APPENDIX E – SIMULATED VERSUS OBSERVED HYDROGRAPHS OF LOWER FLORIDAN AQUIFER CALIBRATION TARGET WELLS

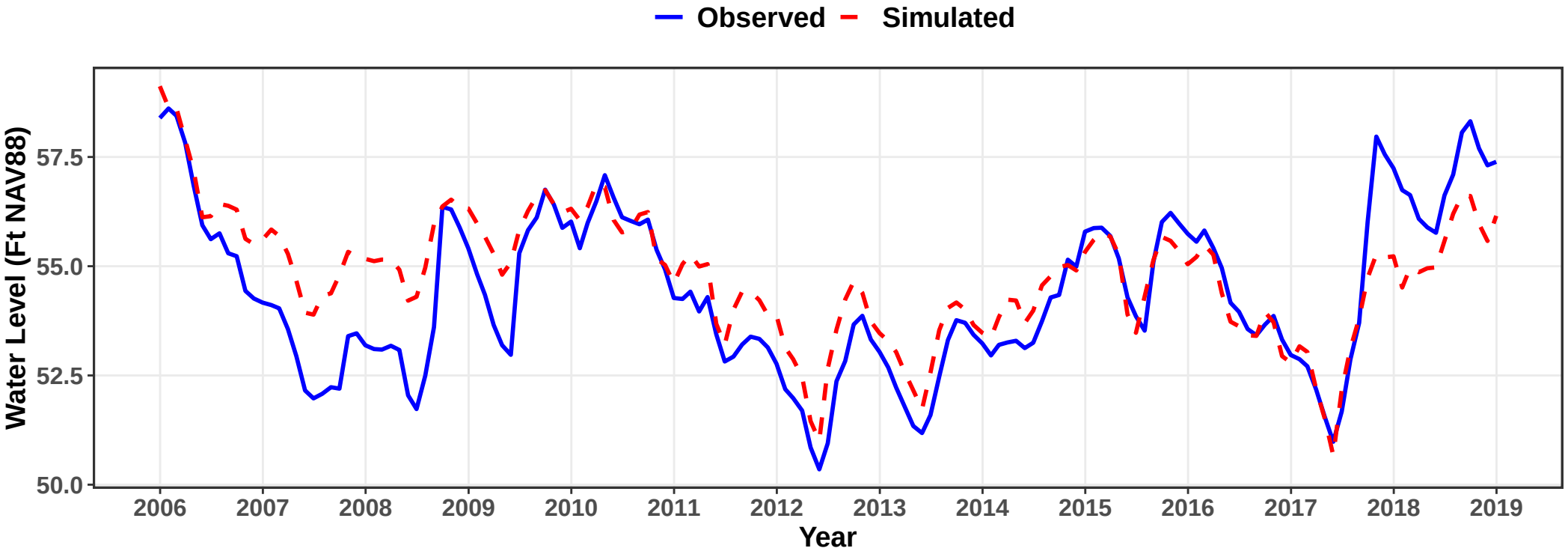
This appendix includes hydrographs and duration curves of the observed and simulated groundwater heads during the transient model simulation period (2005 through 2018) for 38 Lower Floridan Aquifer (LFA) calibration target wells. The observed groundwater levels in areas of saltwater intrusion/upconing were converted to equivalent freshwater heads before calibration and residual calculation. Equivalent freshwater heads were calculated based on the average observed groundwater salinity. The simulated groundwater head was retrieved for each stress period from the MODFLOW cell where the target well was located.

The hydrograph on the top of each page illustrates a monthly time-series of groundwater heads. The stage-duration curve on the bottom of each page represents groundwater heads and the corresponding percentage of time that a particular groundwater head is exceeded at the calibration target well. The same dataset was used to construct each hydrograph and stage duration curve pair.

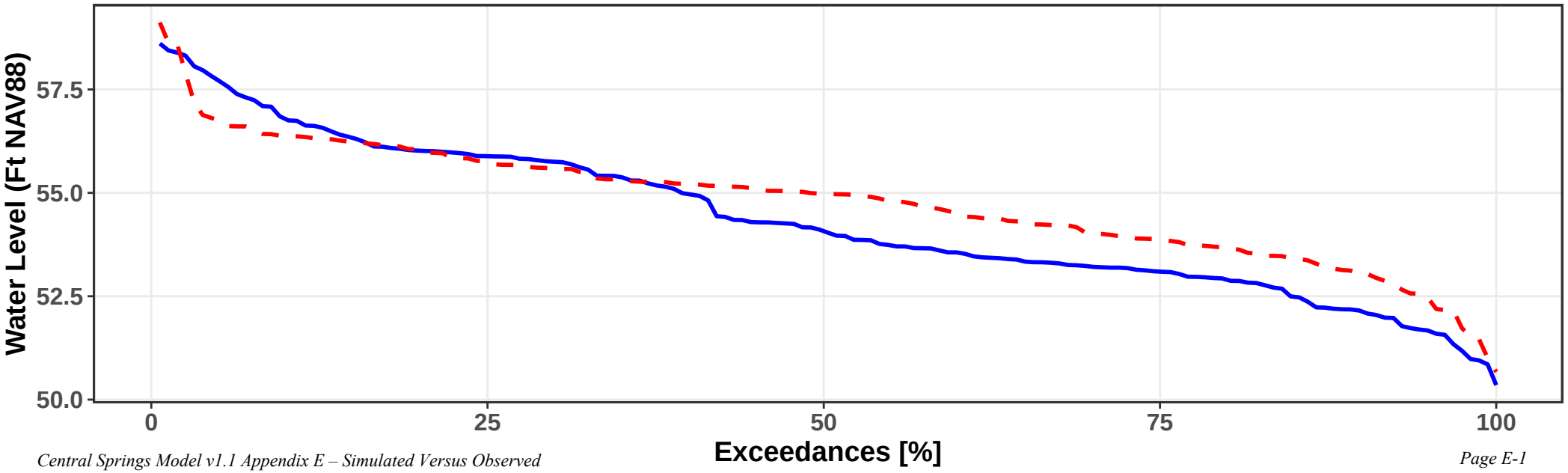
Note: The following definitions apply to all figures included in this appendix.
ME = mean error
MAE = mean absolute error
R^2 = coefficient of determination
NSE = Nash-Sutcliffe efficiency coefficient
Ft NAVD88 = feet relative to the North American Vertical Datum of 1988

