APPENDIX F – SIMULATED VERSUS OBSERVED HYDROGRAPHS OF CALIBRATION TARGET SPRINGS

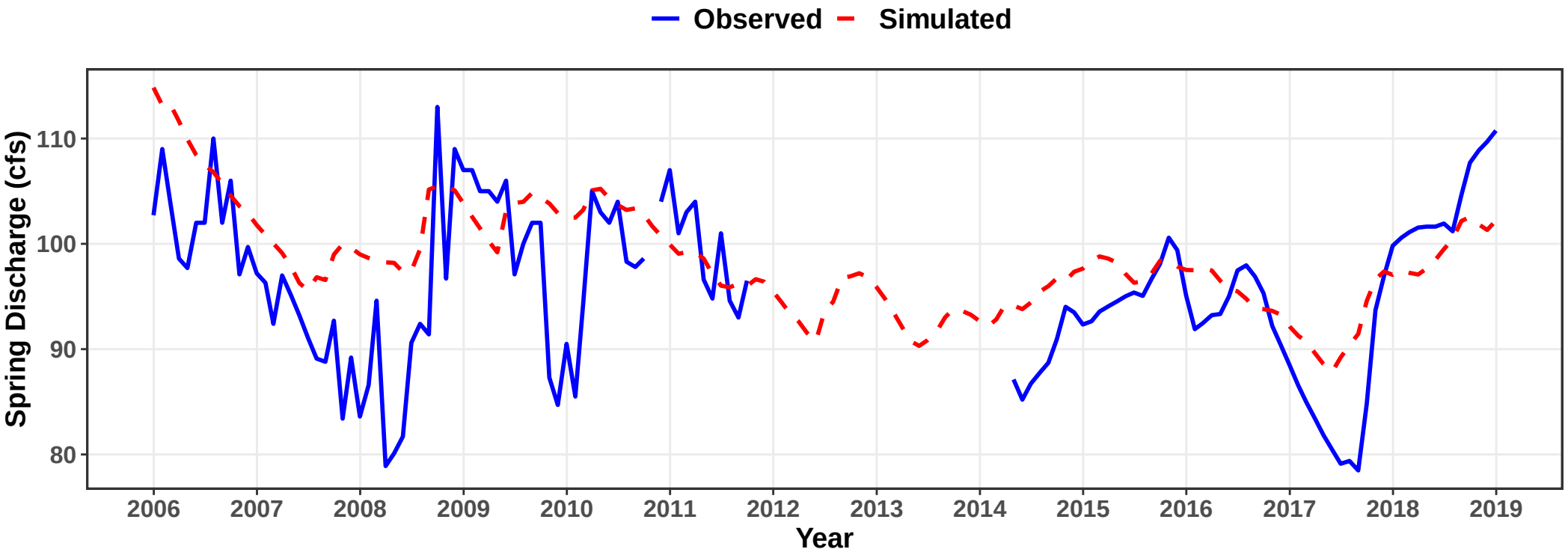
This appendix includes hydrographs and duration curves of the observed and simulated spring flows during the transient model simulation period (2005 through 2018) for 28 target springs. Data gaps on select springflow hydrographs represent periods of no available data. It is noted that observed springflow data was reported using various springflow measurement methods, which may represent discharge from a single spring vent or cumulative discharge from a group of springs. A substantial quality assurance effort was conducted by the Districts during compilation and analysis of springflow data. The best available data was then used as transient calibration targets.

The hydrograph on the top of each page illustrates a monthly time-series of spring discharge. The flow-duration curve on the bottom of each page represents spring discharge and the corresponding percentage of time that a particular discharge is exceeded for each calibration target spring. The same dataset was used to construct each hydrograph and flow-duration curve pair.

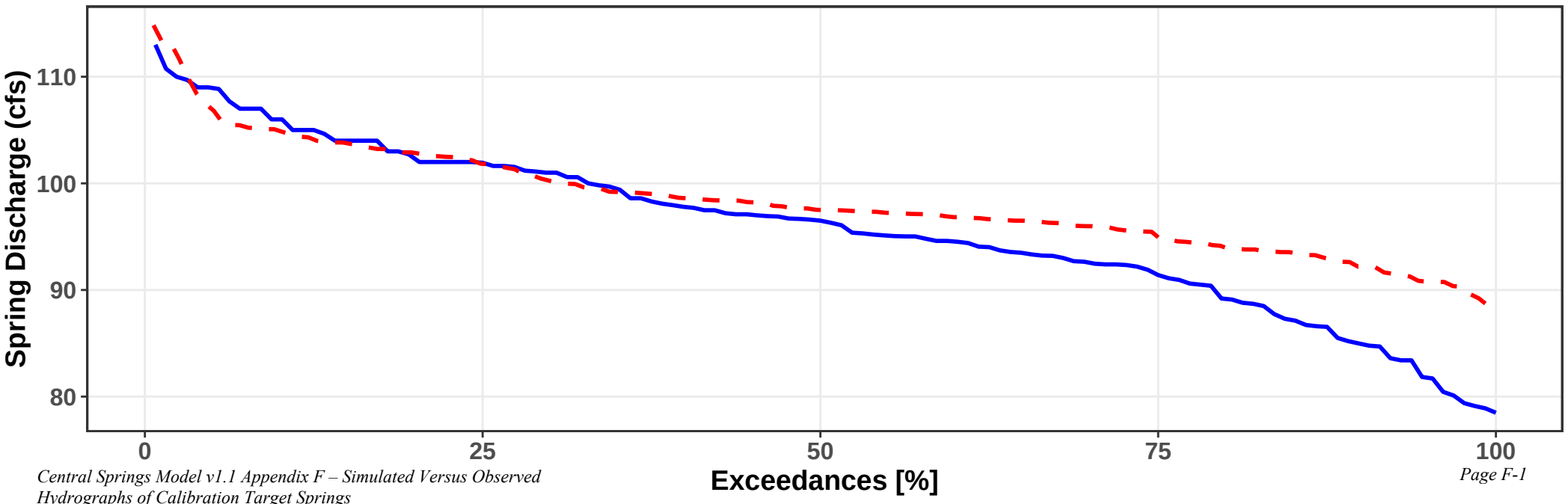
Note: The following definitions apply to all figures included in this appendix. Additional information regarding the presented statistics is included in Chapter 4.
ME = mean error
MAE = mean absolute error
R^2 = coefficient of determination
NSE = Nash-Sutcliffe efficiency coefficient
cfs = cubic feet per second

