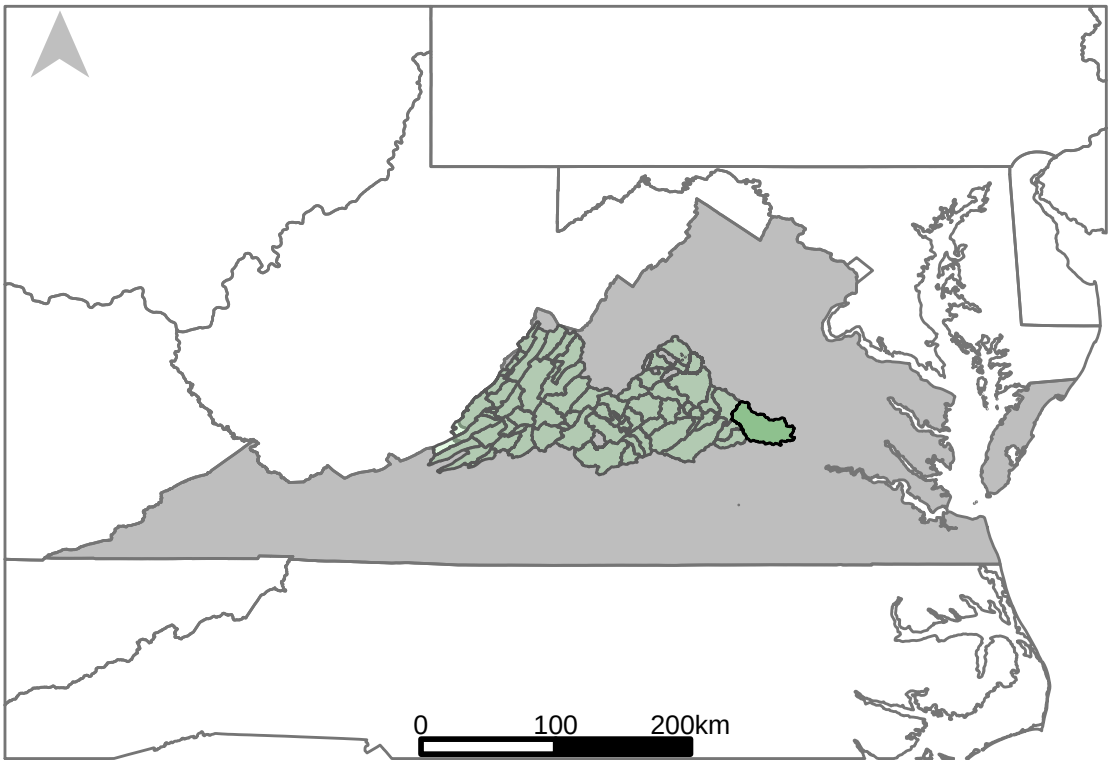
Appendix ##: River Segment: JL7_6800_7070 : CFBASE30Y20180615 vs. Scenario 2: CBASE1808L55CY55R45P50R45P50Y



This river segment follows part of the flow of the James River and the Kanawha Canal in Richmond, VA. The gage is located in Henrico County, VA (Lat 37 33'52", long 77 34'28") approximately 2.0 miles west of Richmond city limits. Drainage area is 66.6 sq. miles. This gage started taking data in 1936 and is still taking data currently. Daily discharges in excess of 2,540 ft<U+00B3>/s for water years 1937-1968 should be used with caution until historical records of canal construction and modifications can be reviewed. Water-quality records for some prior periods have been collected at this location. The average daily discharge change between scenario 1 and scenario 2 for the 20 year timespan was 7.34312%, with 4.44% of its rolling three month time spans above 20% difference.

Table 1: Monthly Low Flows

	Scenario 1	Scenario 2	Pct. Difference
Jan. Low Flow	1700	1740	2.35
Feb. Low Flow	2190	2420	10.5
Mar. Low Flow	4120	4240	2.91
Apr. Low Flow	5050	5280	4.55
May Low Flow	6140	6320	2.93
Jun. Low Flow	6390	6400	0.16
Jul. Low Flow	4720	4740	0.42
Aug. Low Flow	3500	3570	2
Sep. Low Flow	2190	2180	-0.46
Oct. Low Flow	1760	1770	0.57
Nov. Low Flow	1260	1270	0.79
Dec. Low Flow	1300	1320	1.54

