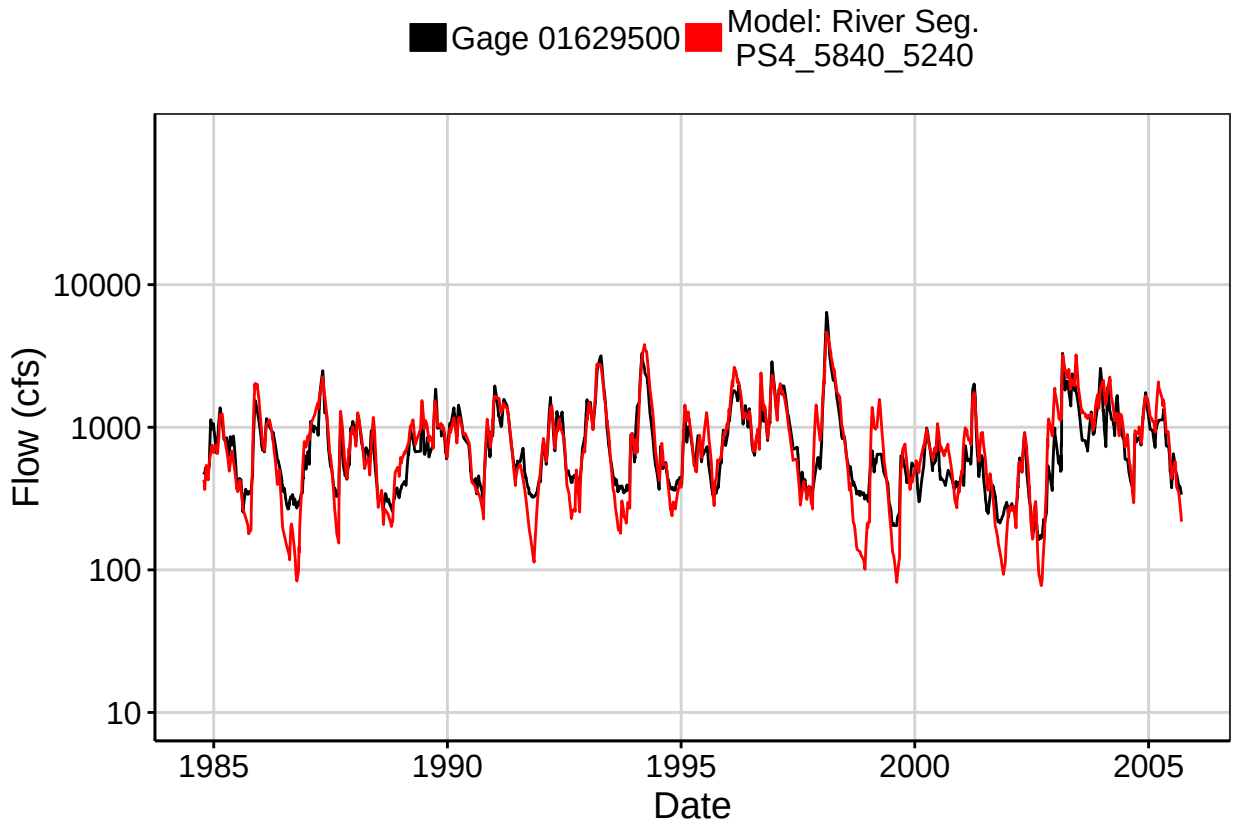


Fig. 5: Combined Baseflow

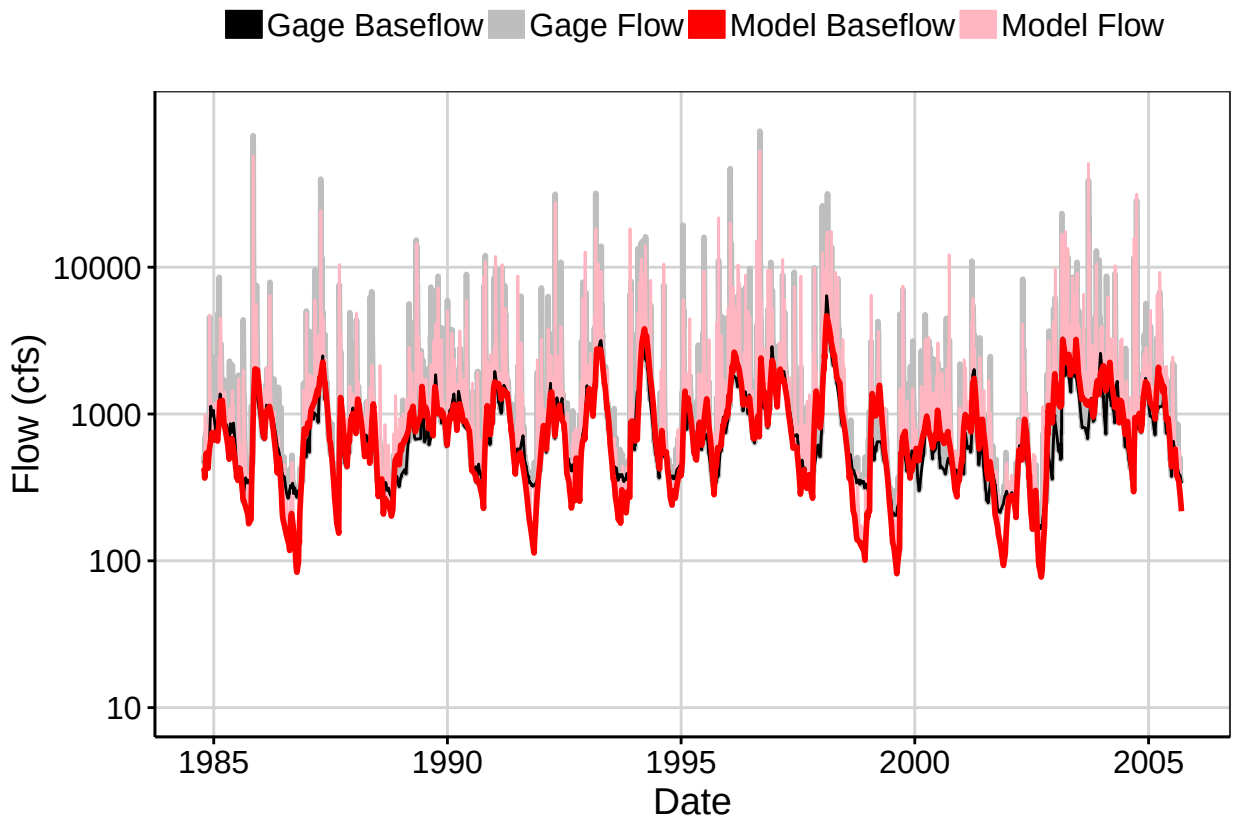