Alexander Springs

ME = 3.4 MAE = 5.6 R^2 = 0.3728 NSE = 0.175

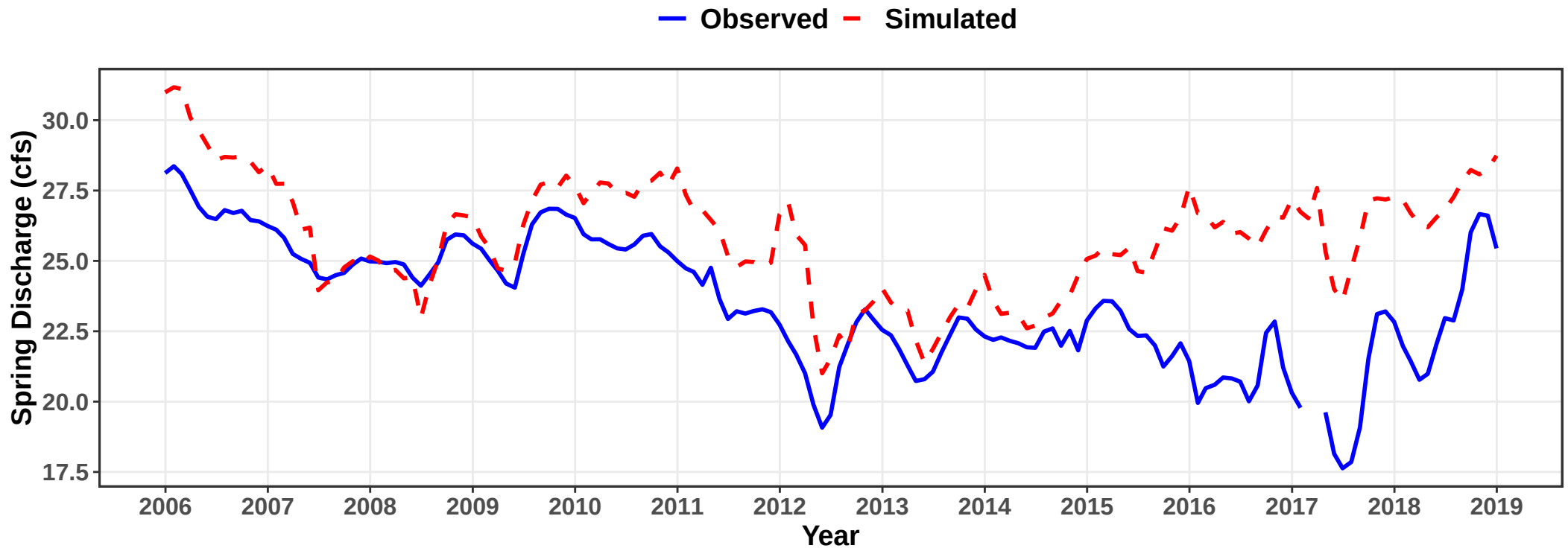


Flow−Duration Curve

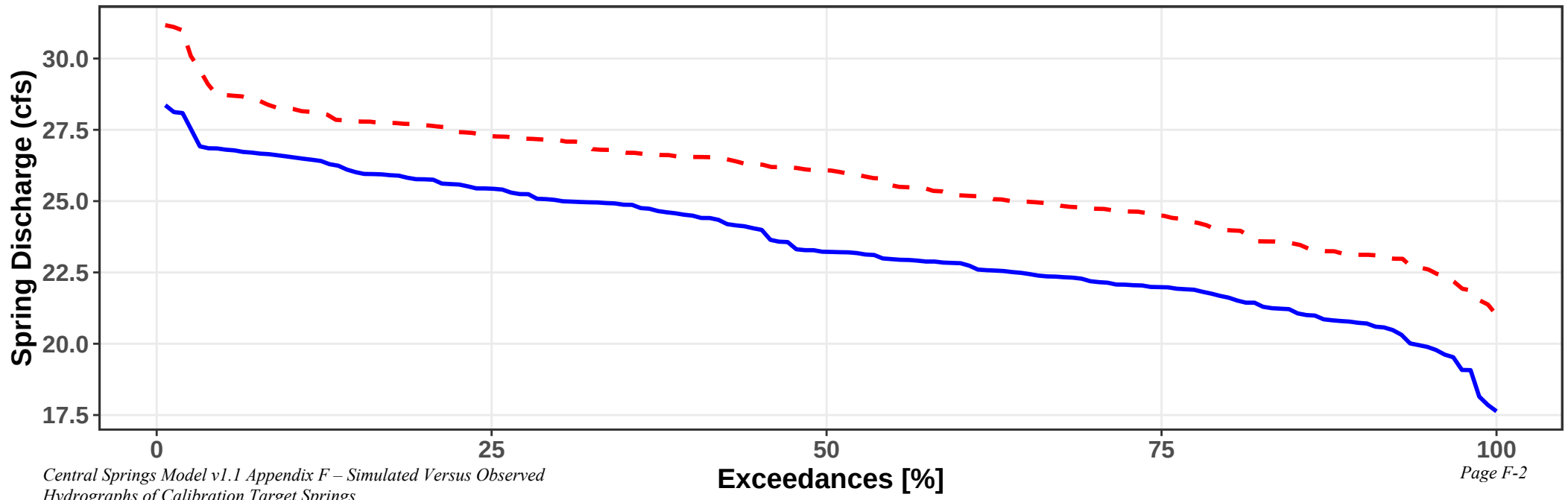


Apopka Springs

ME = 2.3 MAE = 2.3 R^2 = 0.3798 NSE = −0.715

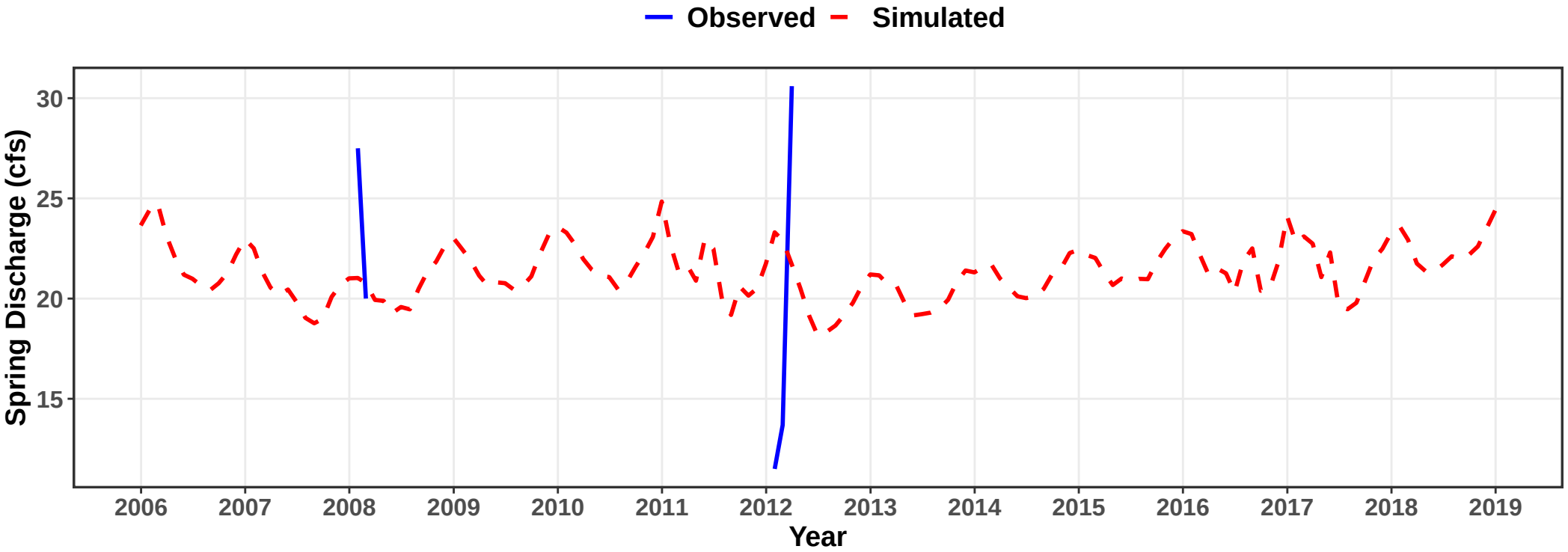


Flow−Duration Curve

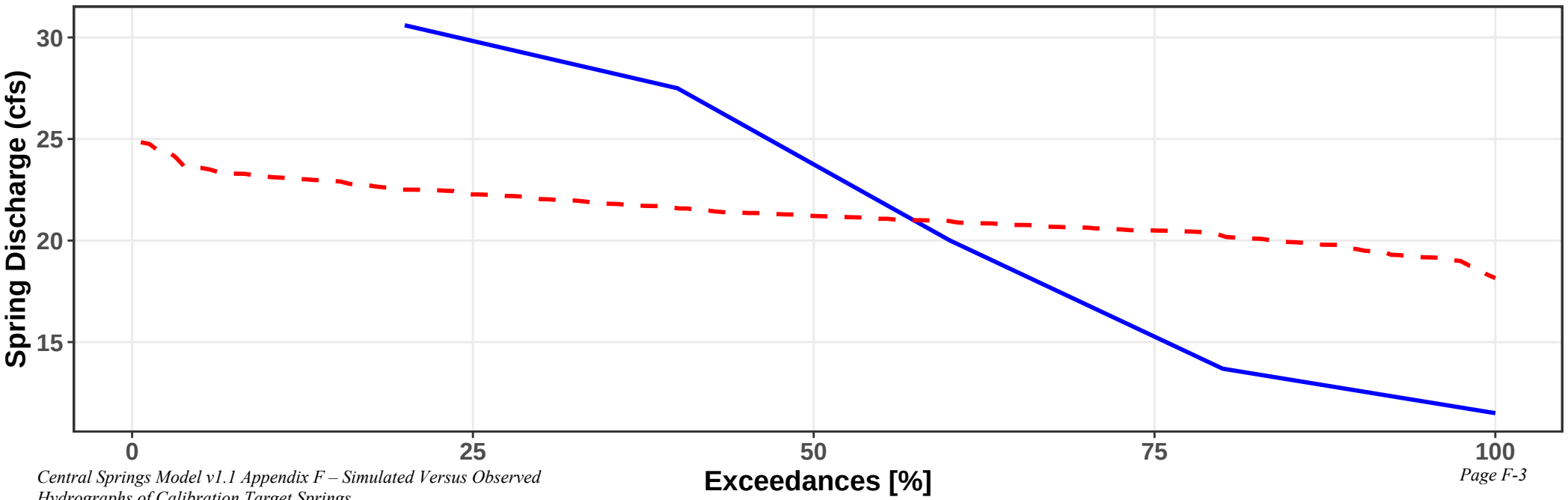


Blue Spring − Marion

ME = 1.3 MAE = 7.4 R^2 = 0.5217 NSE = −0.242

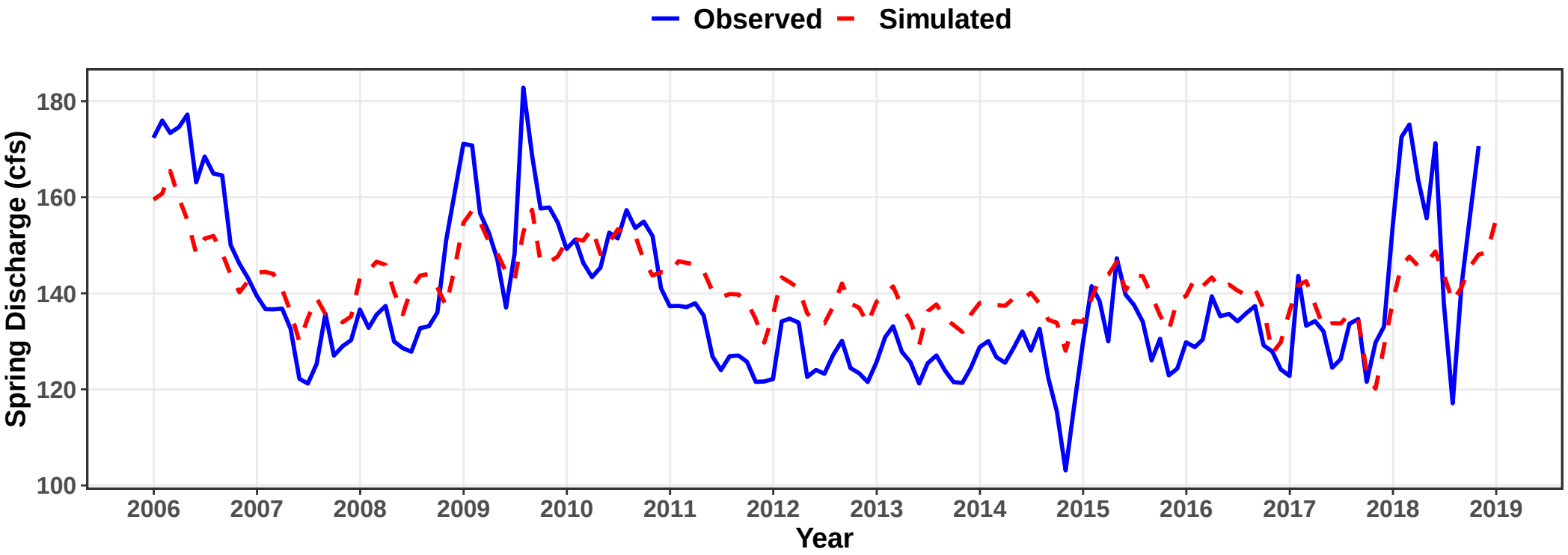


Flow−Duration Curve

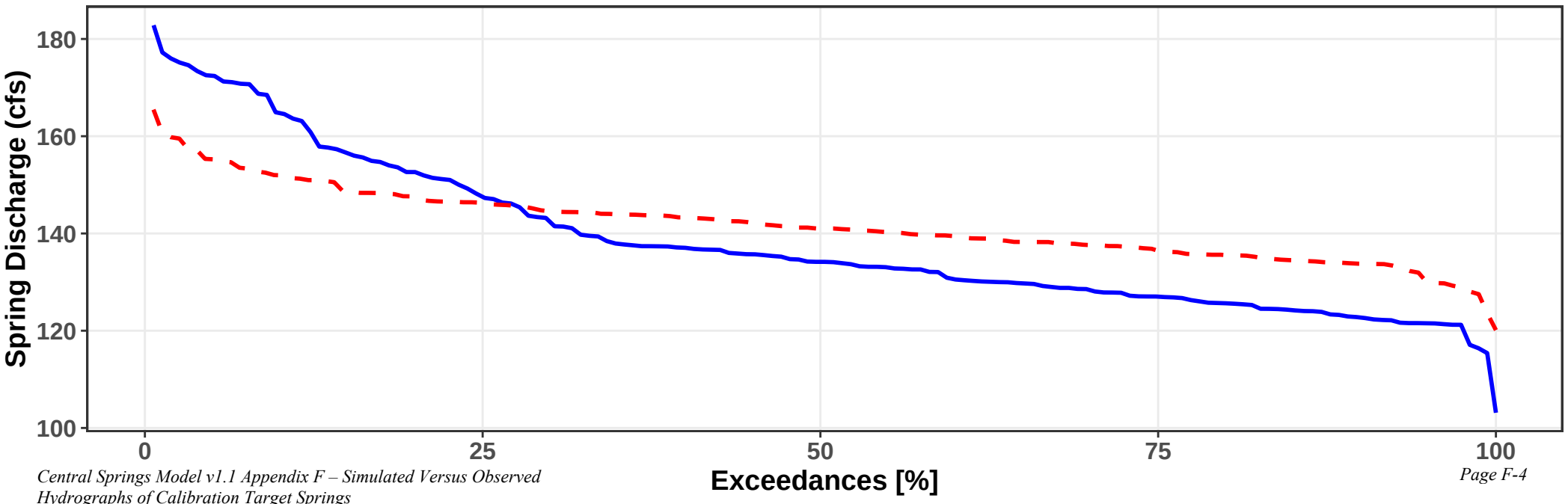


Blue Spring Org City

ME = 3.2 MAE = 9.4 R^2 = 0.6753 NSE = 0.51

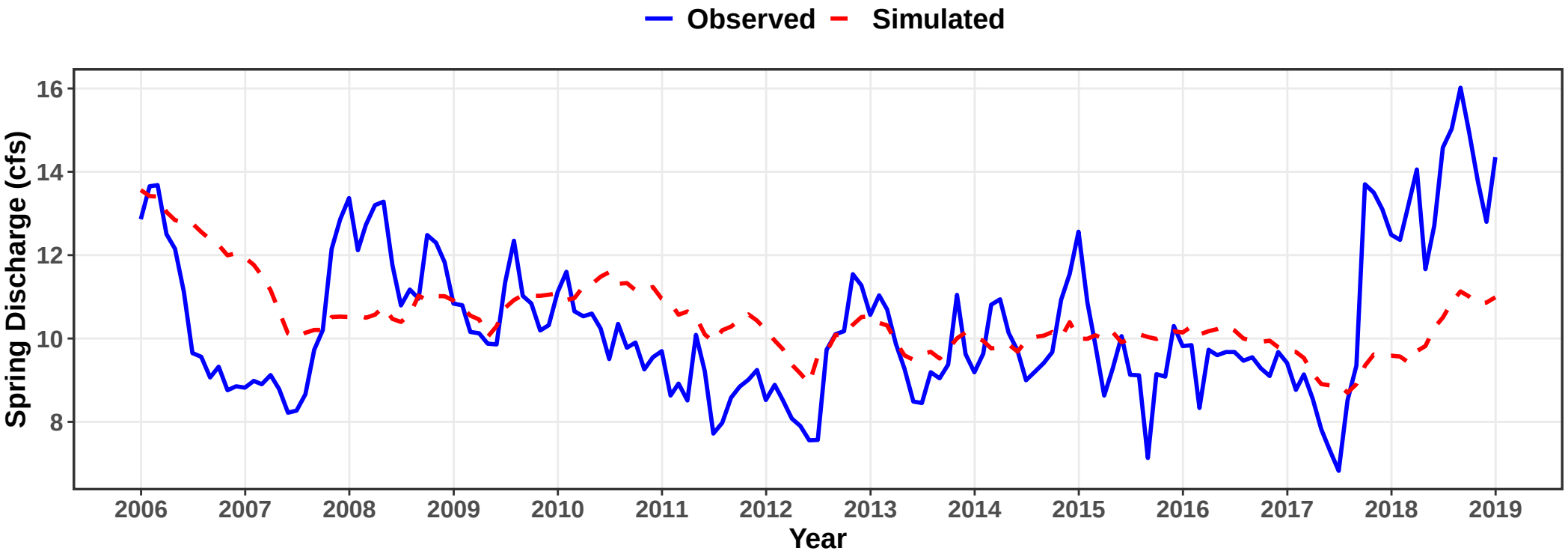