L−0599 − LFA @ Carrot Barn

ME = 0.4 MAE = 0.9 R^2 = 0.7033 NSE = 0.647

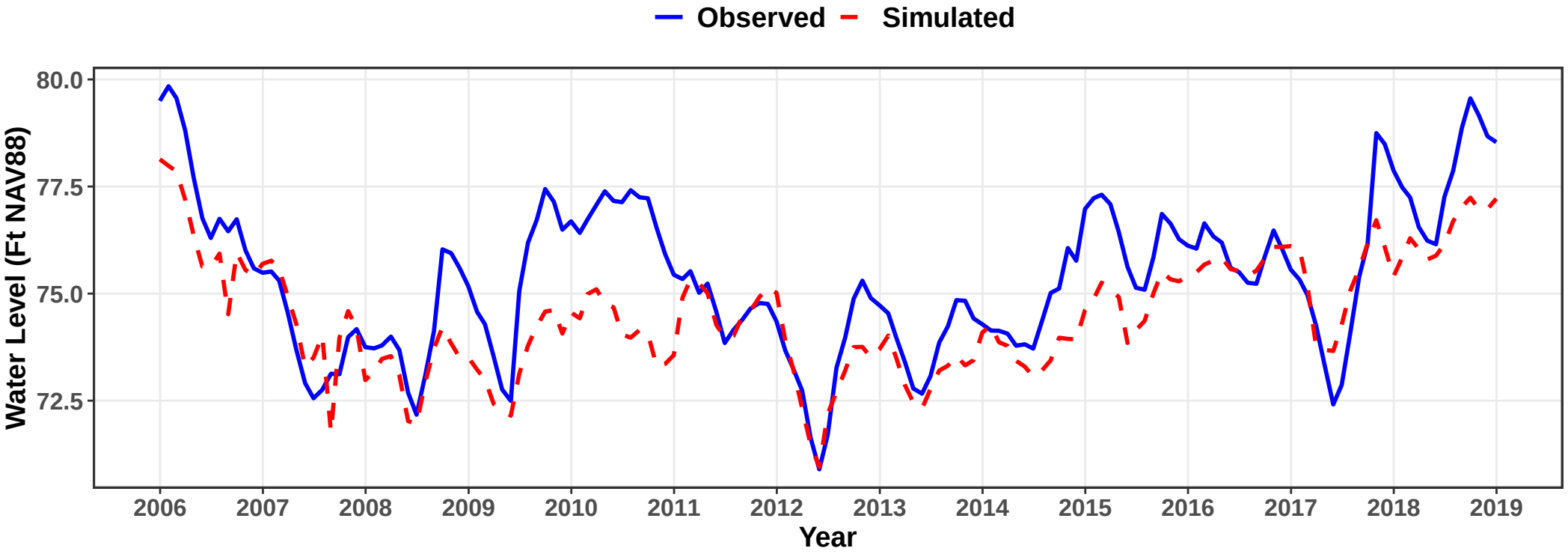


Stage Duration Curve

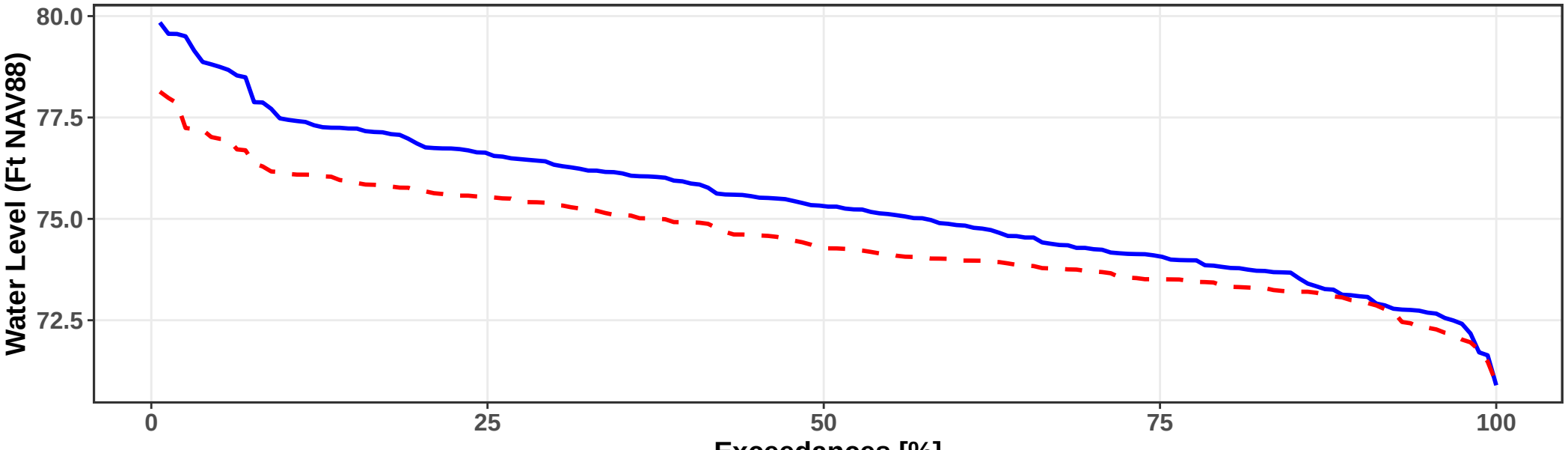


L−0729 − LFA @ Keene Lk Wells

ME = −0.9 MAE = 1.1 R^2 = 0.6699 NSE = 0.432

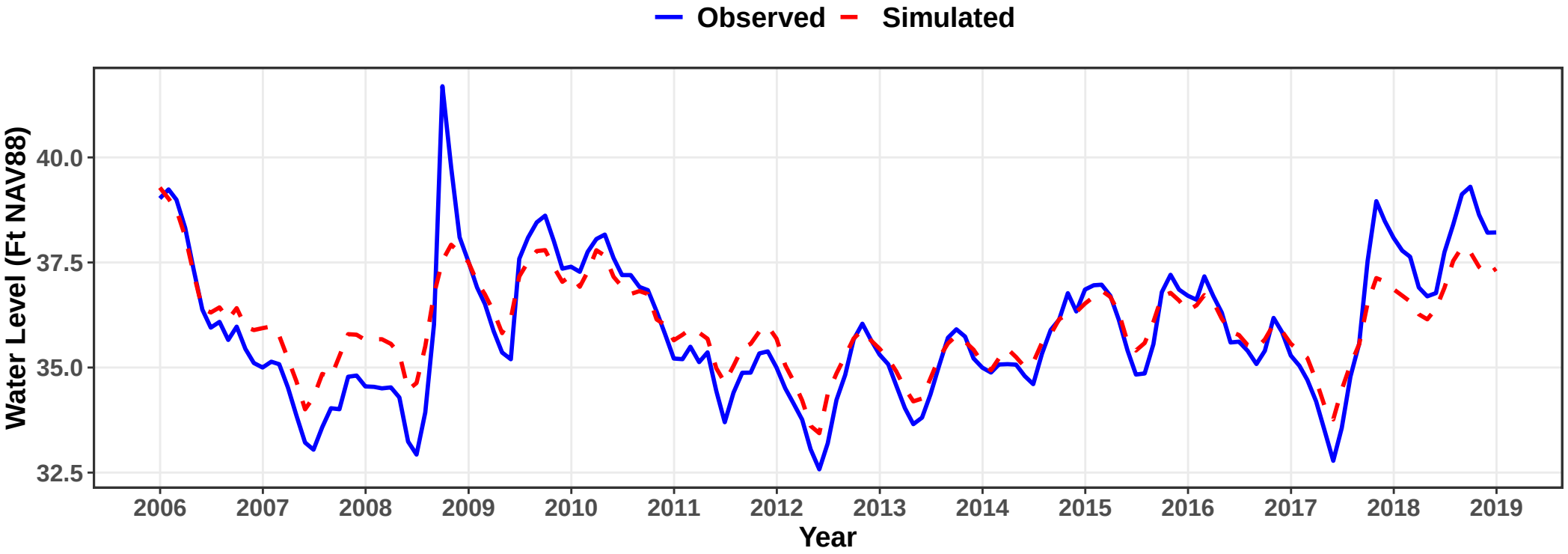


Stage Duration Curve

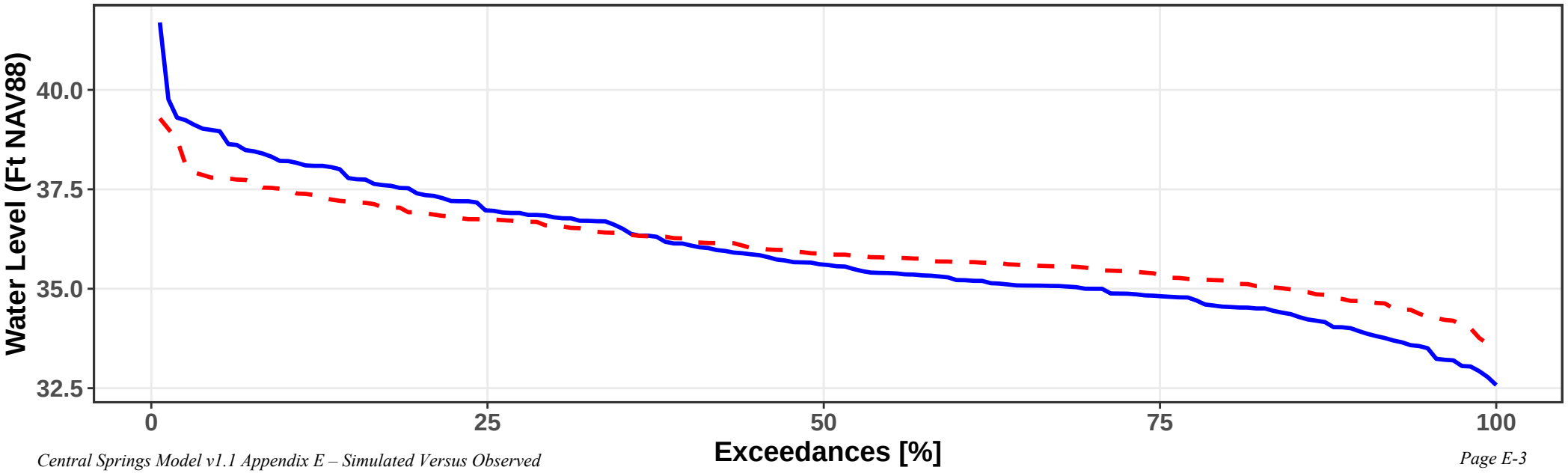


L−0817 − LFA @ Seminole SF New

ME = 0.1 MAE = 0.6 R^2 = 0.8844 NSE = 0.795

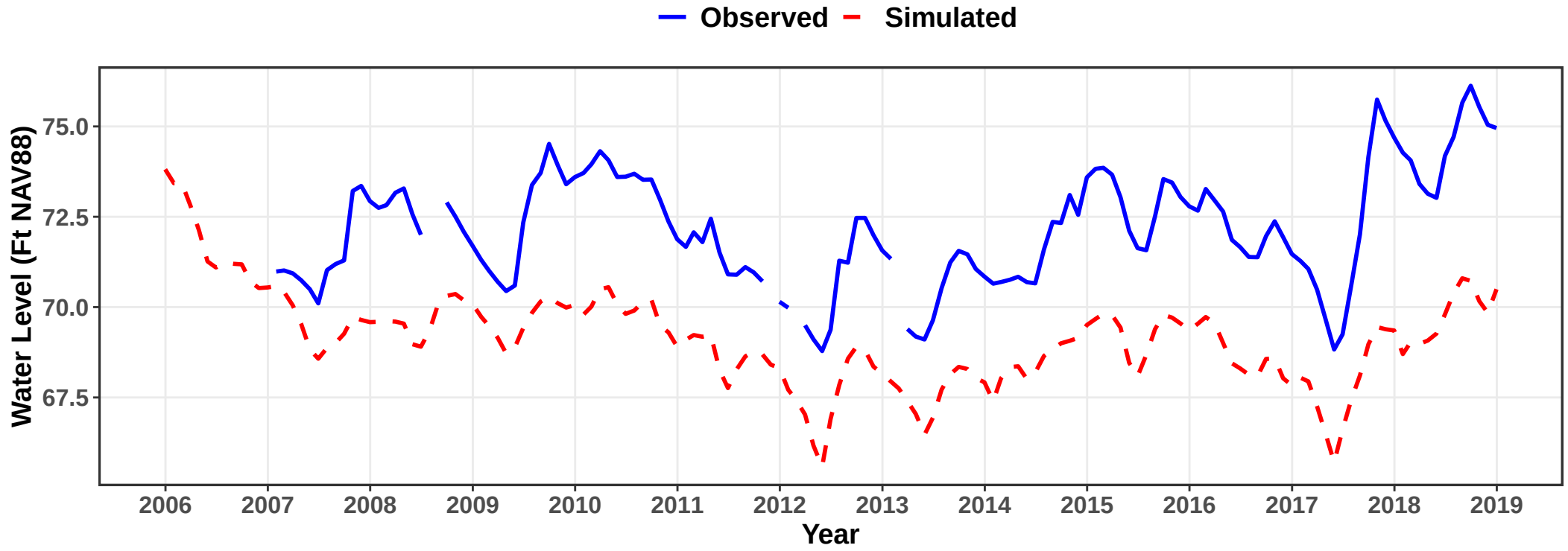


Stage Duration Curve

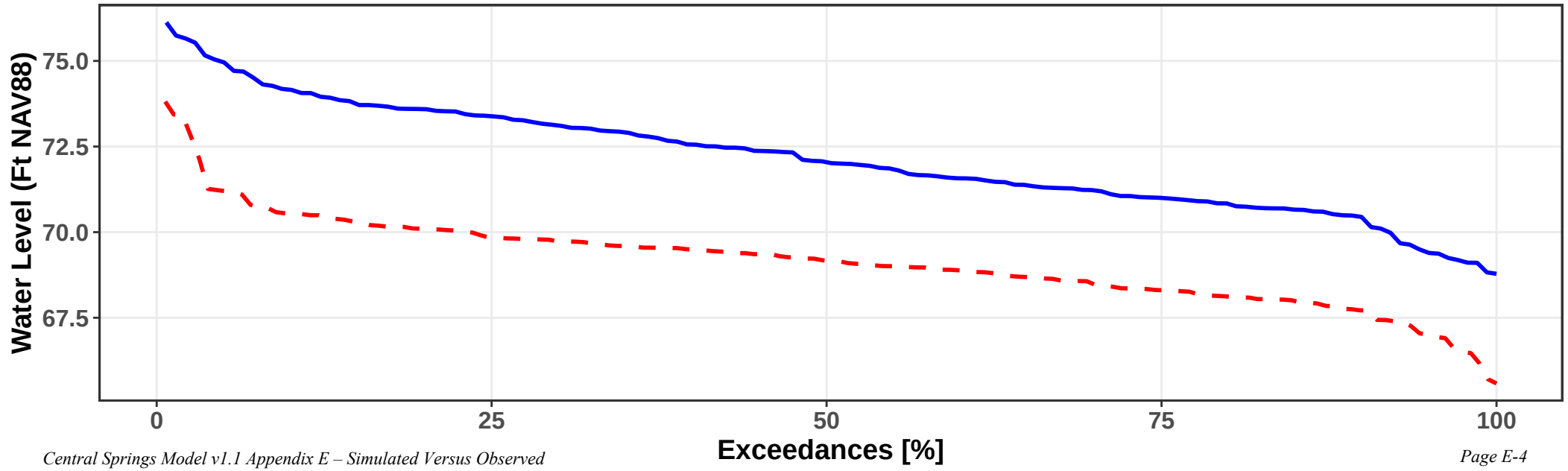


L−1049 − LFA @ Leesburg WWTF

ME = −3.2 MAE = 3.2 R^2 = 0.6253 NSE = −3.558

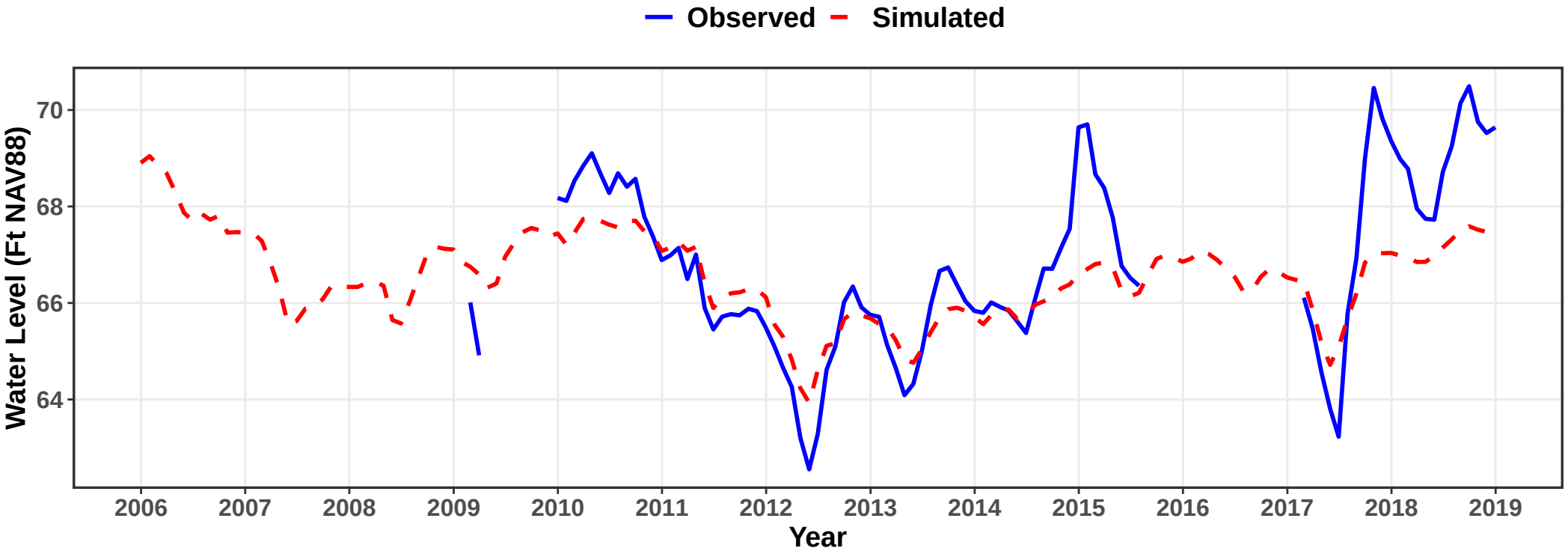


Stage Duration Curve

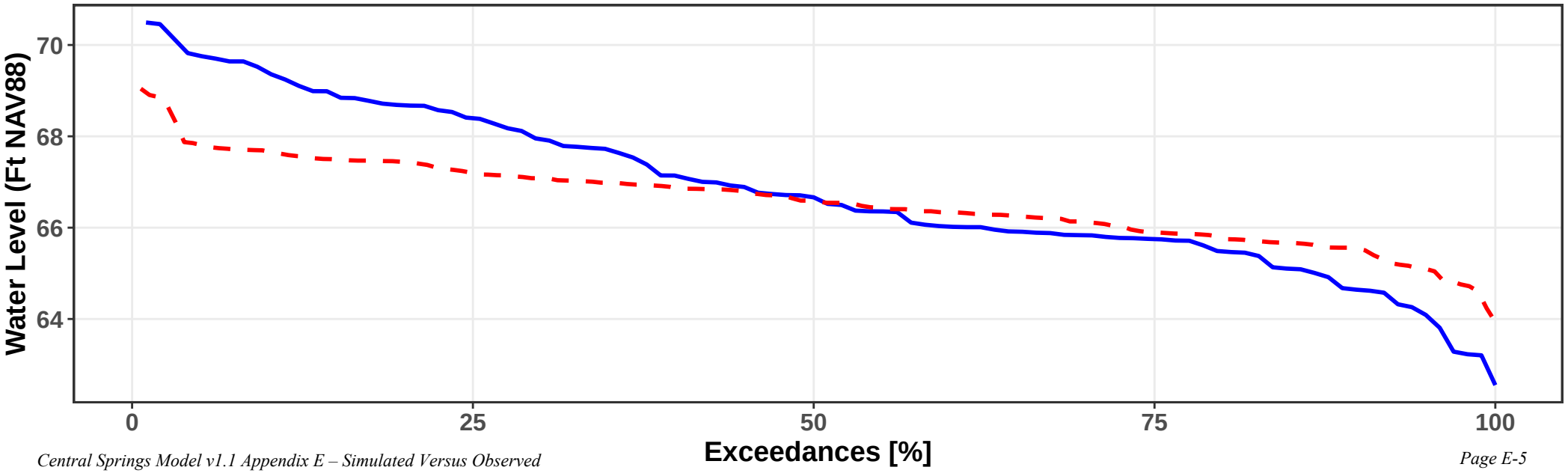


L−1076 − LFA @ Duda−Whittle Wells

ME = −0.5 MAE = 0.9 R^2 = 0.7769 NSE = 0.563

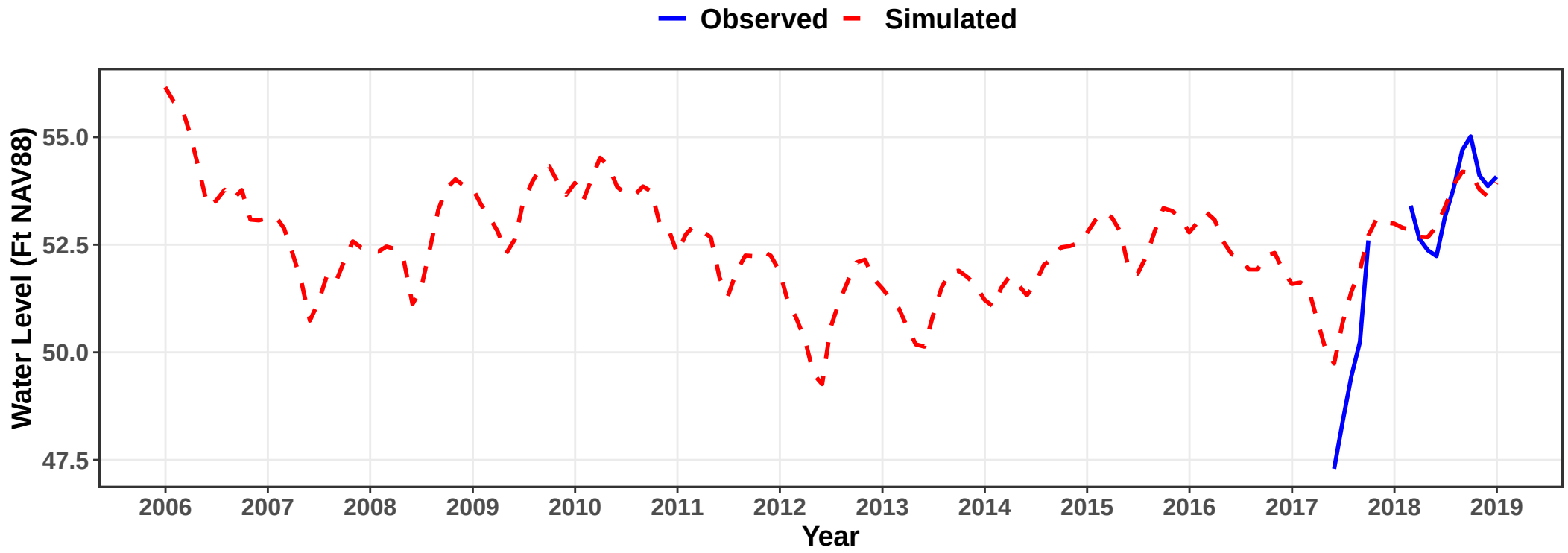


Stage Duration Curve

