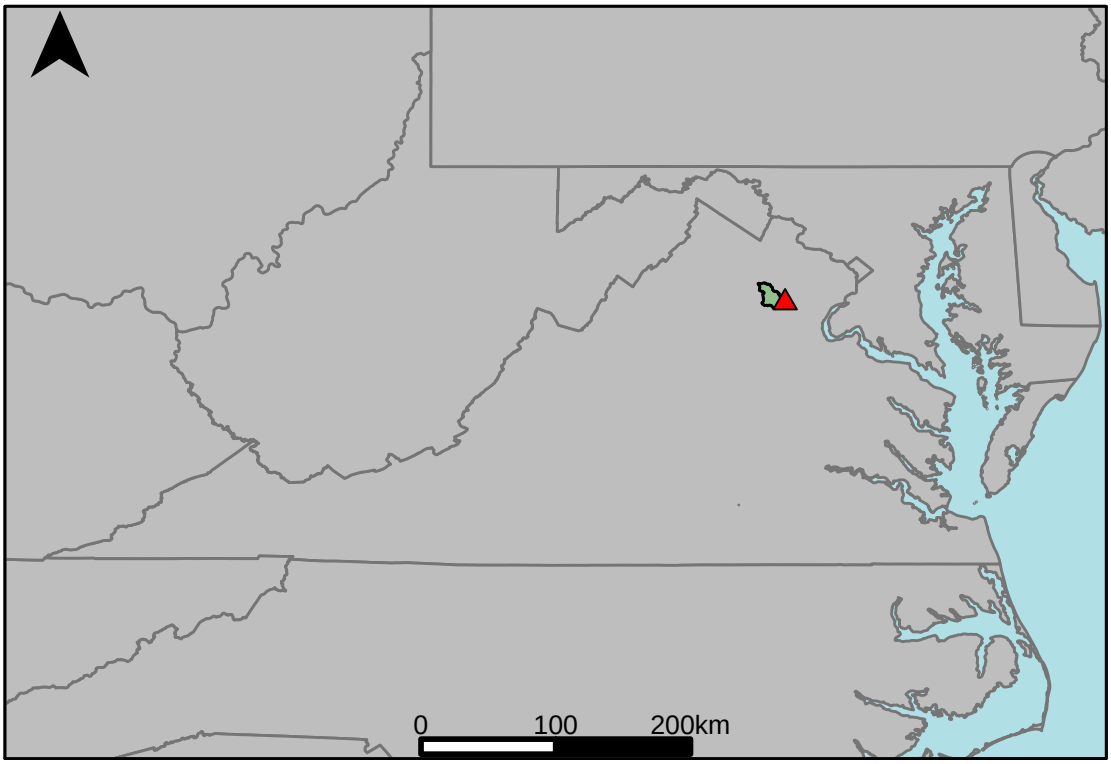
Appendix B.22: USGS Gage 01656000 vs. PL1_5370_5470 Lower Potomac River



This river segment follows part of the flow of the Cedar Run, a tributary of the Potomac. The gage is located in Fauquier County (Lat. 38°38'12.4", Long. -77°37'31.0"), approximately 11 miles southwest of Manassas, VA. Drainage area is 93.4 sq. miles. This gage started taking data in 1950 and is still taking data. There are some diurnal fluctuation at low flow from an unknown cause. The average daily discharge error between the model and gage data for the 20 year timespan was -3.64%, with 56.7% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	2.8	3.64	30
Feb. Low Flow	7.5	15.8	111
Mar. Low Flow	16	26.3	64.4
Apr. Low Flow	26	40.8	56.9
May Low Flow	33	51	54.5
Jun. Low Flow	36.8	41.5	12.8
Jul. Low Flow	32	25.9	-19.1
Aug. Low Flow	12.5	13.1	4.8
Sep. Low Flow	3.65	6.28	72.1
Oct. Low Flow	1.85	1.86	0.54
Nov. Low Flow	1.23	1.46	18.7
Dec. Low Flow	0.78	1.18	51.3