Table 2: Monthly Average Flows

	Scenario 1	Scenario 2	Pct. Difference
Overall Mean Flow	7490	8040	7.34
Jan. Mean Flow	10700	11800	10.28
Feb. Mean Flow	11300	12100	7.08
Mar. Mean Flow	13500	13900	2.96
Apr. Mean Flow	11000	11700	6.36
May Mean Flow	8000	8380	4.75
Jun. Mean Flow	5370	5570	3.72
Jul. Mean Flow	3480	3670	5.46
Aug. Mean Flow	3050	3280	7.54
Sep. Mean Flow	4690	5410	15.35
Oct. Mean Flow	4800	5250	9.38
Nov. Mean Flow	6520	7170	9.97
Dec. Mean Flow	7650	8580	12.16

Table 3: Monthly High Flows

	Scenario 1	Scenario 2	Pct. Difference
Jan. High Flow	4760	5520	15.97
Feb. High Flow	12300	13800	12.2
Mar. High Flow	12000	14200	18.33
Apr. High Flow	21900	23900	9.13
May High Flow	15800	17200	8.86
Jun. High Flow	20900	22600	8.13
Jul. High Flow	21000	20800	-0.95
Aug. High Flow	11800	13300	12.71
Sep. High Flow	7240	7700	6.35
Oct. High Flow	4540	4530	-0.22
Nov. High Flow	3470	3920	12.97
Dec. High Flow	4240	5600	32.08

Table 4: Period Low Flows

	Scenario 1	Scenario 2	Pct. Difference
Min. 1 Day Min	461	465	0.87
Med. 1 Day Min	814	833	2.33
Min. 3 Day Min	469	473	0.85
Med. 3 Day Min	840	856	1.9
Min. 7 Day Min	484	490	1.24
Med. 7 Day Min	907	927	2.21
Min. 30 Day Min	590	609	3.22
Med. 30 Day Min	1240	1290	4.03
Min. 90 Day Min	941	1080	14.77
Med. 90 Day Min	2610	2800	7.28
7Q10	560	567	1.25
Year of 90-Day Min. Flow	1999	1999	0
Drought Year Mean	3749.52	4351.21	16.05
Mean Baseflow	4530	4640	2.43

Table 5: Period High Flows

	Scenario 1	Scenario 2	Pct. Difference
Max. 1 Day Max	117000	122000	4.27
Med. 1 Day Max	59000	69000	16.95
Max. 3 Day Max	105000	110000	4.76
Med. 3 Day Max	51800	60800	17.37
Max. 7 Day Max	71100	74600	4.92
Med. 7 Day Max	36600	43400	18.58
Max. 30 Day Max	36600	42800	16.94
Med. 30 Day Max	19800	21800	10.1
Max. 90 Day Max	27900	30600	9.68
Med. 90 Day Max	13500	14400	6.67

Table 6: Non-Exceedance Flows

	Scenario 1	Scenario 2	Pct. Difference
1% Non-Exceedance	617	650	5.35
5% Non-Exceedance	1000	1080	8
50% Non-Exceedance	5100	5360	5.1
95% Non-Exceedance	21800	23700	8.72
99% Non-Exceedance	45600	48900	7.24
Sept. 10% Non-Exceedance	950	997	4.95