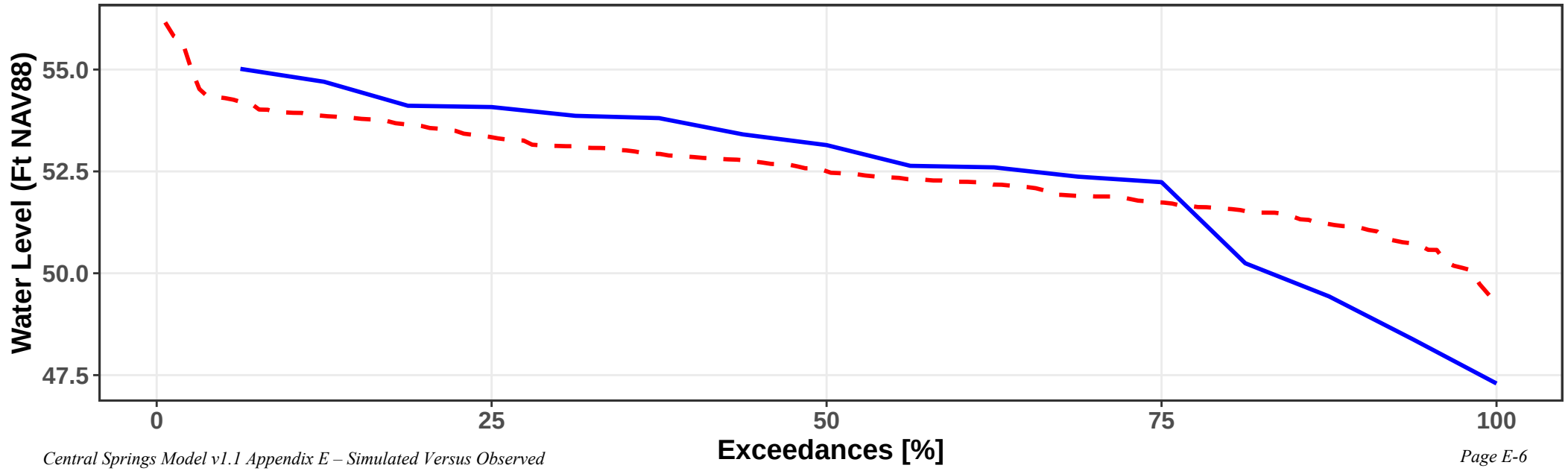


L−1085 − LFA @ Pine Meadows C A

ME = 0.5 MAE = 0.8 R^2 = 0.9673 NSE = 0.747

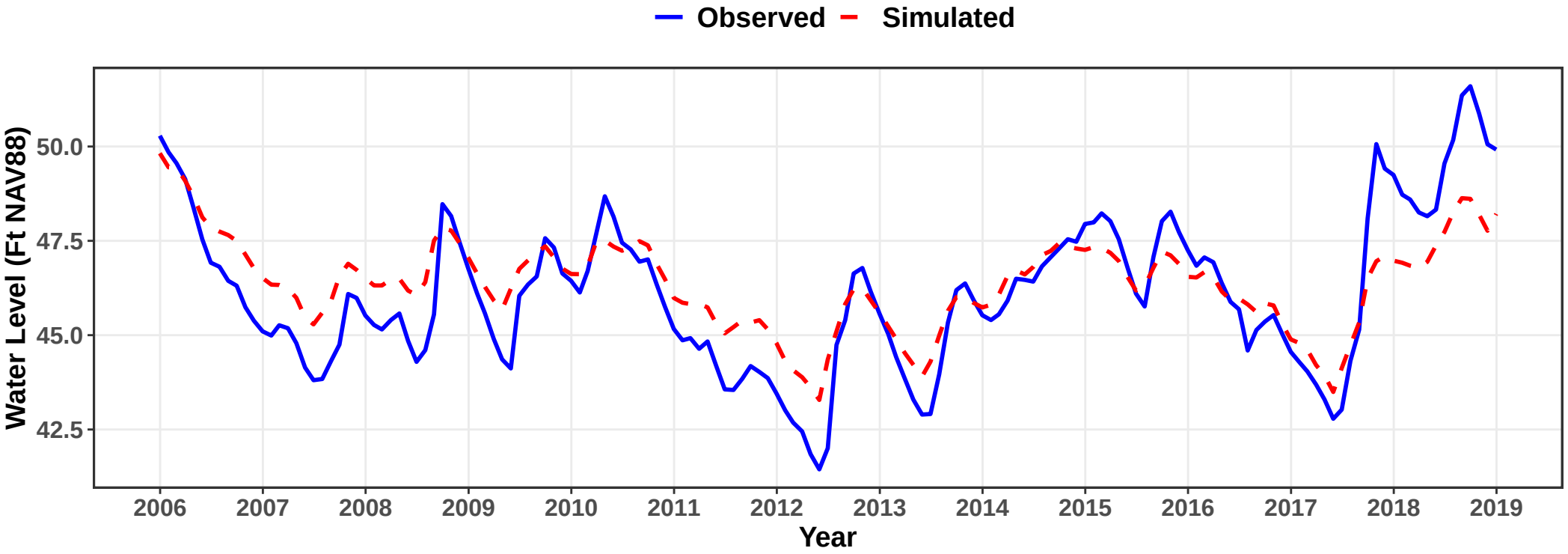


Stage Duration Curve

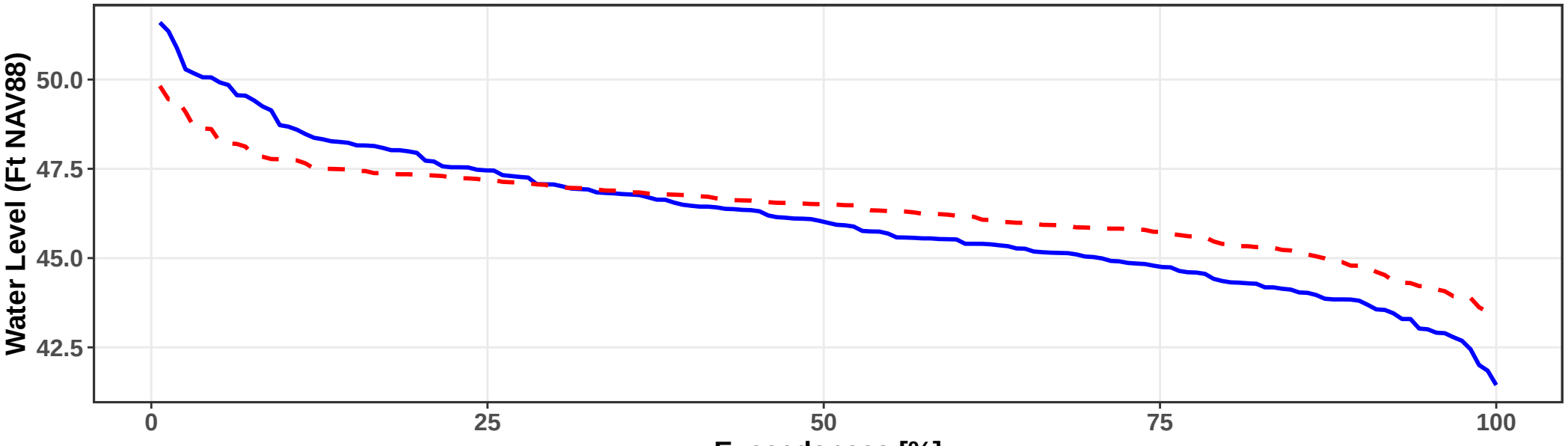


M−0788 − LFA @ Tiger Den nr CR 464

ME = 0.3 MAE = 0.9 R^2 = 0.7942 NSE = 0.694

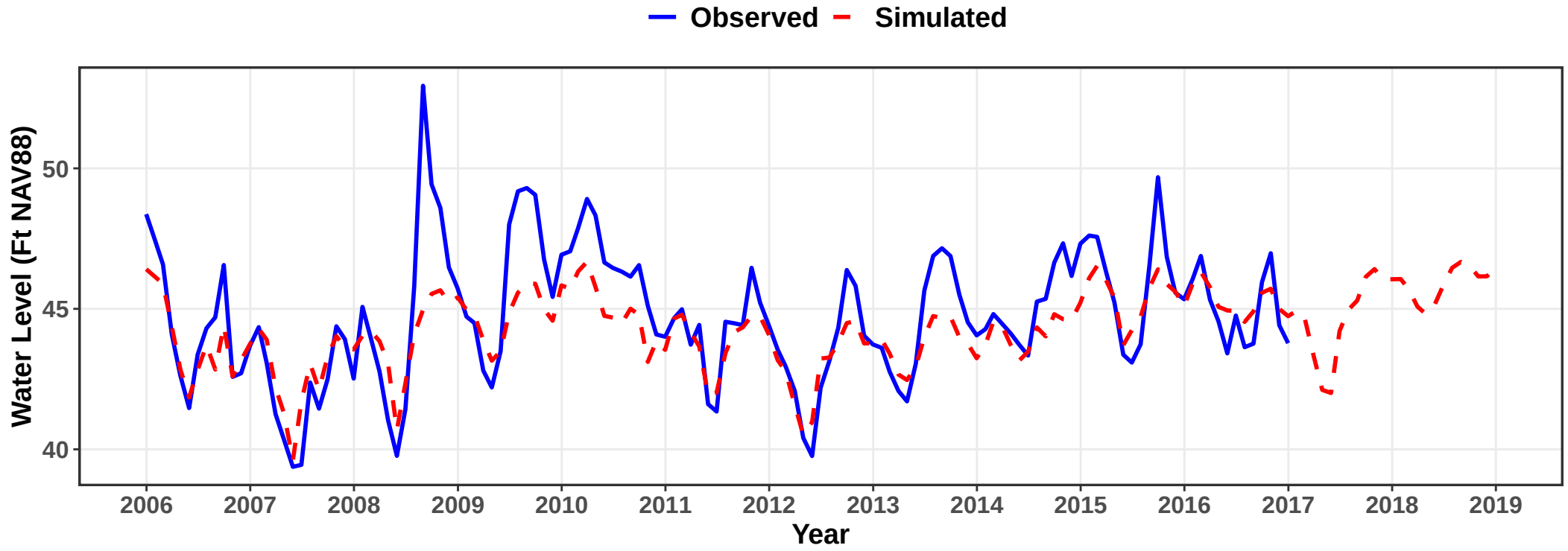


Stage Duration Curve

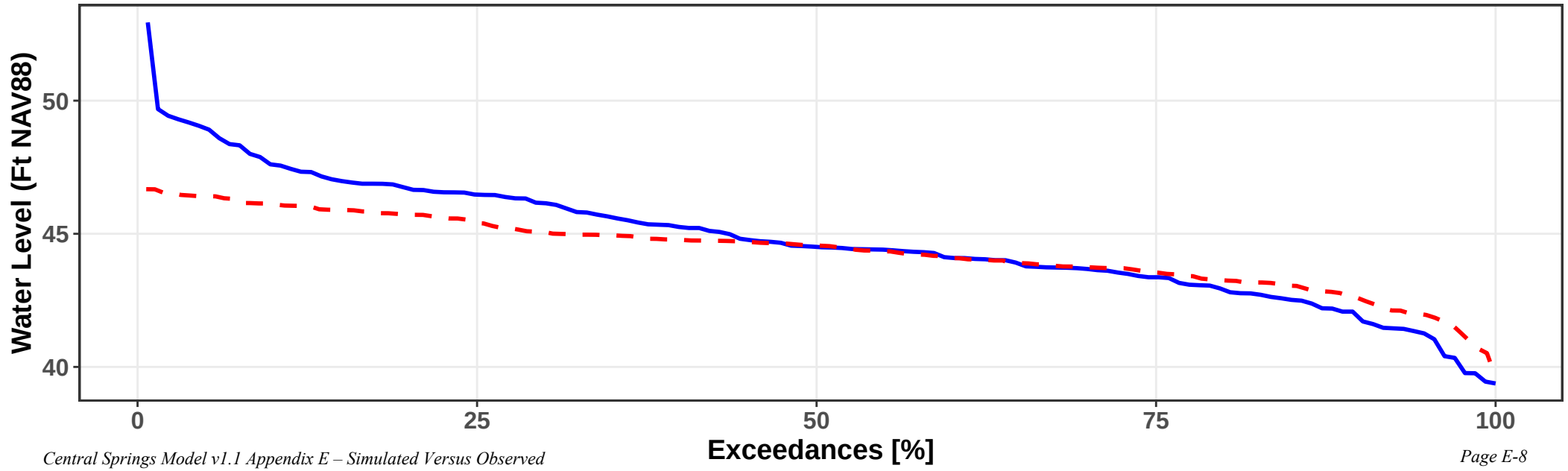


OR0009 − FAS @ Lk Adair

ME = −0.6 MAE = 1.1 R^2 = 0.7297 NSE = 0.59

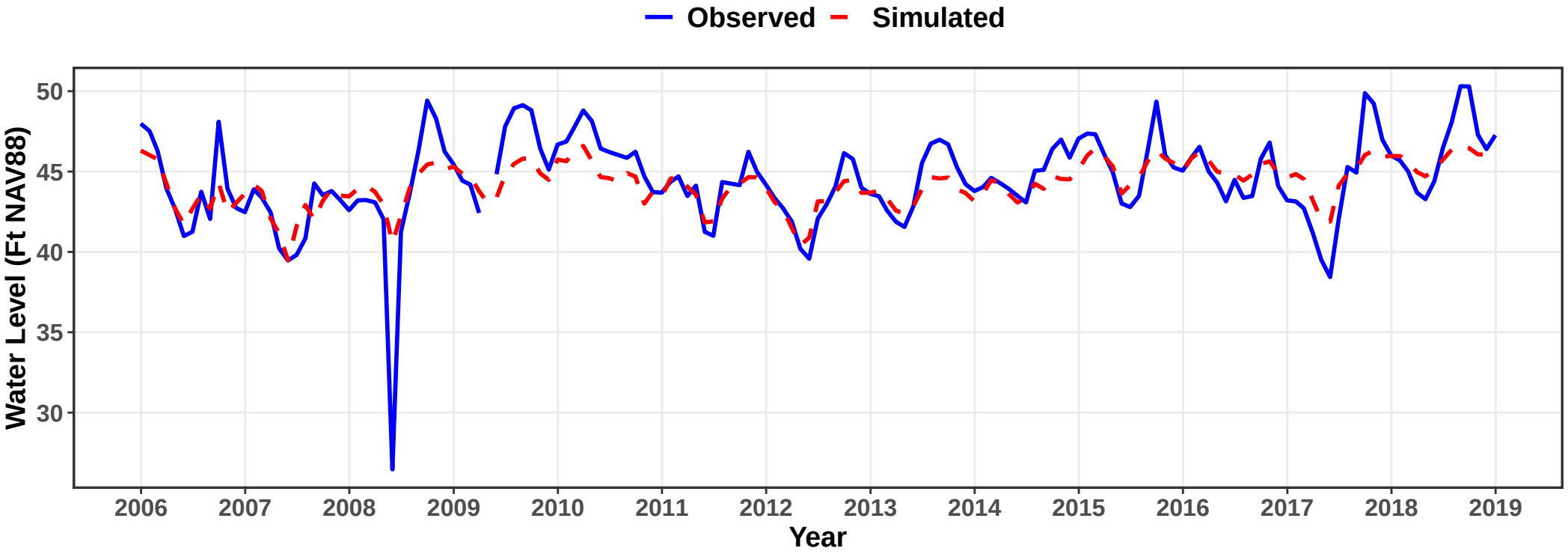


Stage Duration Curve

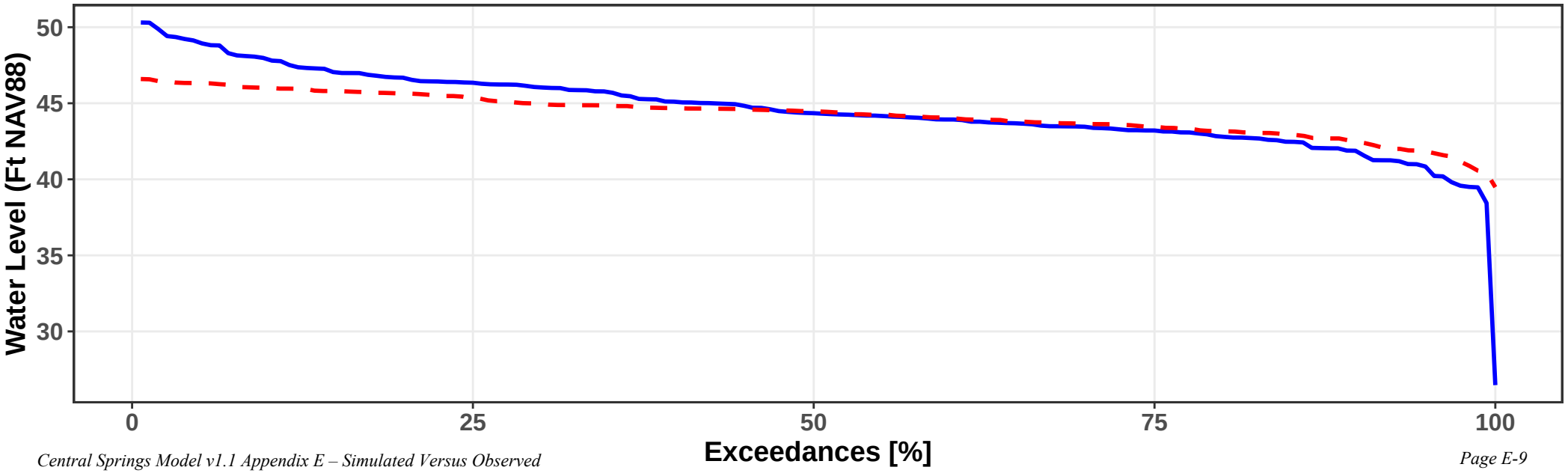


OR0467 − LFA @ Lk Ivanhoe

ME = −0.3 MAE = 1.2 R^2 = 0.6697 NSE = 0.56

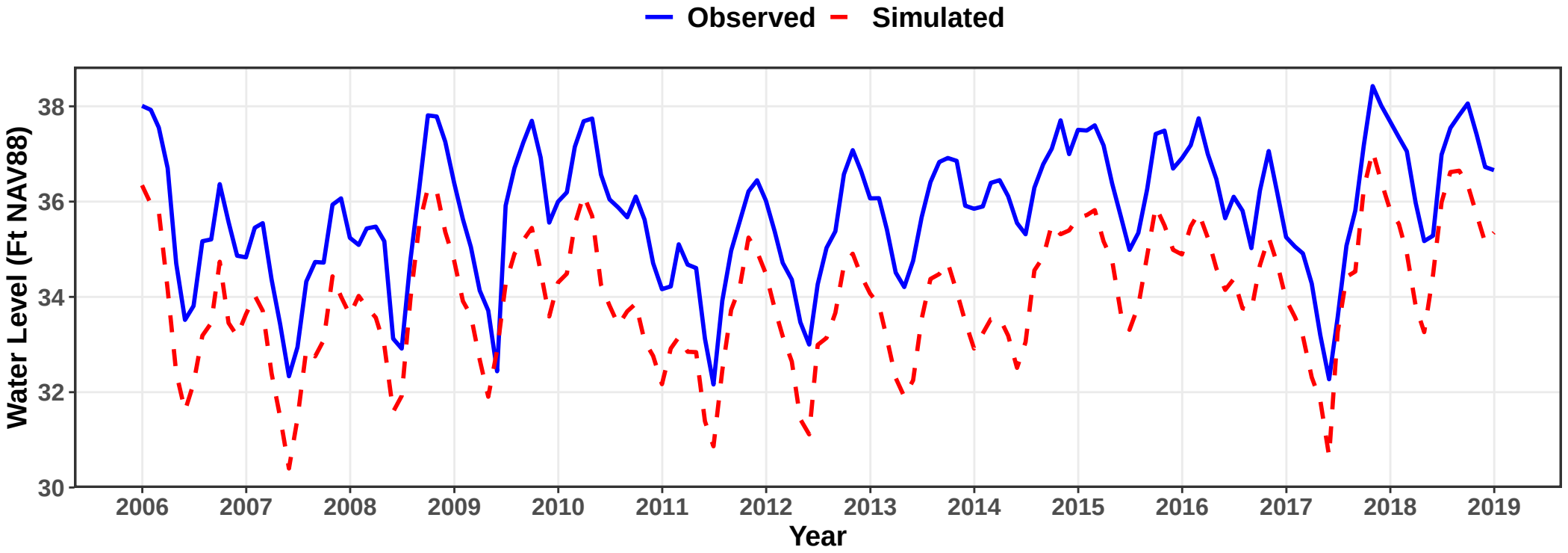


Stage Duration Curve

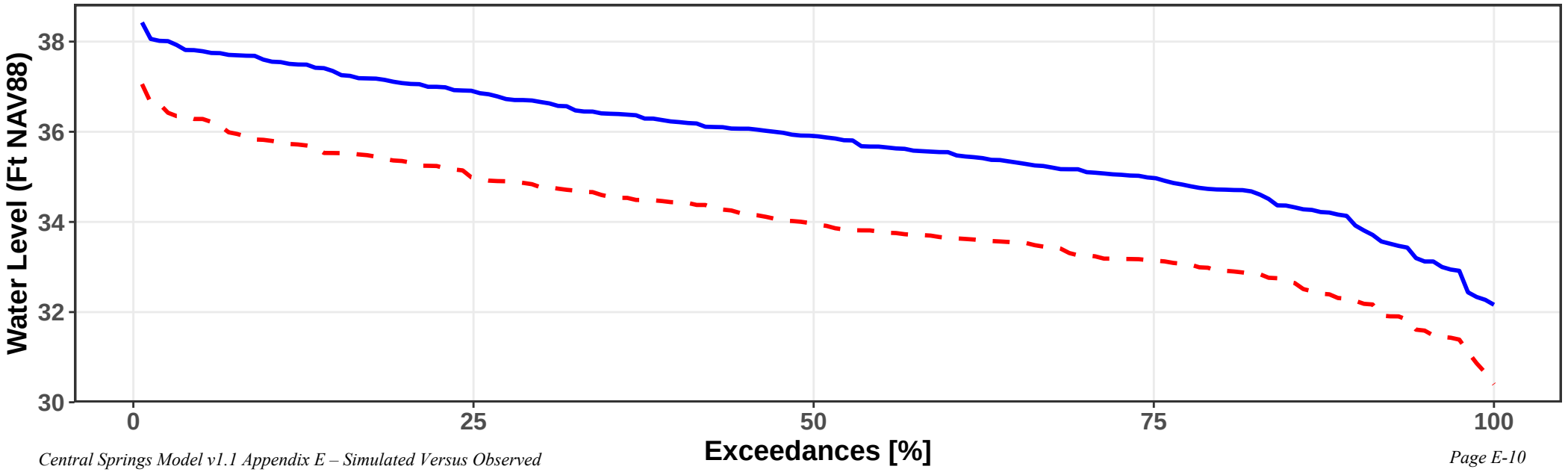


OR0614 – LFA @ Cocoa WF Site S

ME = –1.8 MAE = 1.8 R^2 = 0.8783 NSE = –0.774

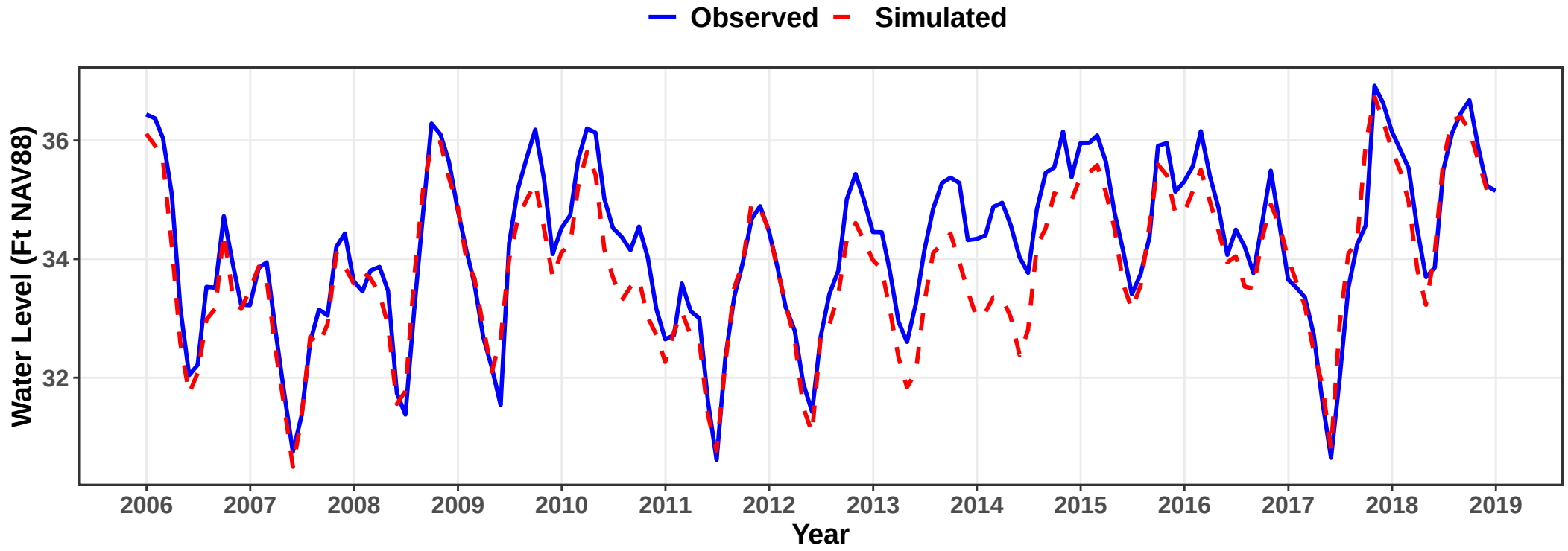


