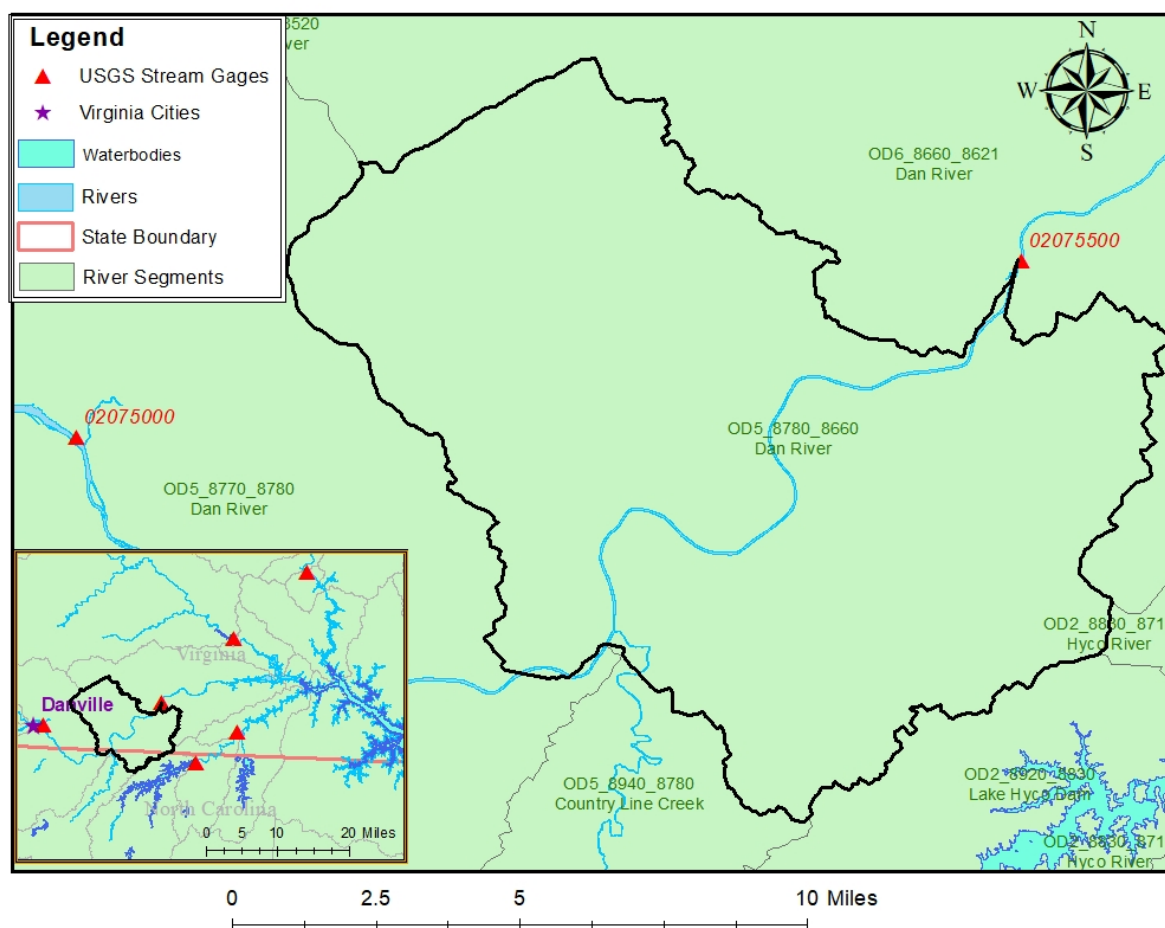


02075500 vs. OD5_8780_8660

Daniel Hildebrand, Hailey Alsbaugh, and Kelsey Reitz

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This river segment follows part of the flow of the Dan River. The gage is located in Halifax County, VA (Lat 3638'32", Long 7905'23") approximately 17 miles northeast of Danville, VA. Drainage area is 2587 sq. miles. This gage started taking data in 1950 and is still taking data. There are a number of dams and mills in Danville that regulated the low-flow conditions in this area. The average daily discharge error between the model and gage data for the 20 year timespan was 1.42%, with 35% of its rolling three month time spans above 20% error.