Fig. 1: Hydrograph

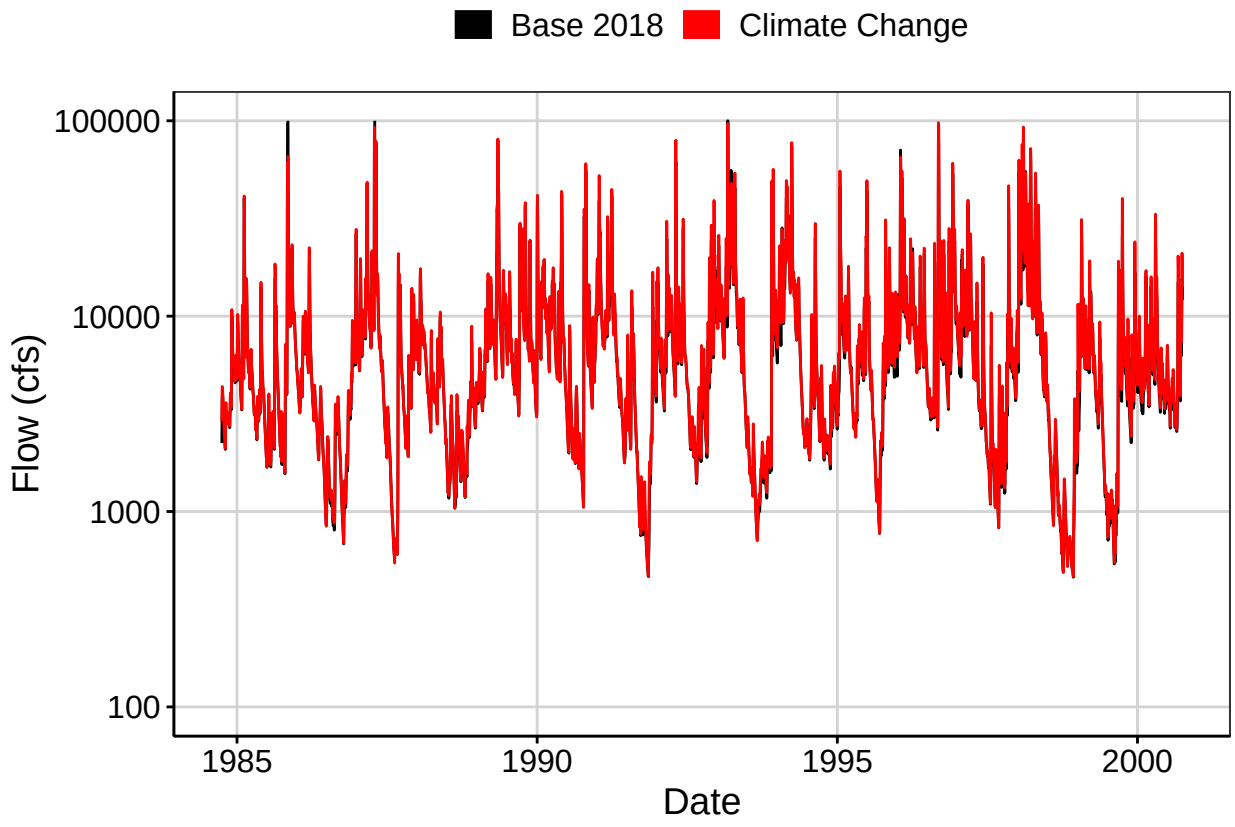


Fig. 2: Zoomed Hydrograph