Flow−Duration Curve

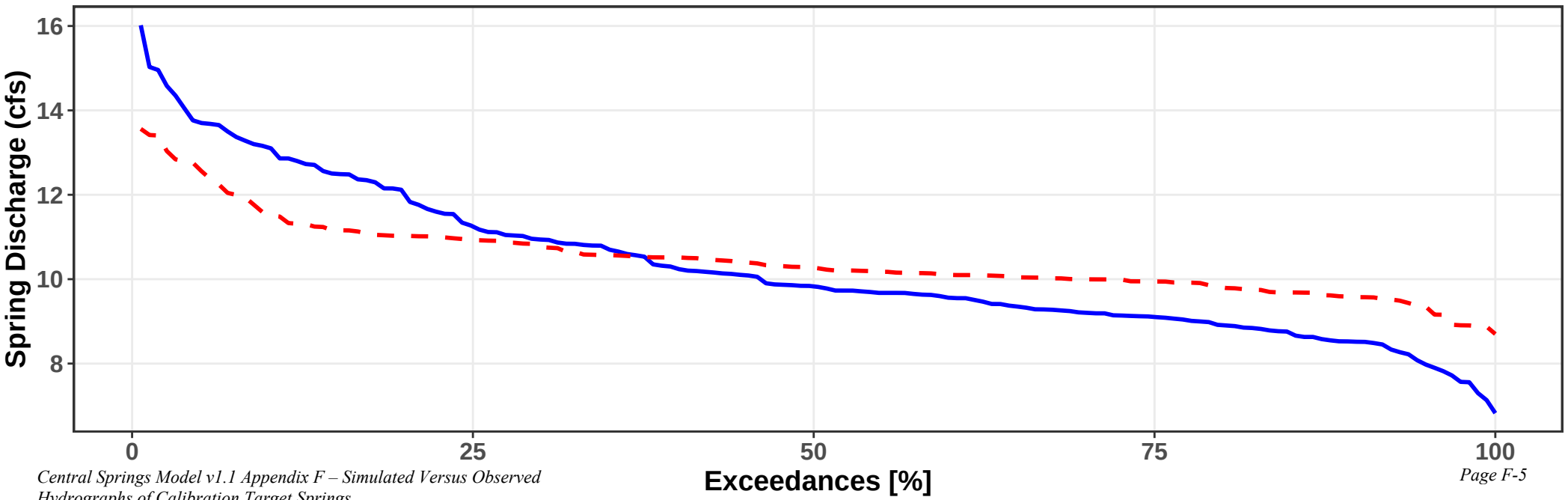


Bugg Springs

ME = 0.2 MAE = 1.3 R^2 = 0.0985 NSE = 0.054

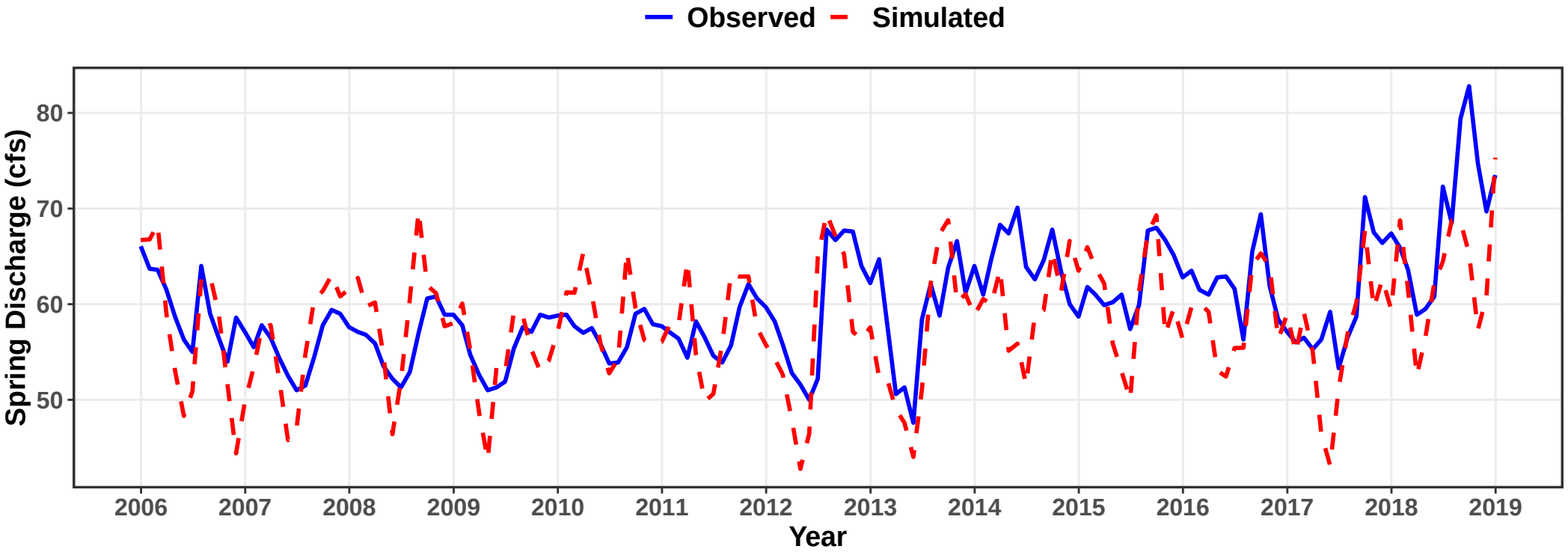


Flow−Duration Curve

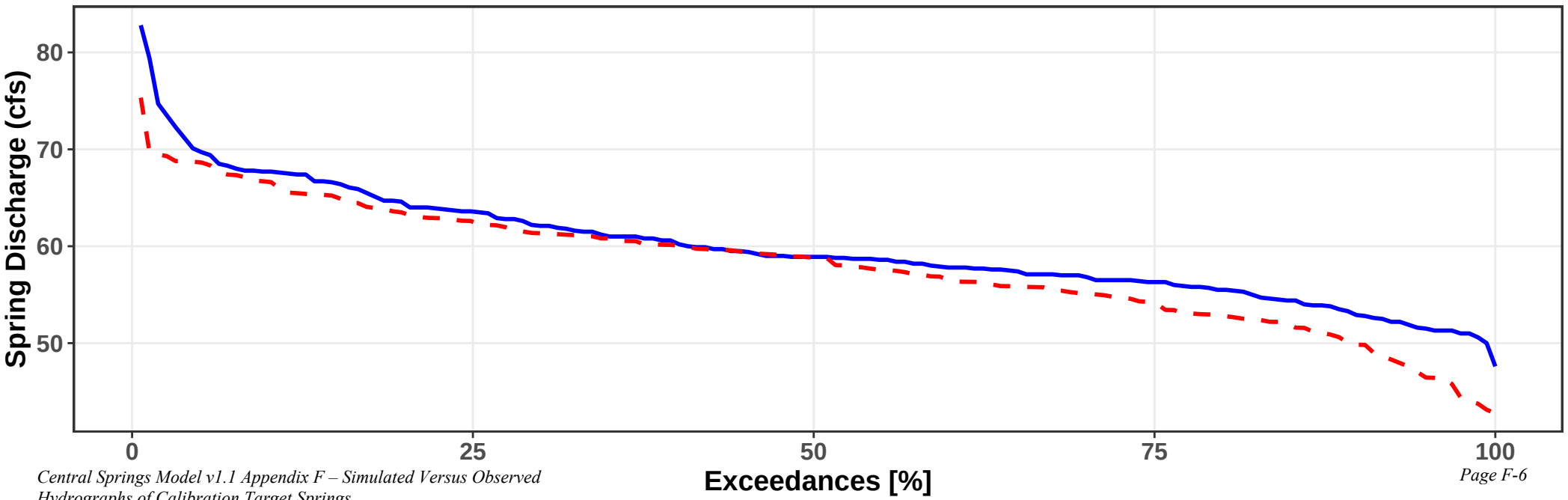


Chassahowitzka Spring Main

ME = −1.8 MAE = 4.4 R^2 = 0.3467 NSE = −0.005

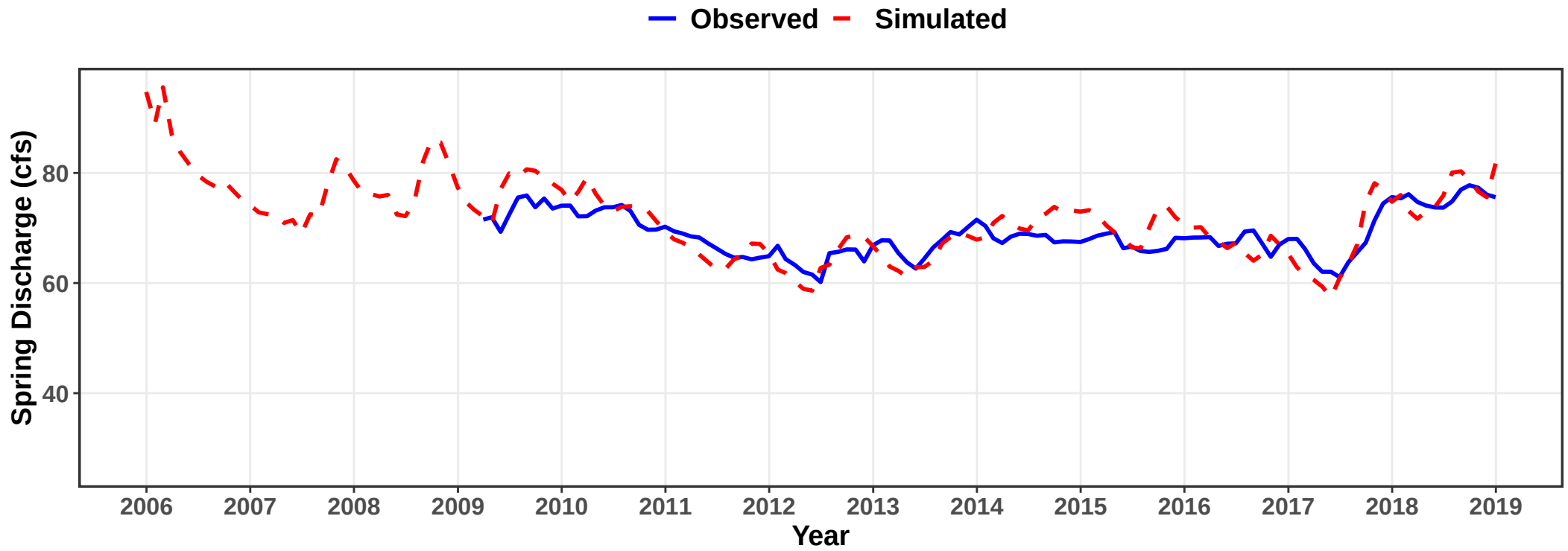


Flow−Duration Curve

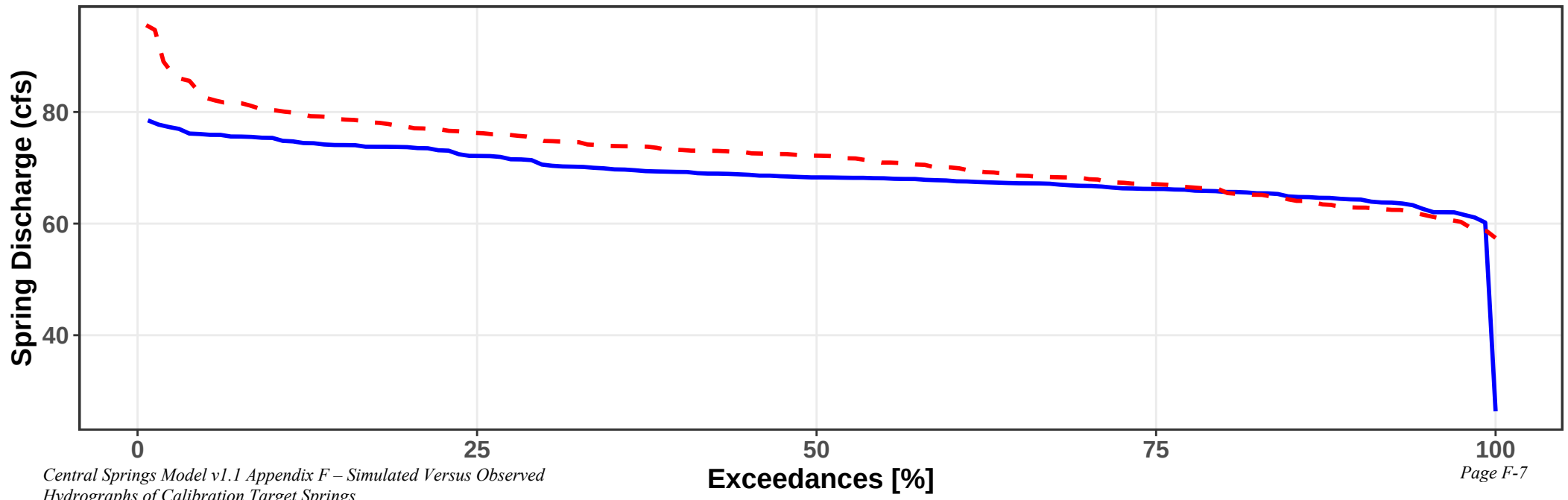


Croaker Hole Spring

ME = 1.9 MAE = 3.6 R^2 = 0.1132 NSE = −0.701

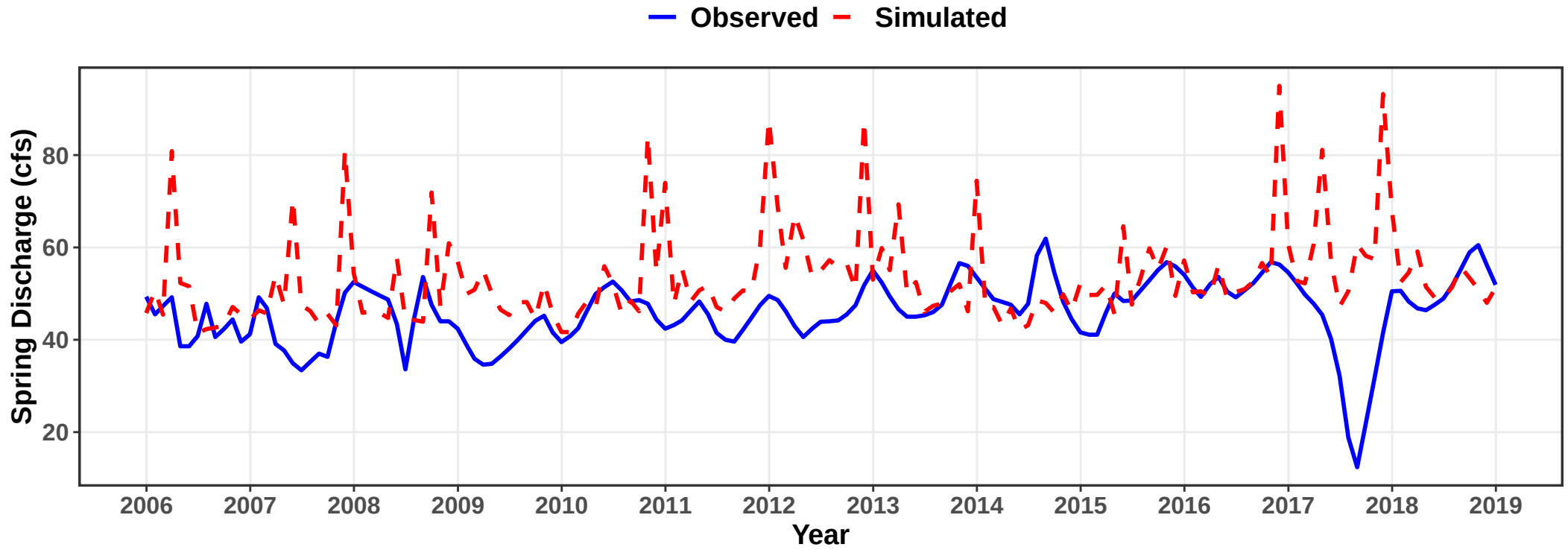


Flow−Duration Curve

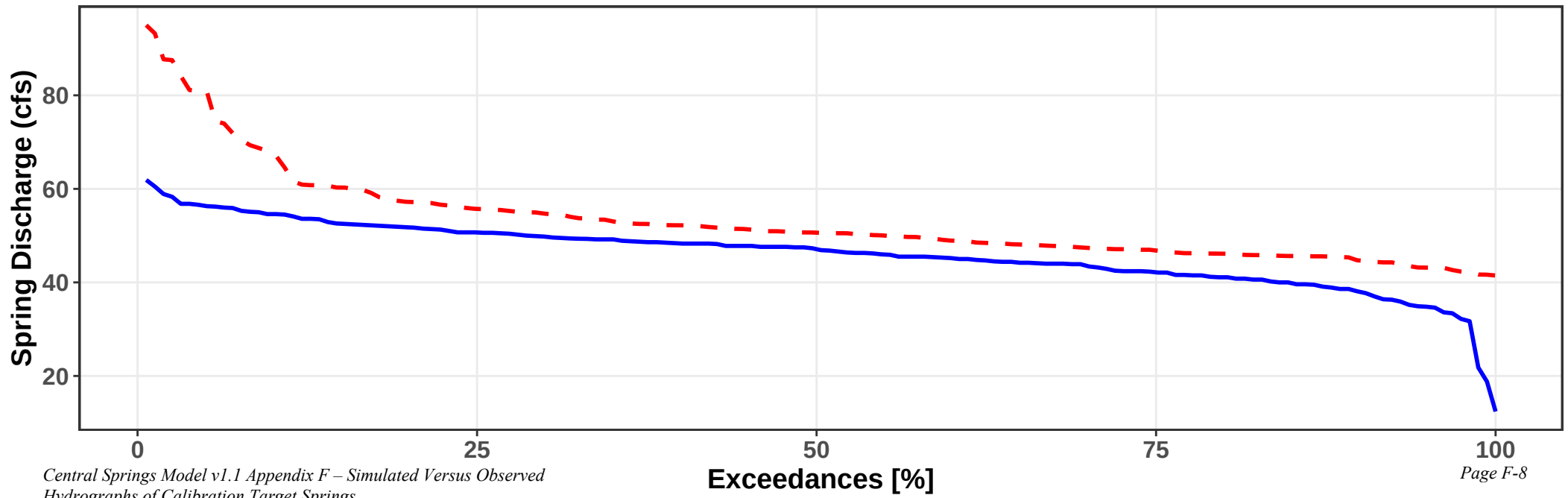


Crystal Main Spring (Pasco)