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	90.7	94	3.64
Jan. Mean Flow	146	139	-4.79
Feb. Mean Flow	150	156	4
Mar. Mean Flow	186	185	-0.54
Apr. Mean Flow	114	112	-1.75
May Mean Flow	86.9	73.6	-15.3
Jun. Mean Flow	50.8	47.4	-6.69
Jul. Mean Flow	30.7	39.8	29.6
Aug. Mean Flow	31.9	37.7	18.2
Sep. Mean Flow	50.2	82.5	64.3
Oct. Mean Flow	41.2	52.9	28.4
Nov. Mean Flow	82.6	90.2	9.2
Dec. Mean Flow	123	117	-4.88

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	125	139	11.2
Feb. High Flow	679	502	-26.1
Mar. High Flow	635	601	-5.35
Apr. High Flow	821	418	-49.1
May High Flow	400	354	-11.5
Jun. High Flow	718	848	18.1
Jul. High Flow	404	433	7.18
Aug. High Flow	285	273	-4.21
Sep. High Flow	153	124	-19
Oct. High Flow	156	86	-44.9
Nov. High Flow	124	76.9	-38
Dec. High Flow	179	90.9	-49.2

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	0.00	8.00e-02	Inf
Med. 1 Day Min	3.00e-01	8.80e-01	1.94e+02
Min. 3 Day Min	0.00	8.00e-02	-9.34e+15
Med. 3 Day Min	5.20e-01	1.00	9.23e+01
Min. 7 Day Min	1.00e-02	1.00e-01	8.12e+02
Med. 7 Day Min	6.60e-01	1.12	7.00e+01
Min. 30 Day Min	3.50e-01	1.21	2.43e+02
Med. 30 Day Min	3.02	3.74	2.38e+01
Min. 90 Day Min	1.46	3.63	1.49e+02
Med. 90 Day Min	1.62e+01	2.25e+01	3.89e+01
7Q10	3.00e-02	2.60e-01	7.81e+02
Year of 90-Day Min. Flow	1.98e+03	2.00e+03	1.00e+02
Drought Year Mean	4.66e+01	4.57e+01	-1.93
Mean Baseflow	2.38e+01	3.30e+01	3.87e+01

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	4760	5640	18.5
Med. 1 Day Max	1620	1710	5.56
Max. 3 Day Max	2320	2290	-1.29
Med. 3 Day Max	822	837	1.82
Max. 7 Day Max	1180	1600	35.6
Med. 7 Day Max	459	464	1.09
Max. 30 Day Max	644	570	-11.5
Med. 30 Day Max	234	207	-11.5
Max. 90 Day Max	414	409	-1.21
Med. 90 Day Max	137	129	-5.84

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	0.07	0.36	417
5% Non-Exceedance	0.82	1.23	50
50% Non-Exceedance	29.2	40.2	37.7
95% Non-Exceedance	360	313	-13.1
99% Non-Exceedance	1070	990	-7.48
Sept. 10% Non-Exceedance	0.15	0.84	461