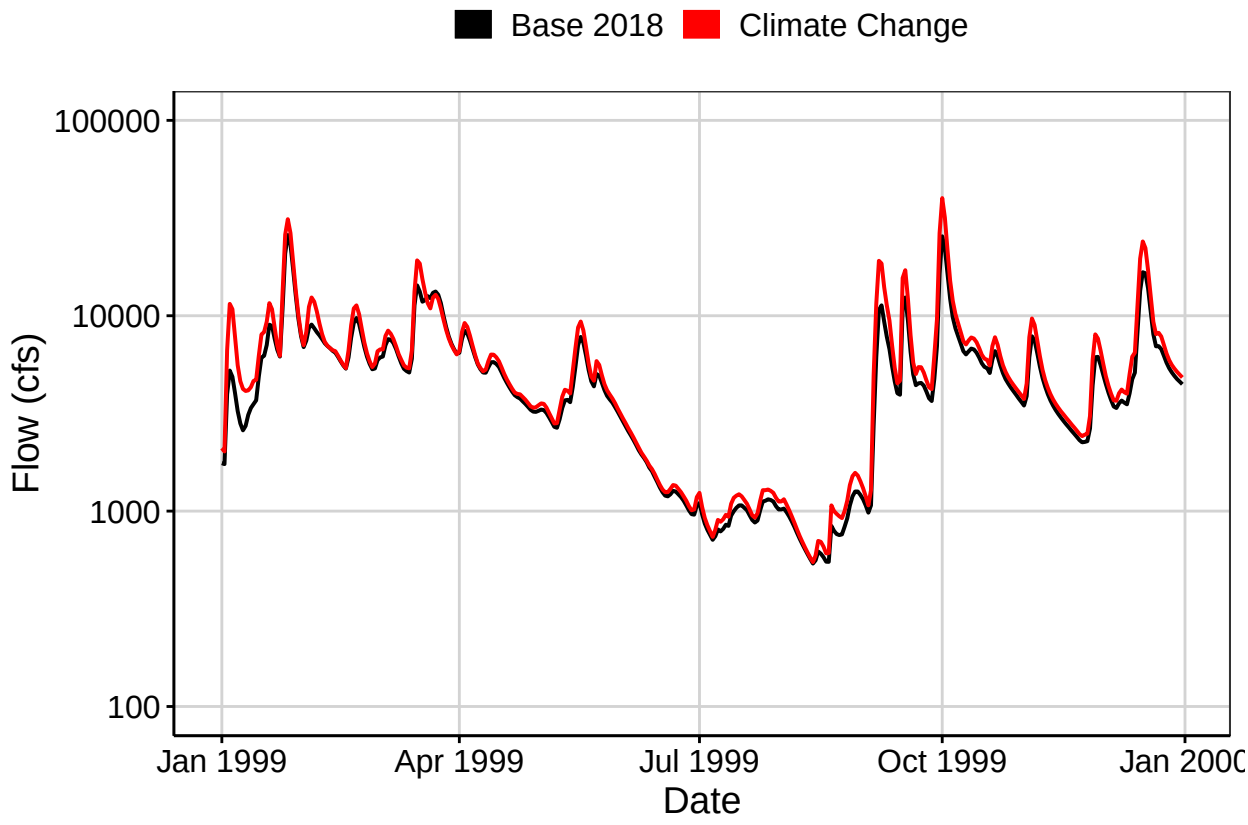


Fig. 3: Flow Exceedance

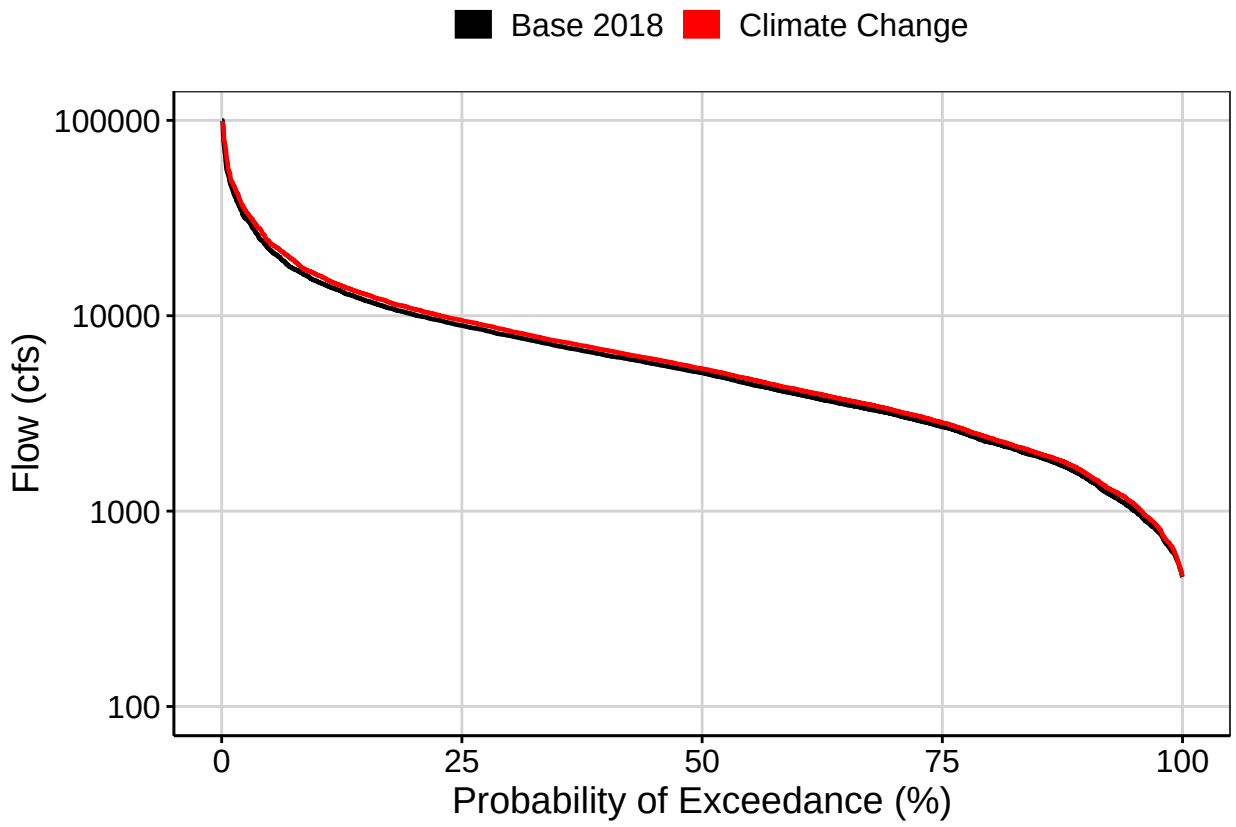