ME = 7.2 MAE = 9.3 R^2 = 0.0102 NSE = −2.666

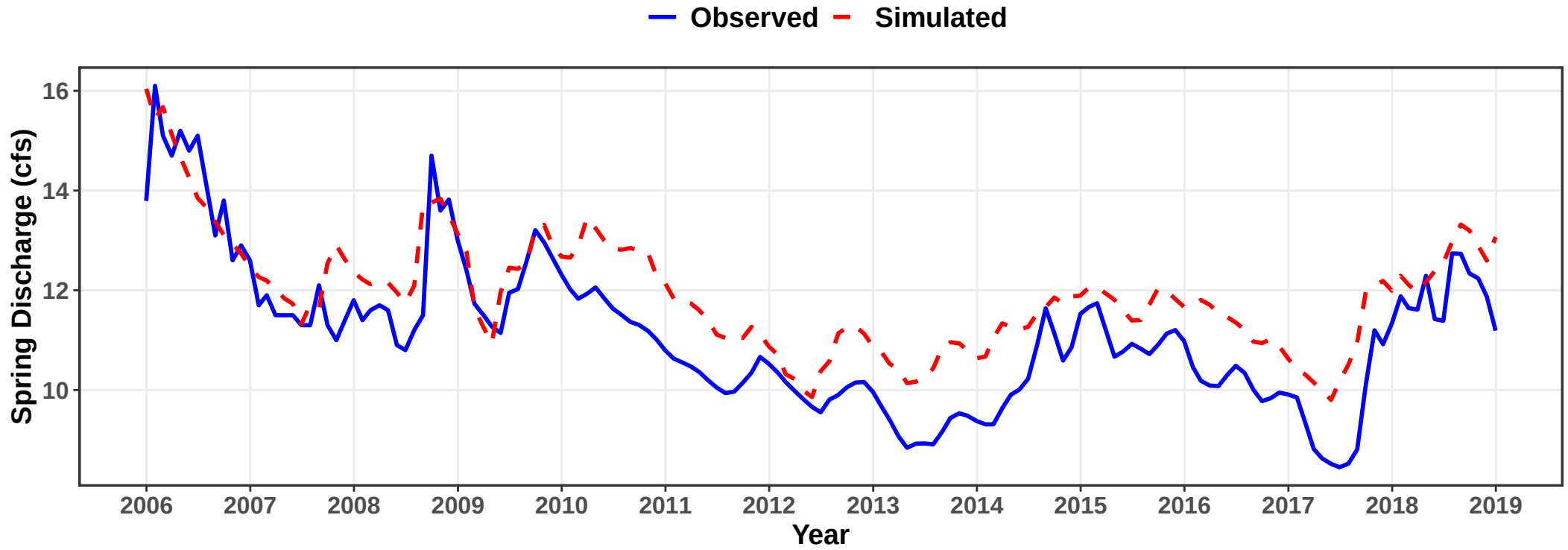


Flow−Duration Curve

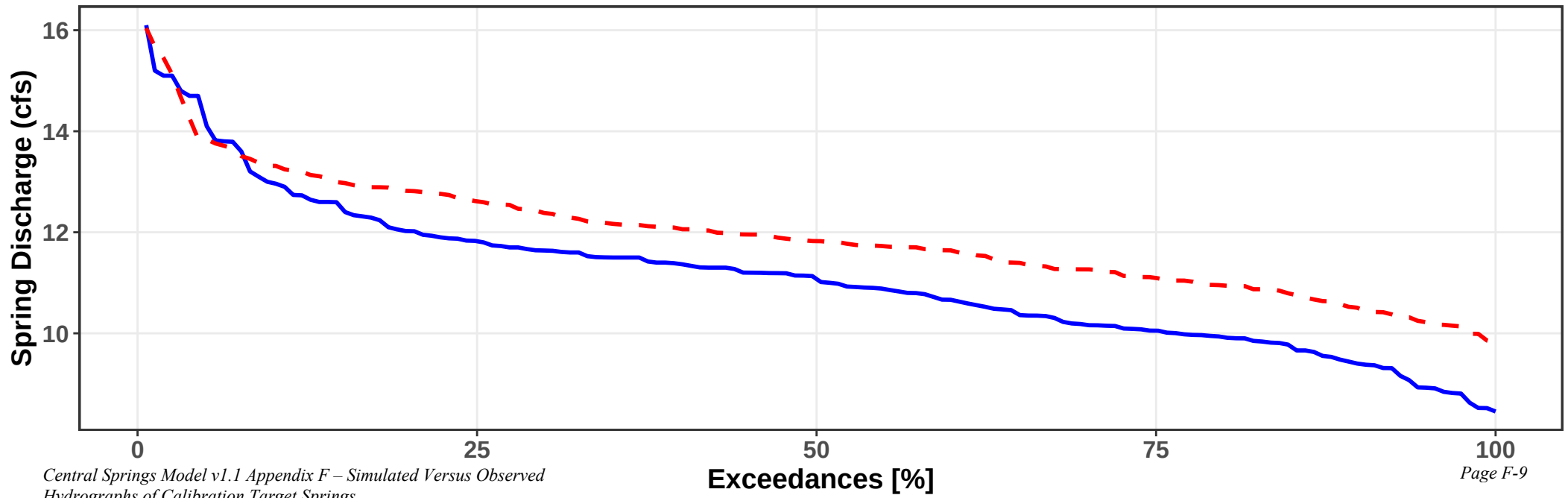


Fern Hammock Springs

ME = 0.8 MAE = 0.9 R^2 = 0.8303 NSE = 0.517

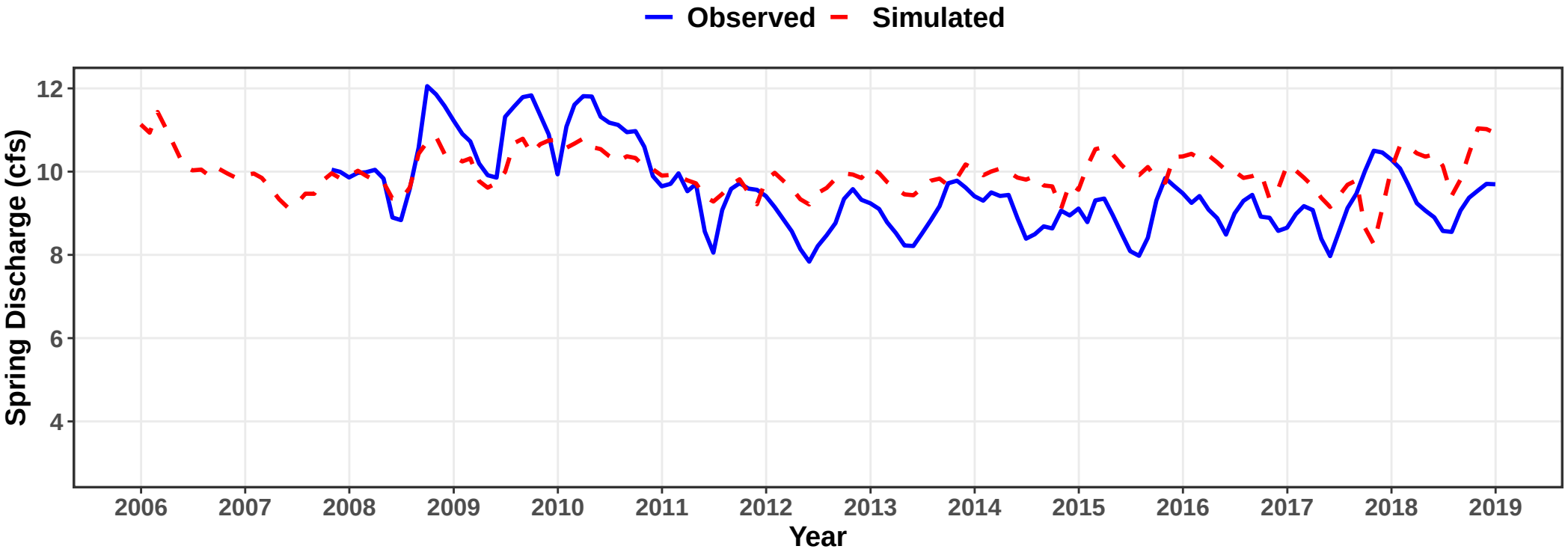


Flow−Duration Curve

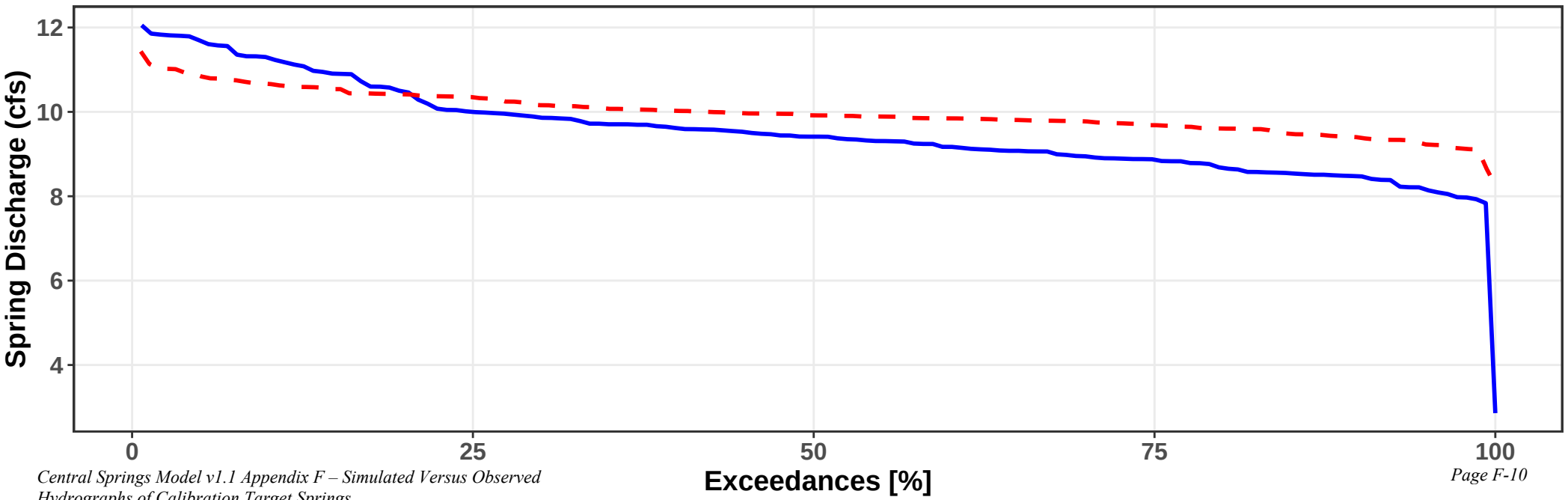


Gemini Spring

$ME = 0.5$ $MAE = 0.9$ $R^2 = 0.1304$ $NSE = -0.028$

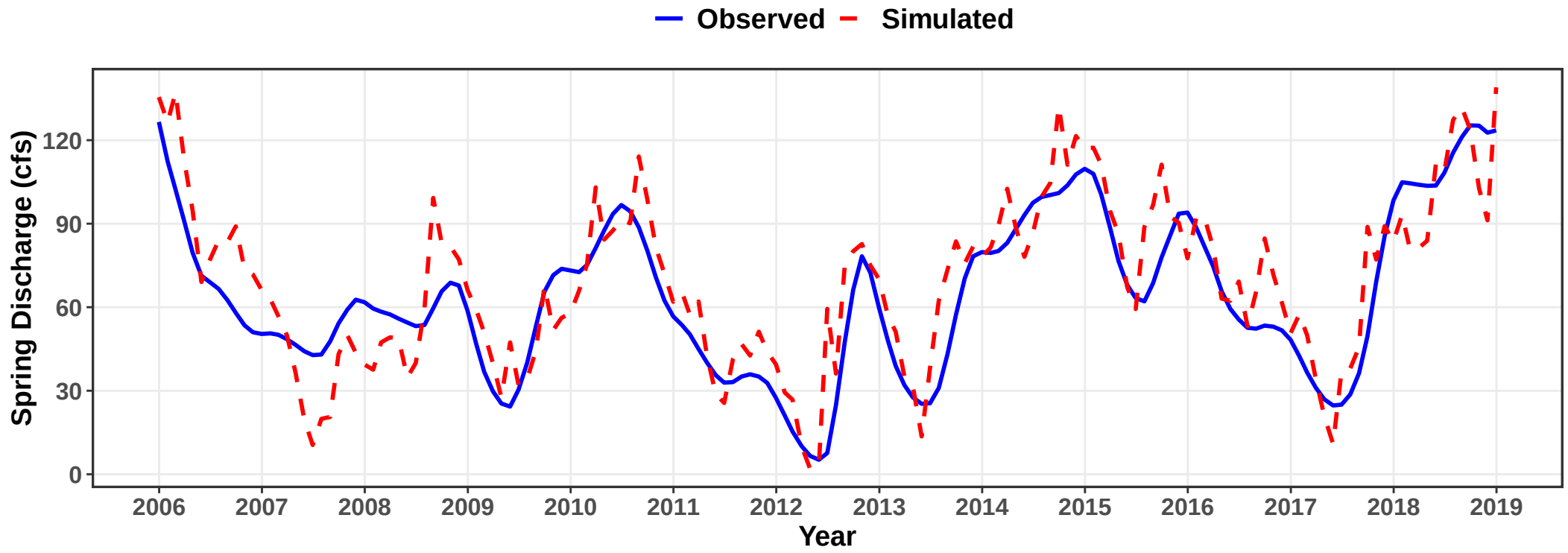


Flow−Duration Curve

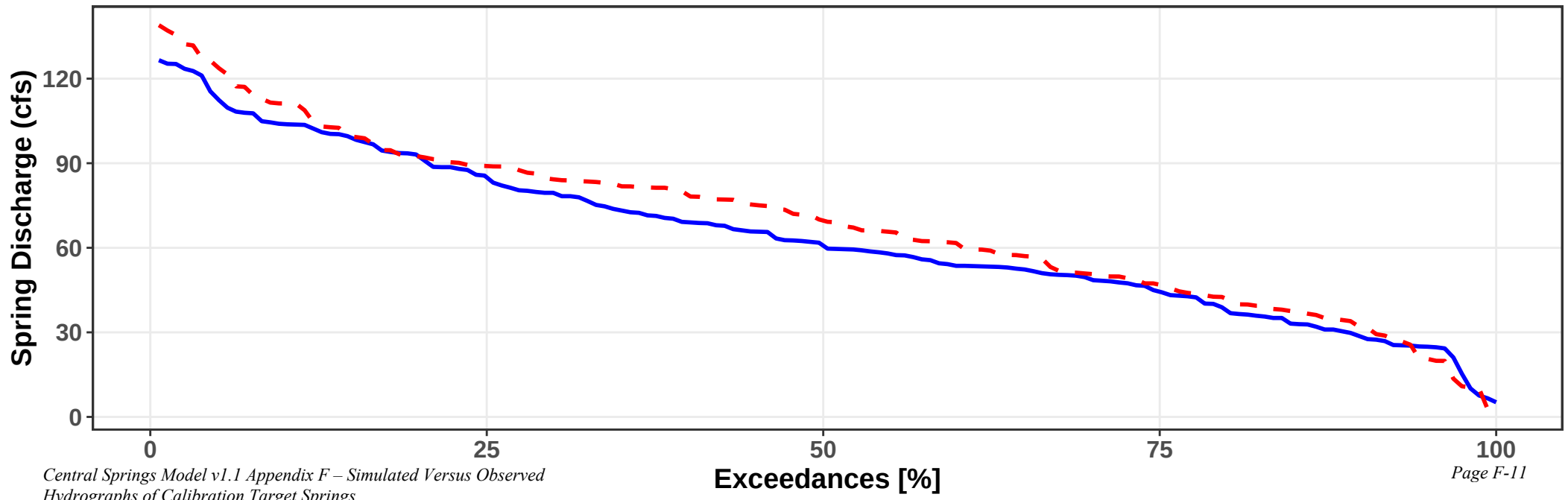


Gum Spring Main

ME = 4.9 MAE = 12.7 R^2 = 0.7543 NSE = 0.682

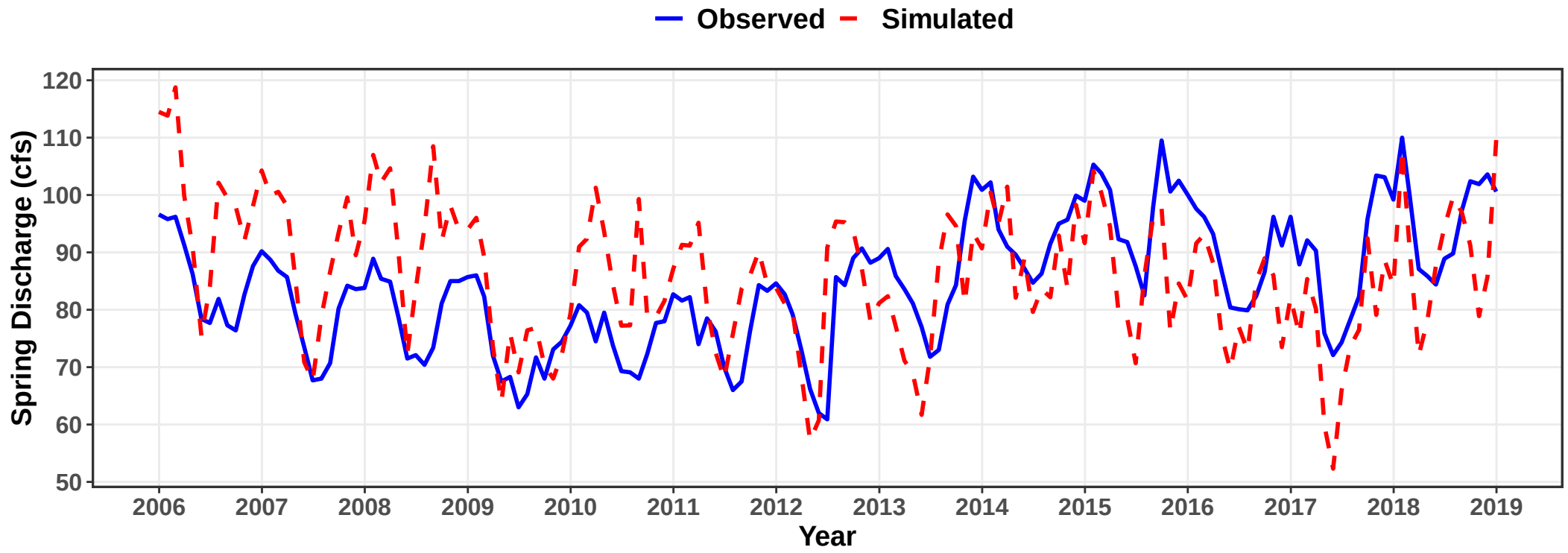


Flow−Duration Curve