Table 1: Monthly Low Flows

	USGS Gage	Model	Pct. Error
Jan. Low Flow	770	557	27.7
Feb. Low Flow	1000	854	14.6
Mar. Low Flow	1180	1160	1.69
Apr. Low Flow	1310	1340	-2.29
May Low Flow	1720	2200	-27.9
Jun. Low Flow	1830	2460	-34.4
Jul. Low Flow	1820	1920	-5.49
Aug. Low Flow	1440	1480	-2.78
Sep. Low Flow	1260	1200	4.76
Oct. Low Flow	1050	867	17.4
Nov. Low Flow	819	697	14.9
Dec. Low Flow	736	608	17.4

Table 2: Monthly Average Flows

	USGS Gage	Model	Pct. Error
Overall Mean Flow	2820	2780	1.42
Jan. Mean Flow	3430	3260	4.96
Feb. Mean Flow	3540	3860	-9.04
Mar. Mean Flow	4590	5240	-14.2
Apr. Mean Flow	3960	4290	-8.33
May Mean Flow	2930	2880	1.71
Jun. Mean Flow	2580	2460	4.65
Jul. Mean Flow	1990	1520	23.6
Aug. Mean Flow	1950	1580	19
Sep. Mean Flow	2330	2180	6.44
Oct. Mean Flow	1940	1910	1.55
Nov. Mean Flow	2090	1870	10.5
Dec. Mean Flow	2530	2350	7.11

Table 3: Monthly High Flows

	USGS Gage	Model	Pct. Error
Jan. High Flow	2630	1640	37.6
Feb. High Flow	4810	5250	-9.15
Mar. High Flow	6410	4640	27.6
Apr. High Flow	9820	6650	32.3
May High Flow	9860	5900	40.2
Jun. High Flow	13200	11400	13.6
Jul. High Flow	9240	6970	24.6
Aug. High Flow	6570	4920	25.1
Sep. High Flow	3700	2930	20.8
Oct. High Flow	3990	2010	49.6
Nov. High Flow	3740	1450	61.2
Dec. High Flow	3040	1570	48.4

Table 4: Period Low Flows

	USGS Gage	Model	Pct. Error
Min. 1 Day Min	133	216	-62.4
Med. 1 Day Min	574	424	26.1
Min. 3 Day Min	135	218	-61.5
Med. 3 Day Min	757	438	42.1
Min. 7 Day Min	143	220	-53.8
Med. 7 Day Min	802	485	39.5
Min. 30 Day Min	230	237	-3.04
Med. 30 Day Min	1000	602	39.8
Min. 90 Day Min	353	389	-10.2
Med. 90 Day Min	1380	942	31.7
7Q10	381	276	27.6
Year of 90-Day Min. Flow	2002	2002	0
Drought Year Mean	872	720	17.4
Mean Baseflow	1540	1640	-6.49

Table 5: Period High Flows

	USGS Gage	Model	Pct. Error
Max. 1 Day Max	53400	84800	-58.8
Med. 1 Day Max	28700	25100	12.5
Max. 3 Day Max	45400	60800	-33.9
Med. 3 Day Max	23100	19700	14.7
Max. 7 Day Max	30700	36100	-17.6
Med. 7 Day Max	14000	12500	10.7
Max. 30 Day Max	11900	13900	-16.8
Med. 30 Day Max	6270	6370	-1.59
Max. 90 Day Max	7980	9490	-18.9
Med. 90 Day Max	3780	4270	-13

Table 6: Non-Exceedance Flows

	USGS Gage	Model	Pct. Error
1% Non-Exceedance	382	287	24.9
5% Non-Exceedance	713	452	36.6
50% Non-Exceedance	1900	1710	10
95% Non-Exceedance	7570	8110	-7.13
99% Non-Exceedance	18900	18900	0
Sept. 10% Non-Exceedance	536	736	-37.3