Stage Duration Curve

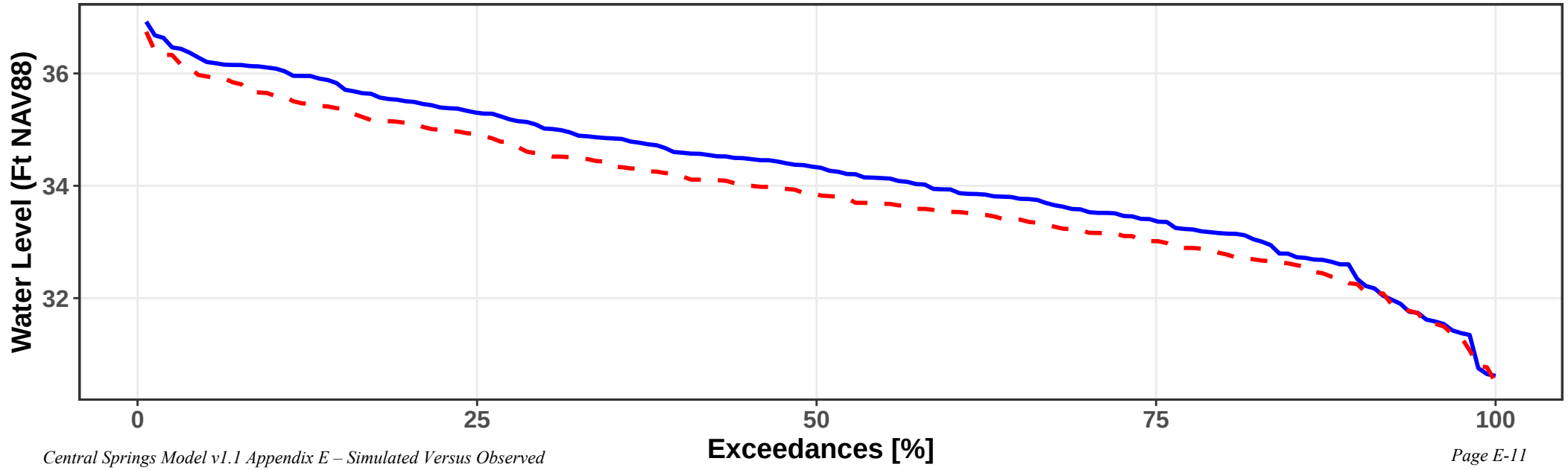


OR0618 – LFA @ Long Brch

$ME = -0.4$ $MAE = 0.5$ $R^2 = 0.8848$ $NSE = 0.819$

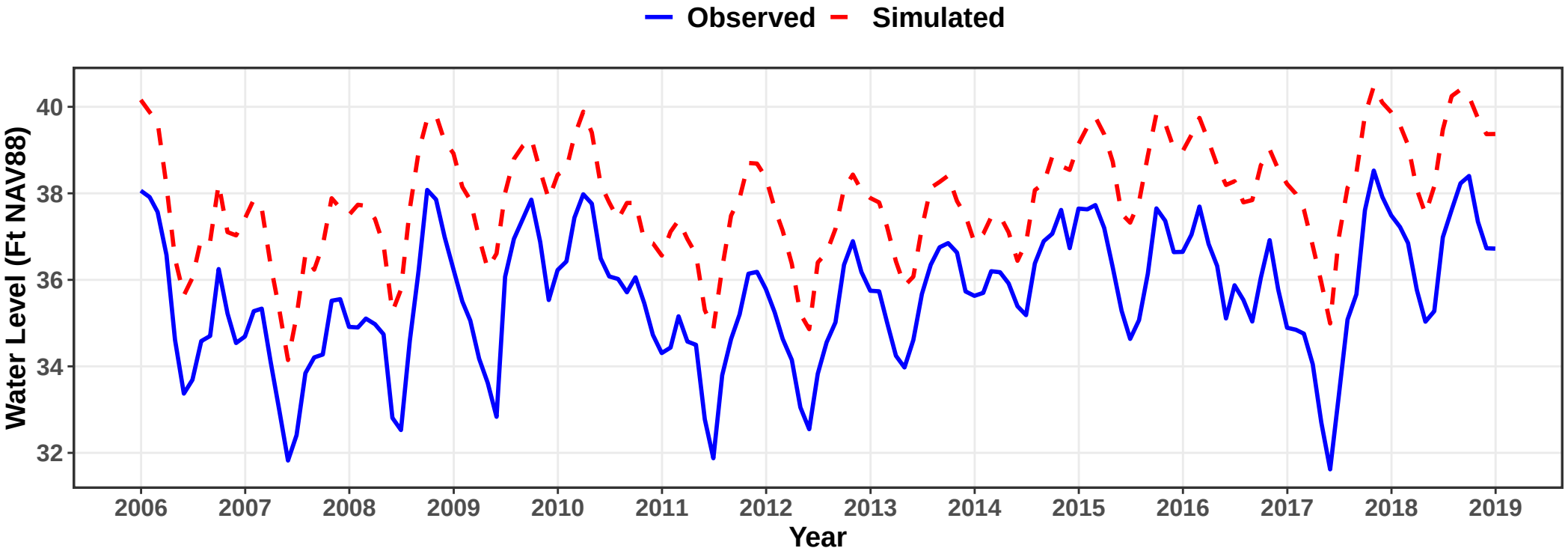


Stage Duration Curve

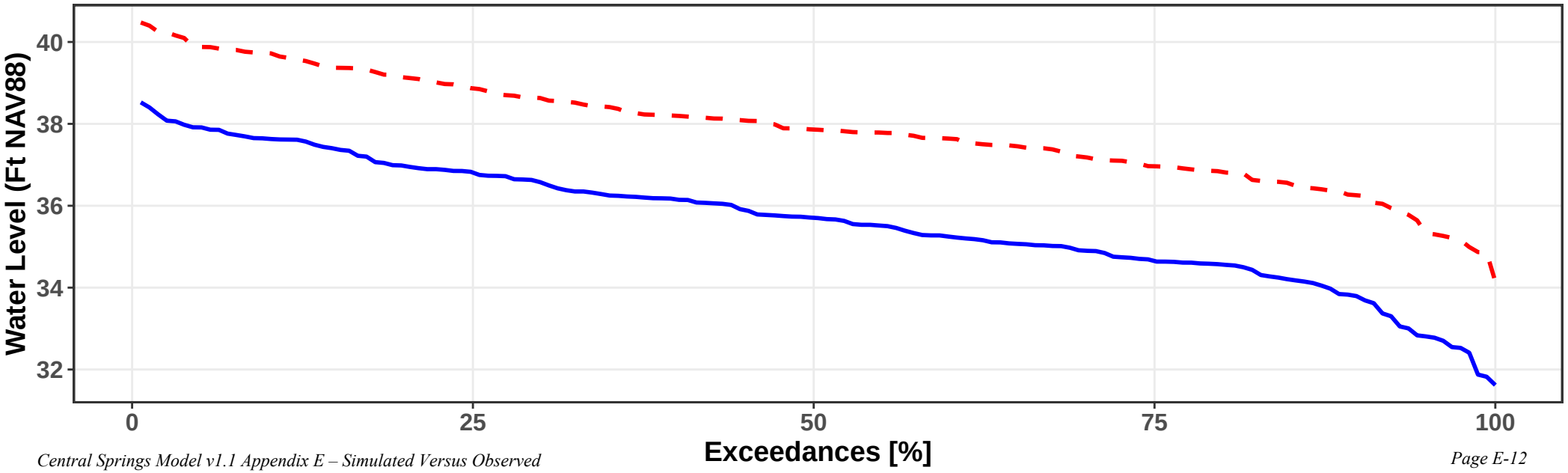


OR0676 – LFA @ Alafaya Trl WTP

ME = 2.2 MAE = 2.2 R^2 = 0.8855 NSE = –1.349

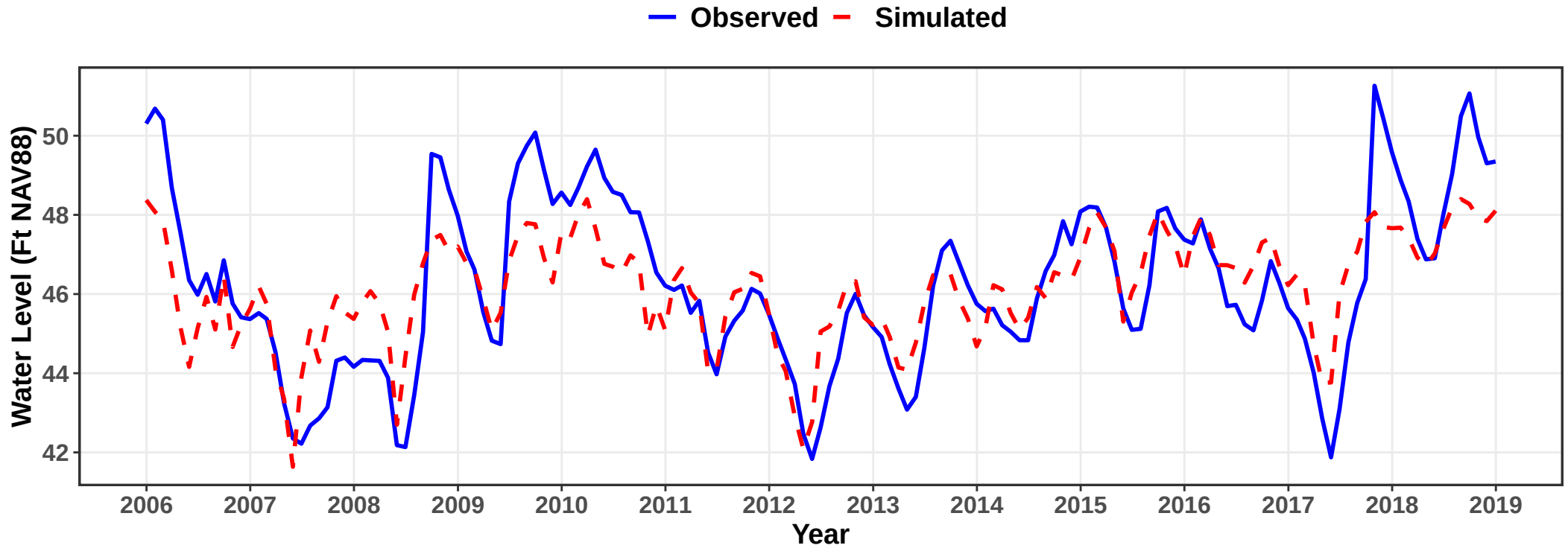


Stage Duration Curve

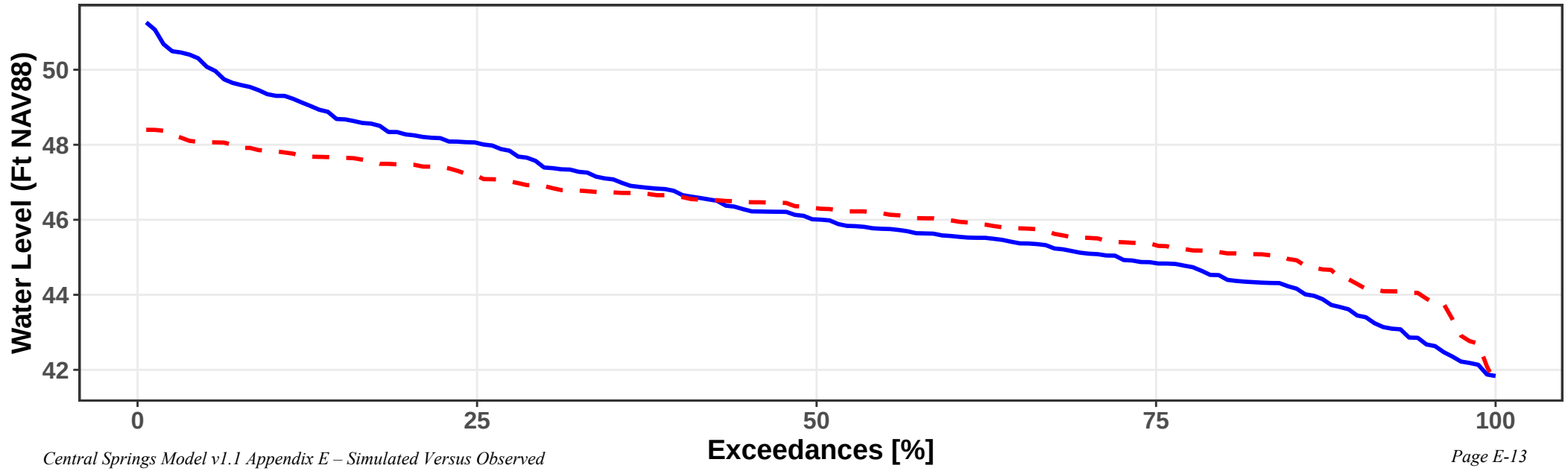


OR0794 – LFA @ Plymouth Twr

ME = –0.1 MAE = 1 R^2 = 0.6905 NSE = 0.644

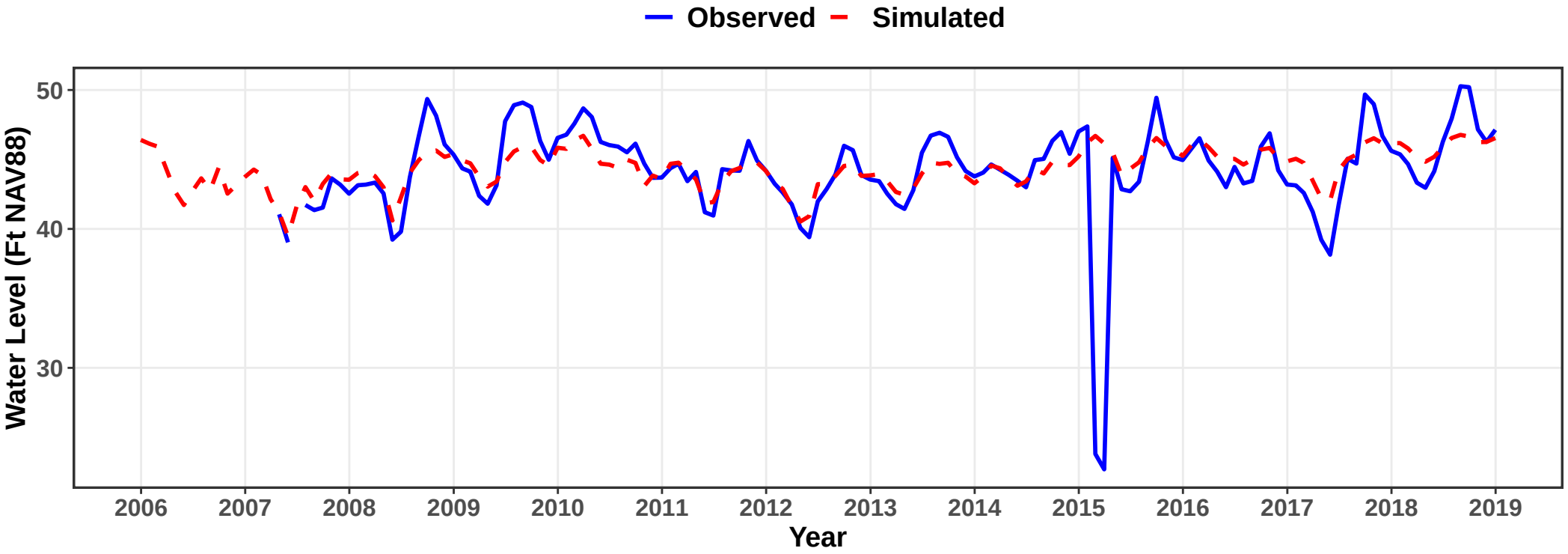


Stage Duration Curve

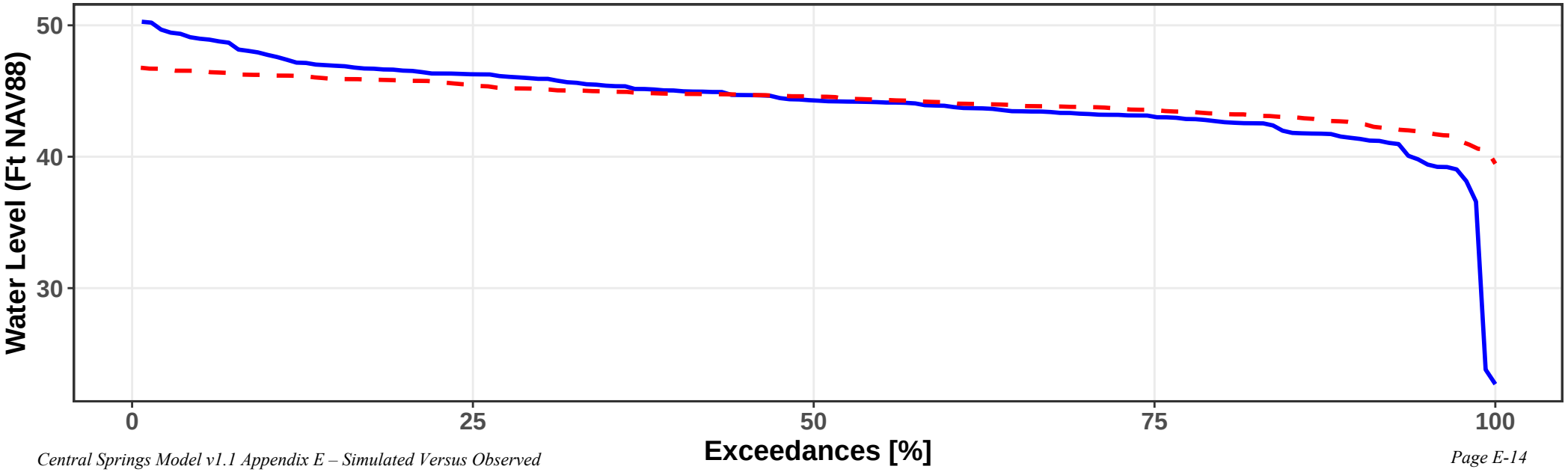


OR0829 − LFA @ Wadeview Pk

ME = 0.3 MAE = 1.5 R^2 = 0.1777 NSE = 0.172

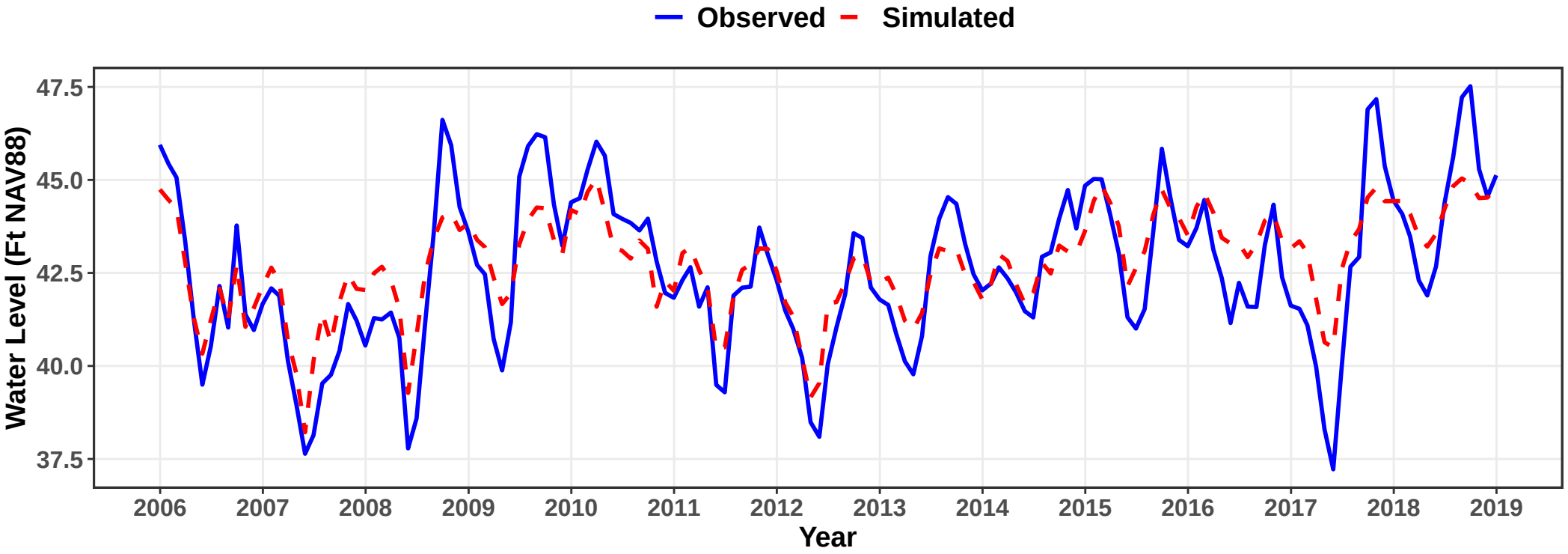


Stage Duration Curve

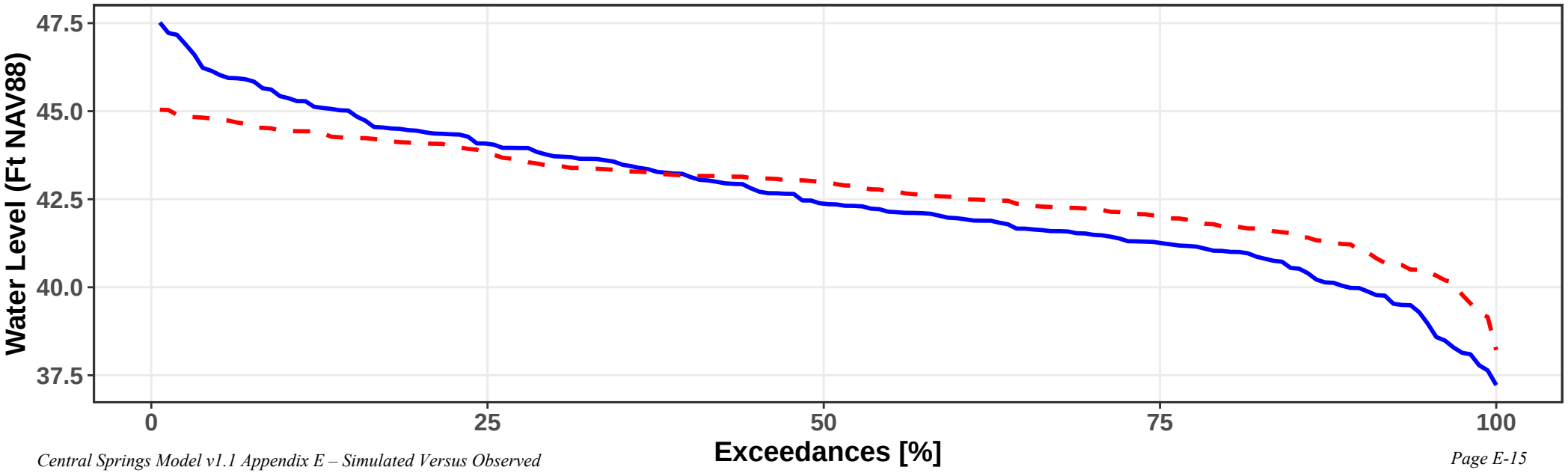


S−1024 − LFA @ Charlotte St

ME = 0.2 MAE = 0.9 R^2 = 0.8012 NSE = 0.722