Fig. 1: Hydrograph

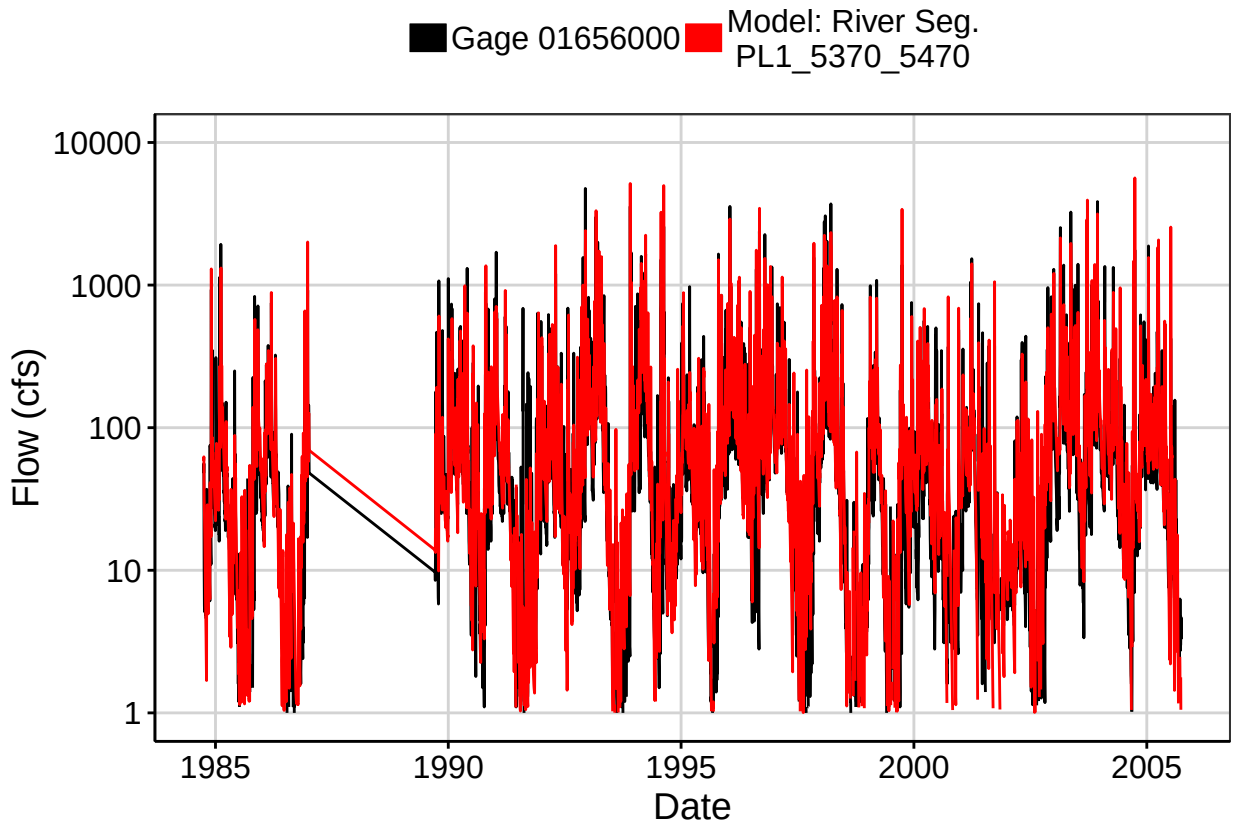


Fig. 2: Zoomed Hydrograph