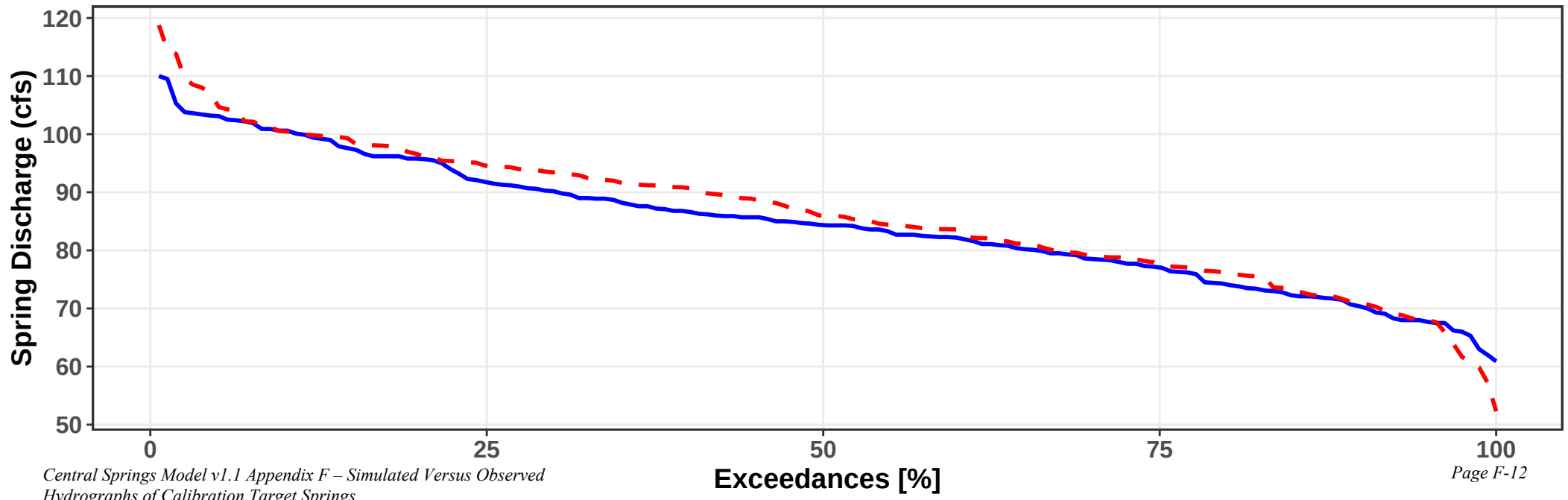


Homosassa Spring #1

ME = 1.6 MAE = 9.8 R^2 = 0.2209 NSE = −0.212

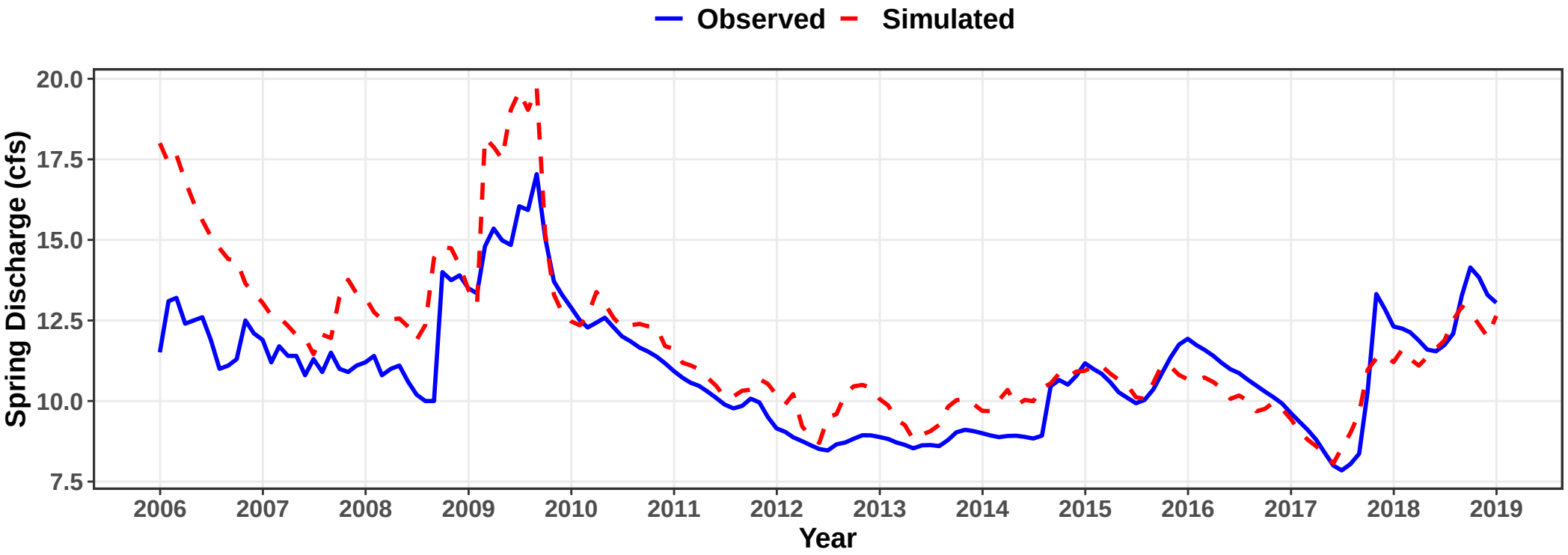


Flow−Duration Curve

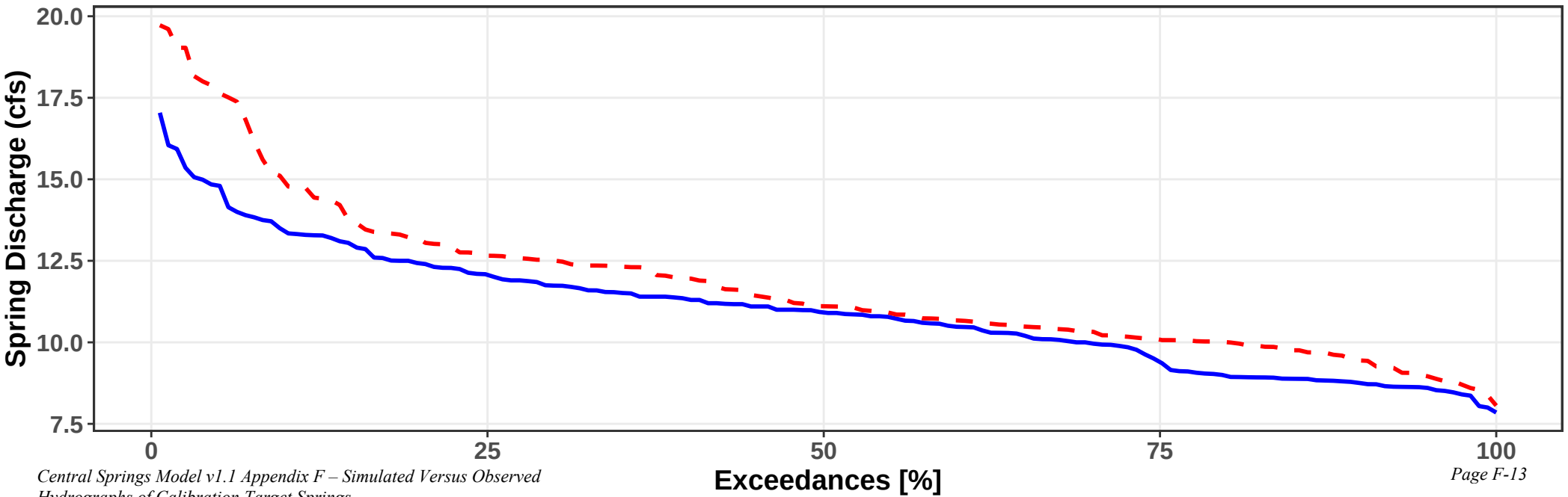


Juniper Springs

ME = 0.8 MAE = 1.1 R^2 = 0.6902 NSE = 0.284

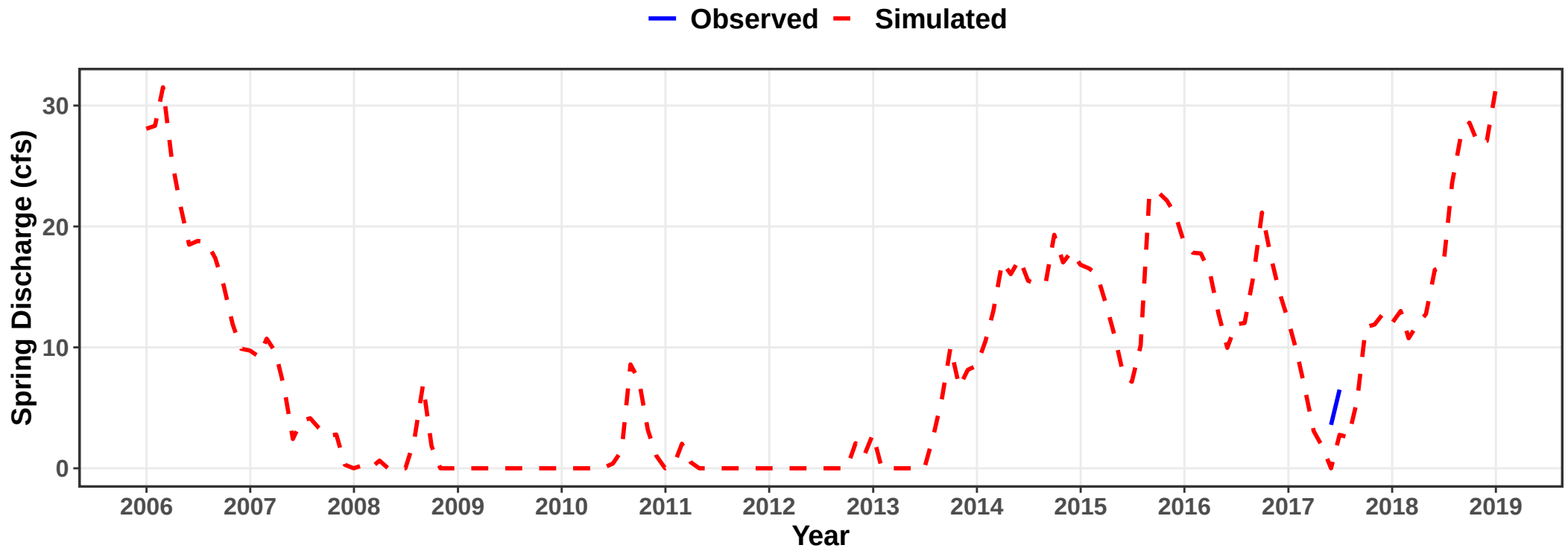


Flow−Duration Curve

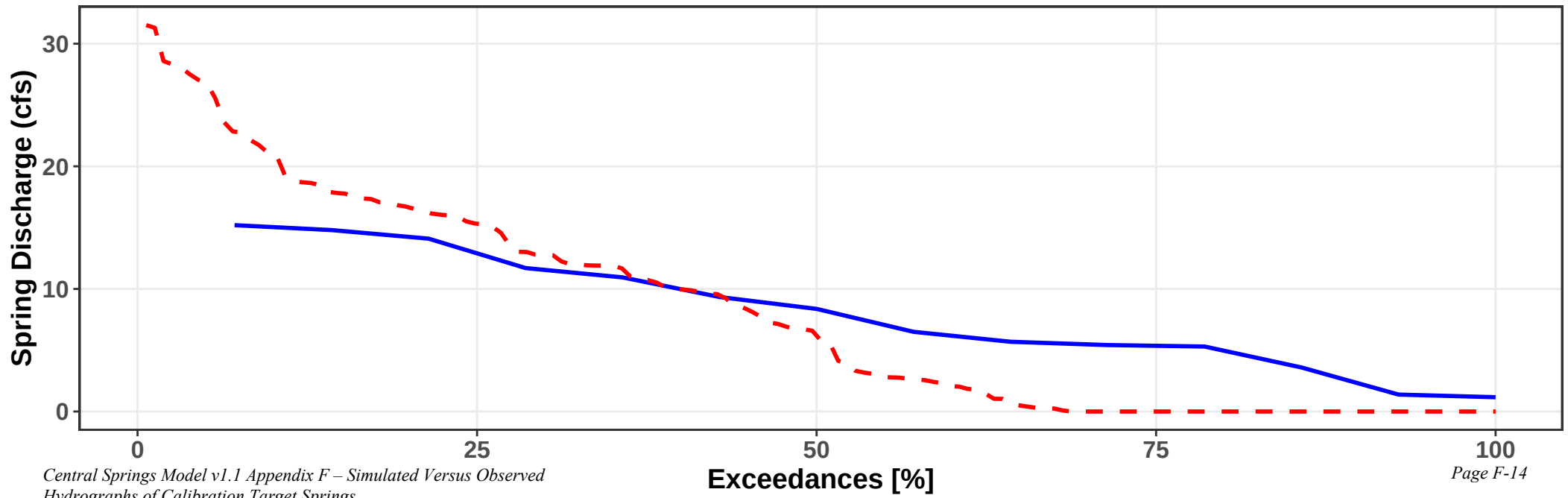


Levy Blue Spring

ME = 5.8 MAE = 7.6 R^2 = 0.1247 NSE = −3.939

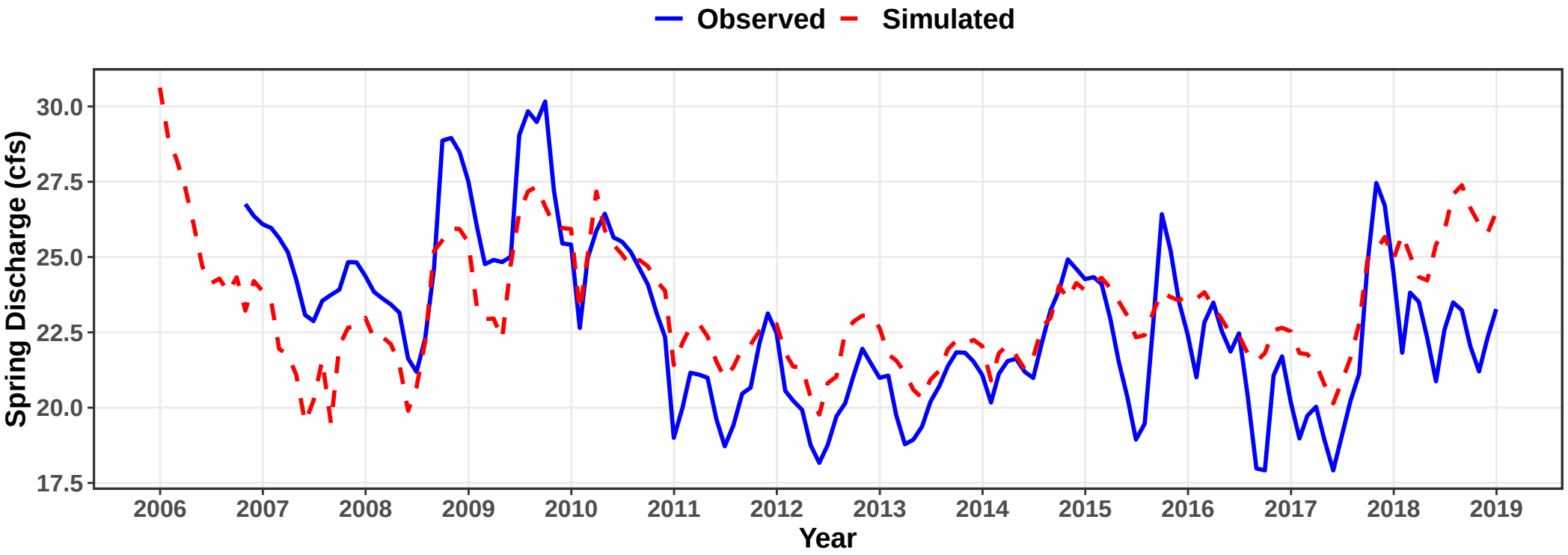


Flow−Duration Curve

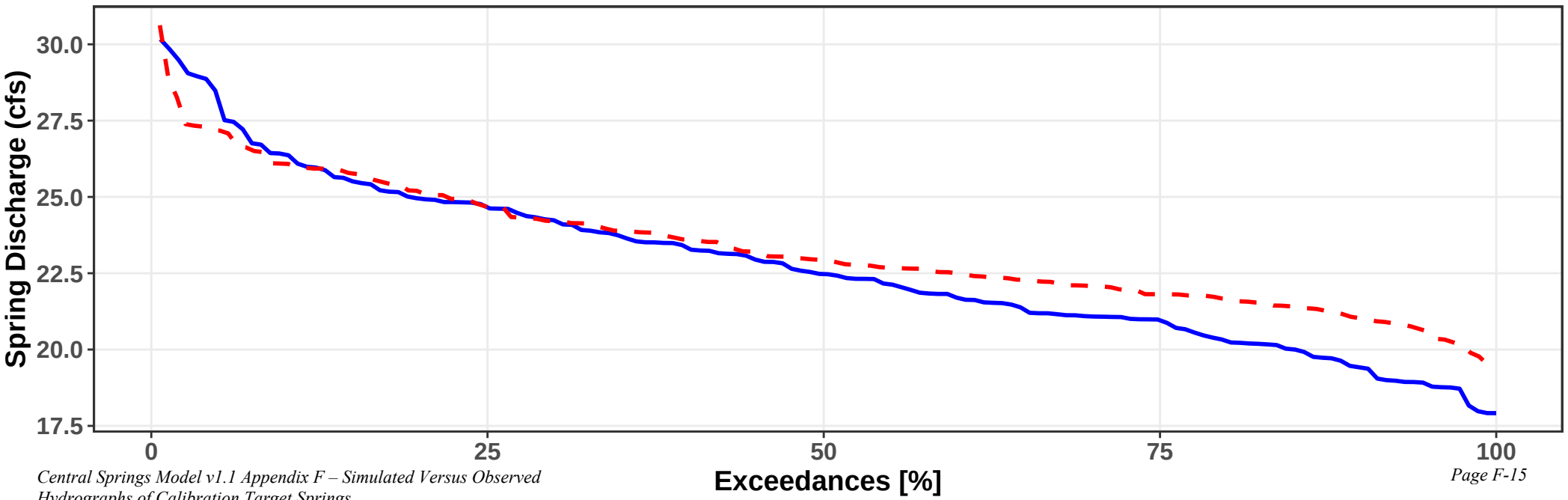


Ponce De Leon Spring

ME = 0.4 MAE = 1.6 R^2 = 0.4752 NSE = 0.456

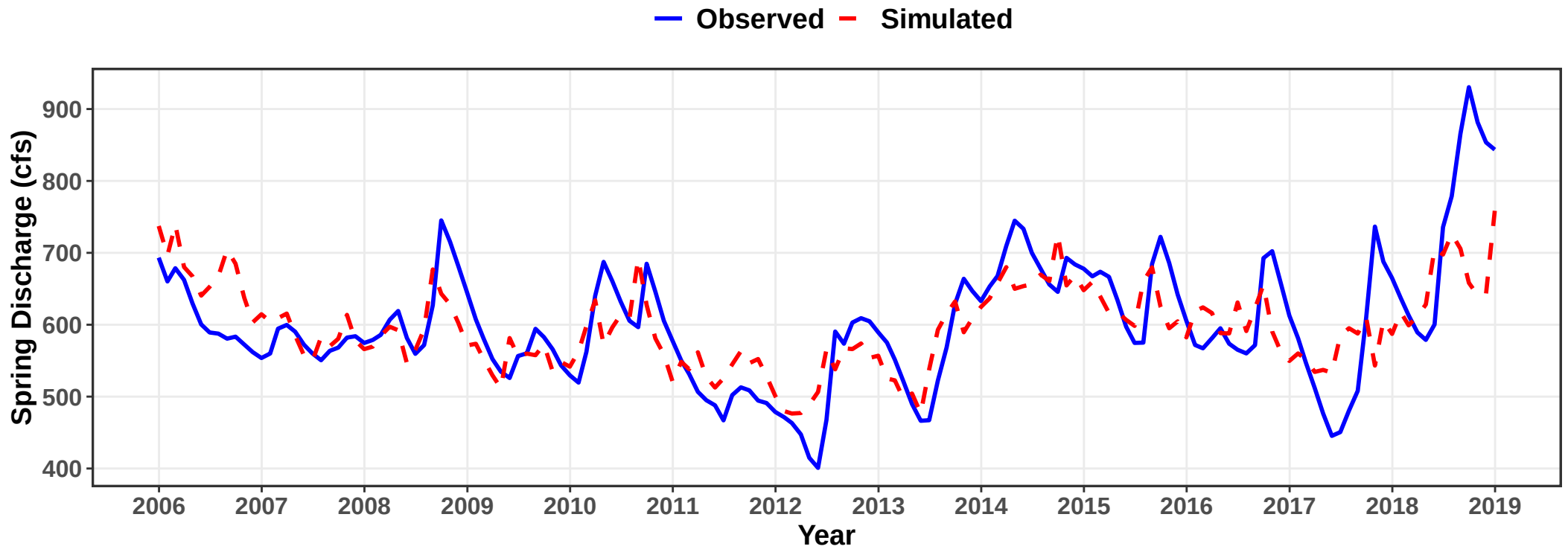