Fig. 6: Largest Error Segment

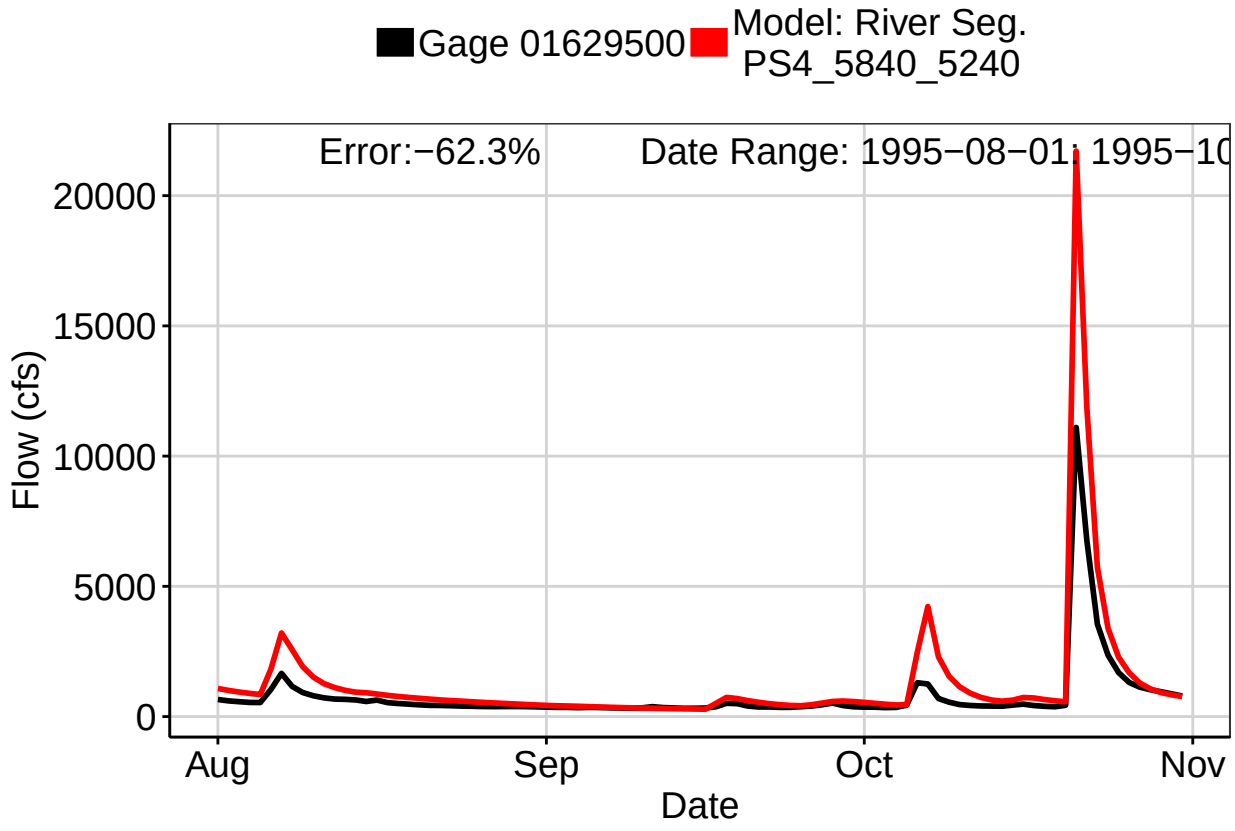