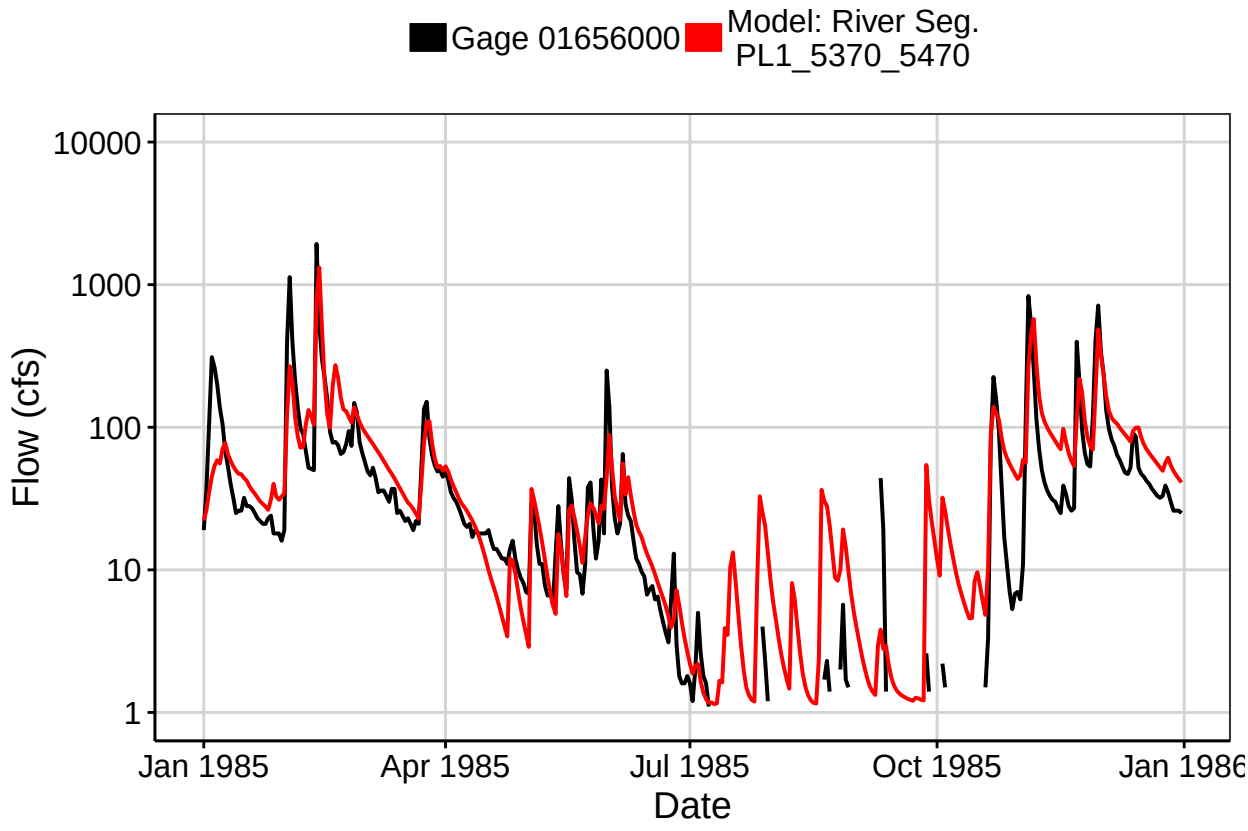


Fig. 3: Flow Exceedance

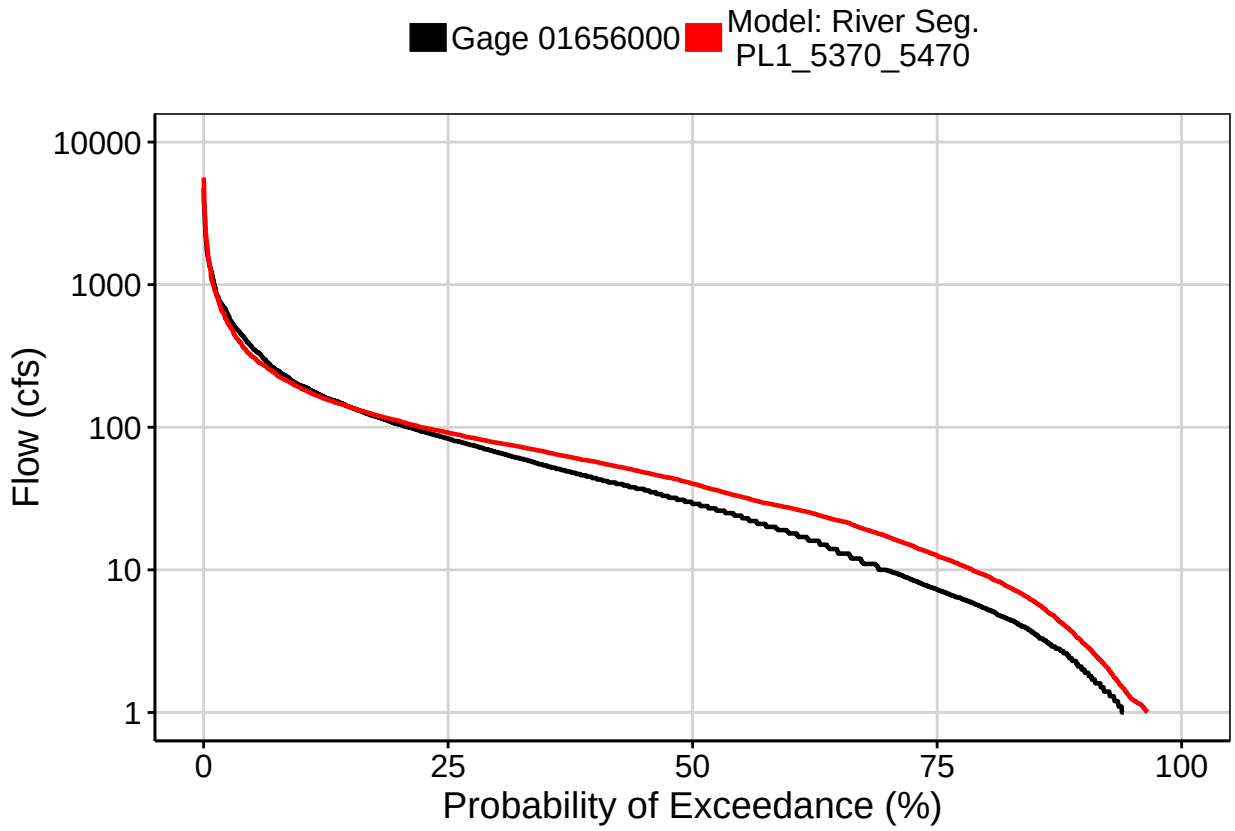