Fig. 1: Hydrograph

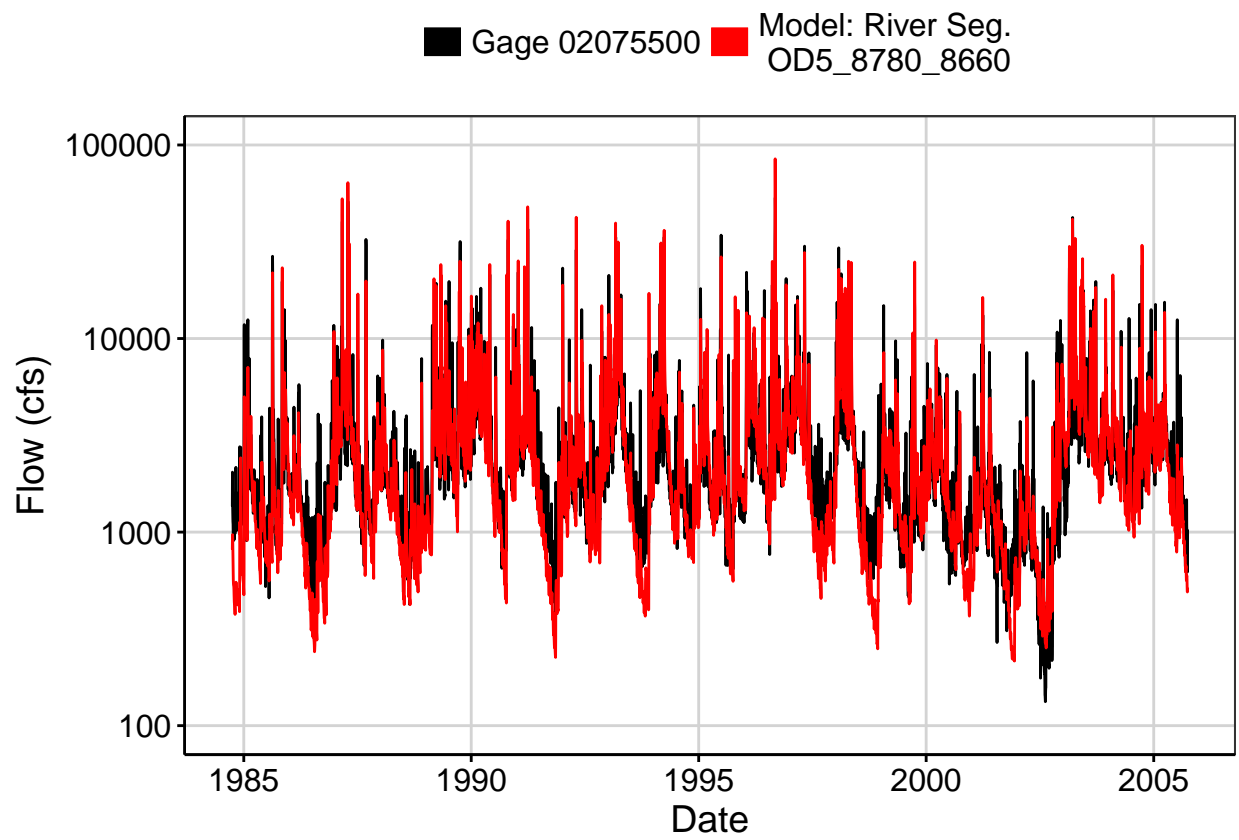


Fig. 2: Zoomed Hydrograph