Fig. 4: Baseflow

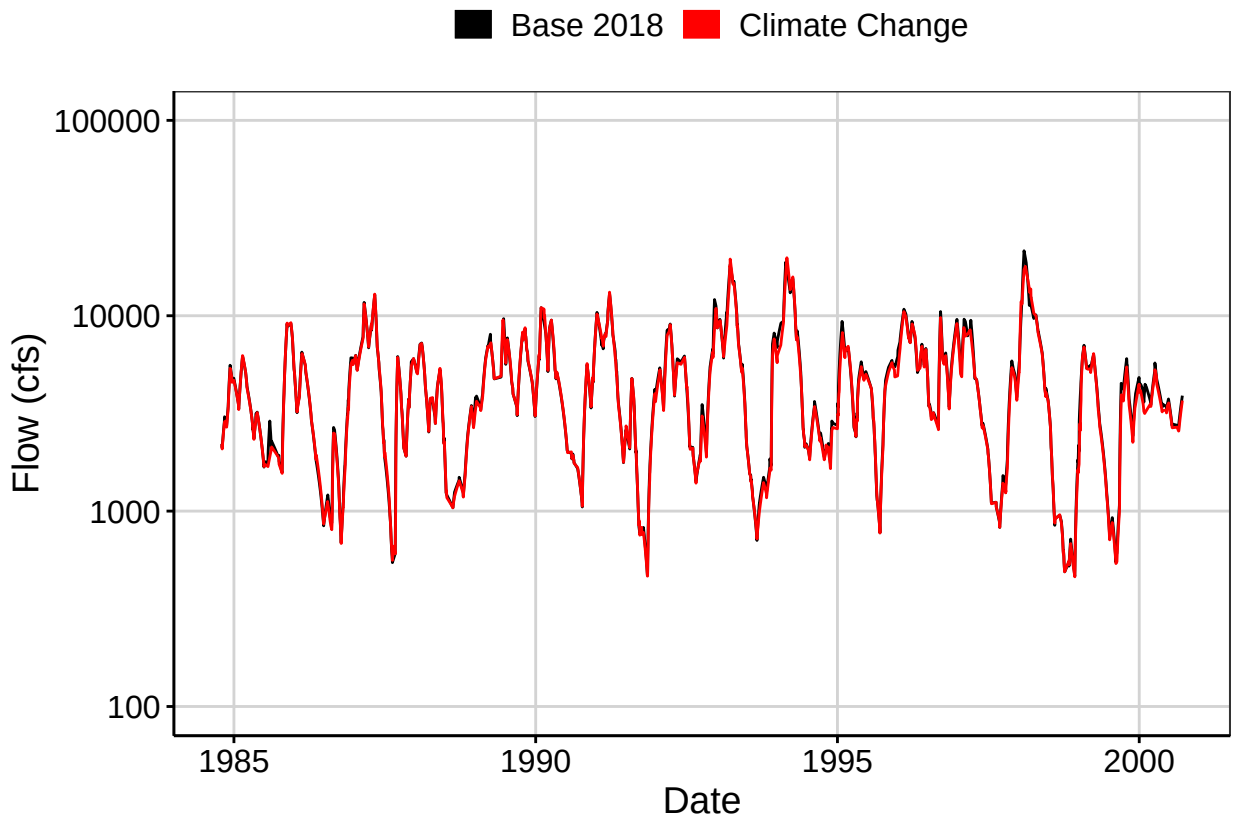


Fig. 5: Combined Baseflow