Fig. 4: Baseflow

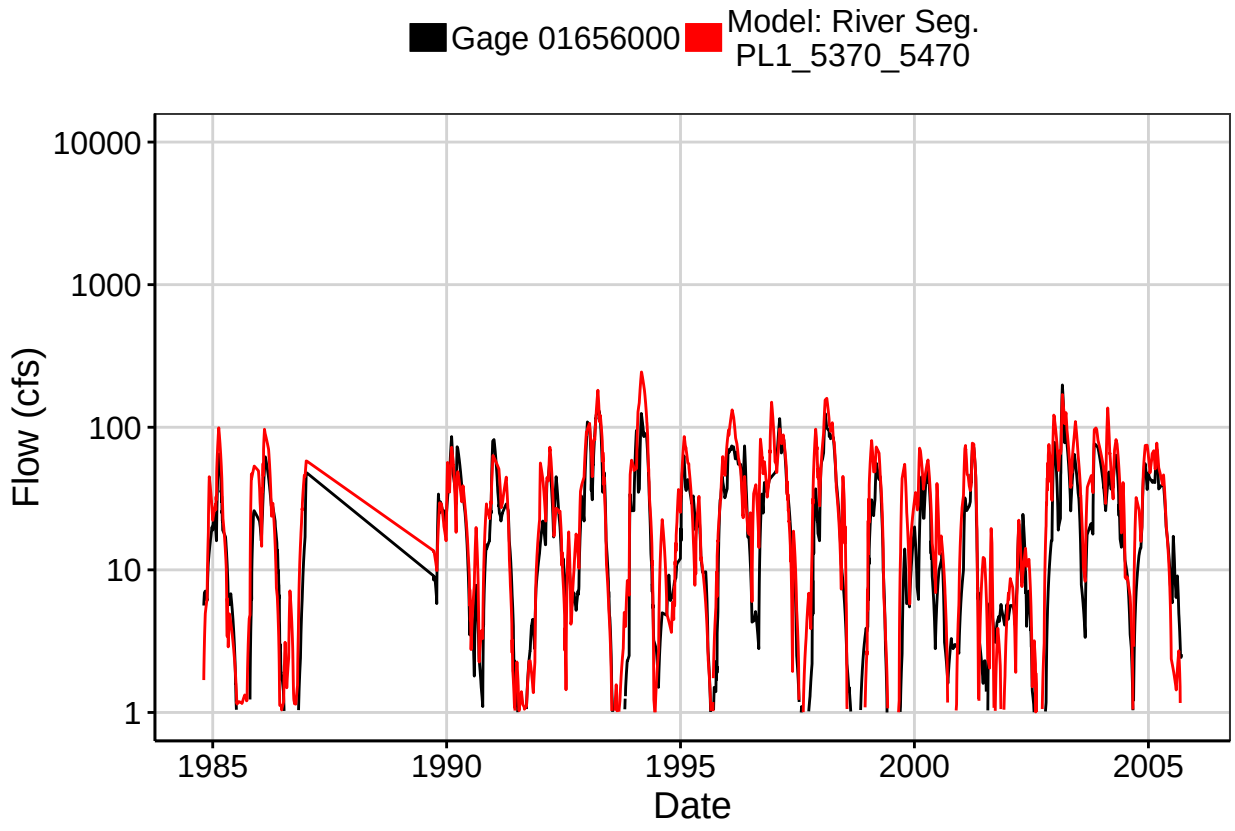


Fig. 5: Combined Baseflow