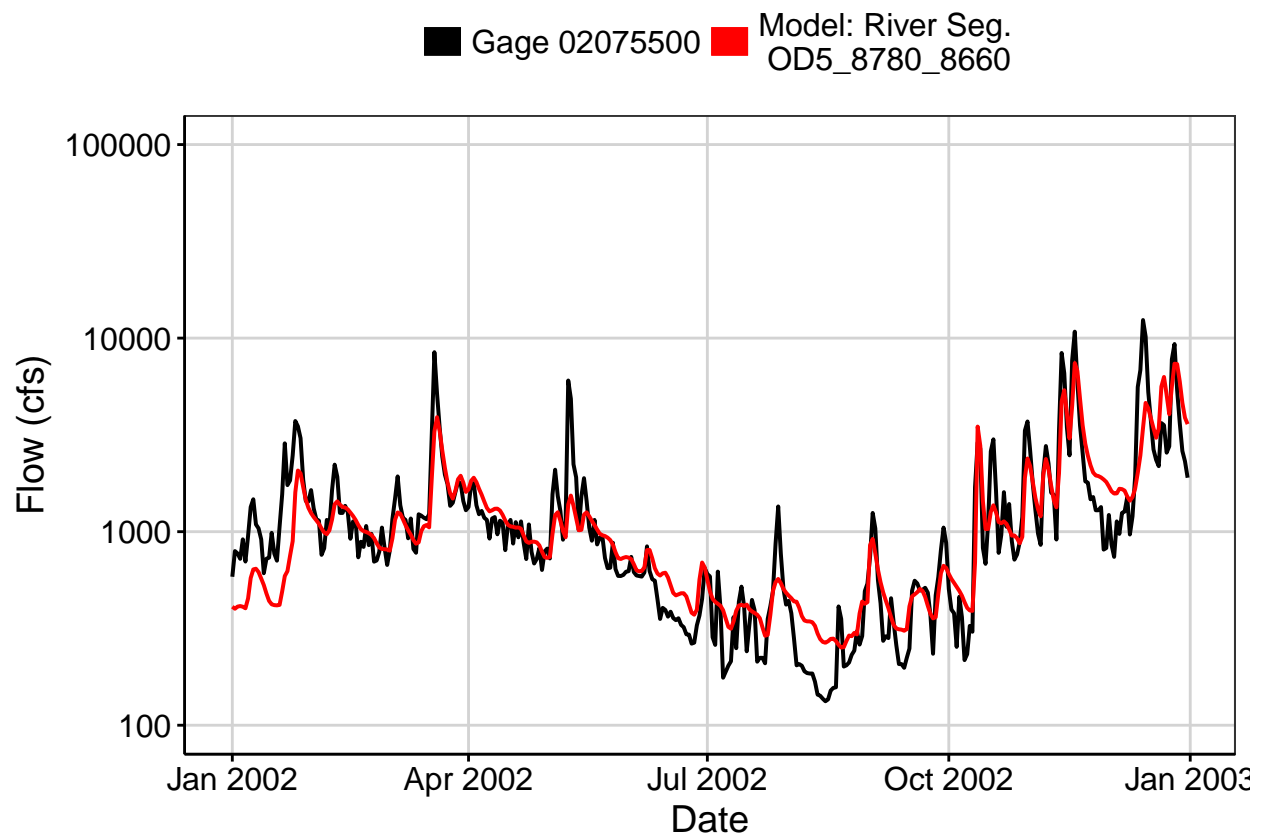


Fig. 3: Flow Exceedance

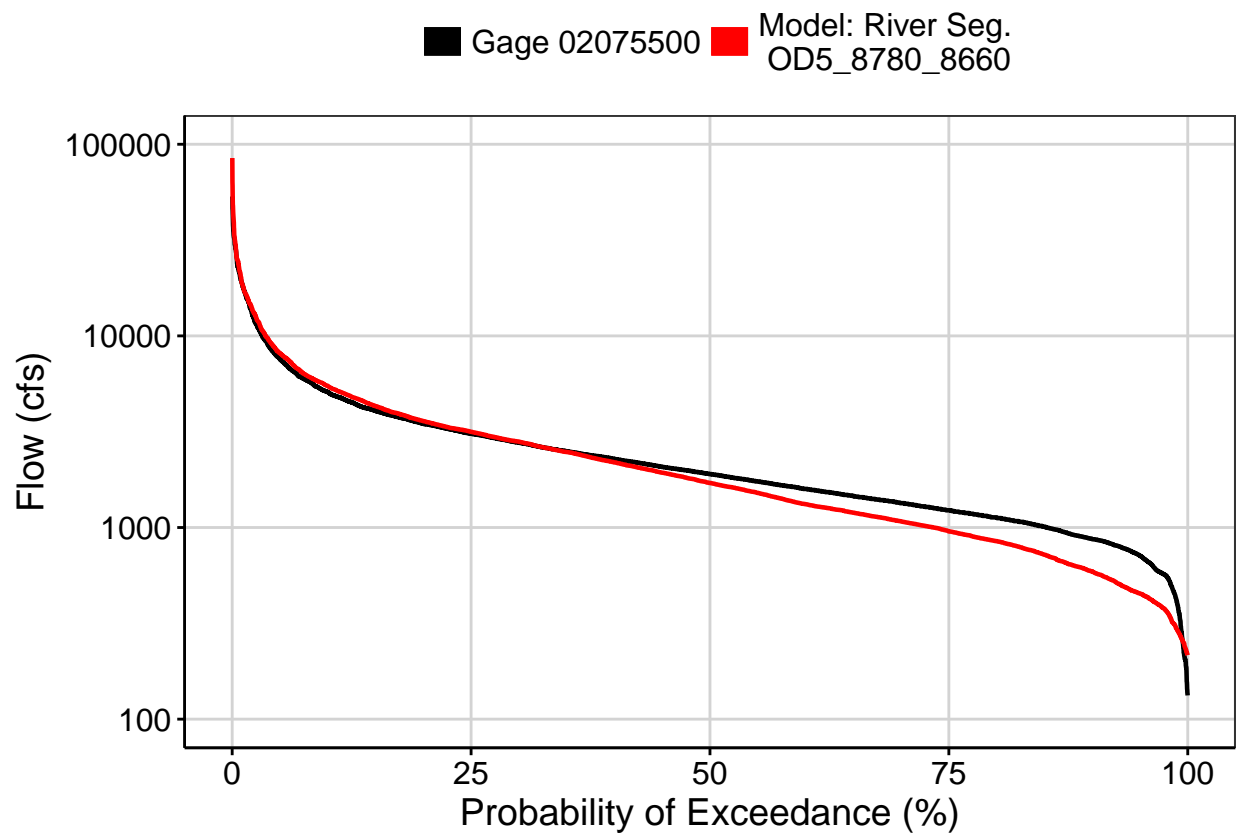