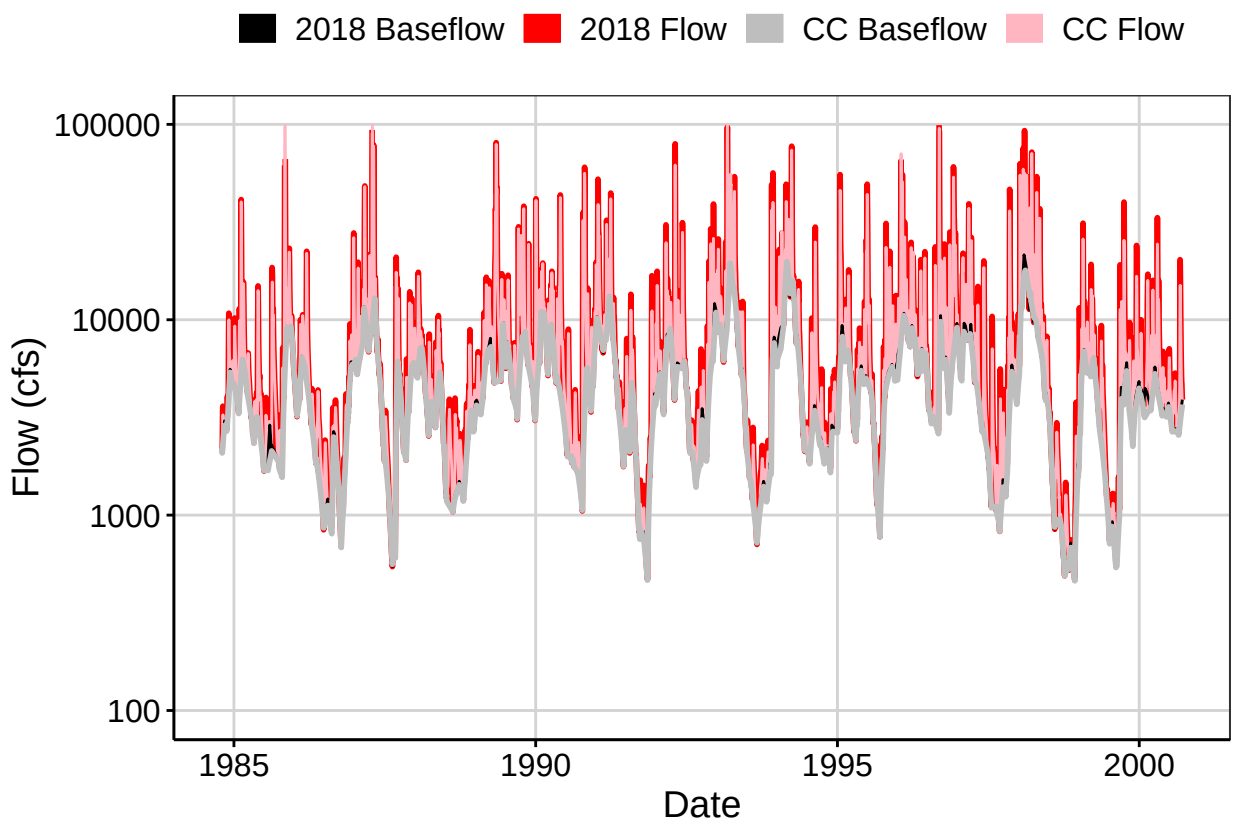


Fig. 6: Largest Difference Segment

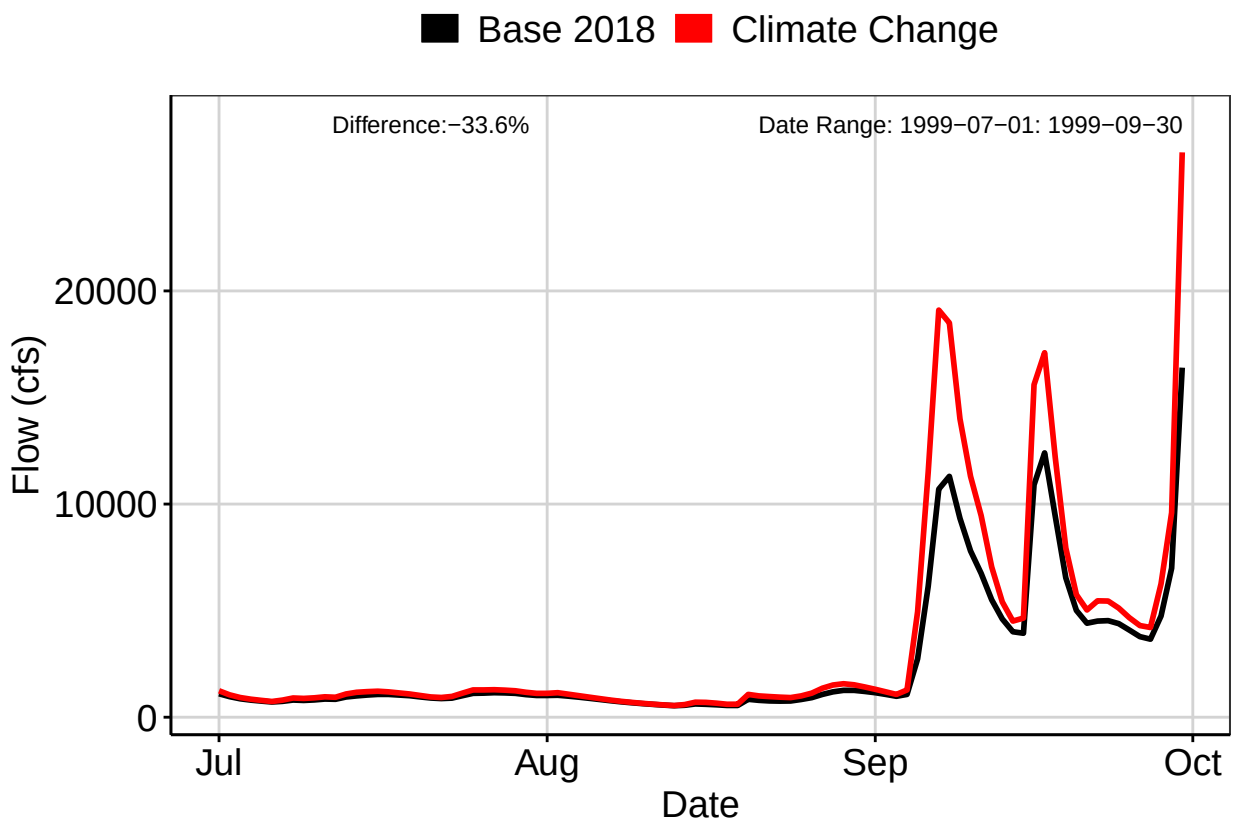