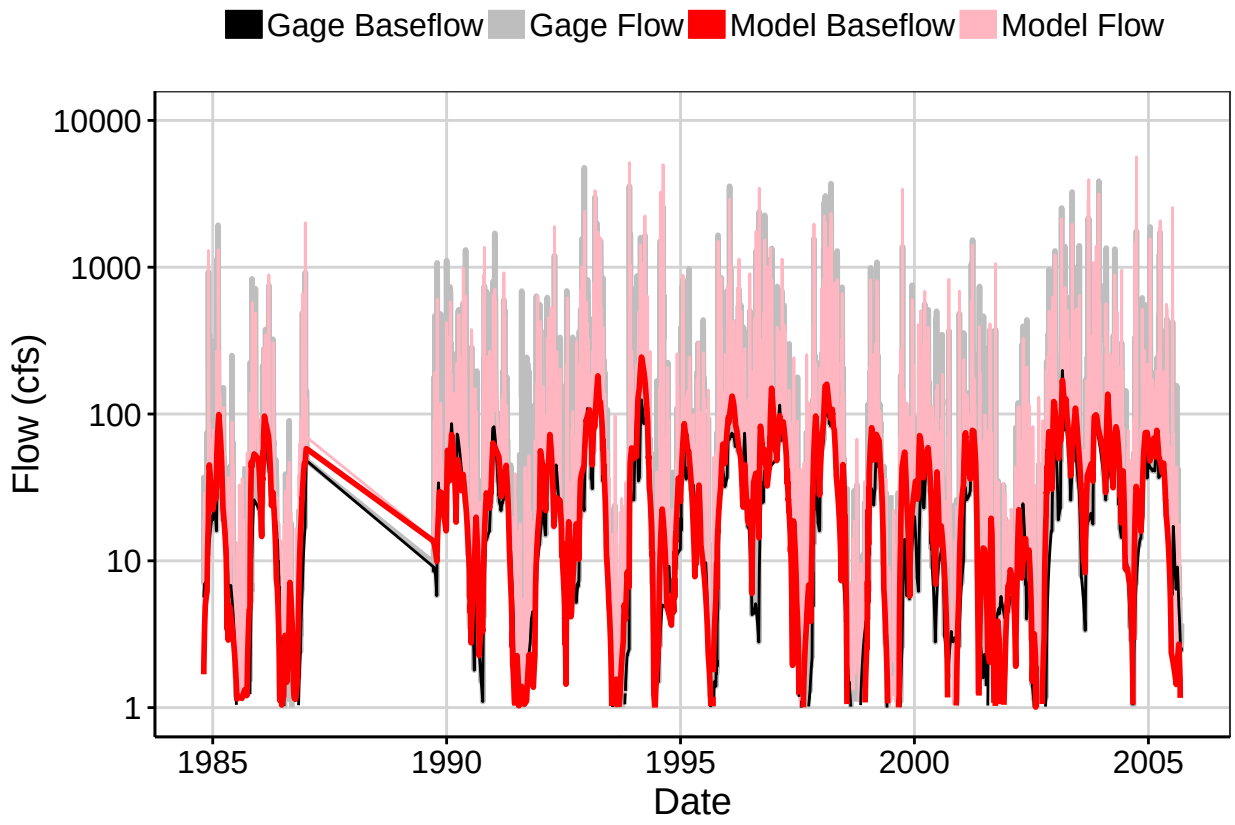


Fig. 6: Largest Error Segment

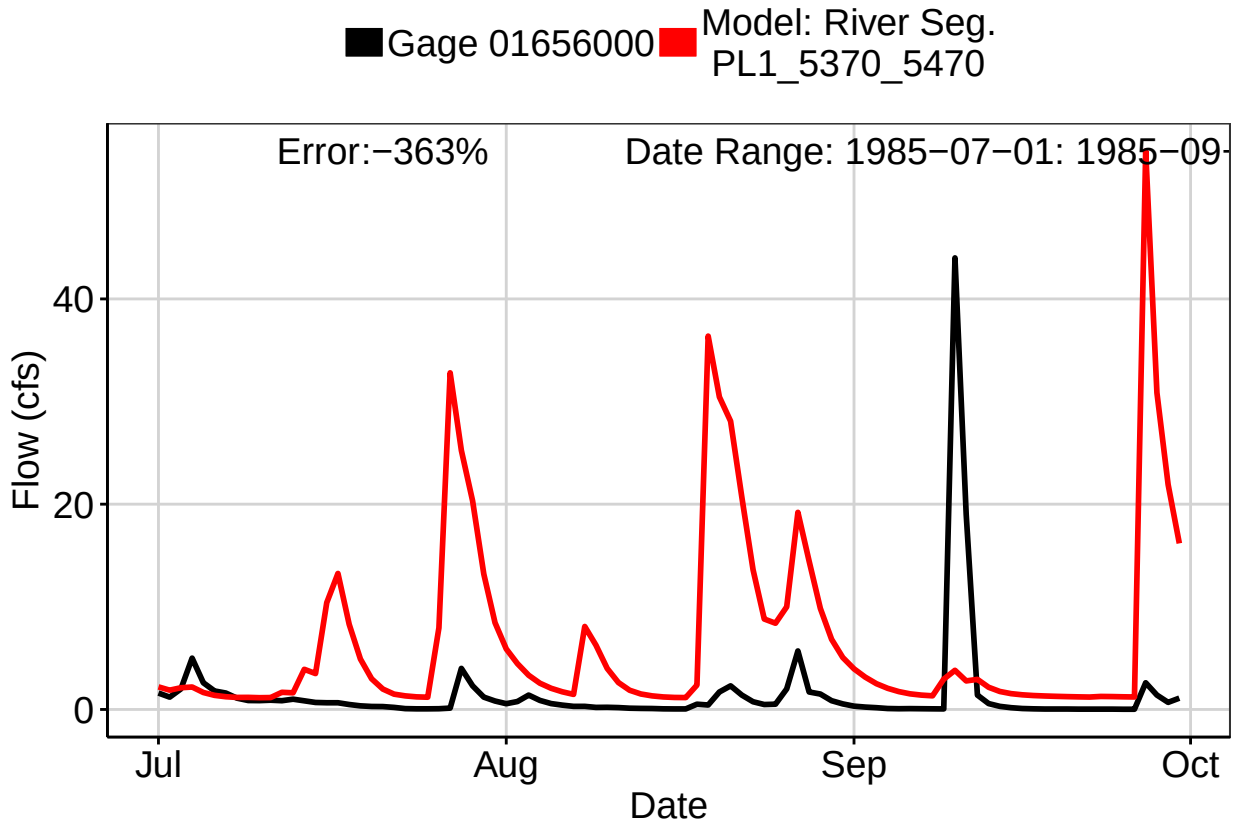