Fig. 7: Second Largest Error Segment

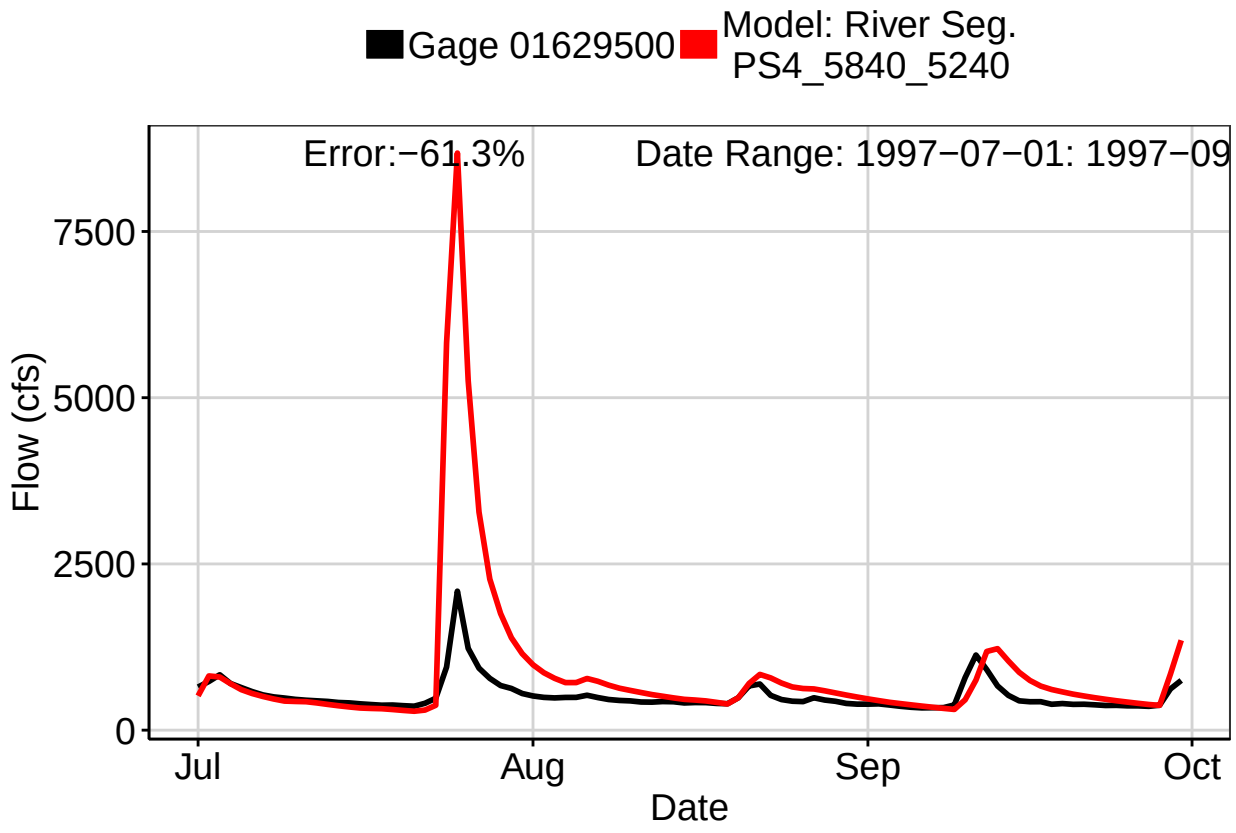