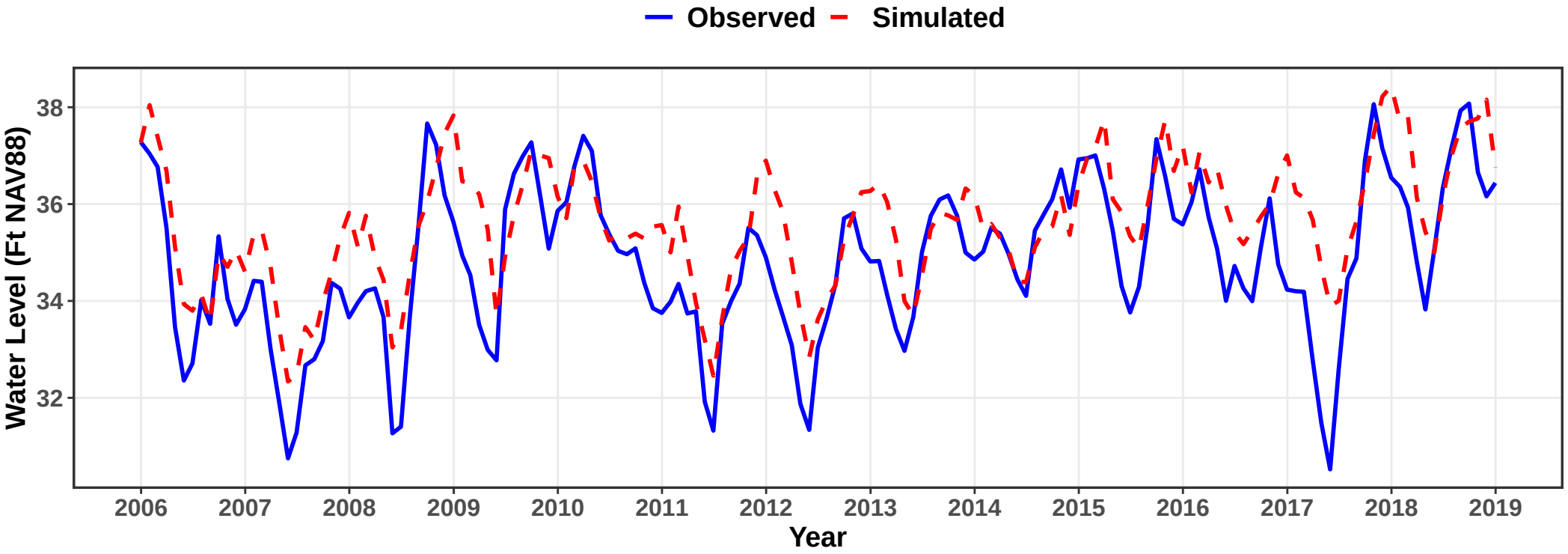


Stage Duration Curve

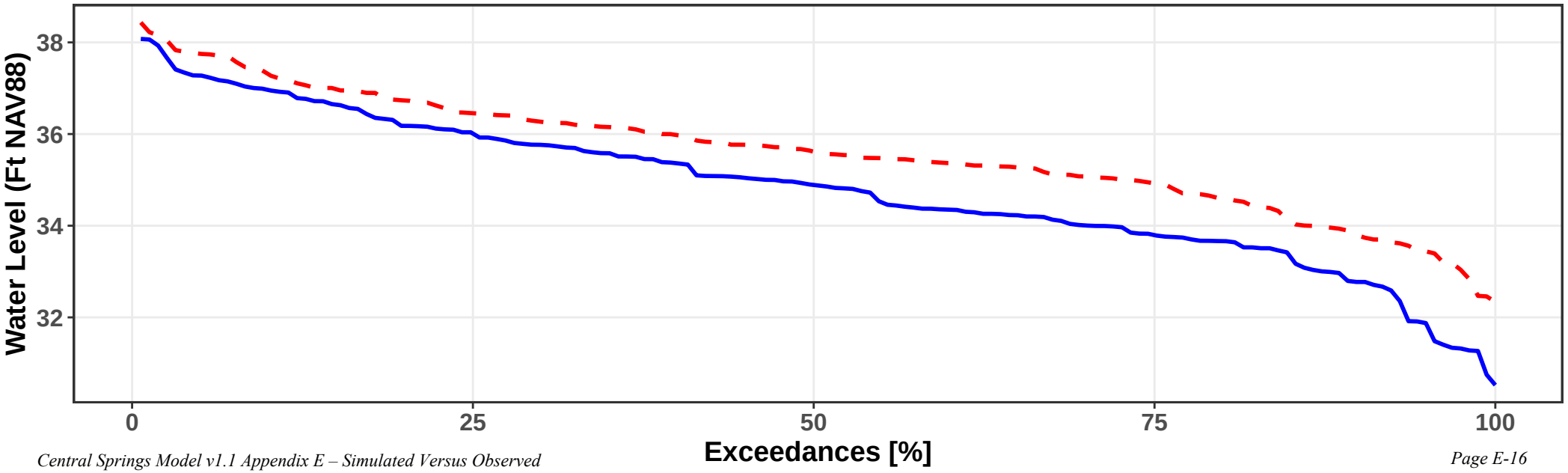


S−1078 − LFA @ Oviedo WTP

ME = 0.8 MAE = 1 R^2 = 0.6612 NSE = 0.414

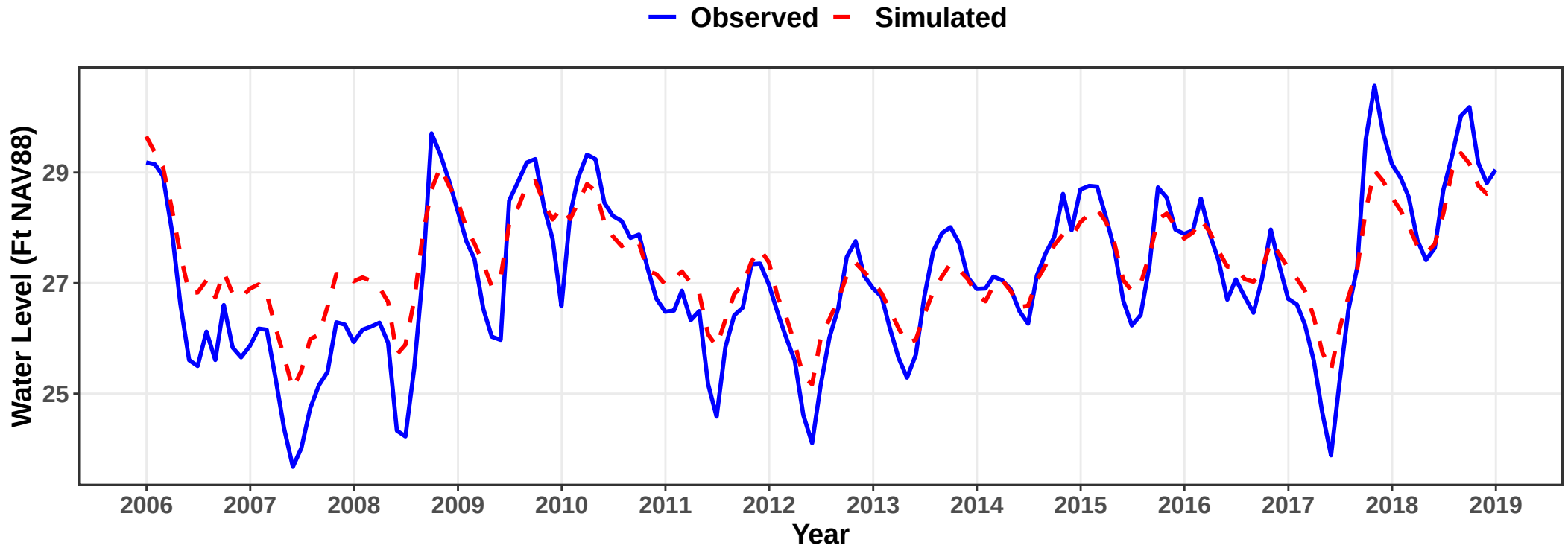


Stage Duration Curve

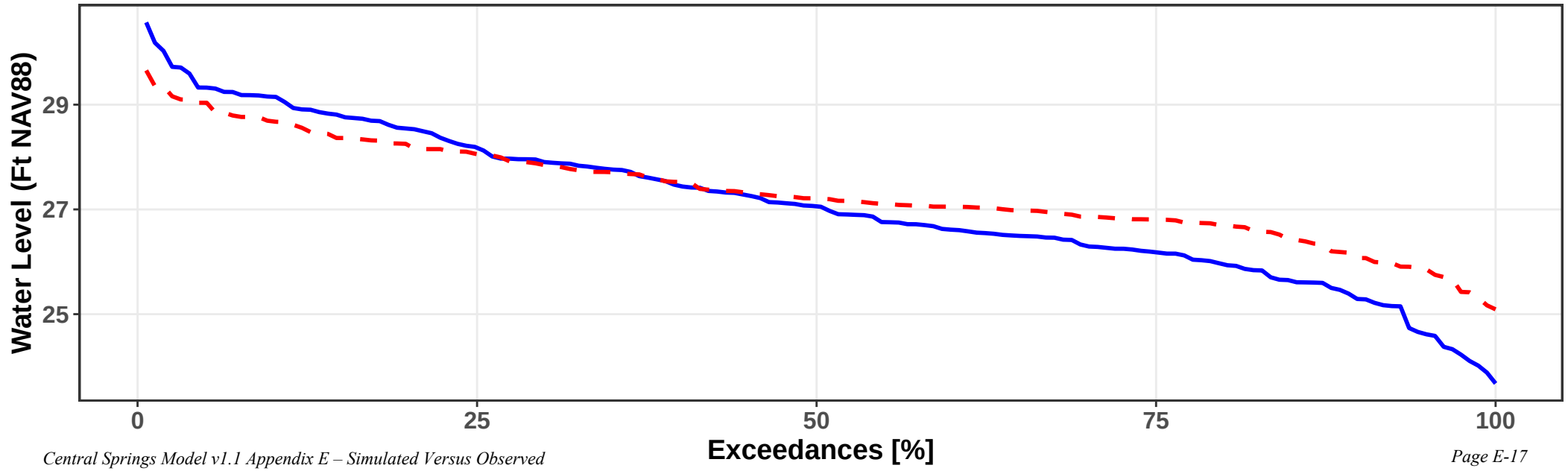


S−1225 − LFA @ Yankee Lk

ME = 0.2 MAE = 0.5 R^2 = 0.8931 NSE = 0.78

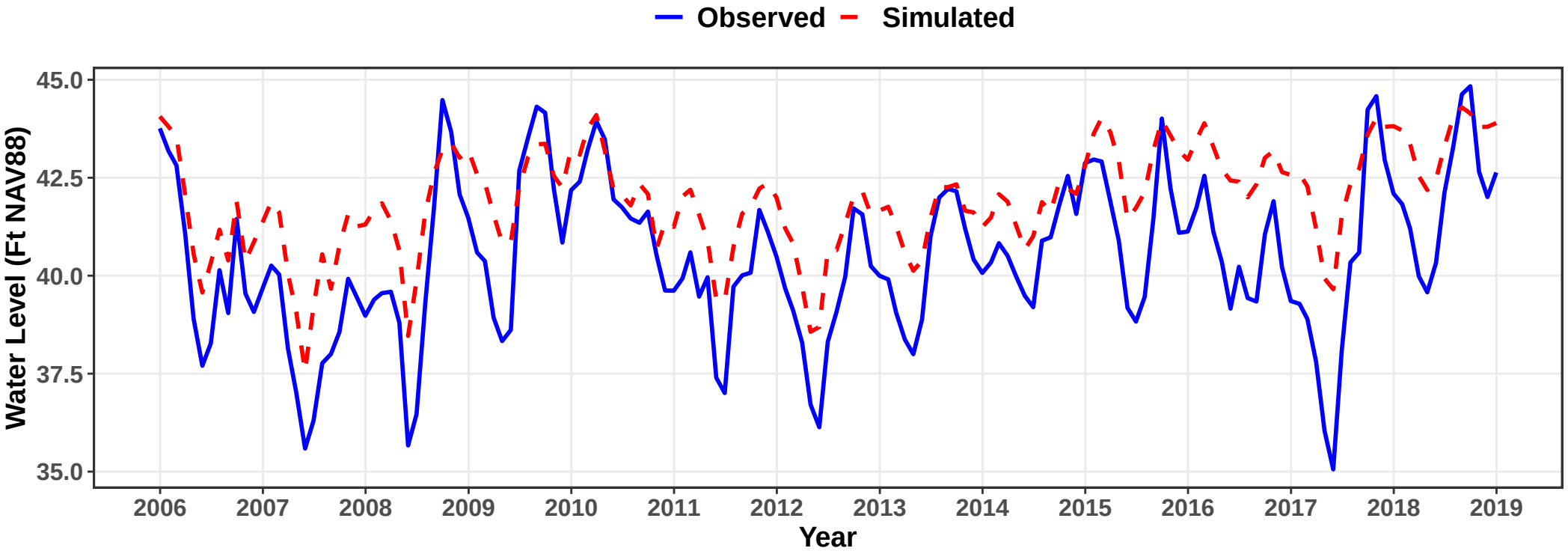


Stage Duration Curve

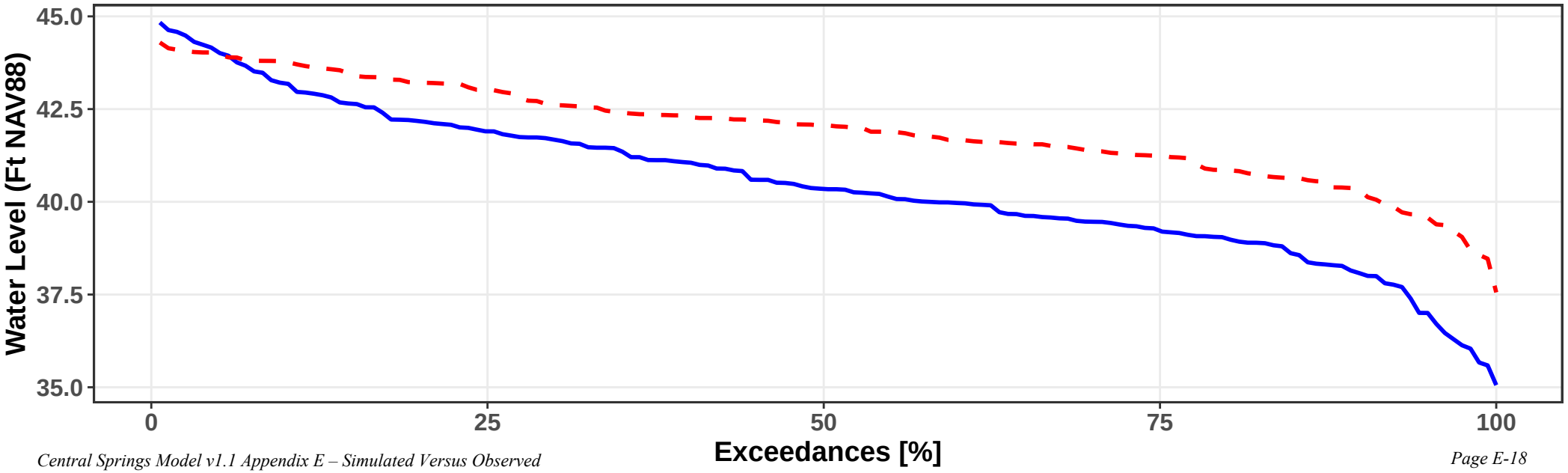


S−1329 − LFA @ Citrus Rd

ME = 1.5 MAE = 1.6 R^2 = 0.7908 NSE = 0.213

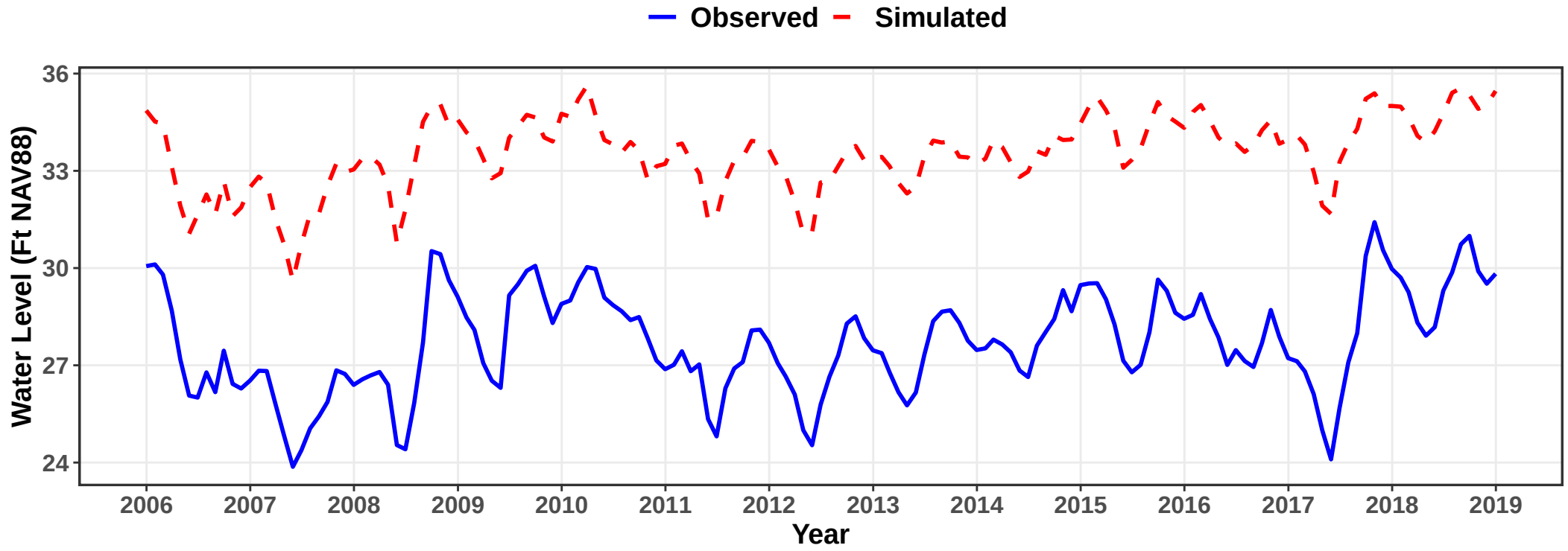


Stage Duration Curve

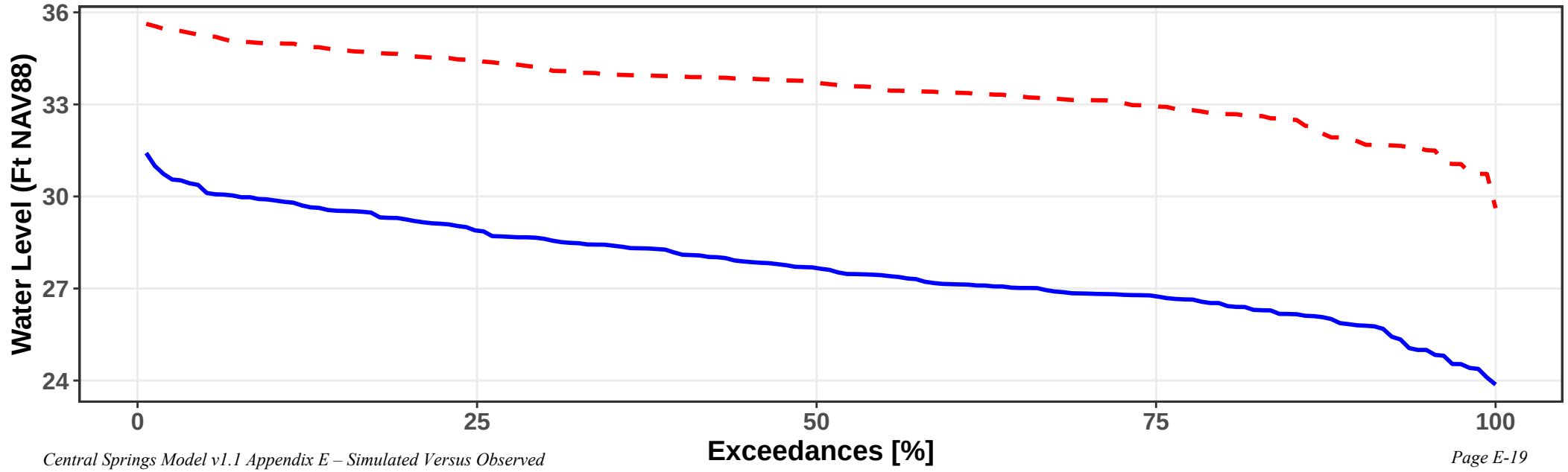


S−1351 − LFA @ Lk Mary Disposal

ME = 5.8 MAE = 5.8 R^2 = 0.8247 NSE = −13.013

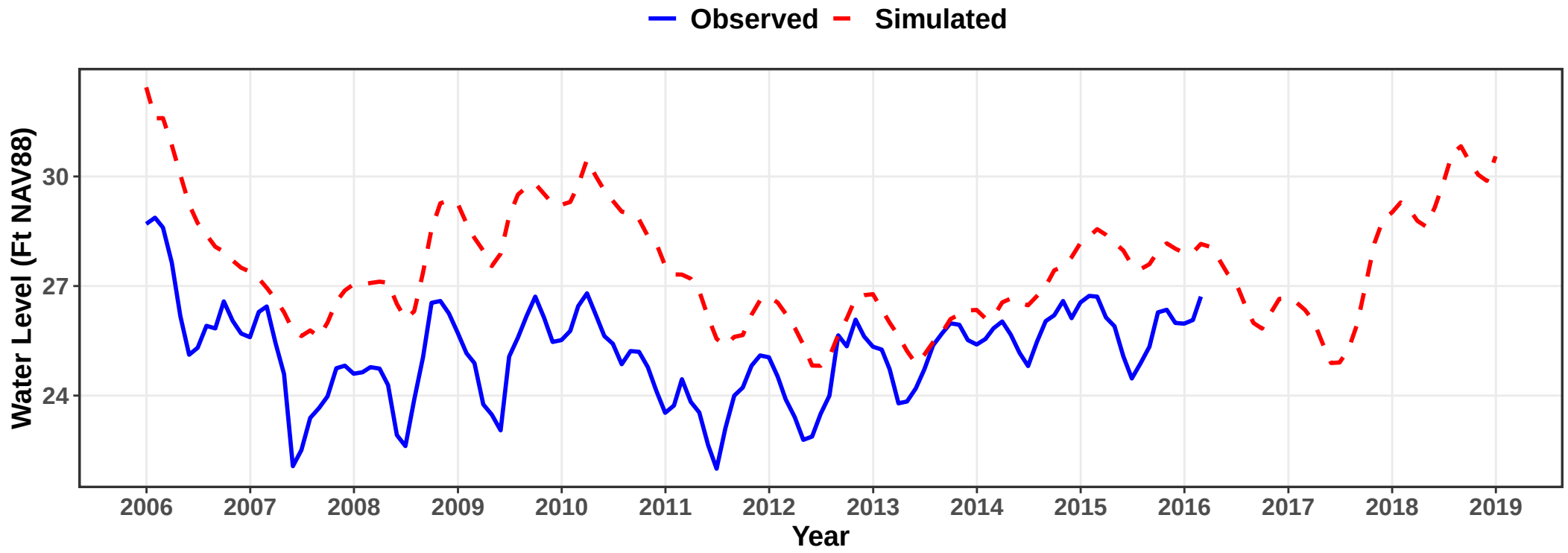


Stage Duration Curve

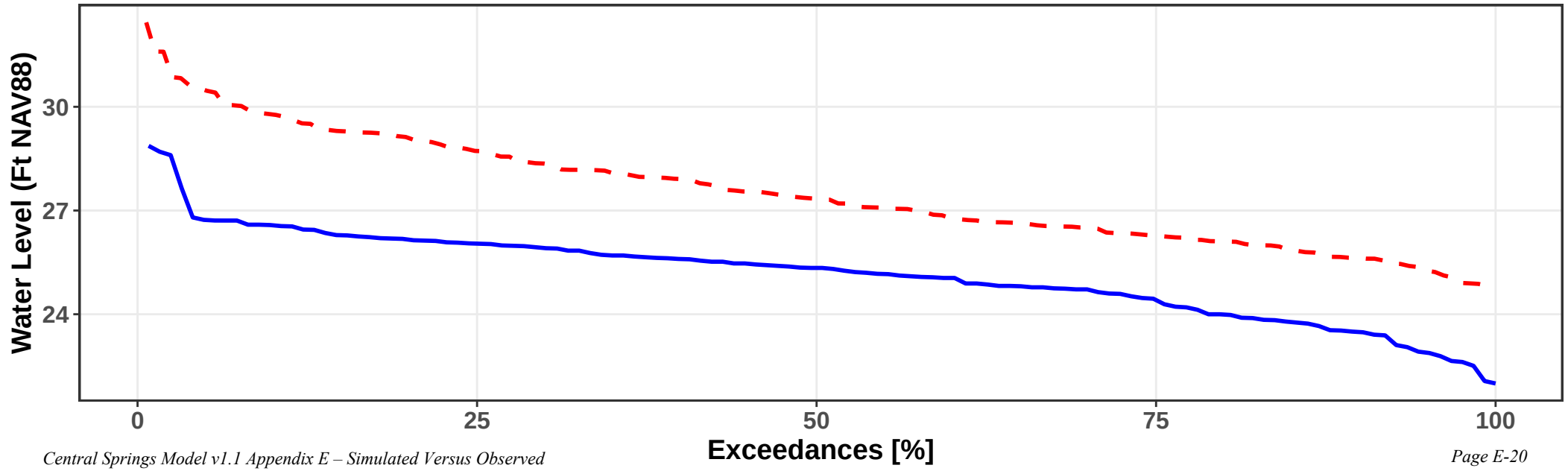


V−0100 − LFA @ Deland USGS

ME = 2.3 MAE = 2.3 R^2 = 0.4596 NSE = −3.033