Fig. 7: Second Largest Error Segment

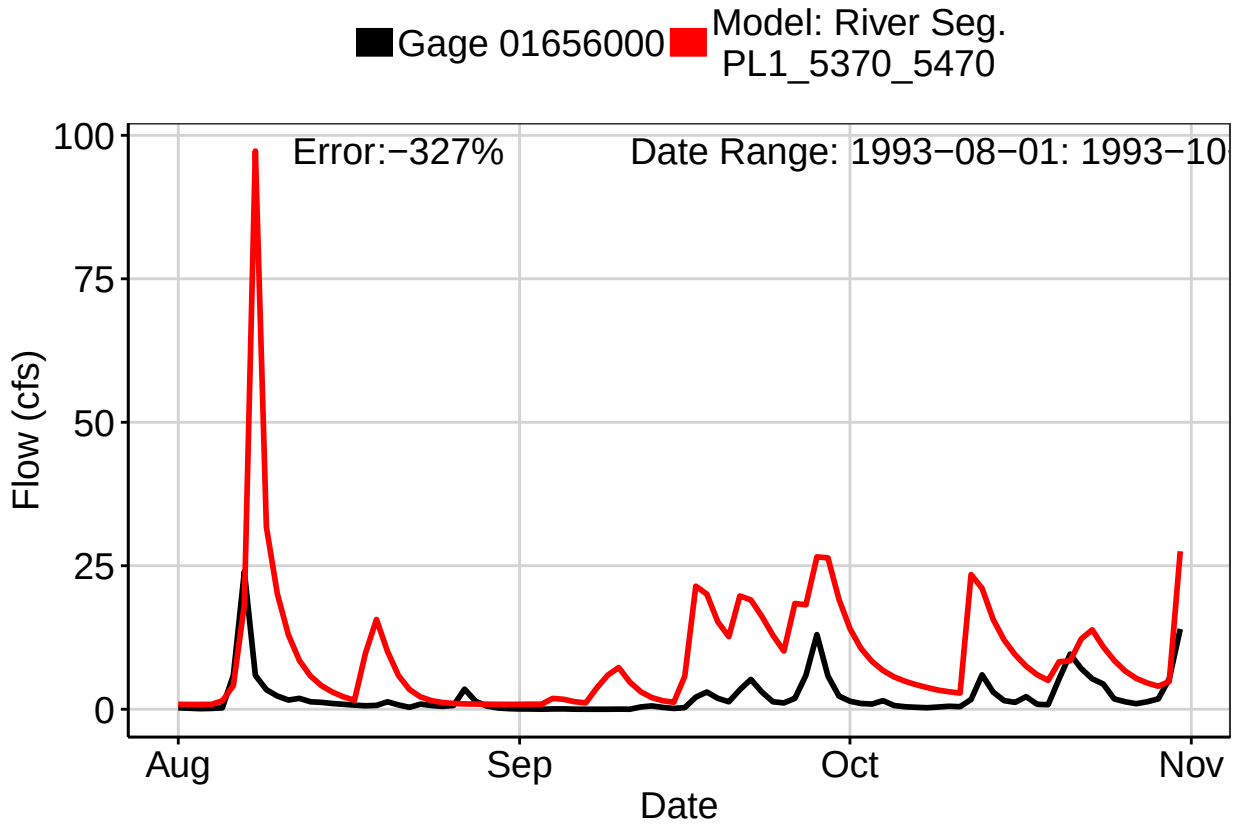