Fig. 4: Baseflow

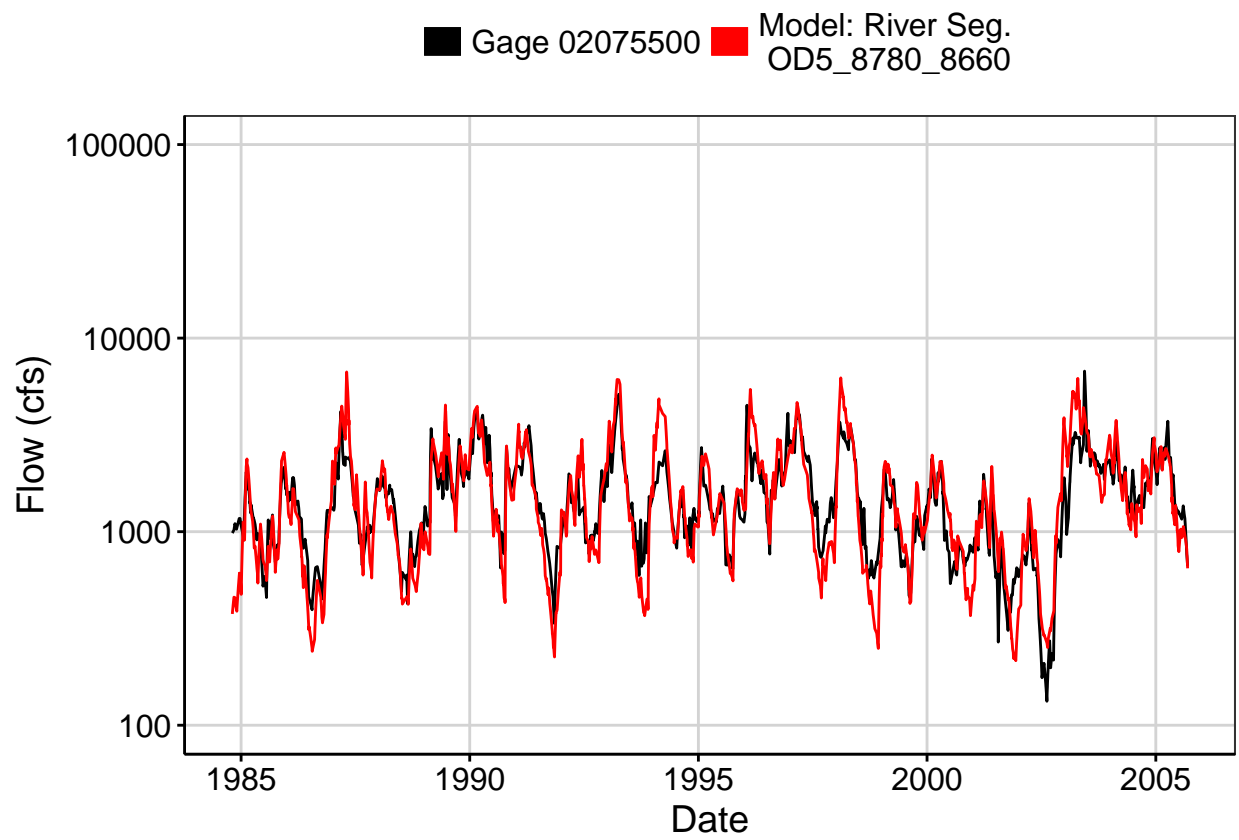


Fig. 5: Combined Baseflow