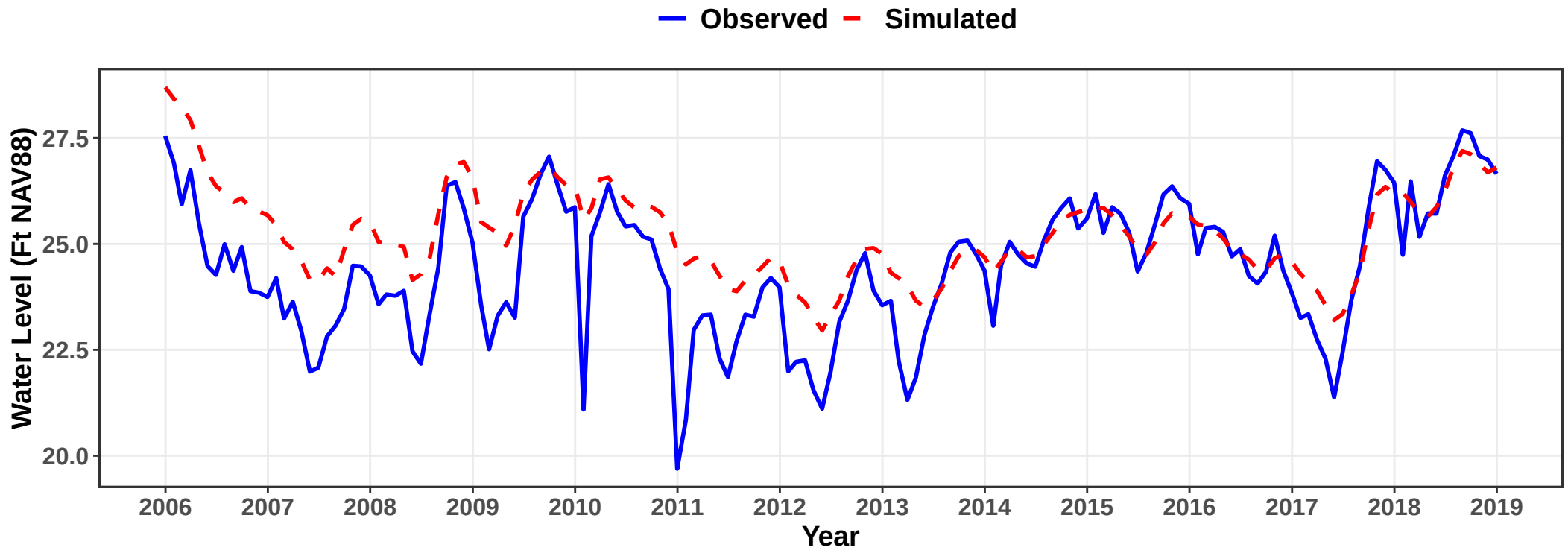


Stage Duration Curve

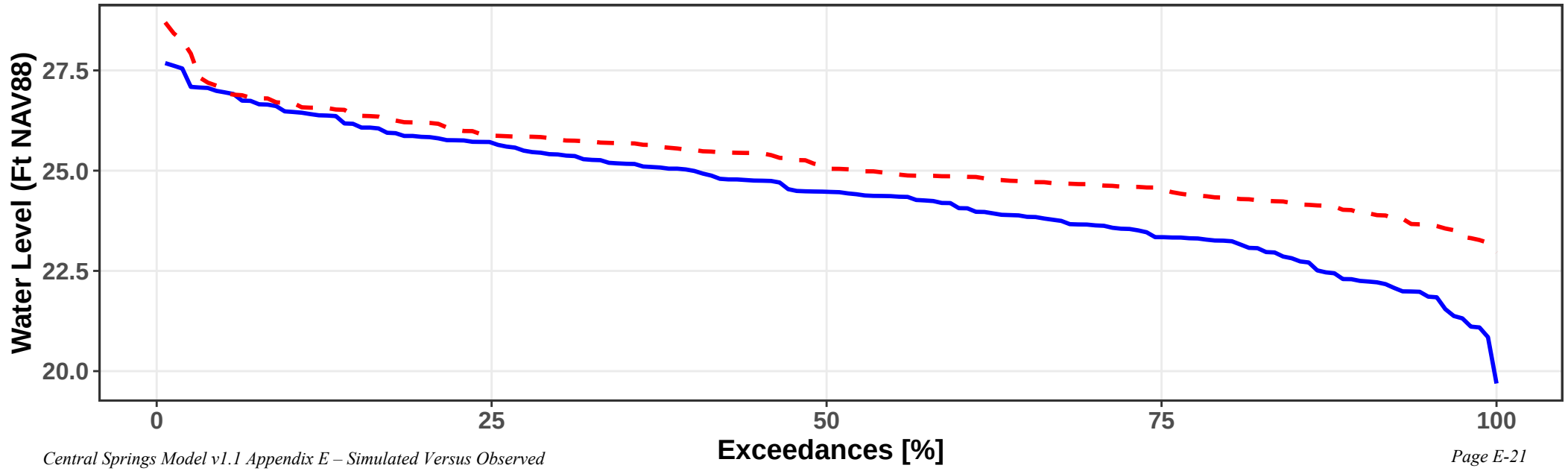


V−0530 − LFA @ Pierson AP

ME = 0.8 MAE = 1 R^2 = 0.625 NSE = 0.35

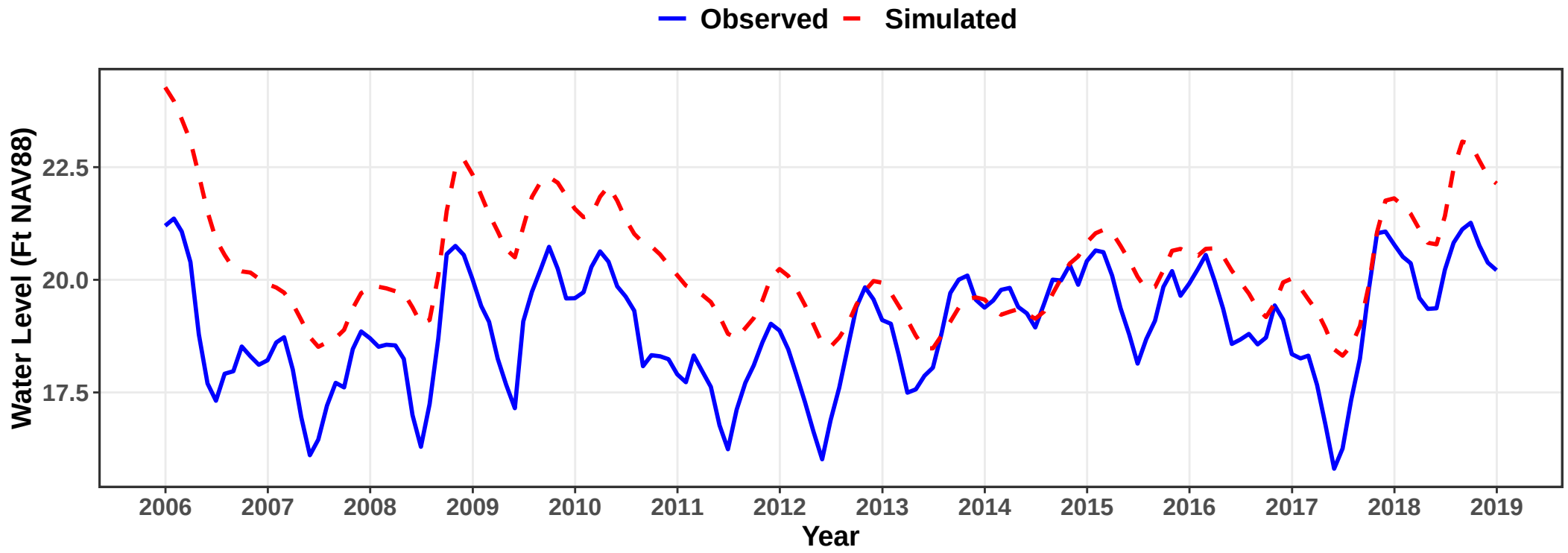


Stage Duration Curve

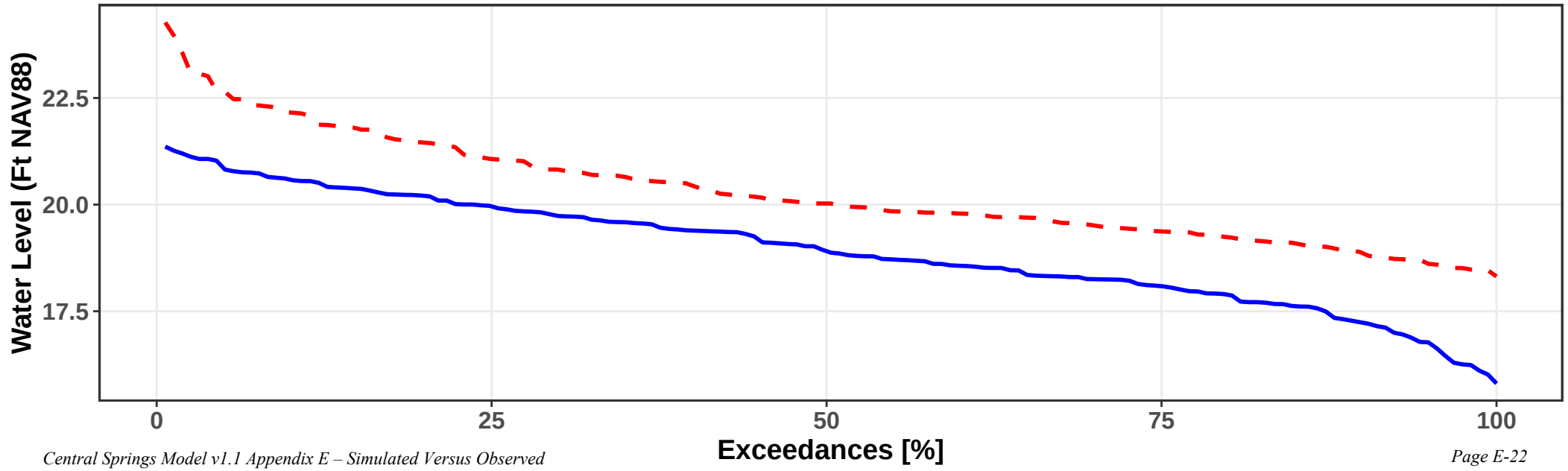


V−0774 − LFA @ Galaxy MS

ME = 1.4 MAE = 1.4 R^2 = 0.5401 NSE = −0.68

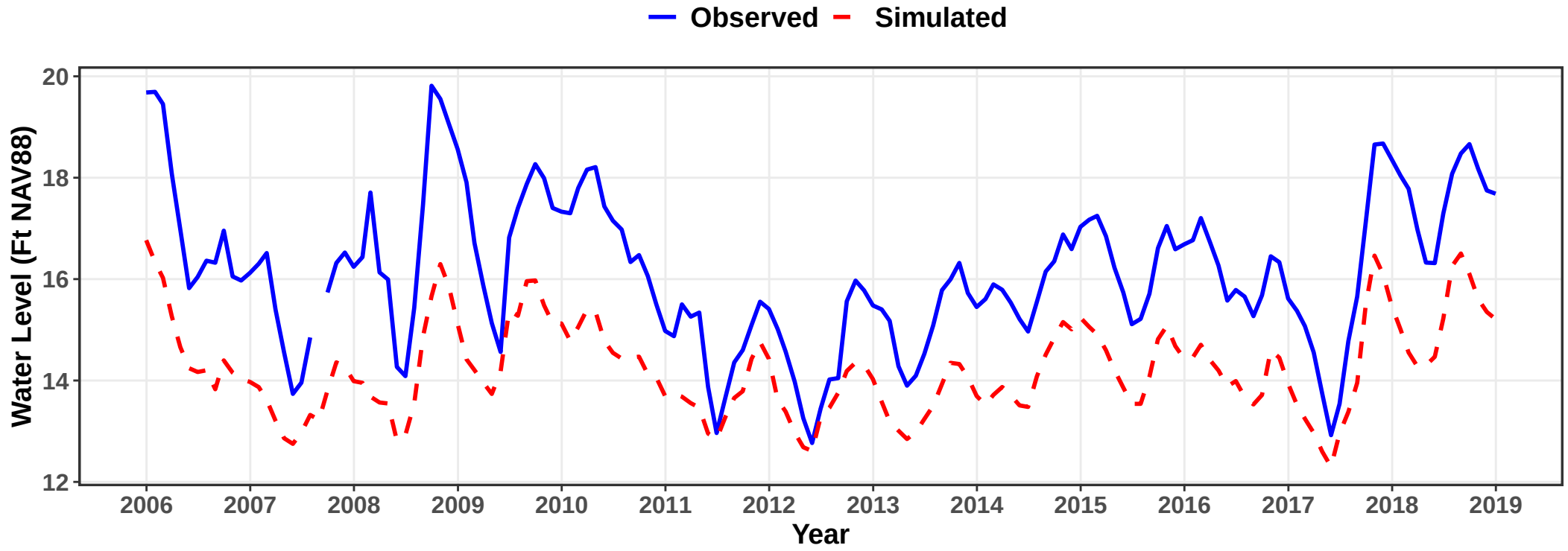


Stage Duration Curve

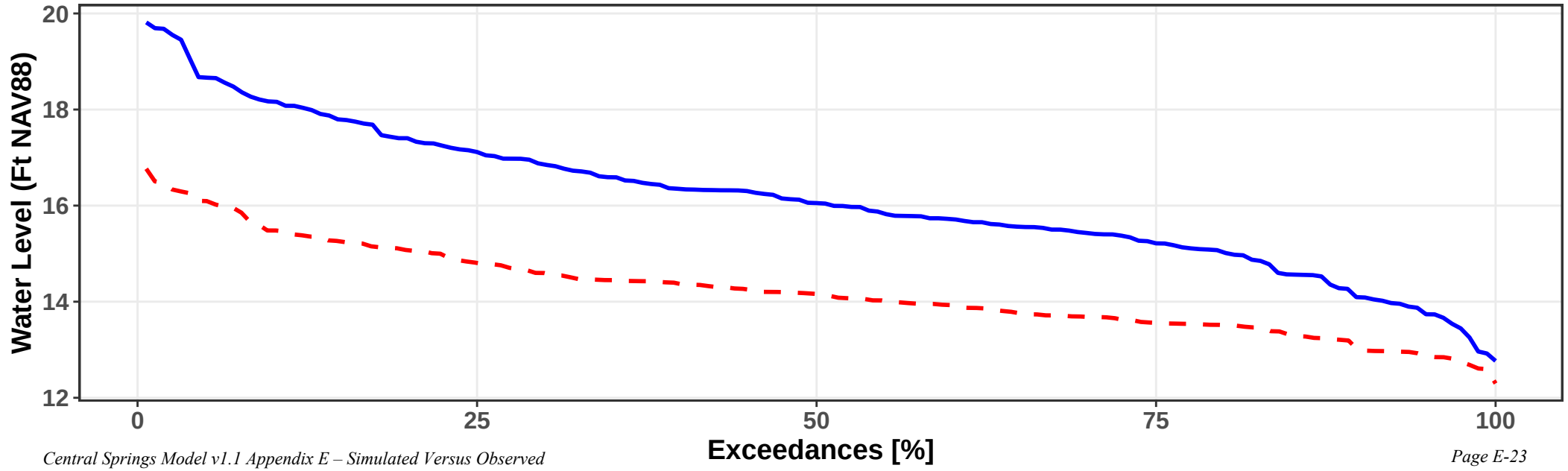


V−0780 − LFA @ Orange City Ftwr

ME = −1.9 MAE = 1.9 R^2 = 0.8407 NSE = −0.883

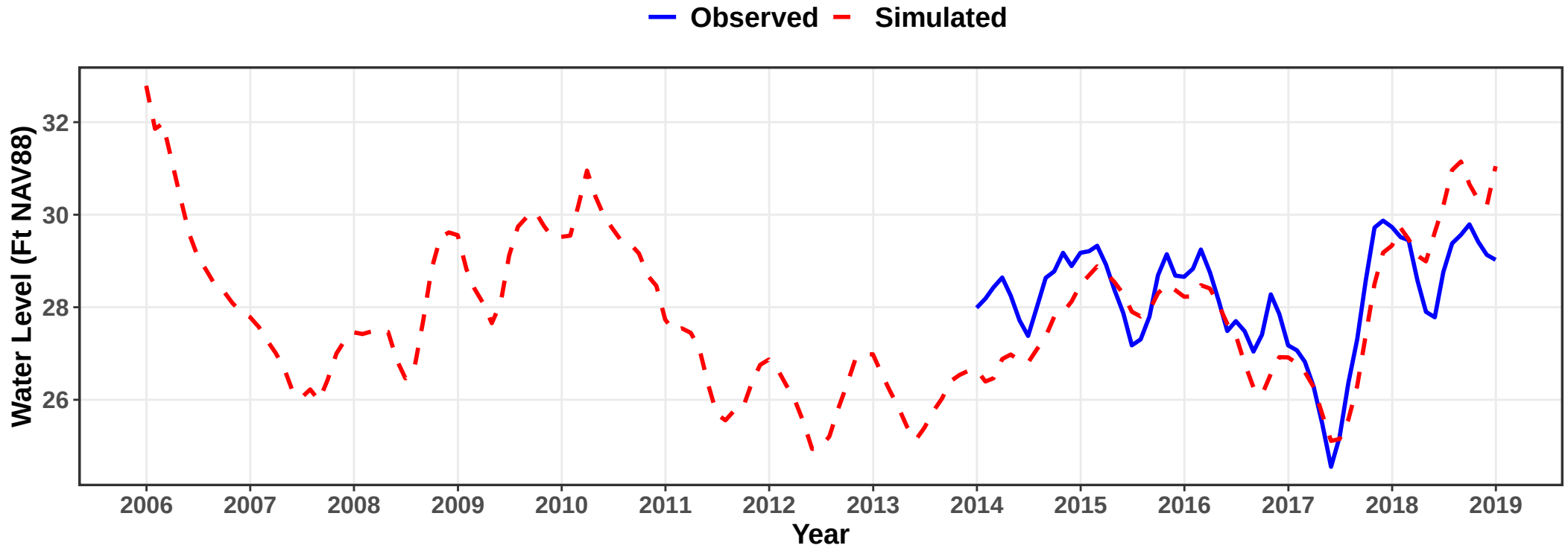


Stage Duration Curve

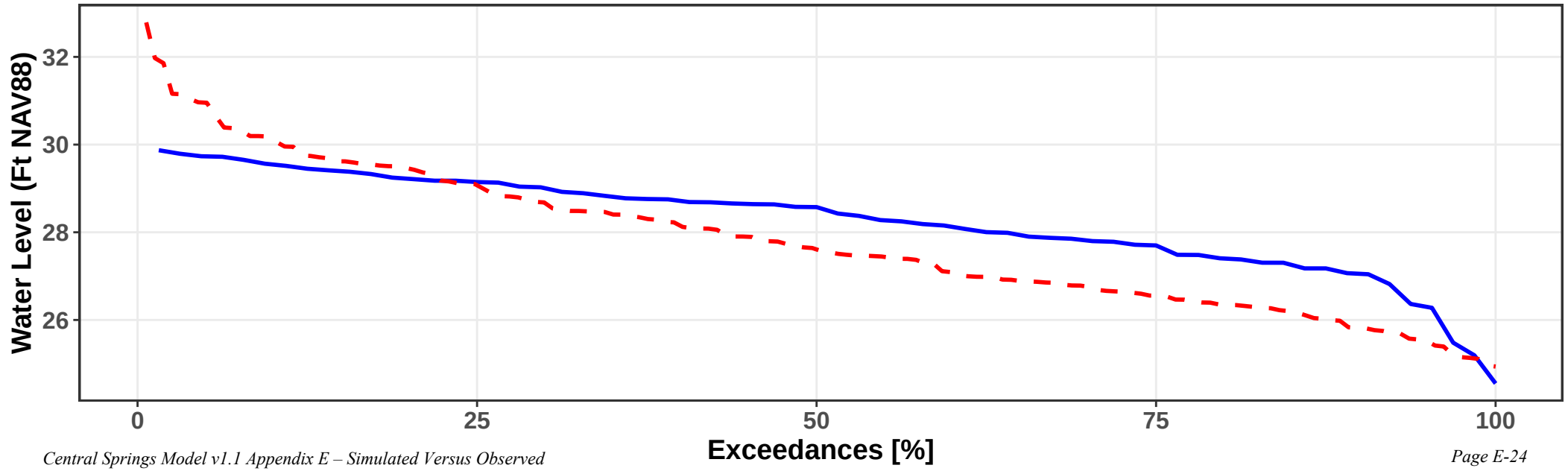


V−0802 − LFA @ Clark Bay

$ME = -0.2$ $MAE = 0.8$ $R^2 = 0.6$ $NSE = 0.252$

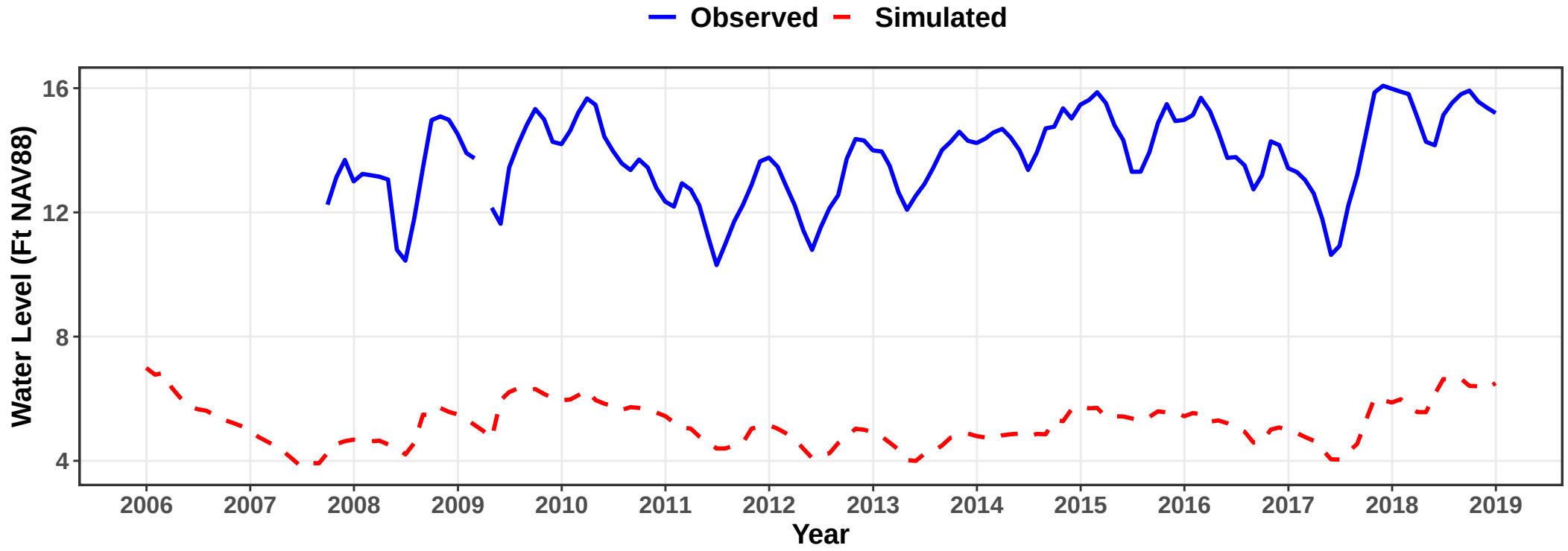


Stage Duration Curve

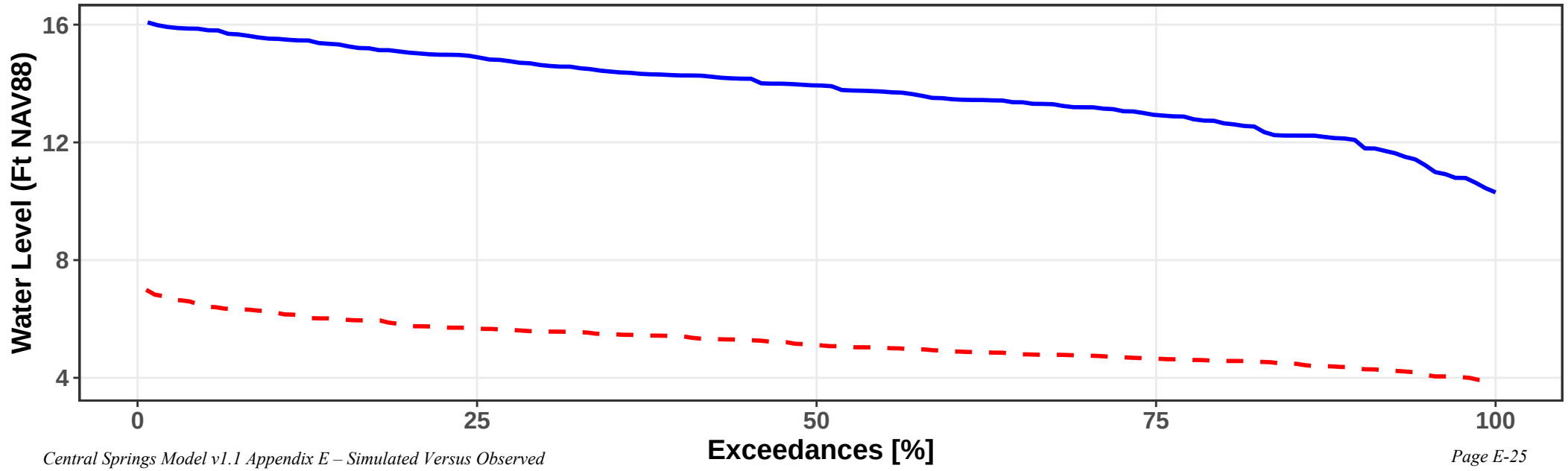


V−0817 − LFA @ Daytona Bch AP2