Flow−Duration Curve

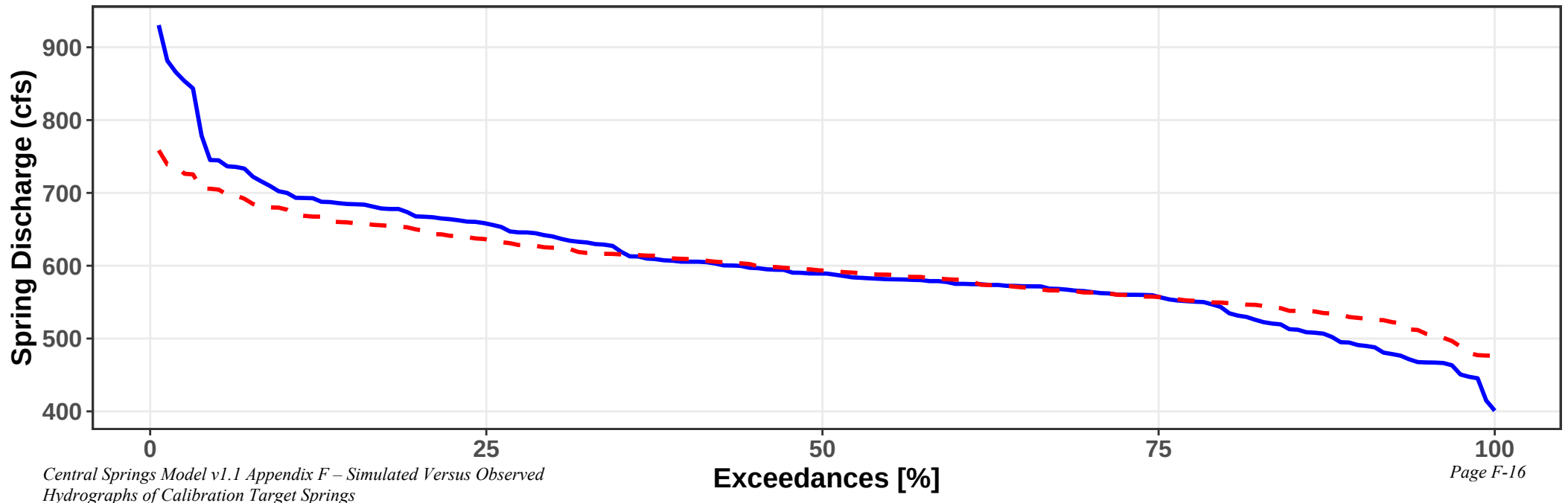


Rainbow Spring #1

ME = −3.9 MAE = 47.4 R^2 = 0.4685 NSE = 0.466

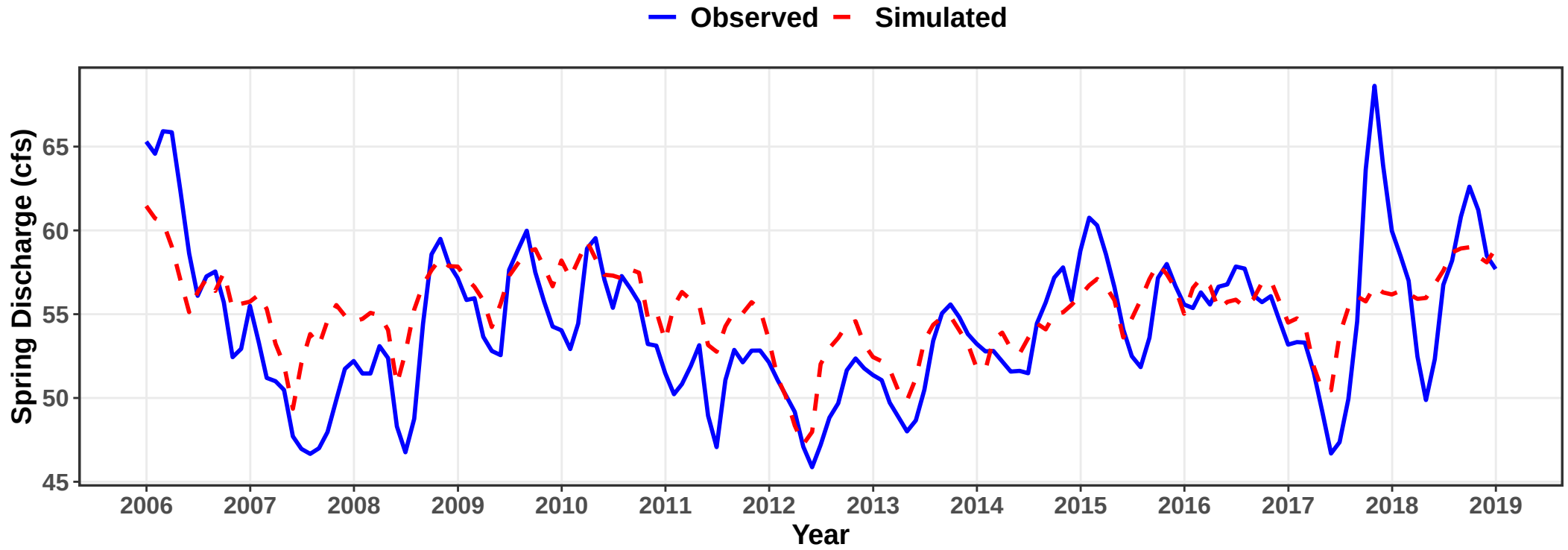


Flow−Duration Curve

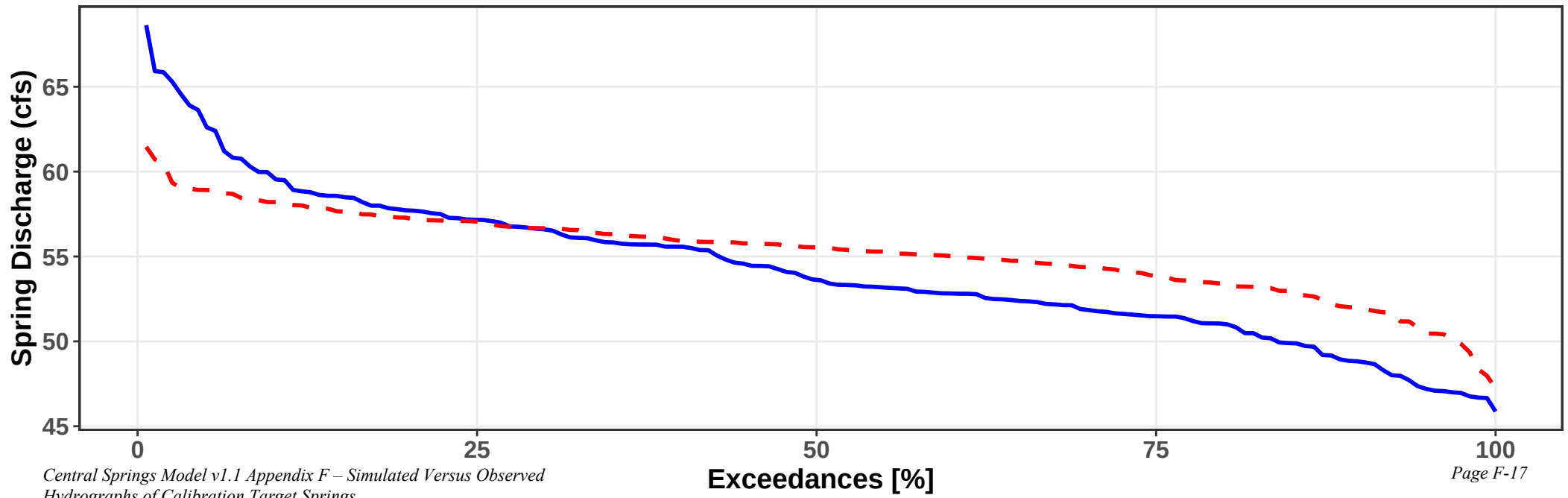


Rock Springs

ME = 1 MAE = 2.4 R^2 = 0.5914 NSE = 0.503

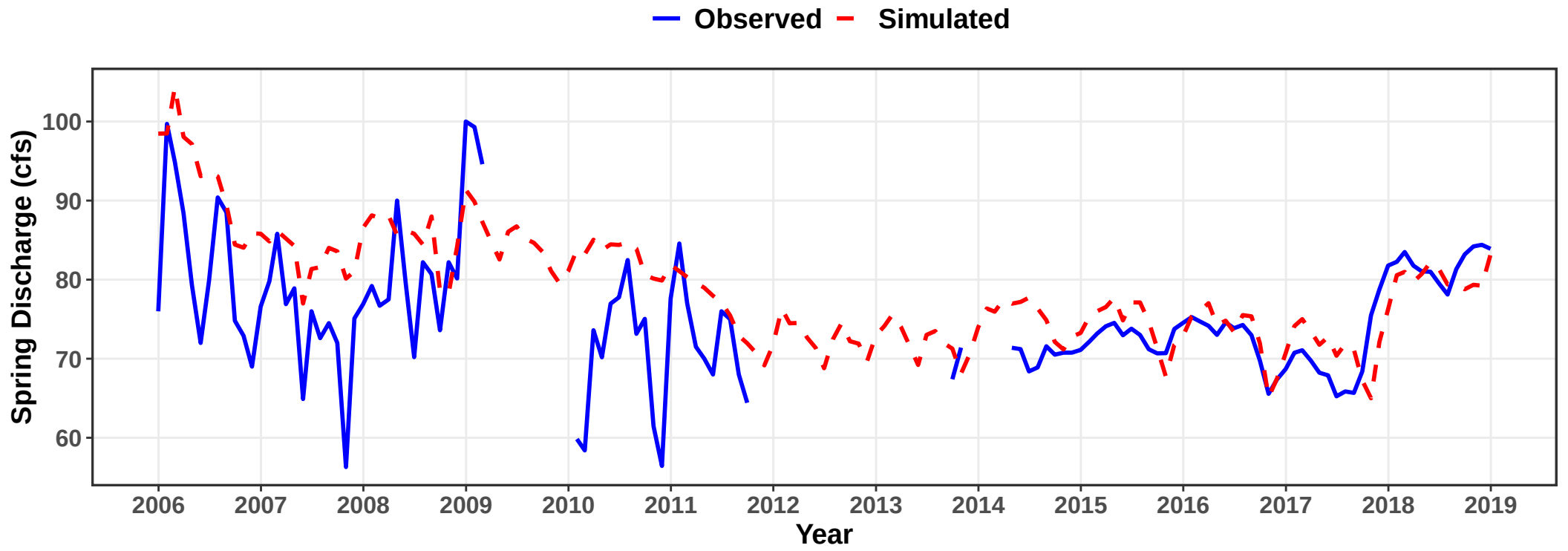


Flow−Duration Curve

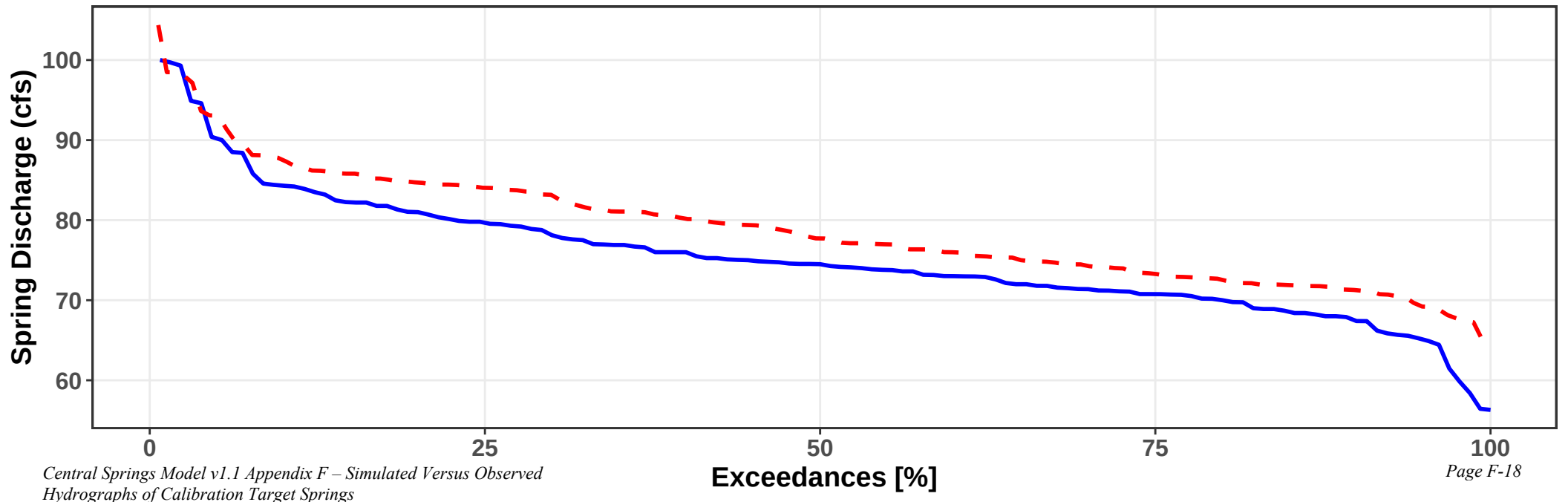


Salt Springs

$ME = 4.1$ $MAE = 6$ $R^2 = 0.3147$ $NSE = -0.102$

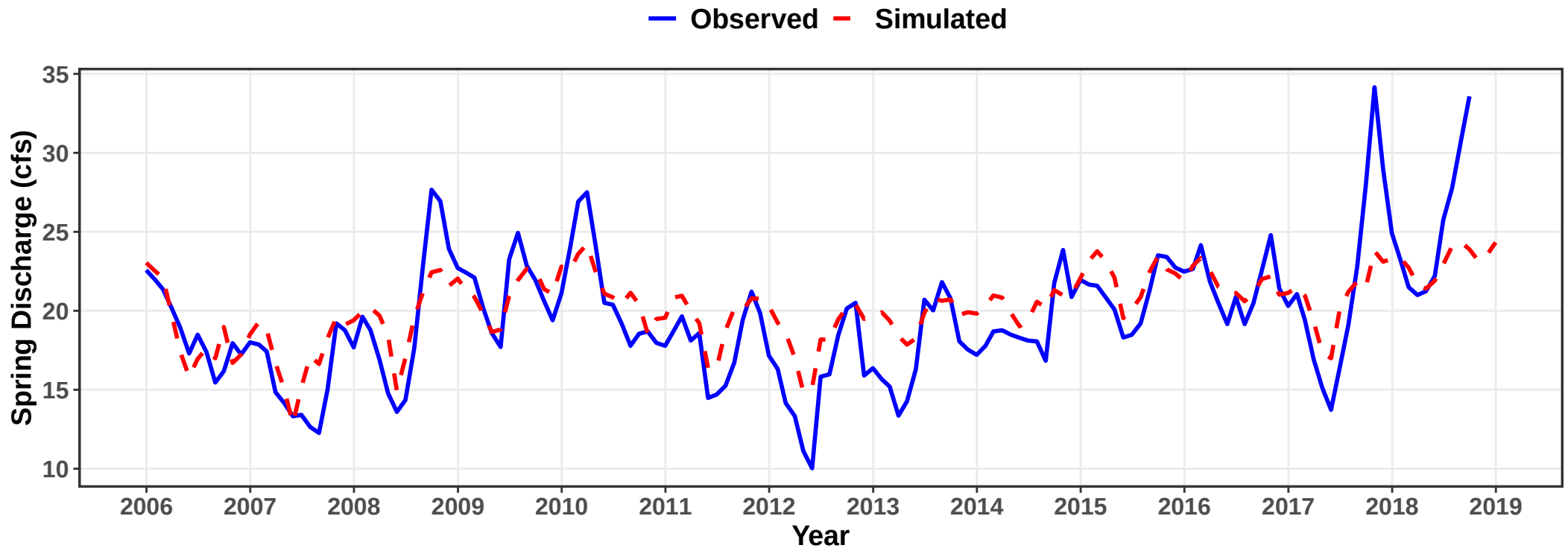


Flow−Duration Curve

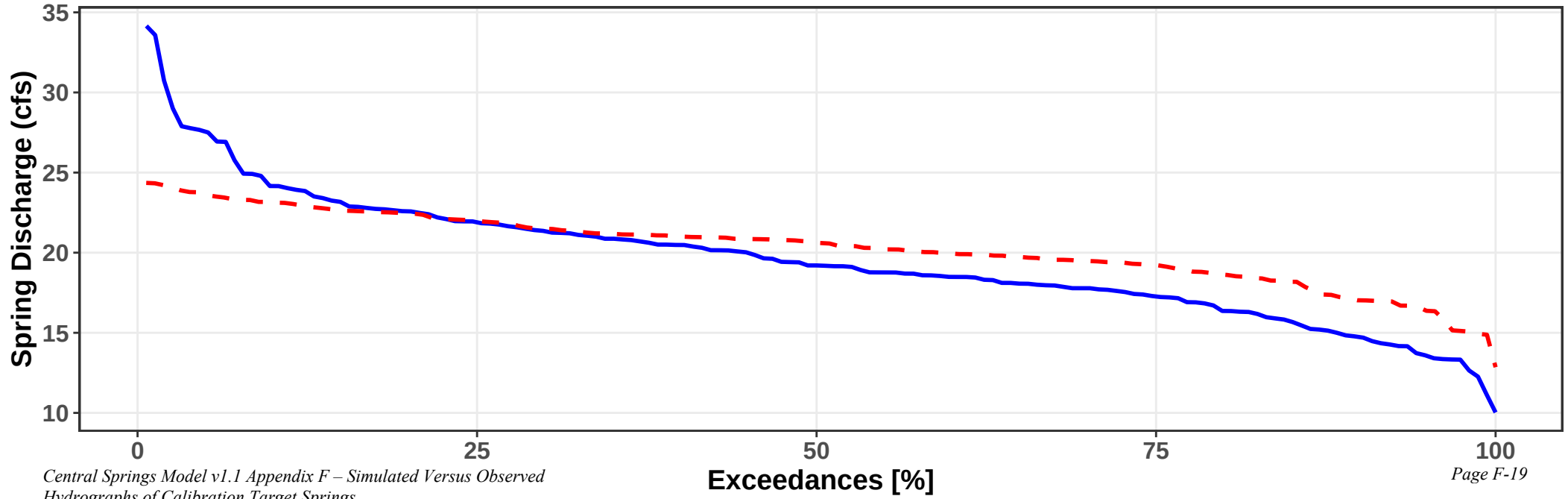


Sanlando Spring

ME = 0.6 MAE = 1.9 R^2 = 0.7136 NSE = 0.602