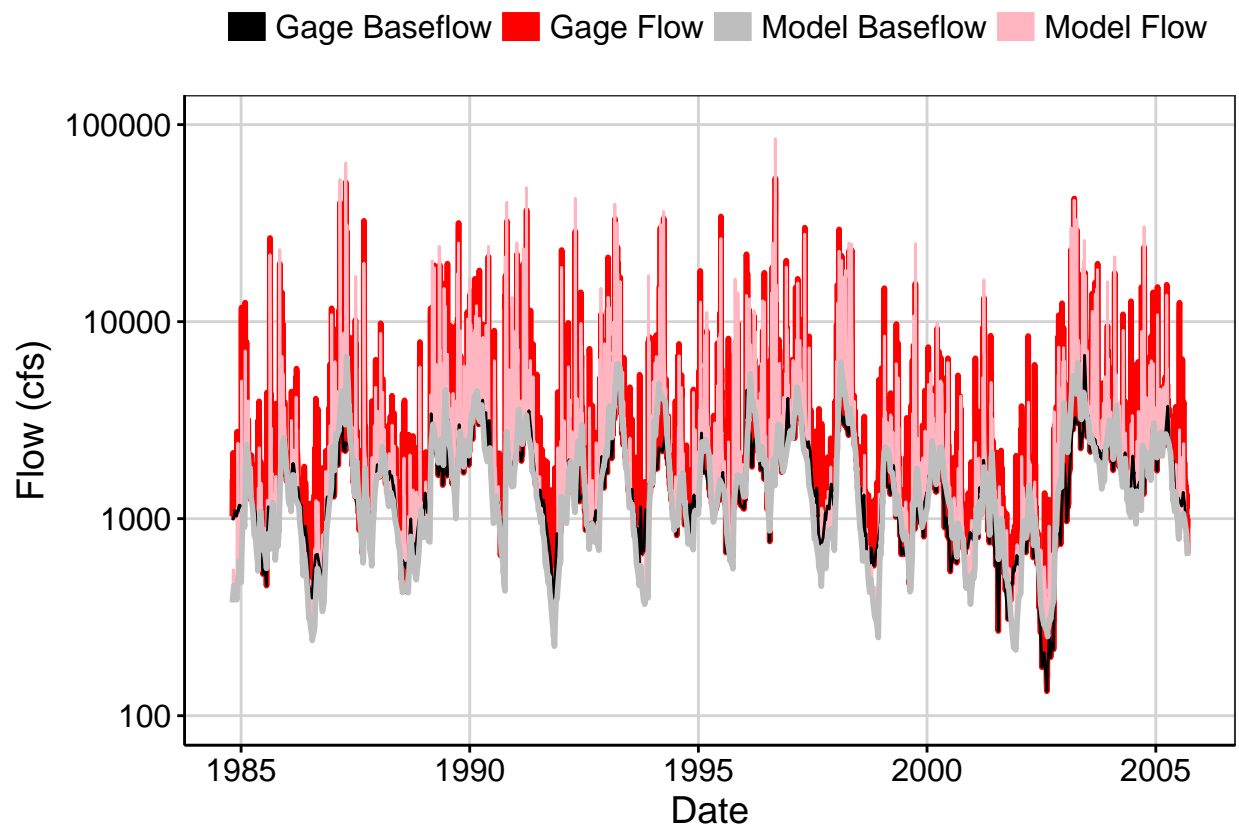


Fig. 6: Largest Error Segment

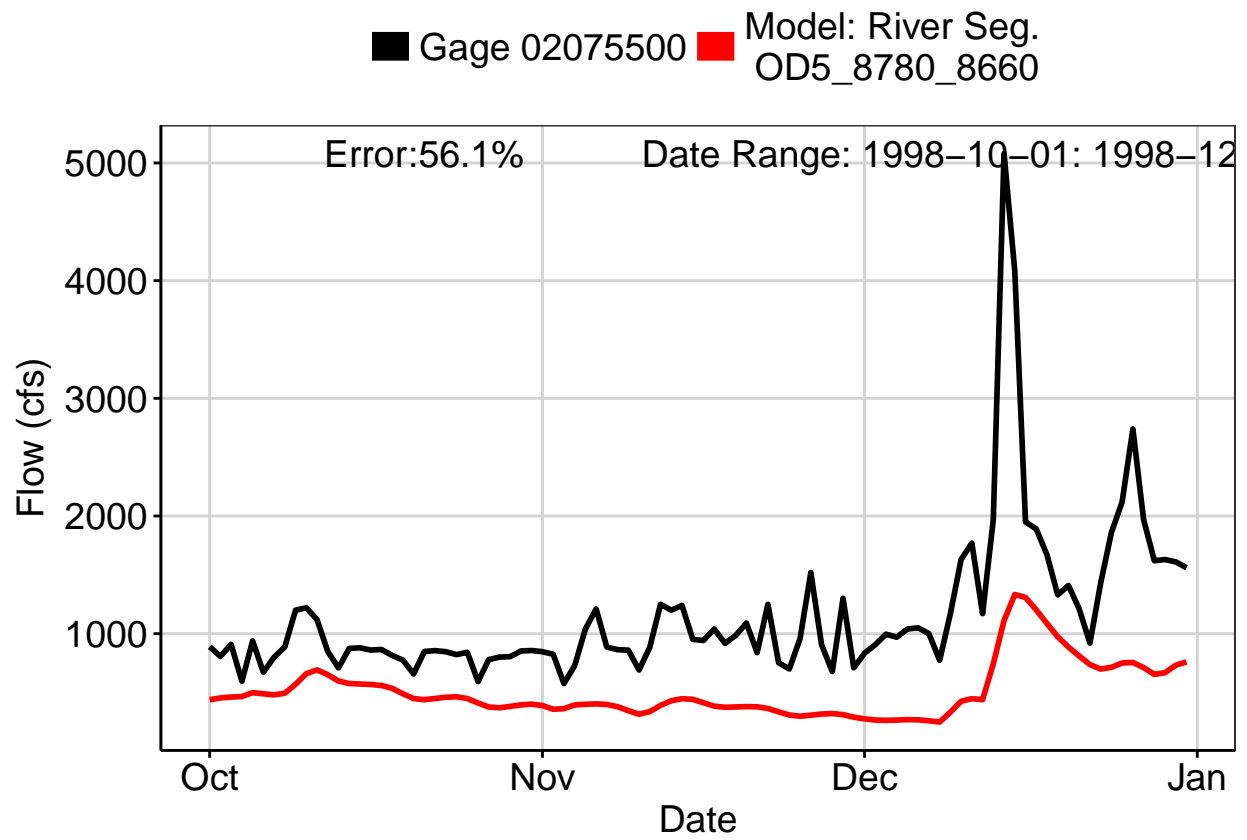