ME = −8.6 MAE = 8.6 R^2 = 0.5402 NSE = −39.153

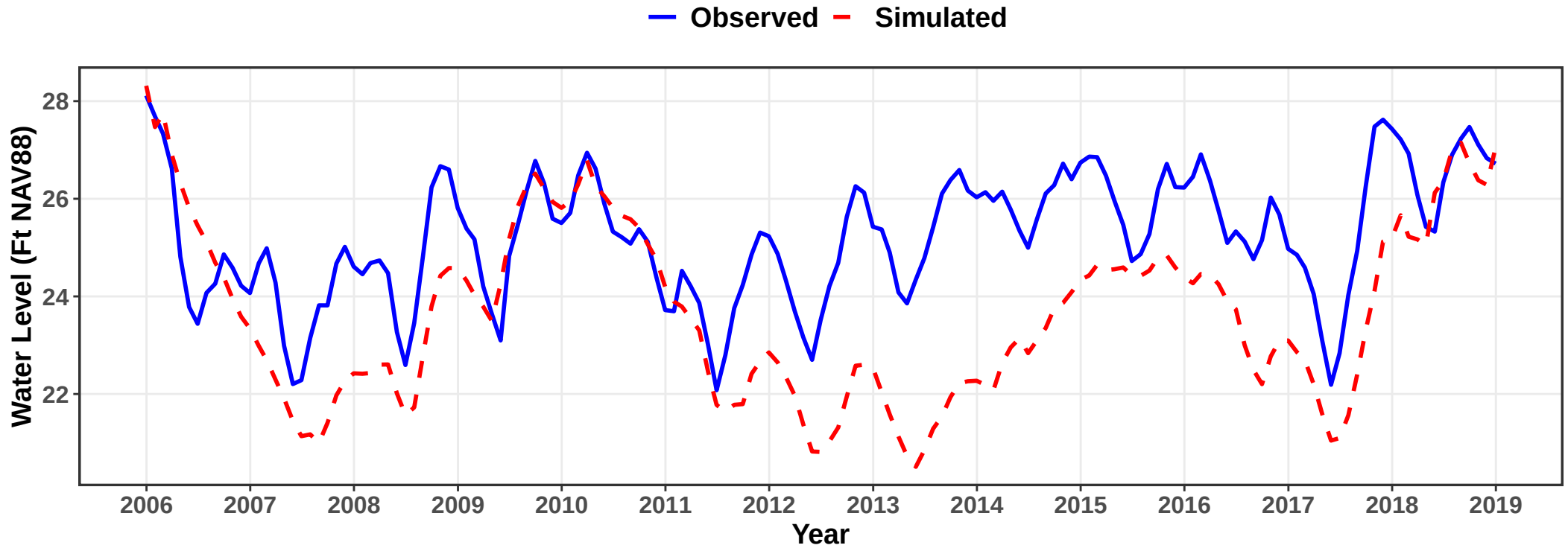


Stage Duration Curve

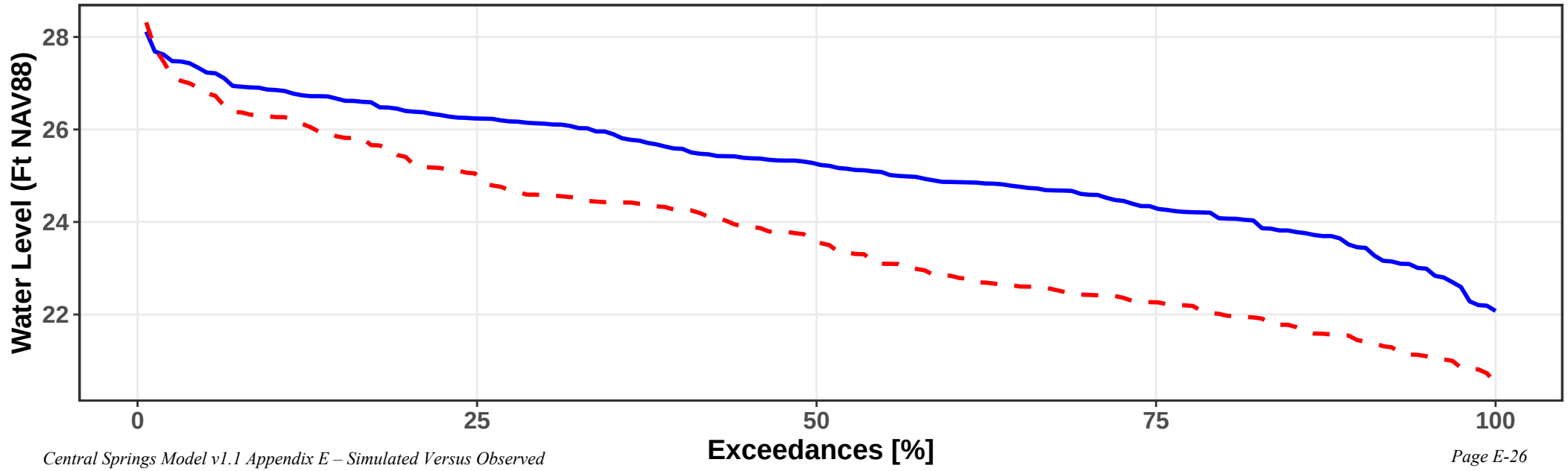


V−0819 − LFA @ Tiger Bay nr Samsula

ME = −1.5 MAE = 1.7 R^2 = 0.3989 NSE = −1.533

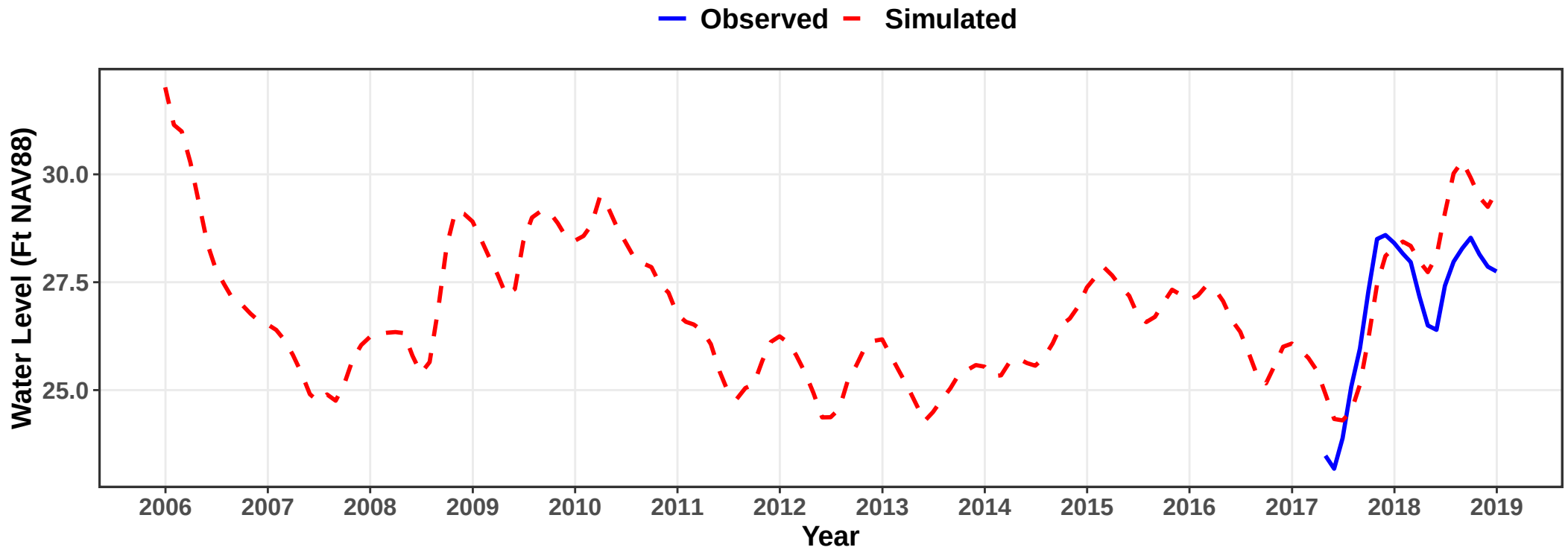


Stage Duration Curve

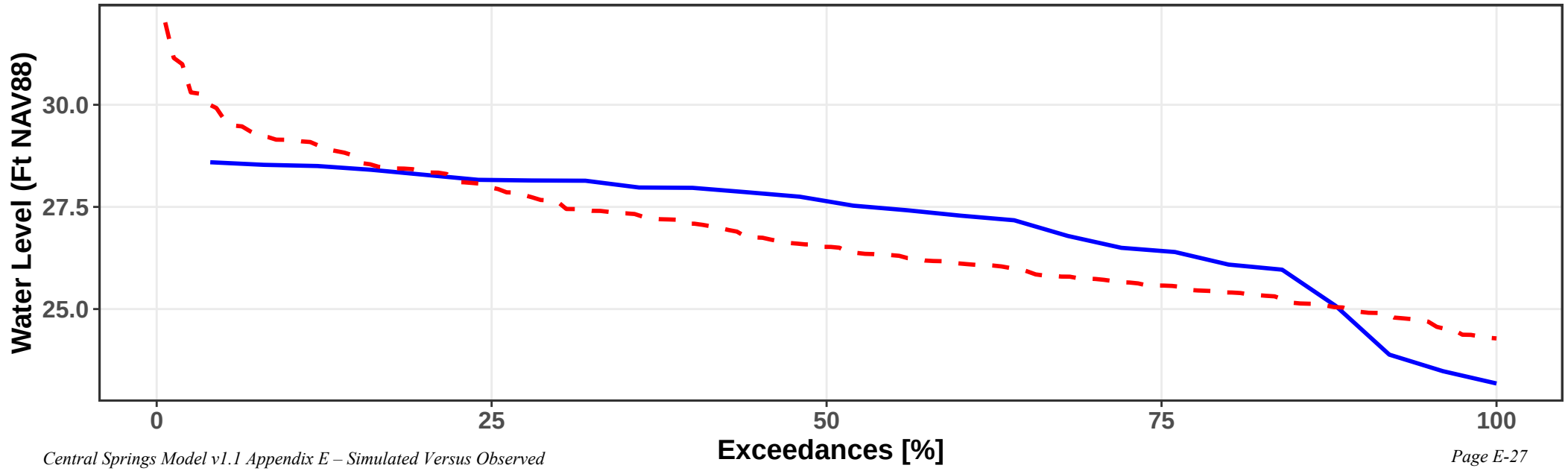


V−1252 − LFA @ Kemcho Wells

ME = 0.5 MAE = 1.1 R^2 = 0.6404 NSE = 0.394

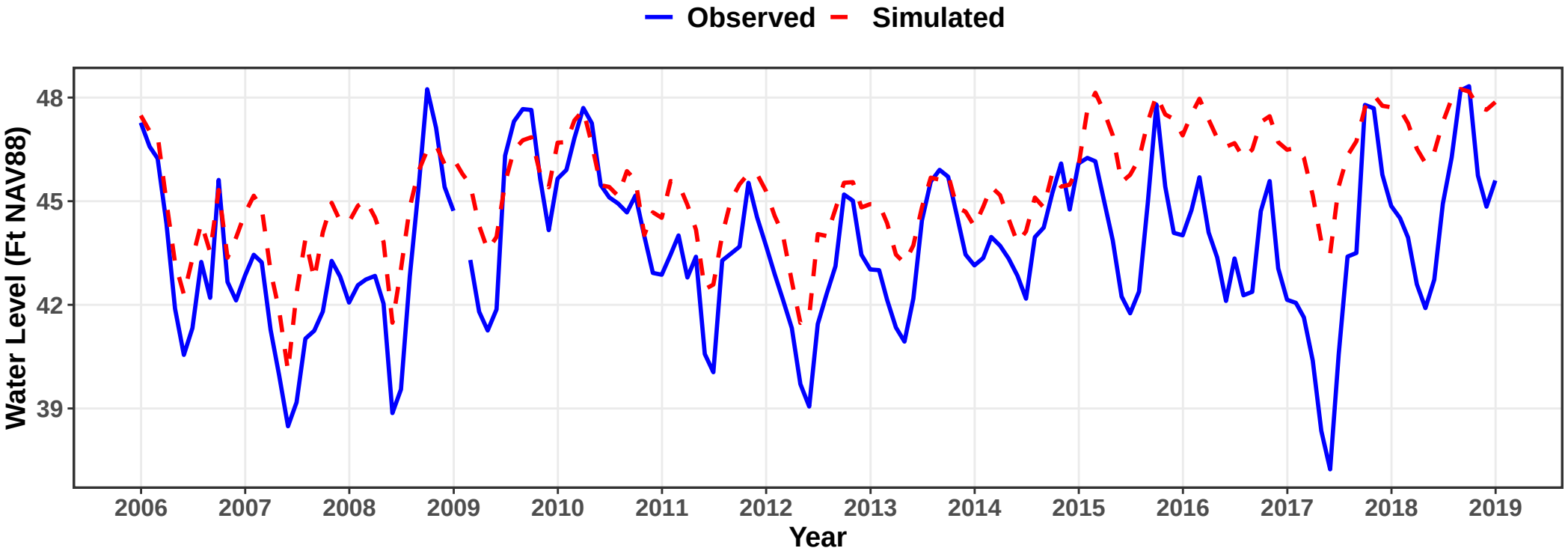


Stage Duration Curve

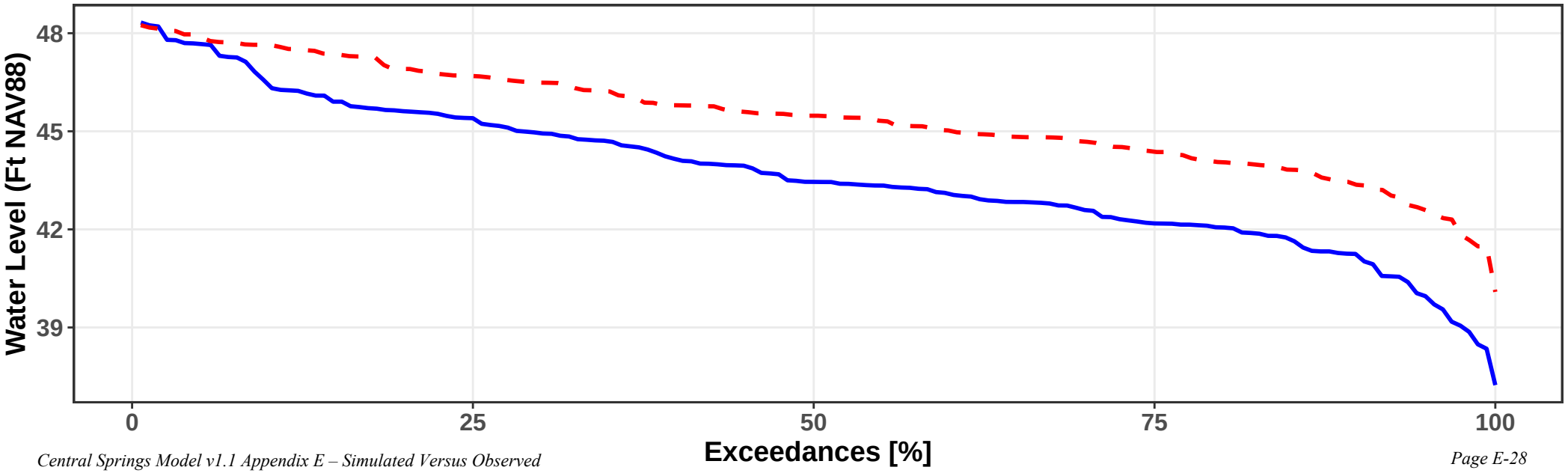


AIR19W2 @ PT638

ME = 1.7 MAE = 1.8 R^2 = 0.6044 NSE = −0.021

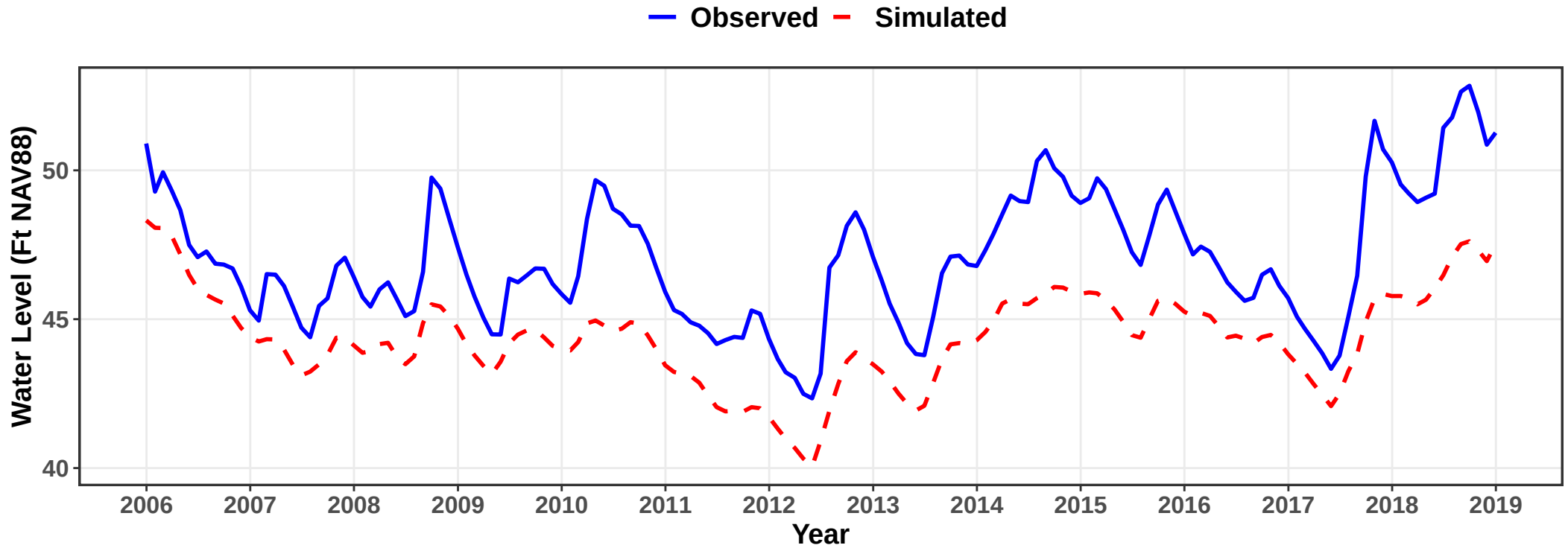


Stage Duration Curve

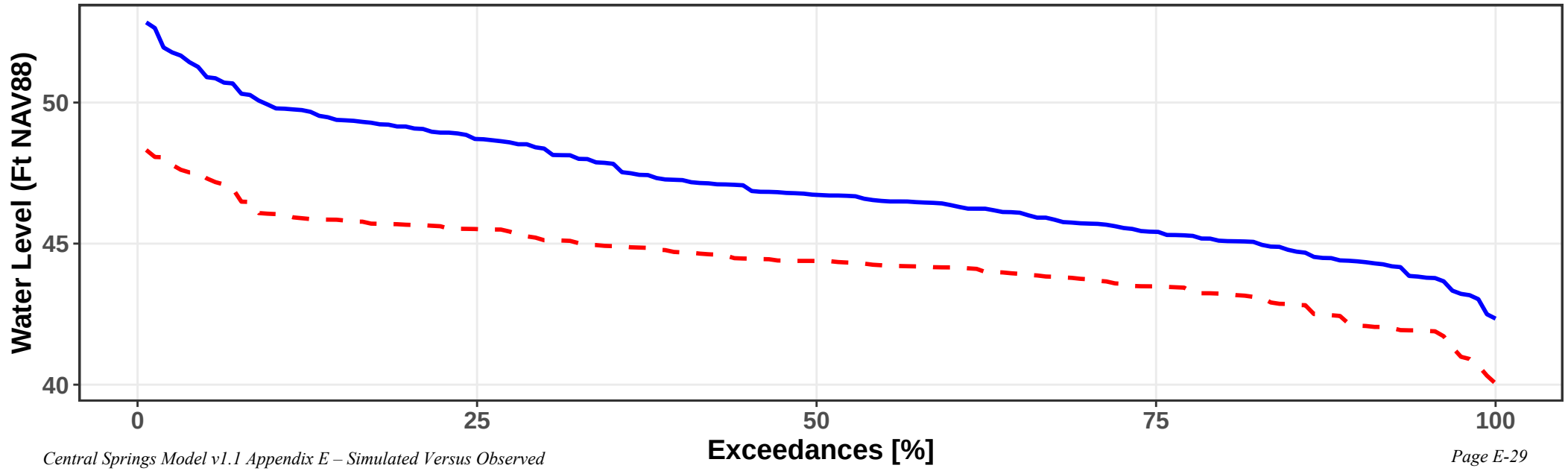


M−0628 − LFA @ Indian Lk SF Wells

ME = −2.6 MAE = 2.6 R^2 = 0.7807 NSE = −0.701

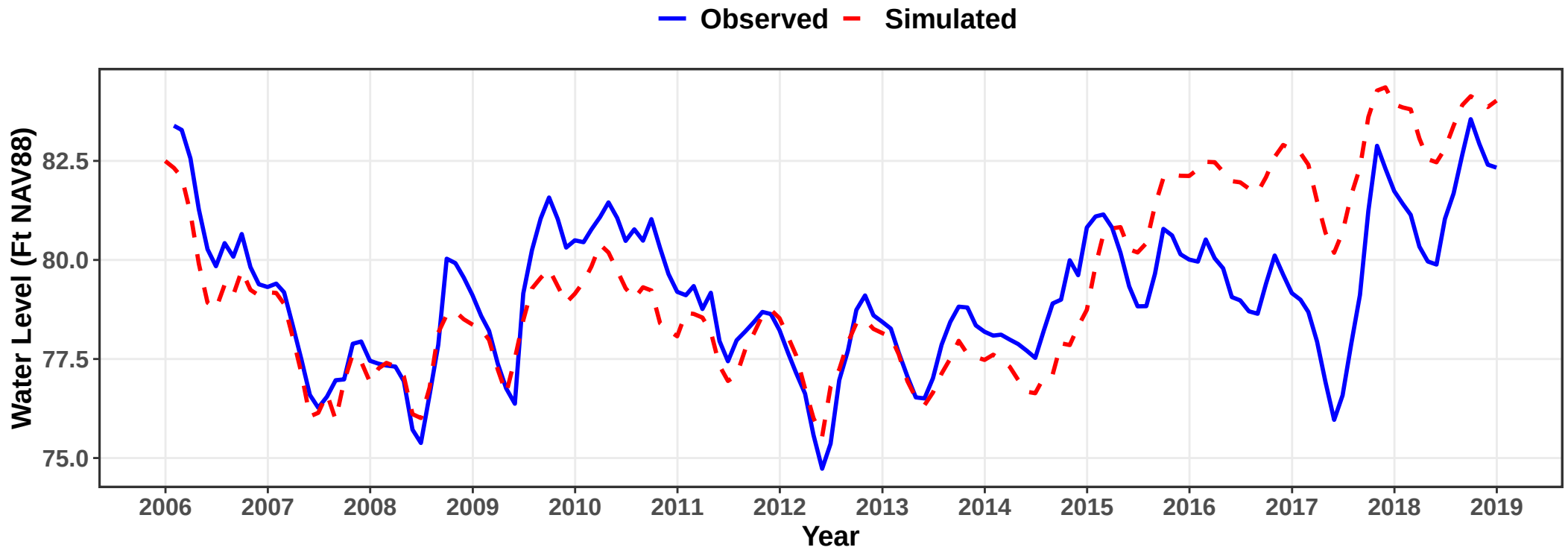


Stage Duration Curve

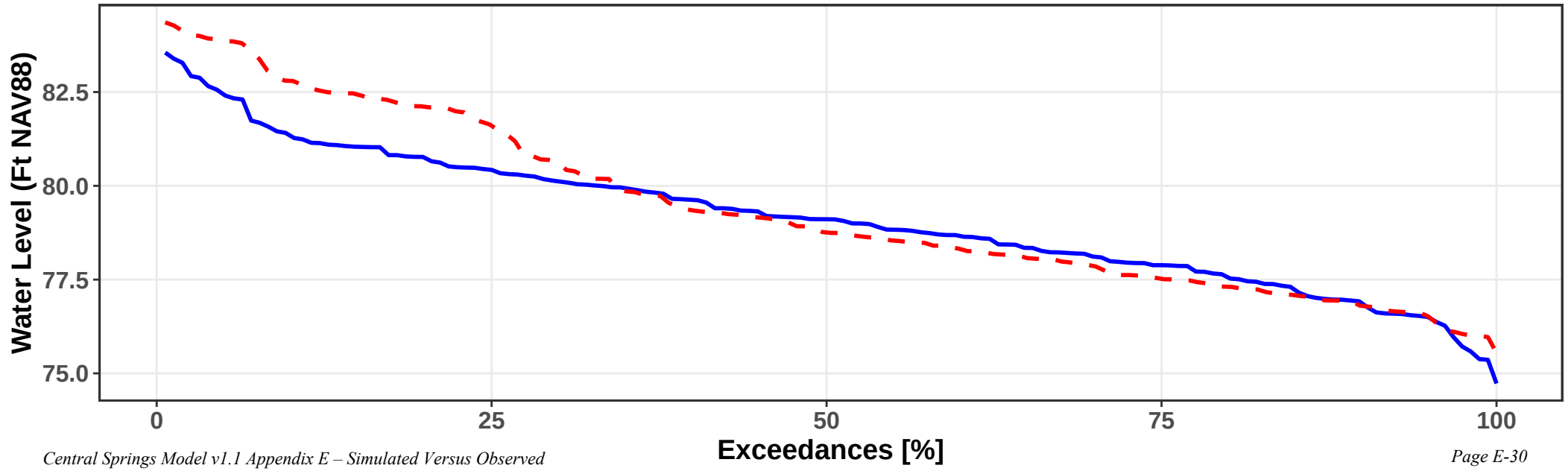