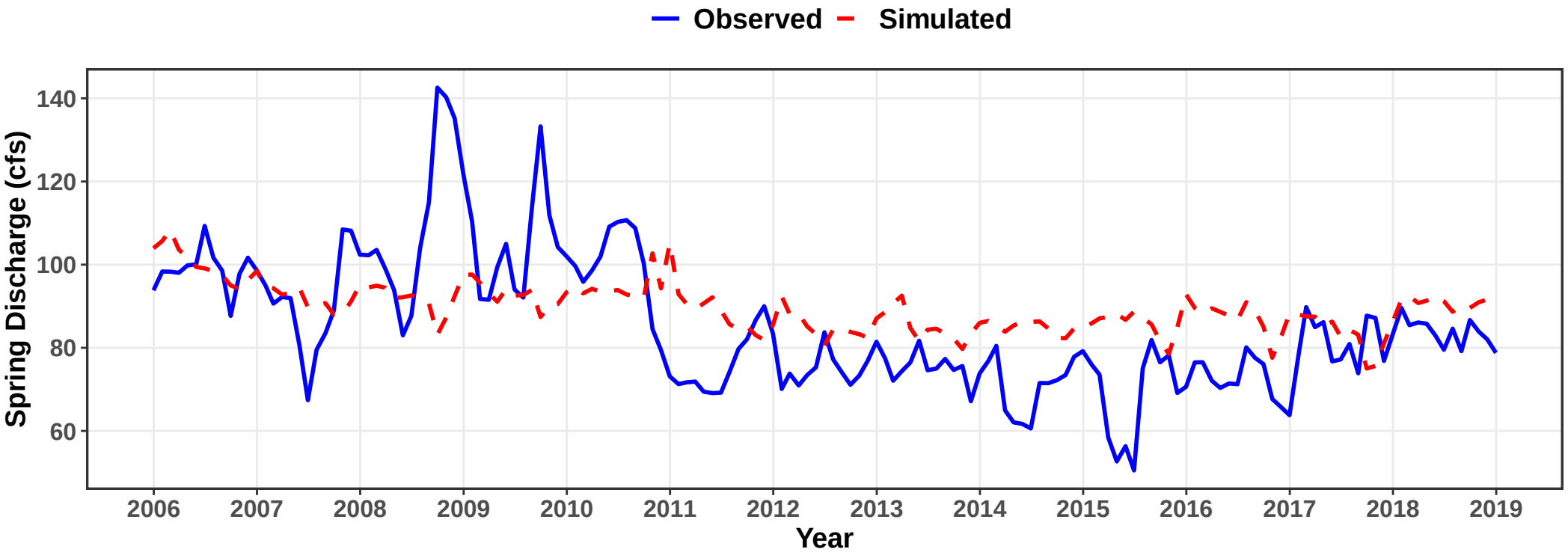


Flow−Duration Curve

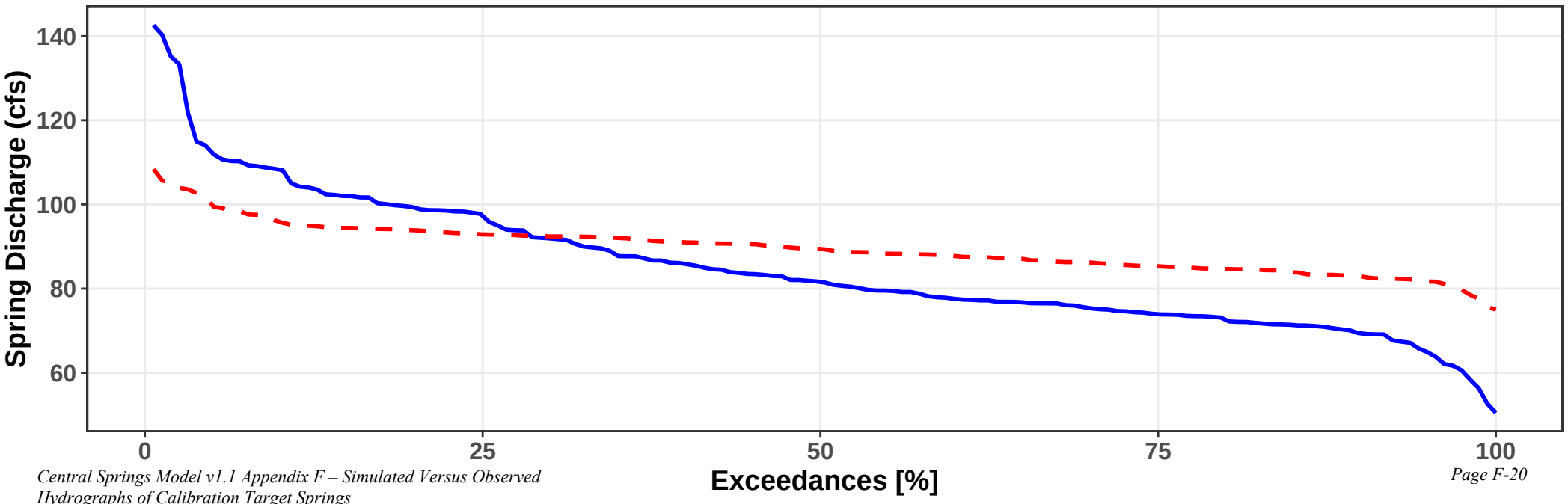


Silver Glen Springs

ME = 4.3 MAE = 11.9 R^2 = 0.1733 NSE = 0.098

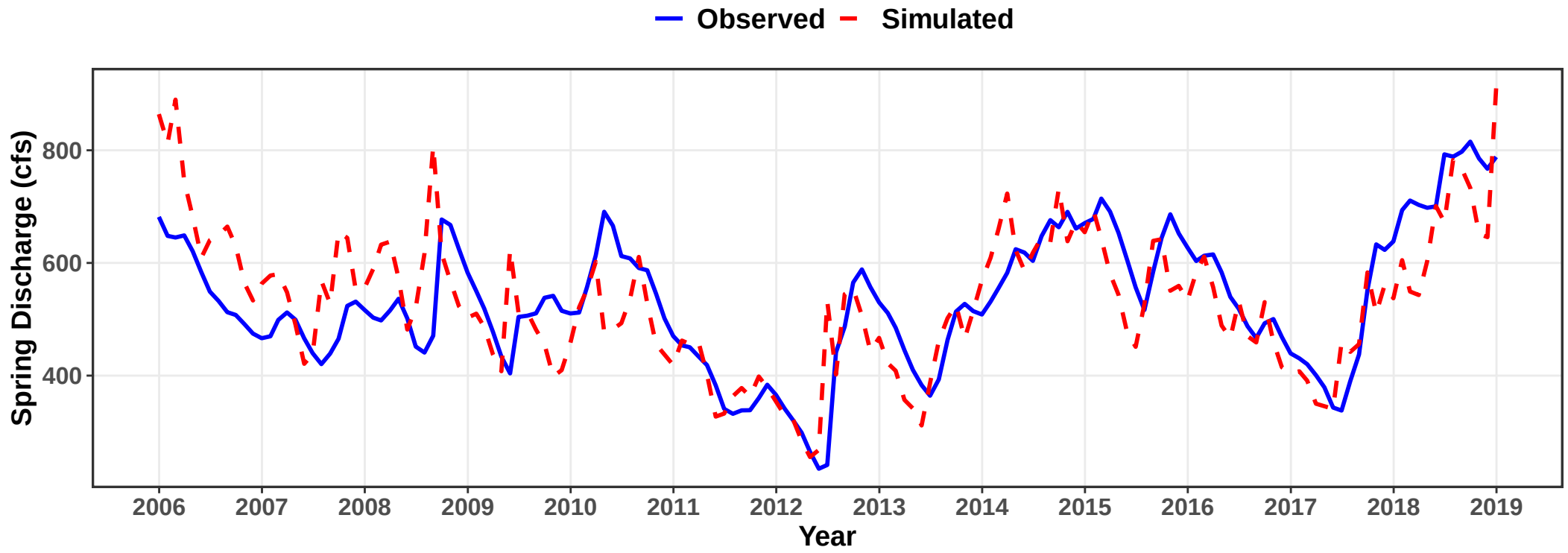


Flow−Duration Curve

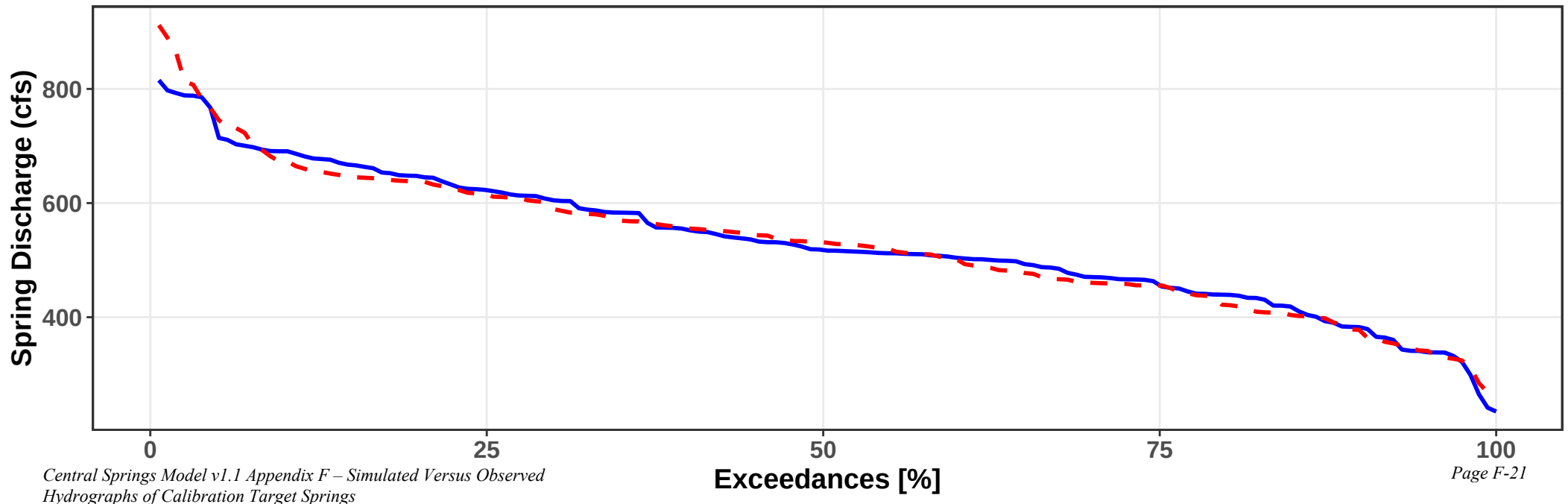


Silver Springs

ME = −2.3 MAE = 68.4 R^2 = 0.5248 NSE = 0.429

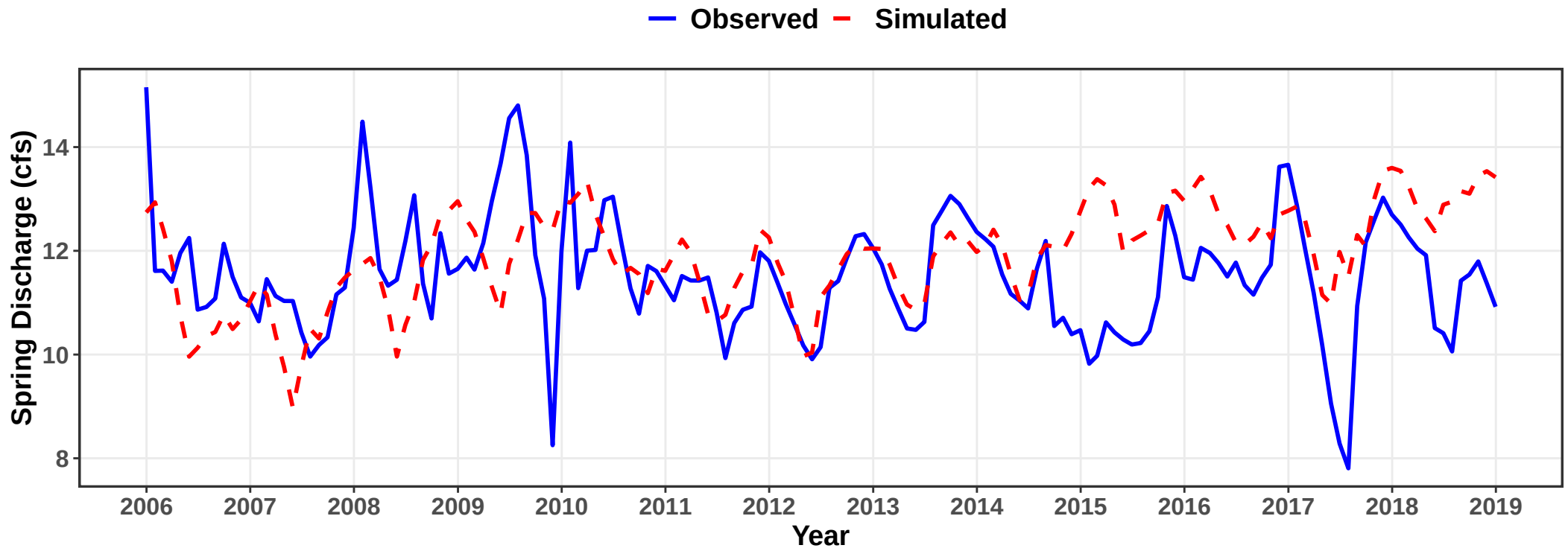


Flow−Duration Curve

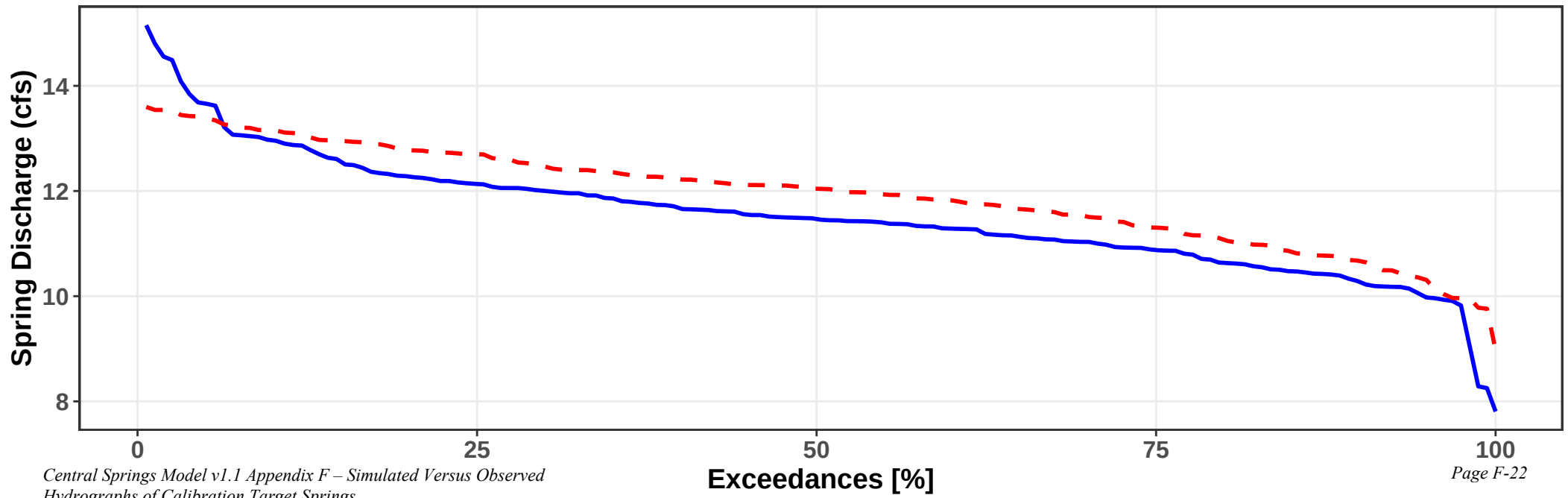


Starbuck Spring

$ME = 0.4$ $MAE = 1$ $R^2 = 0.0685$ $NSE = -0.381$

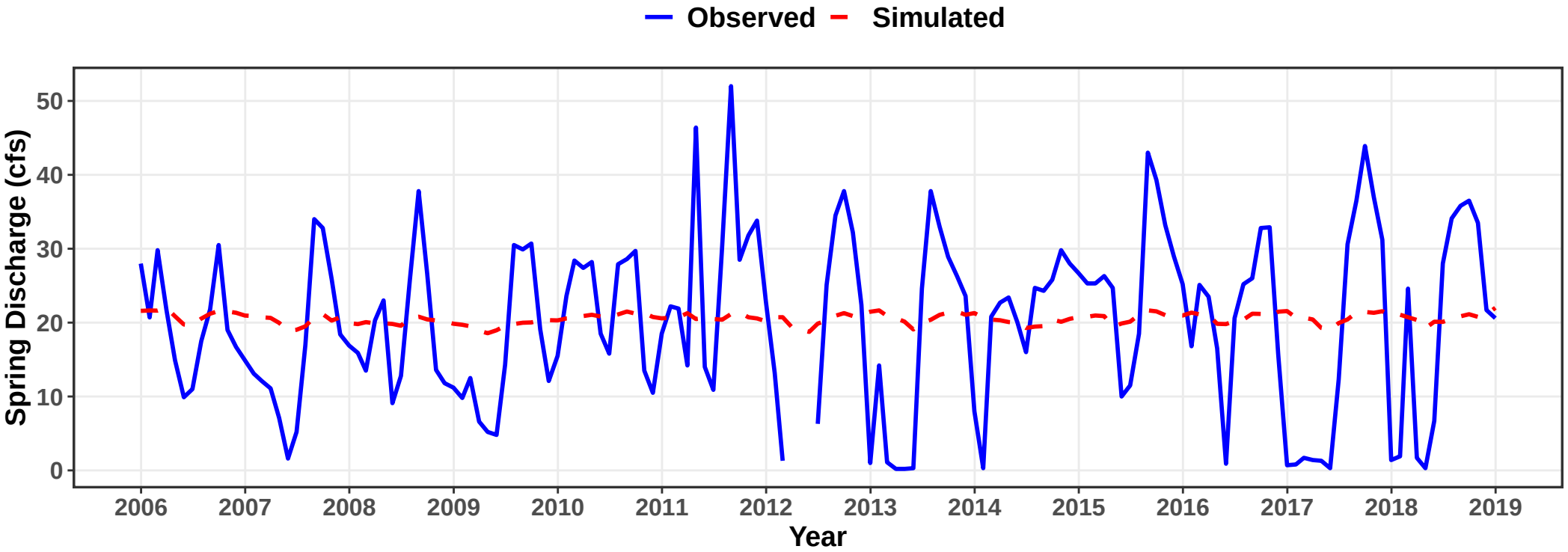


Flow−Duration Curve

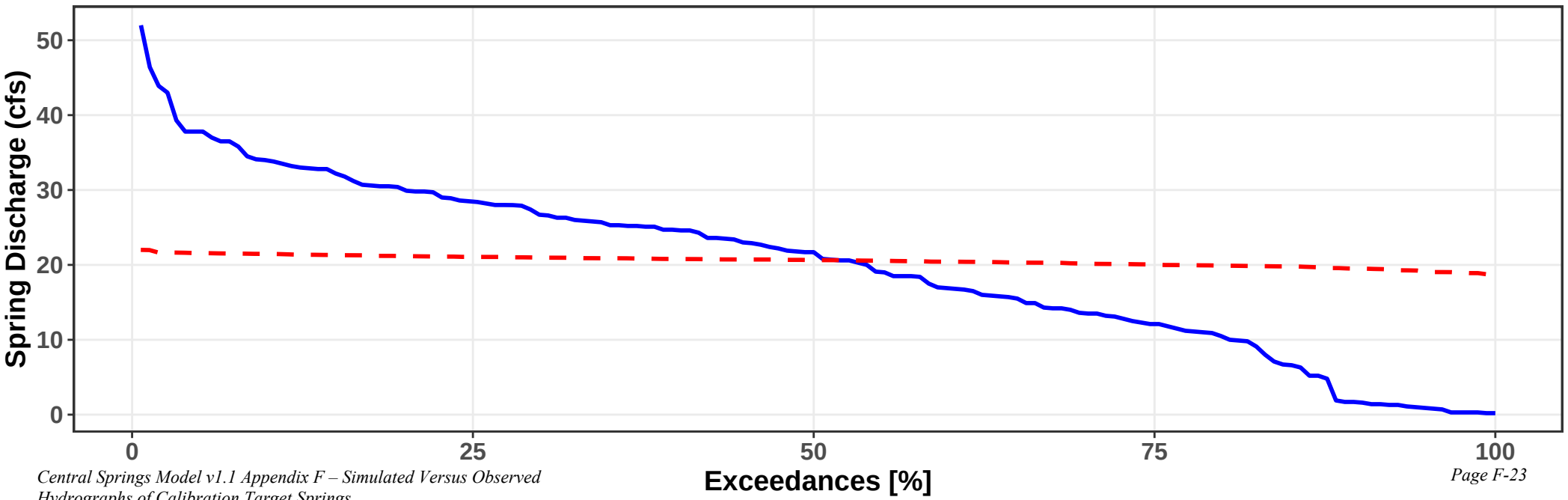


Sulphur Spring (Hillsborough)