Fig. 7: Second Largest Difference Segment

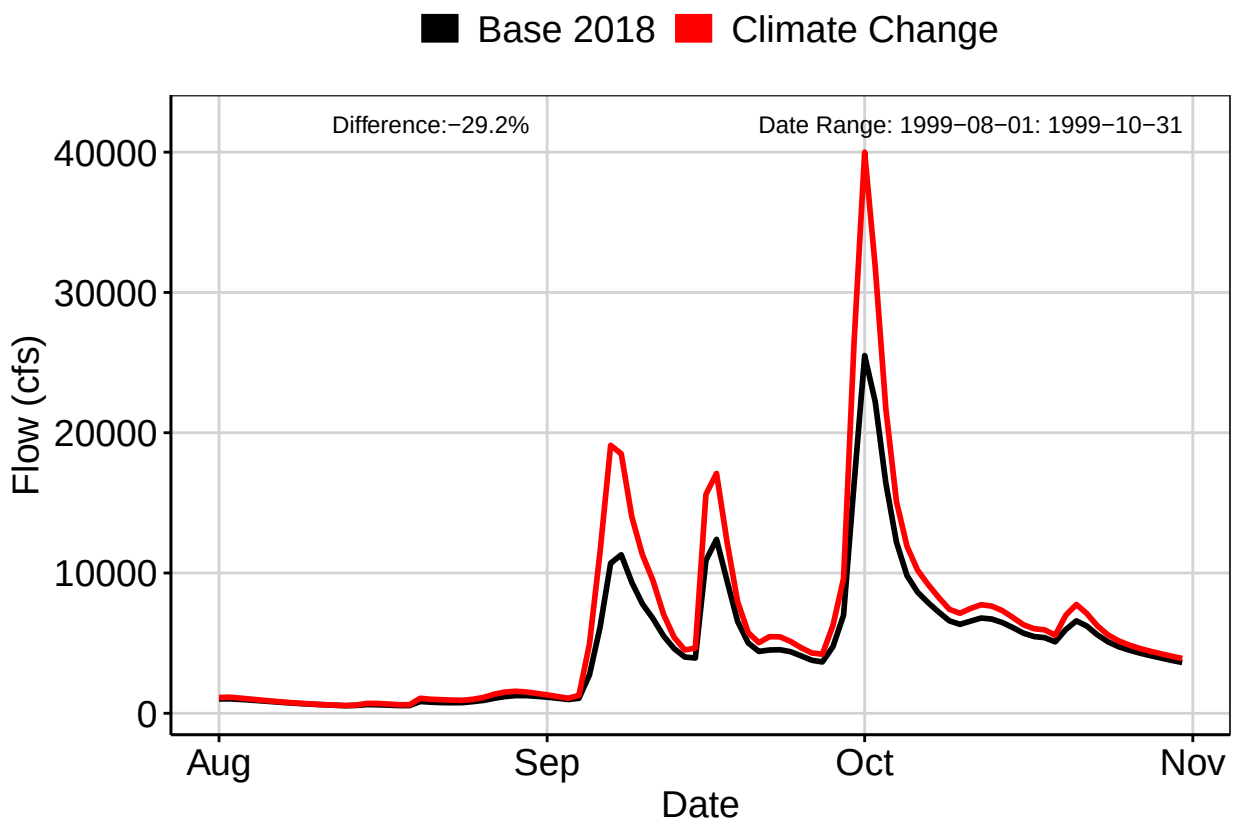