Fig. 8: Third Largest Error Segment

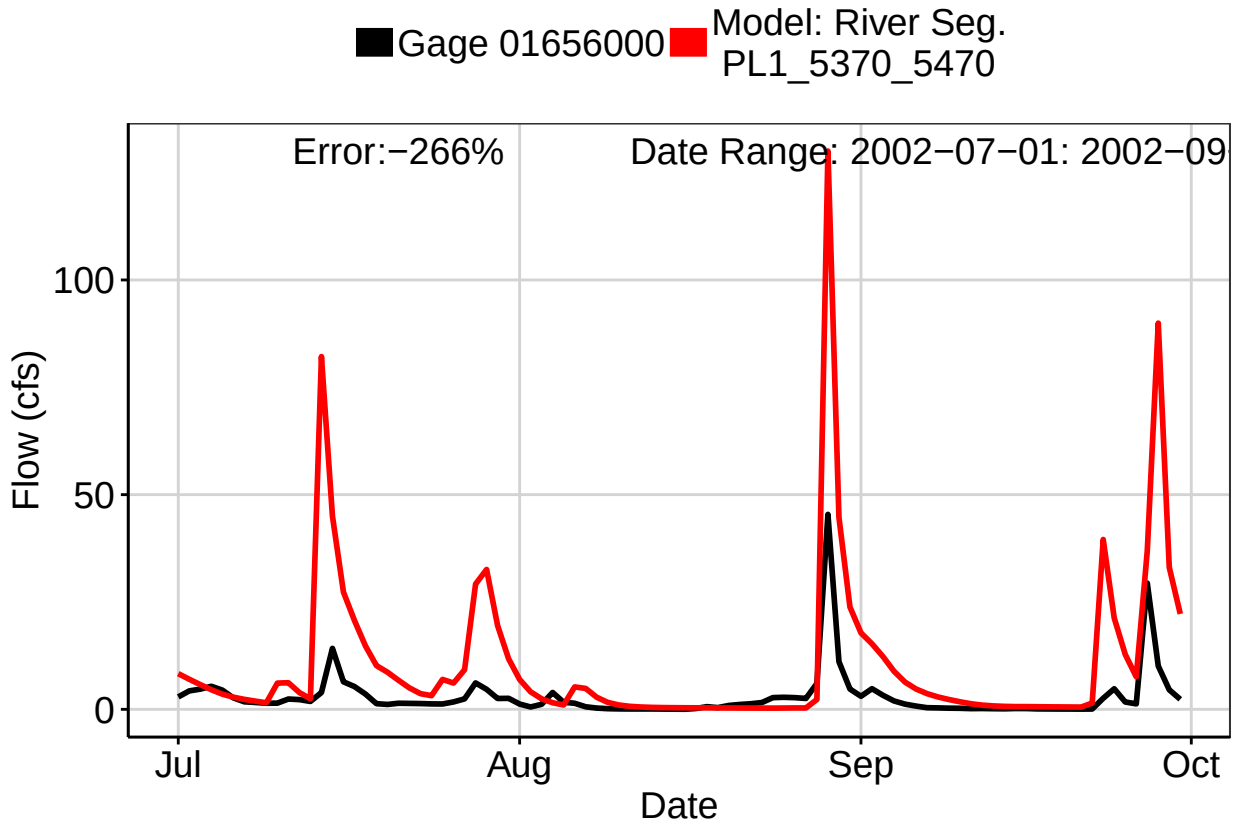


Fig. 9: Residuals Plot