ME = 0.5 MAE = 9.3 R^2 = 0.175 NSE = 0.046

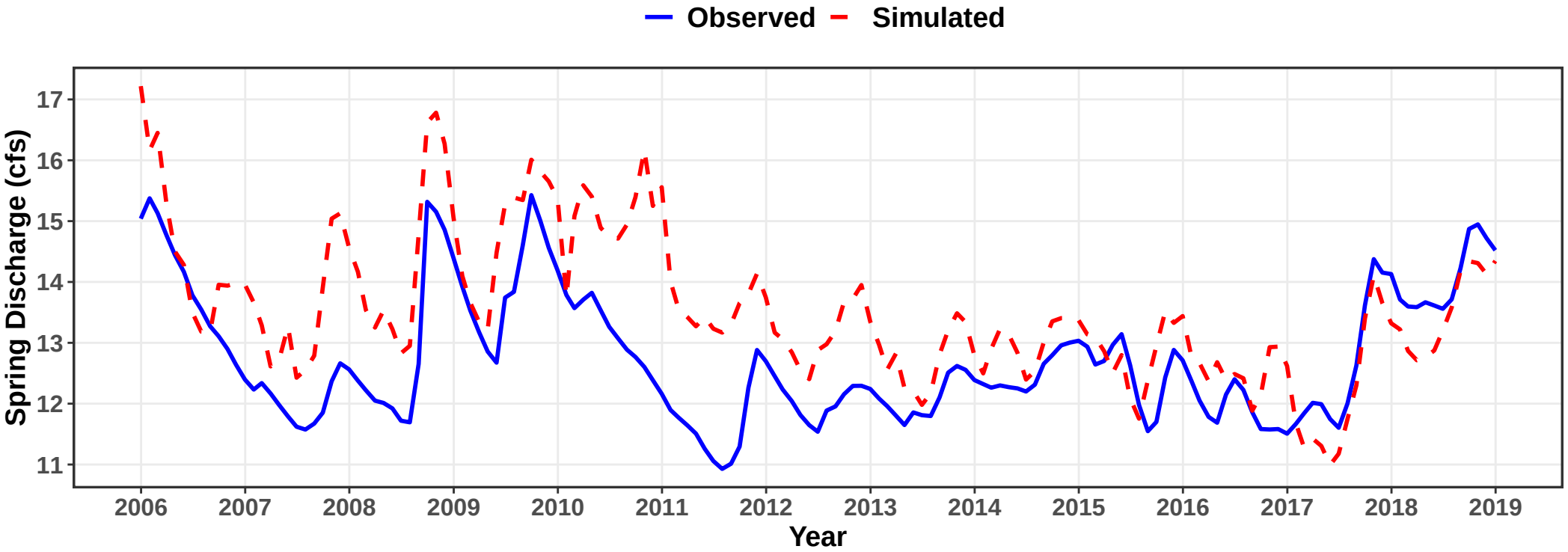


Flow−Duration Curve

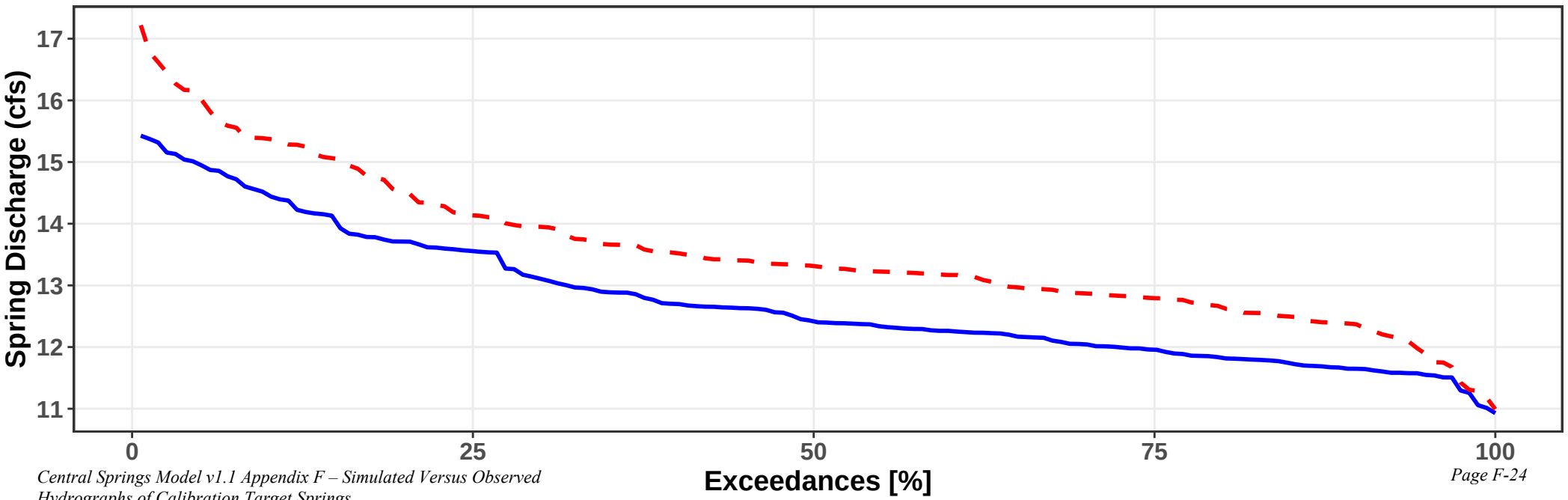


Sweetwater Springs

$ME = 0.8$ $MAE = 1$ $R^2 = 0.4724$ $NSE = -0.302$

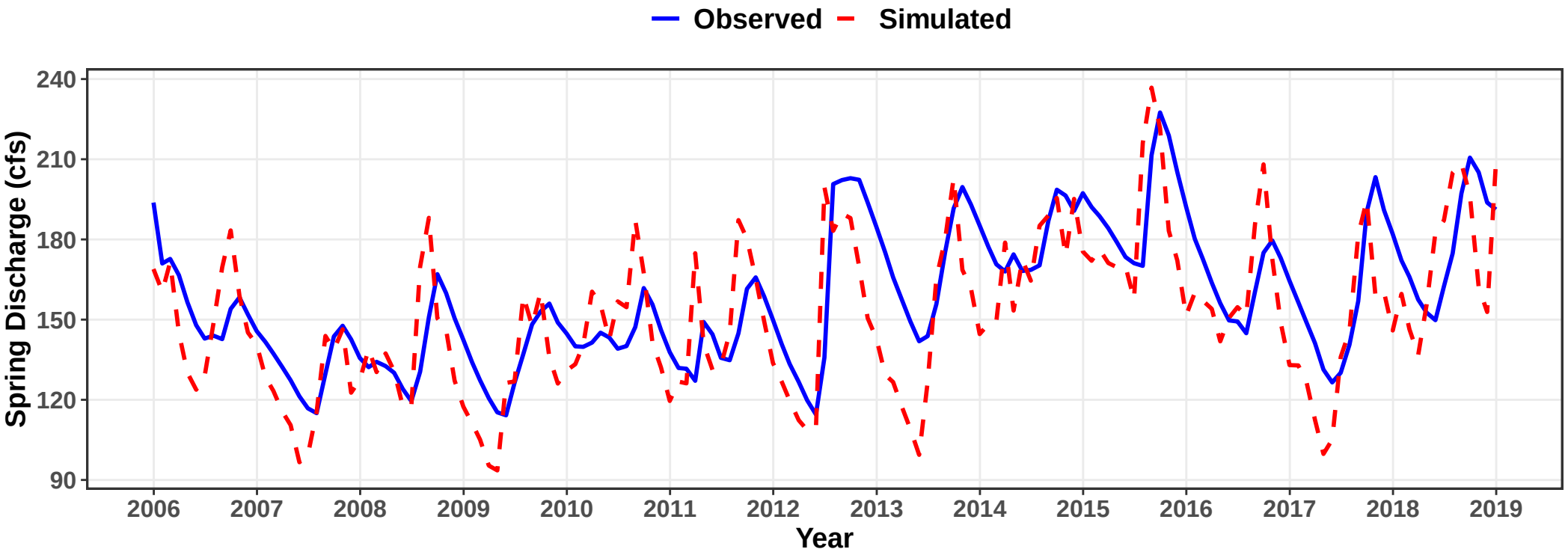


Flow−Duration Curve

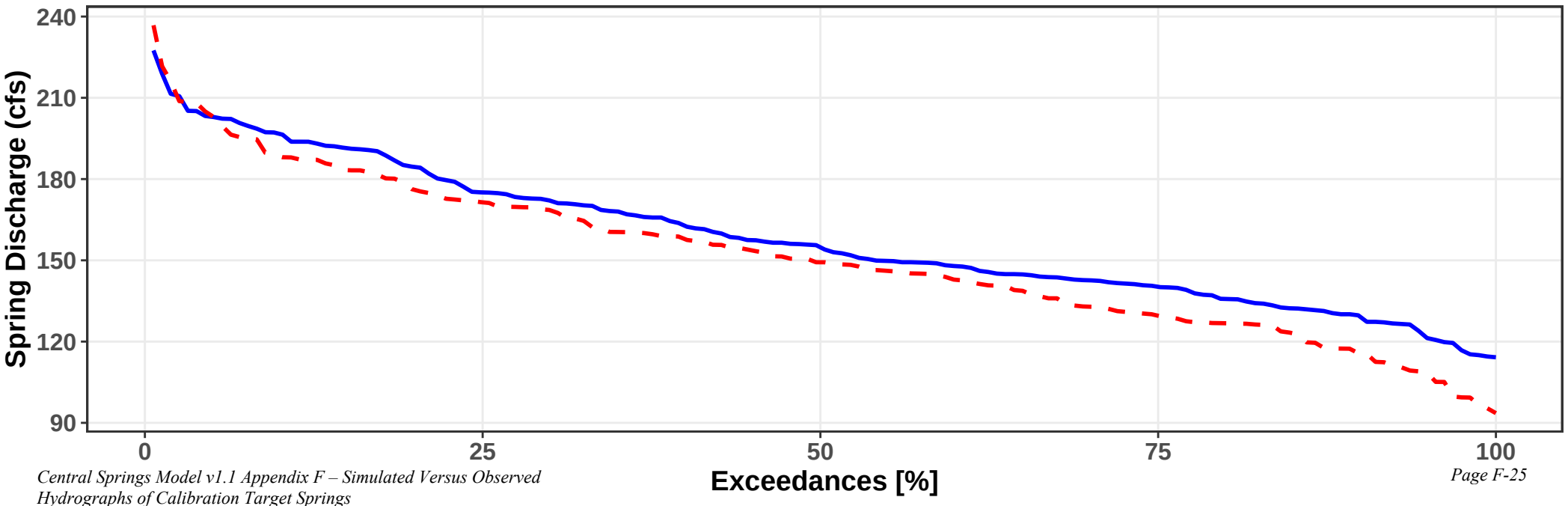


Weeki Wachee Spring

ME = −7.2 MAE = 18.2 R^2 = 0.4917 NSE = 0.223

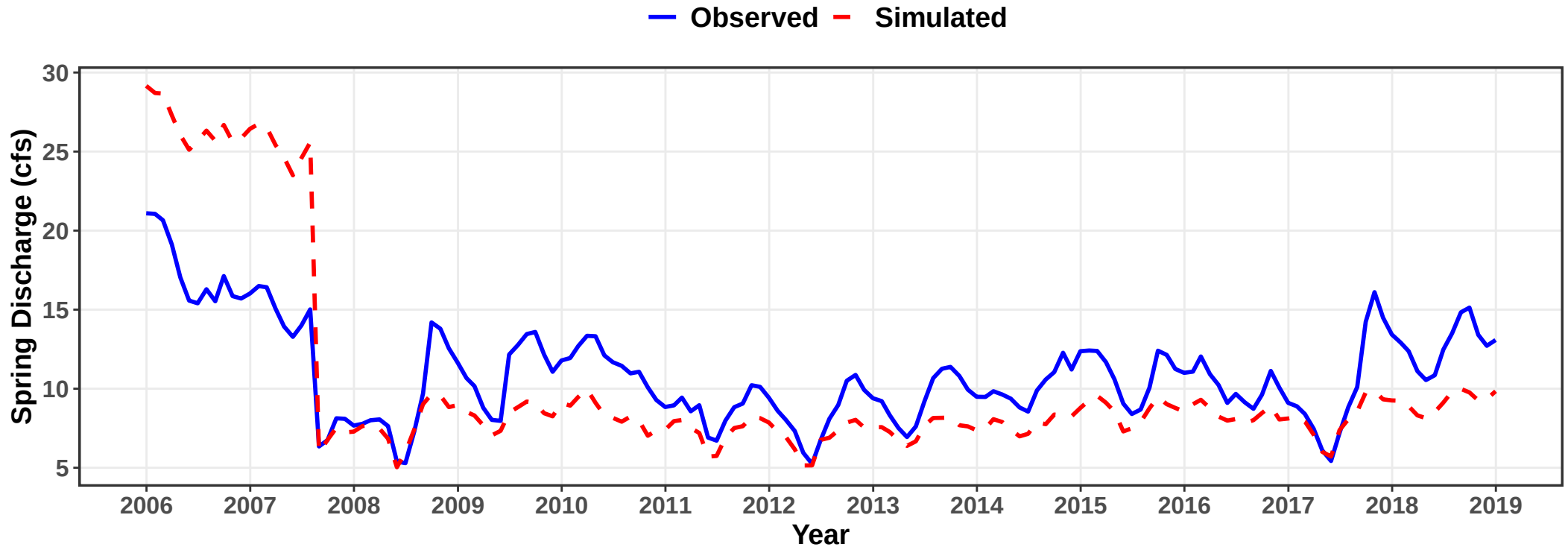


Flow−Duration Curve

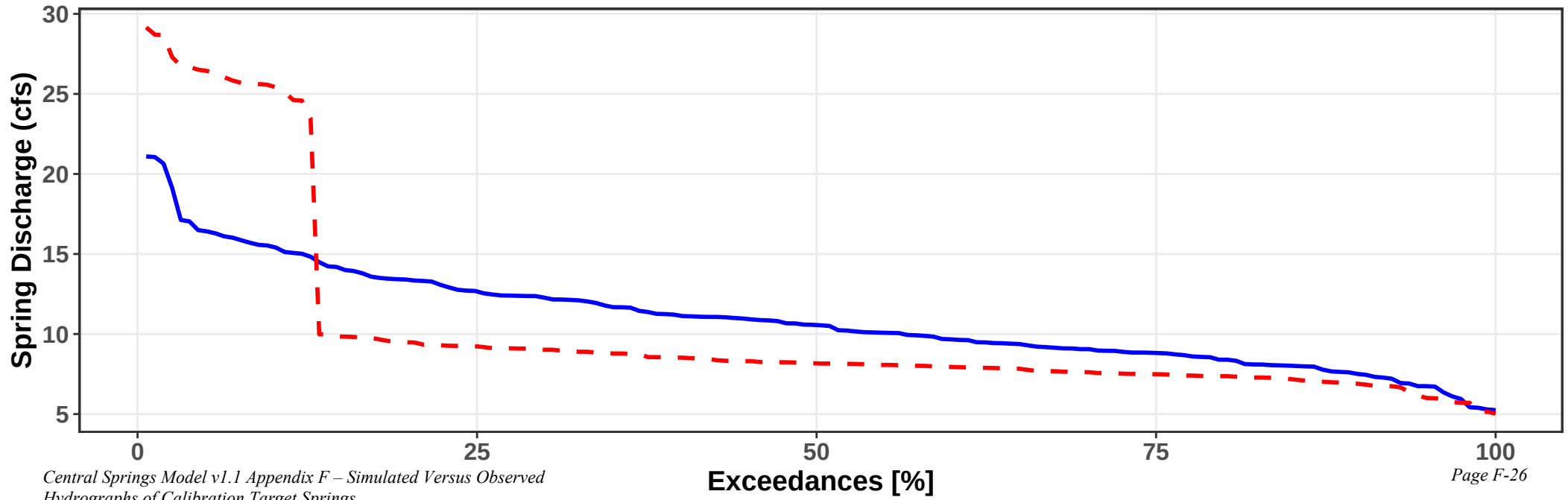


Wekiva Falls Resort Spring

ME = −0.6 MAE = 3.1 R^2 = 0.6381 NSE = −0.802

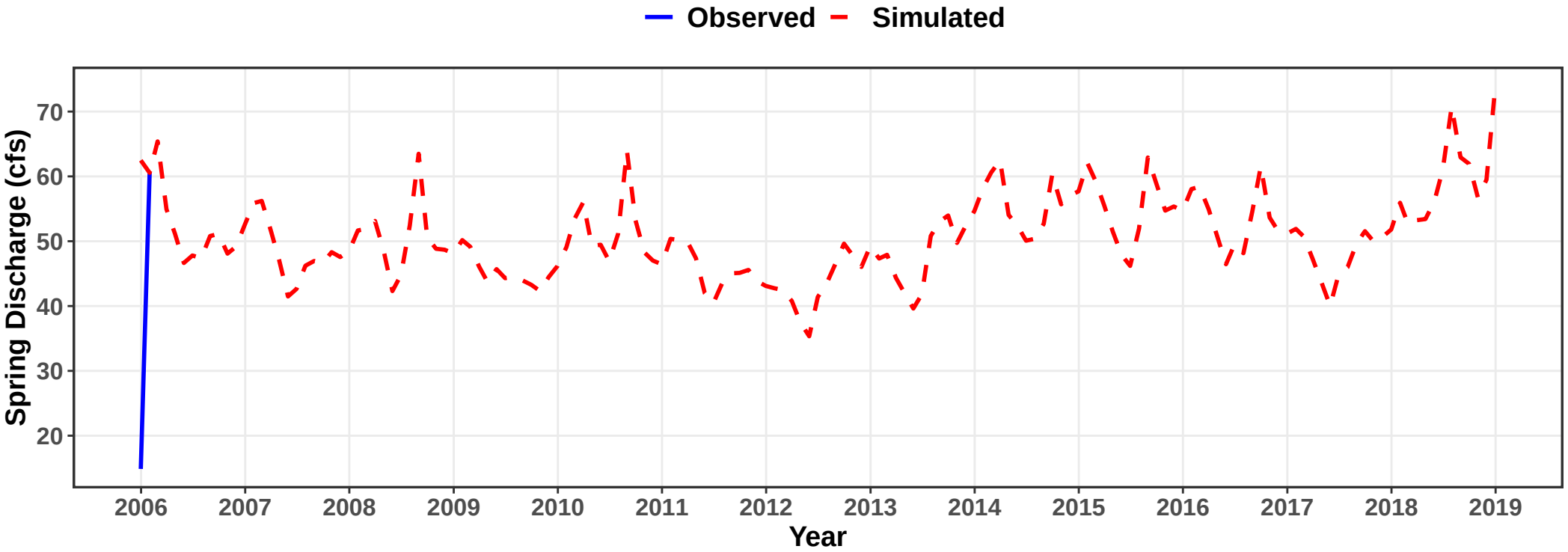


Flow−Duration Curve

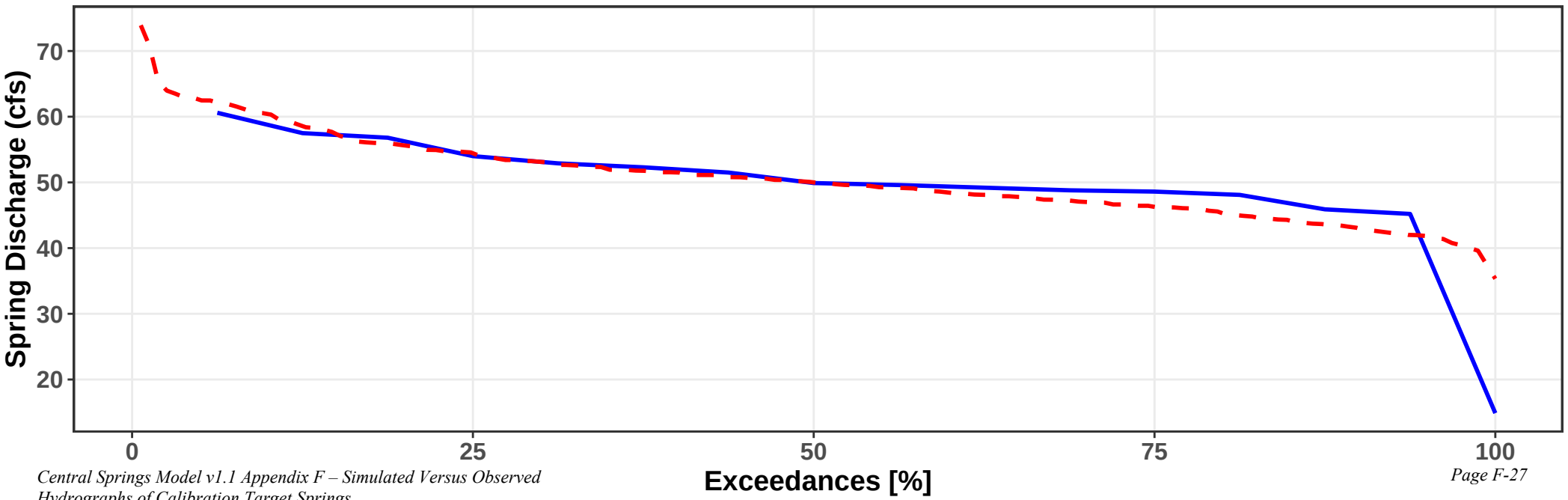


Wekiva Springs (Levy)

ME = 0.7 MAE = 6.1 R^2 = 0.1384 NSE = −0.706

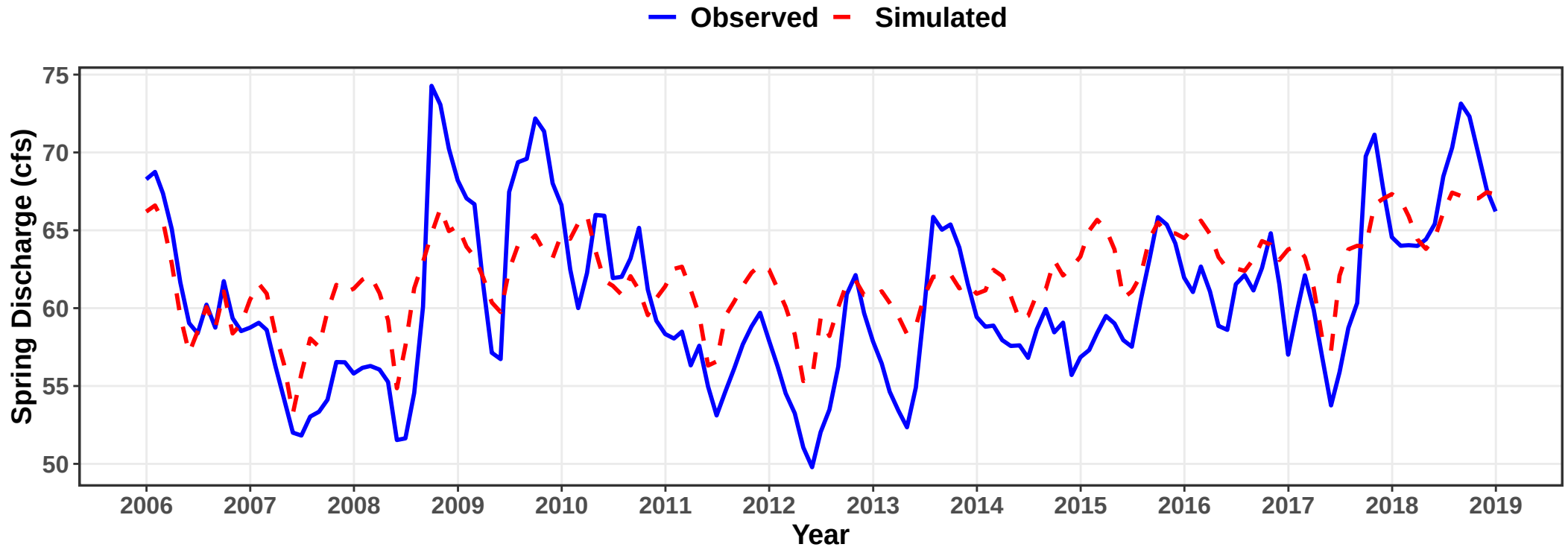


Flow−Duration Curve



Wekiwa Springs

ME = 1.5 MAE = 3.3 R^2 = 0.6001 NSE = 0.471



Flow−Duration Curve