Fig. 8: Third Largest Difference Segment

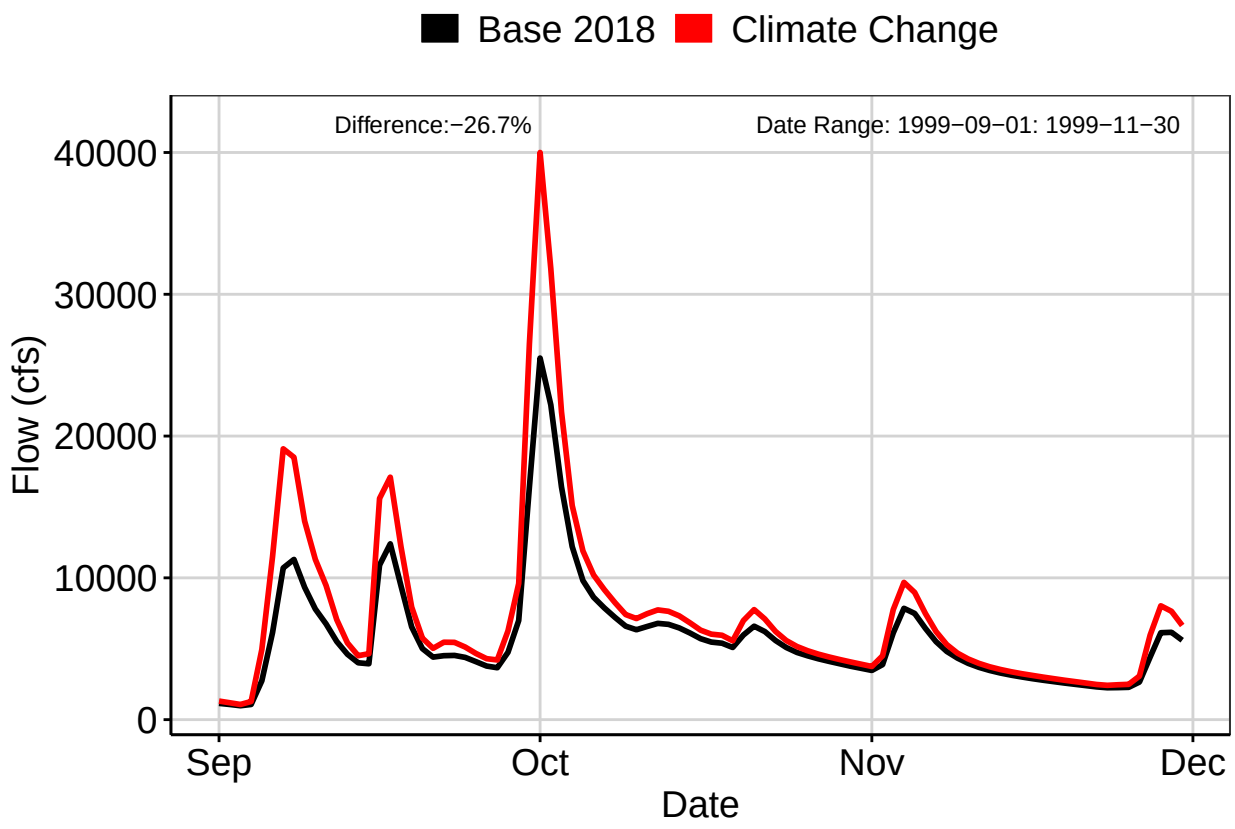


Fig. 9: Residuals Plot