Fig. 7: Second Largest Error Segment

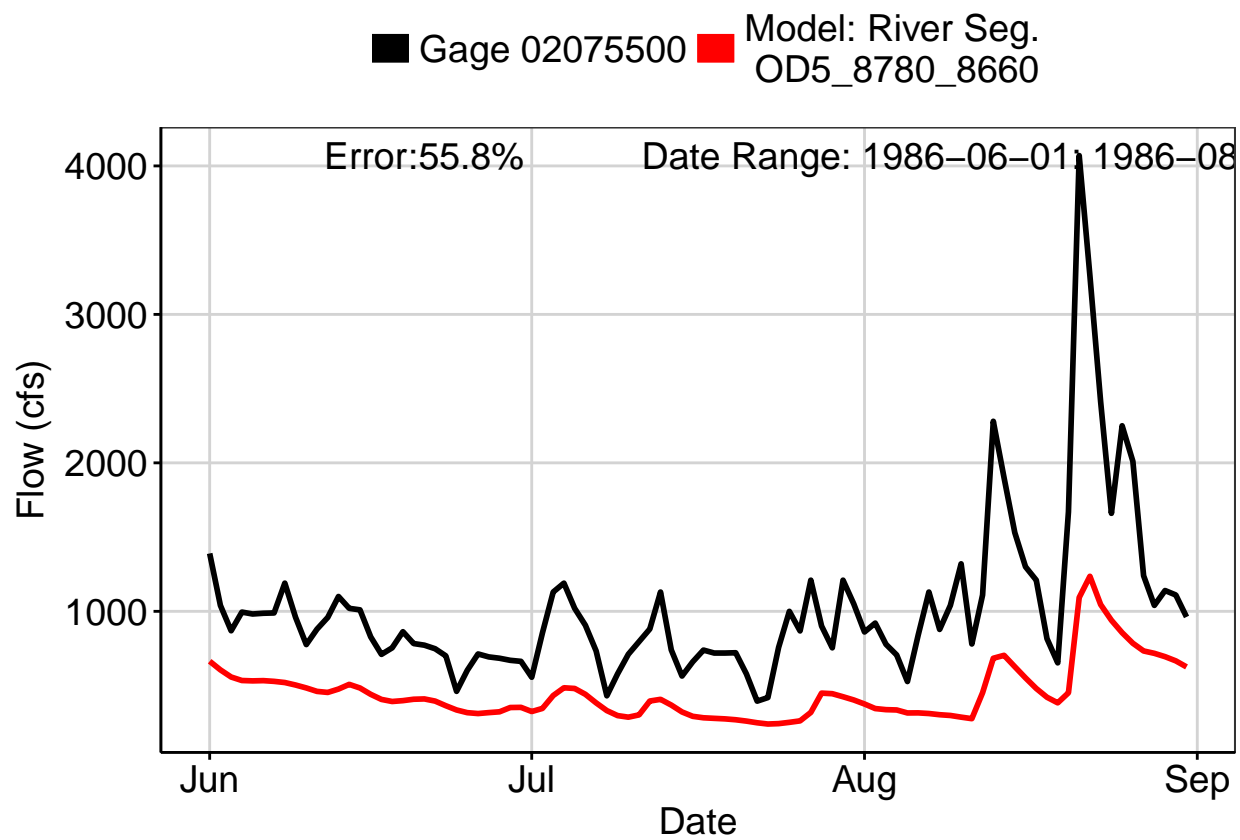