Fig. 8: Third Largest Error Segment

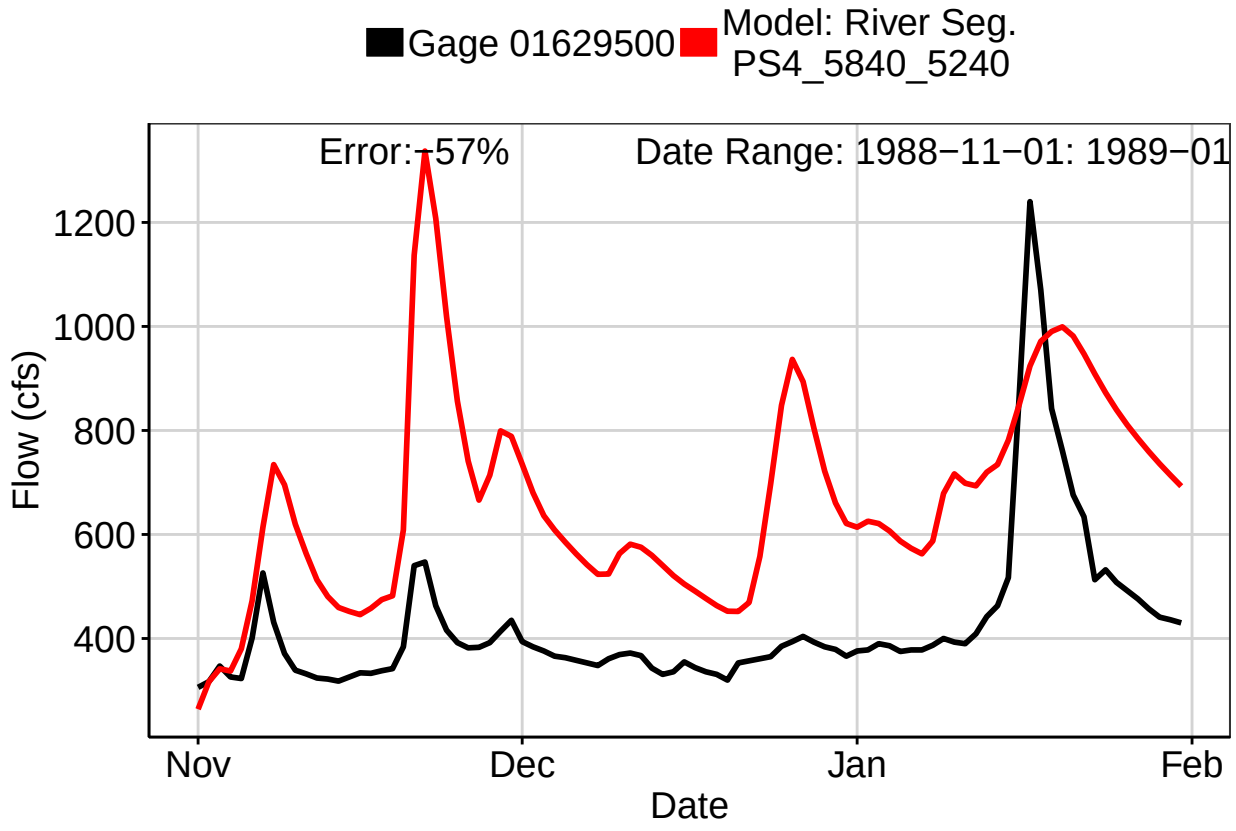


Fig. 9: Residuals Plot