Fig. 8: Third Largest Error Segment

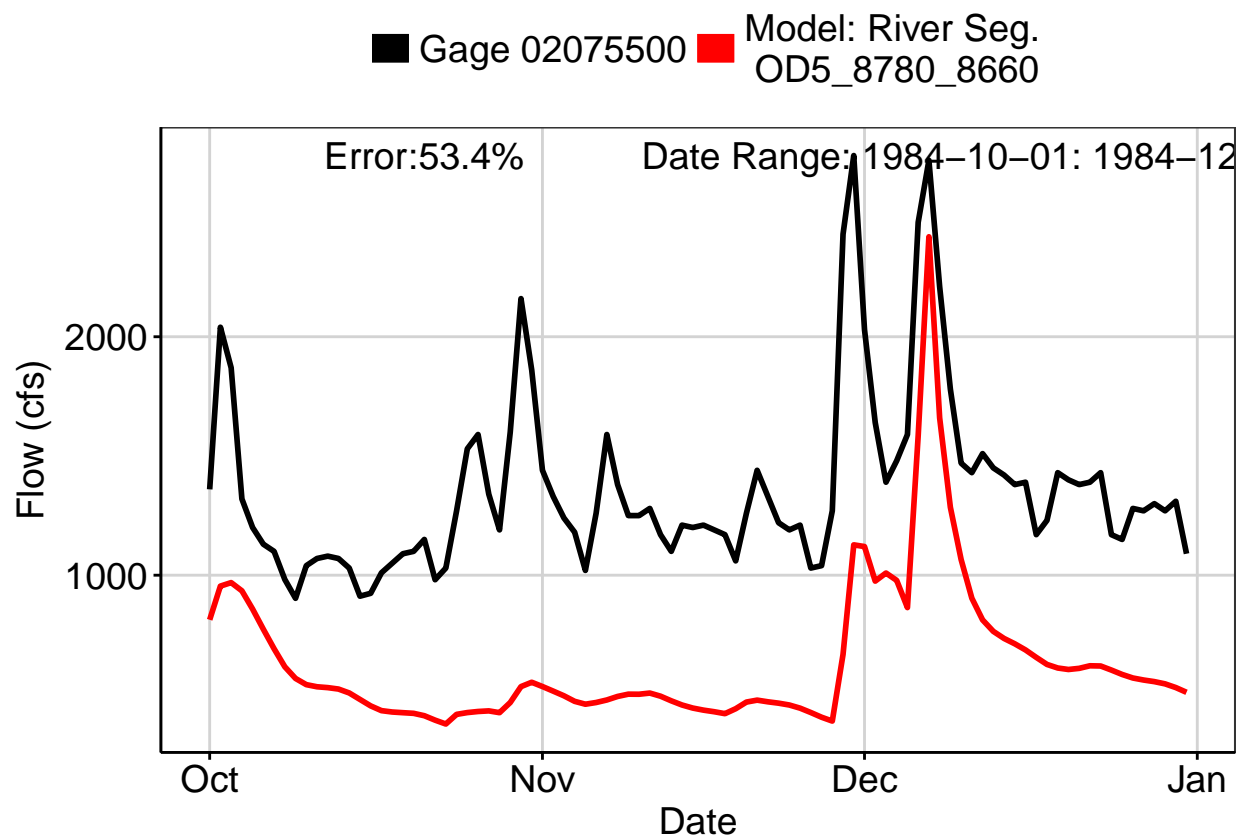


Fig. 9: Residuals Plot