ORF−60 @ TO069

ME = 0.3 MAE = 1.2 R^2 = 0.5492 NSE = 0.236

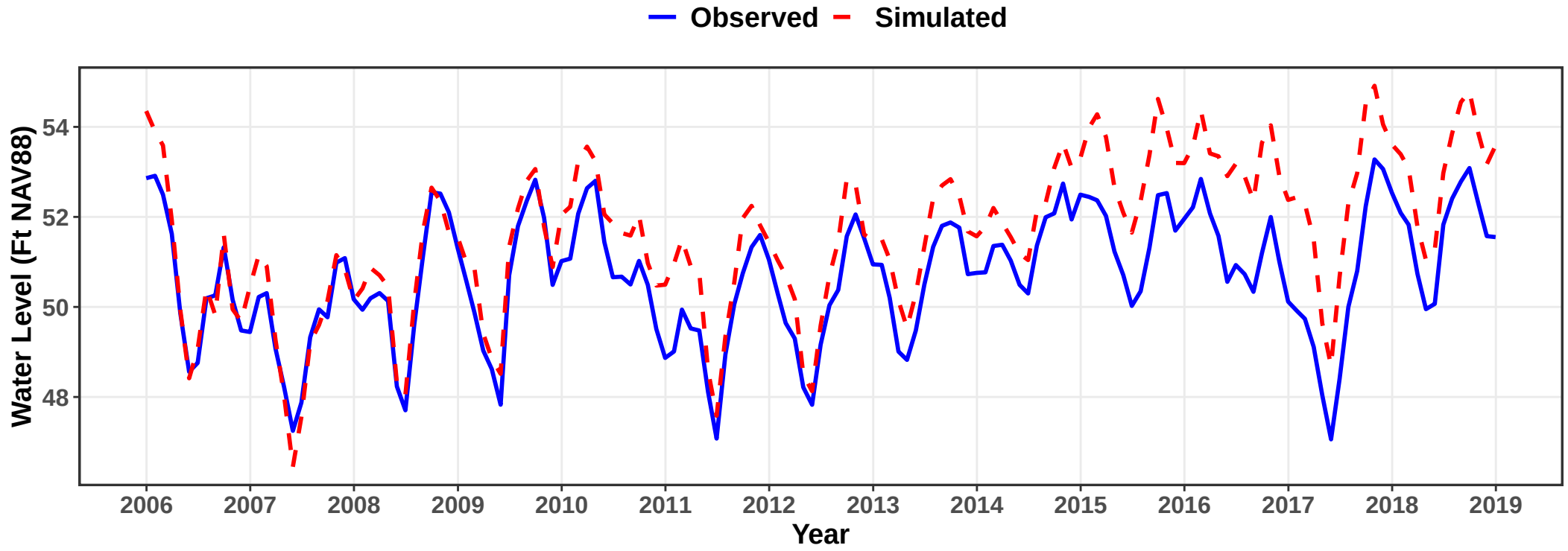


Stage Duration Curve

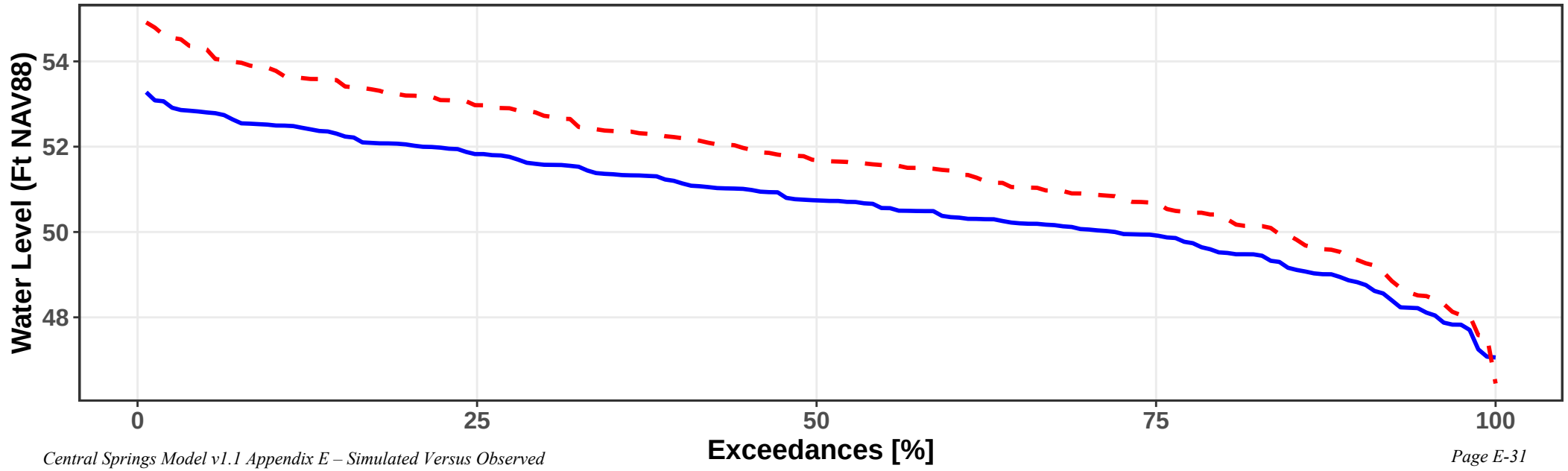


OSF−98 @ PS971

ME = 0.9 MAE = 1 R^2 = 0.8327 NSE = 0.292

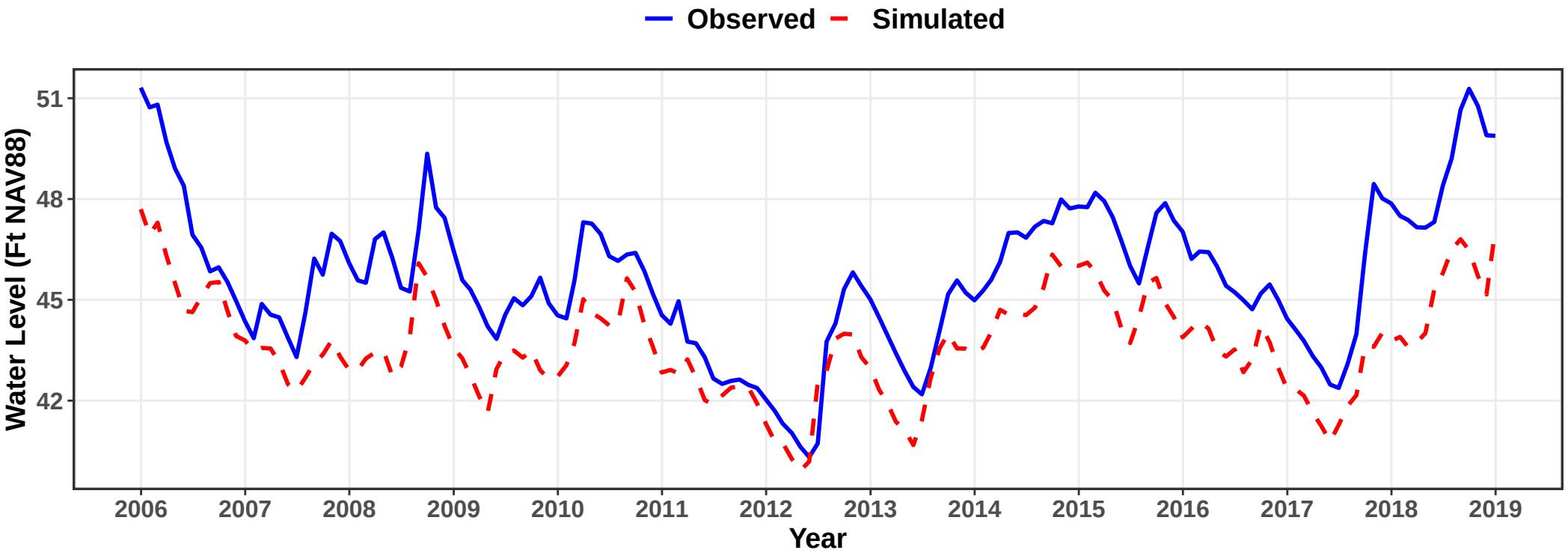


Stage Duration Curve

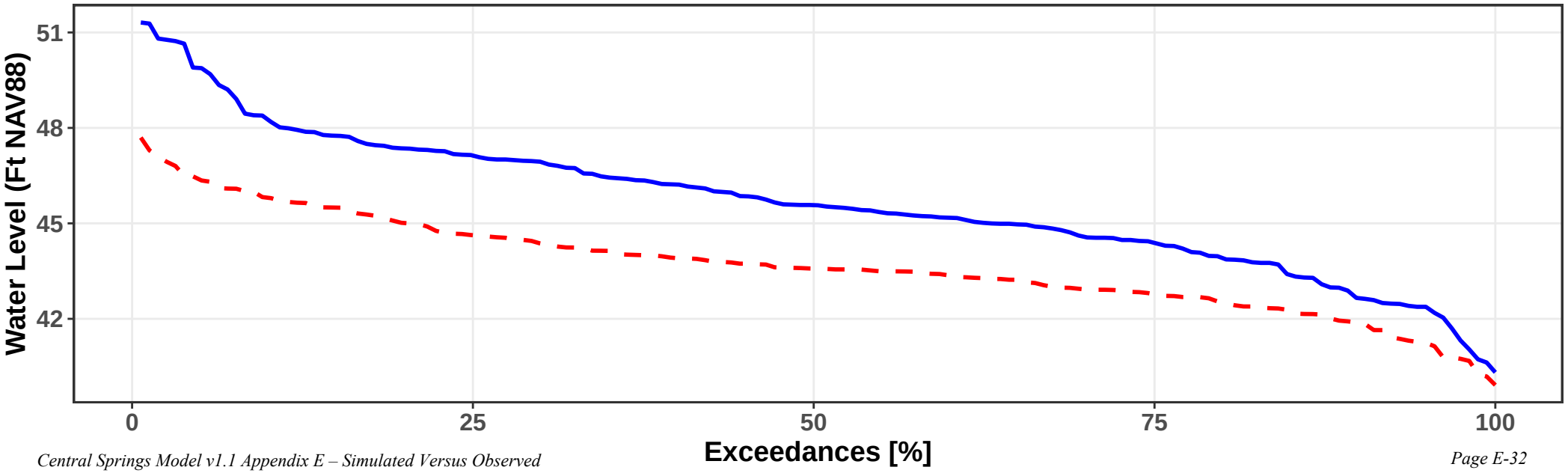


SID665234 @ ROMP 119.5 L Fldn Aq (Below MCU I) Sulfate Monitor

$ME = -2$ $MAE = 2$ $R^2 = 0.7923$ $NSE = -0.055$

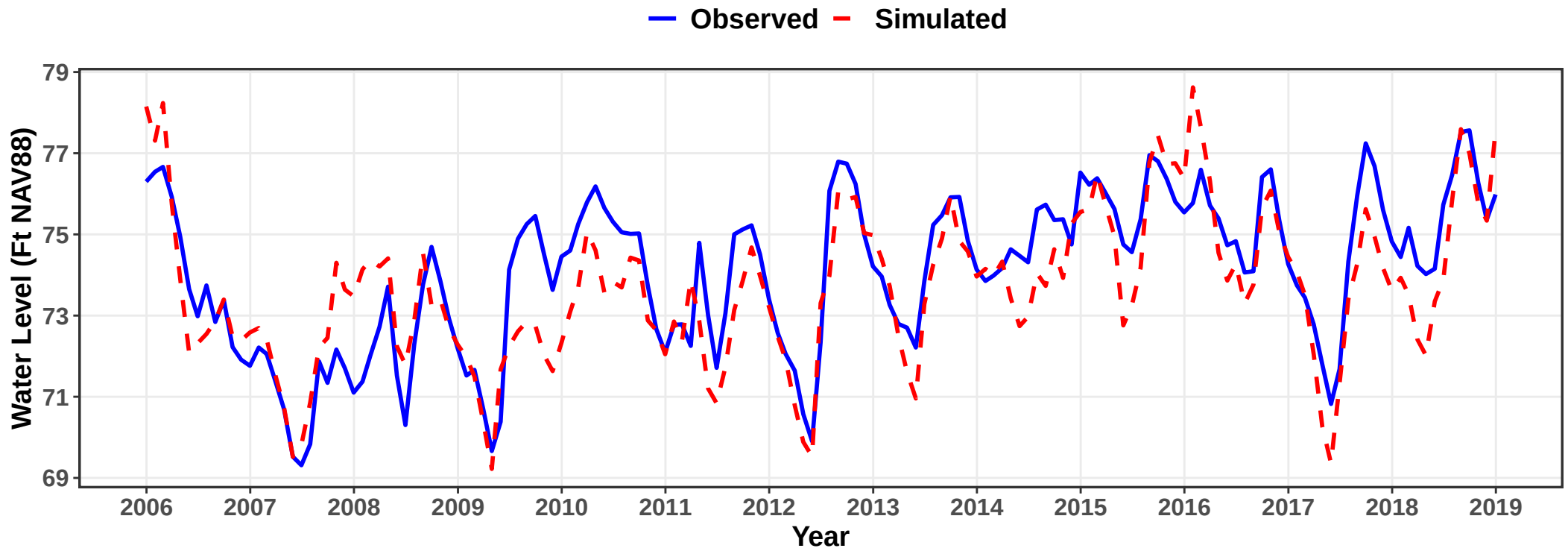


Stage Duration Curve

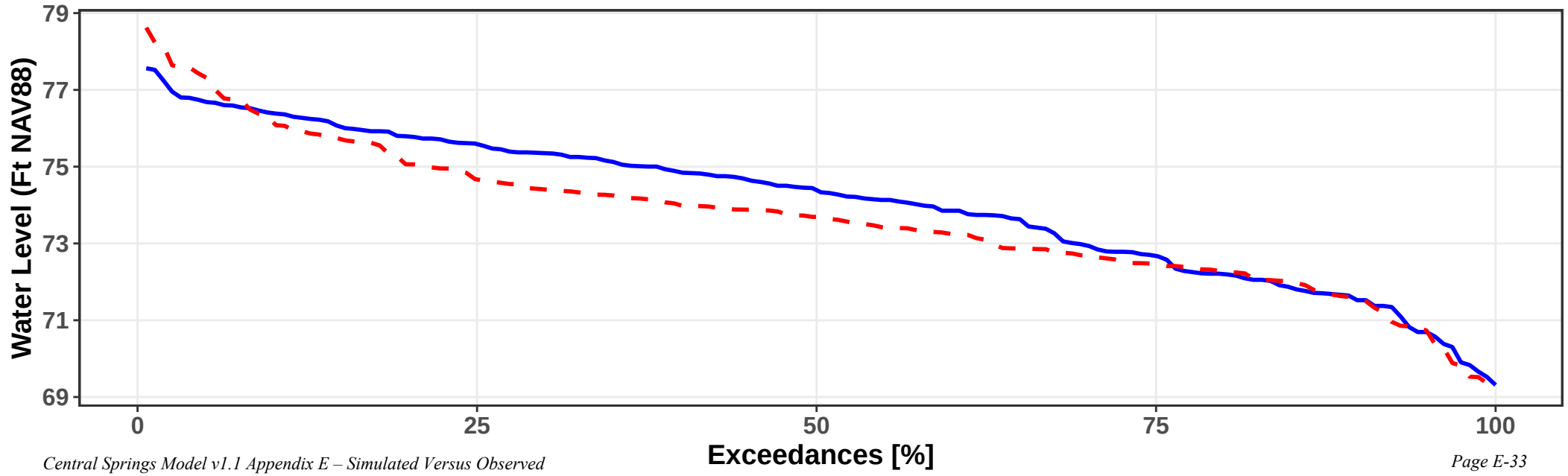


SID714922 @ ROMP 100 L Fldn Aq (Below MCU I) Monitor

ME = −0.4 MAE = 0.9 R^2 = 0.6856 NSE = 0.619

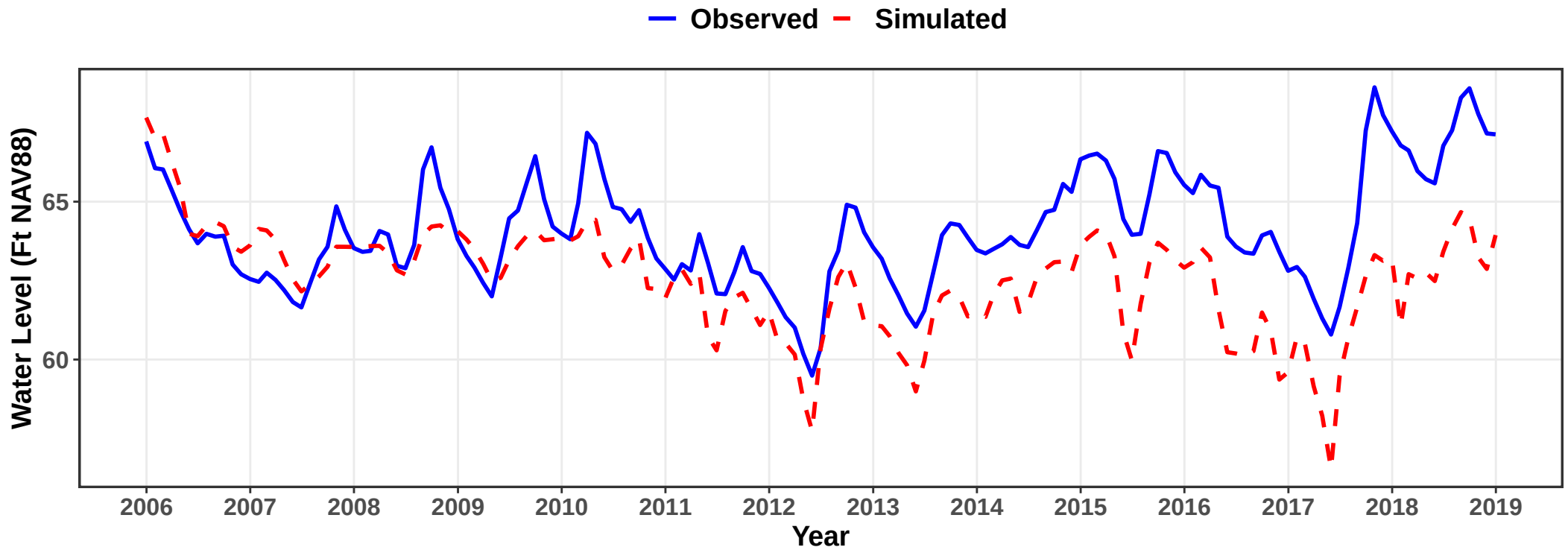


Stage Duration Curve

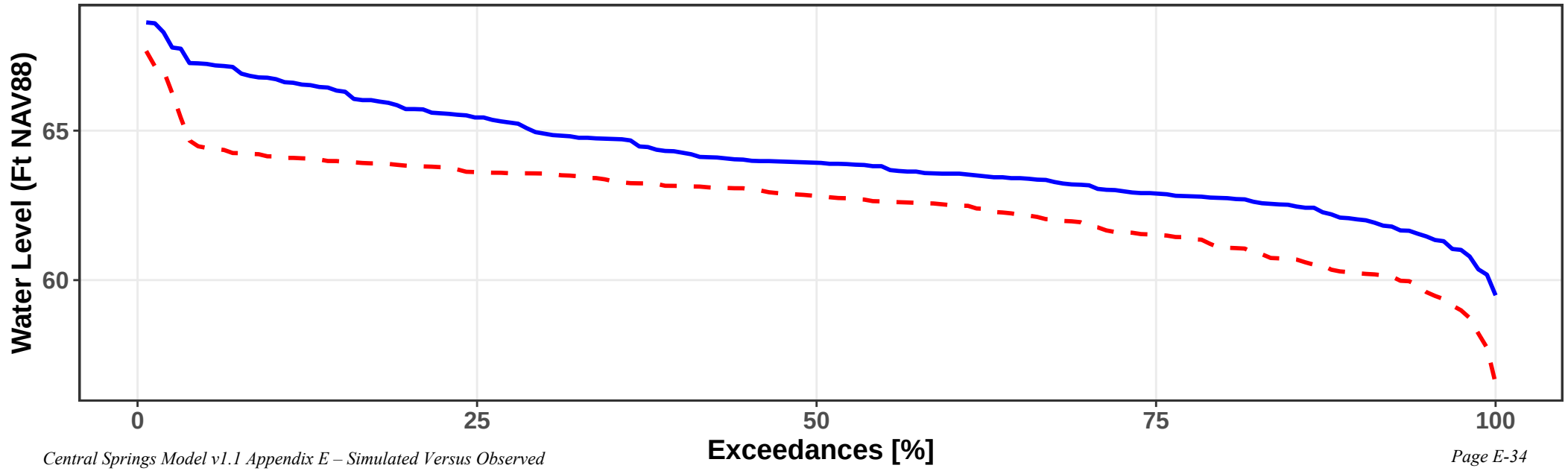


SID736139 @ ROMP 117 L Fldn Aq (Below MCU I) Temp Pump/Monitor

ME = −1.6 MAE = 1.8 R^2 = 0.3937 NSE = −0.521

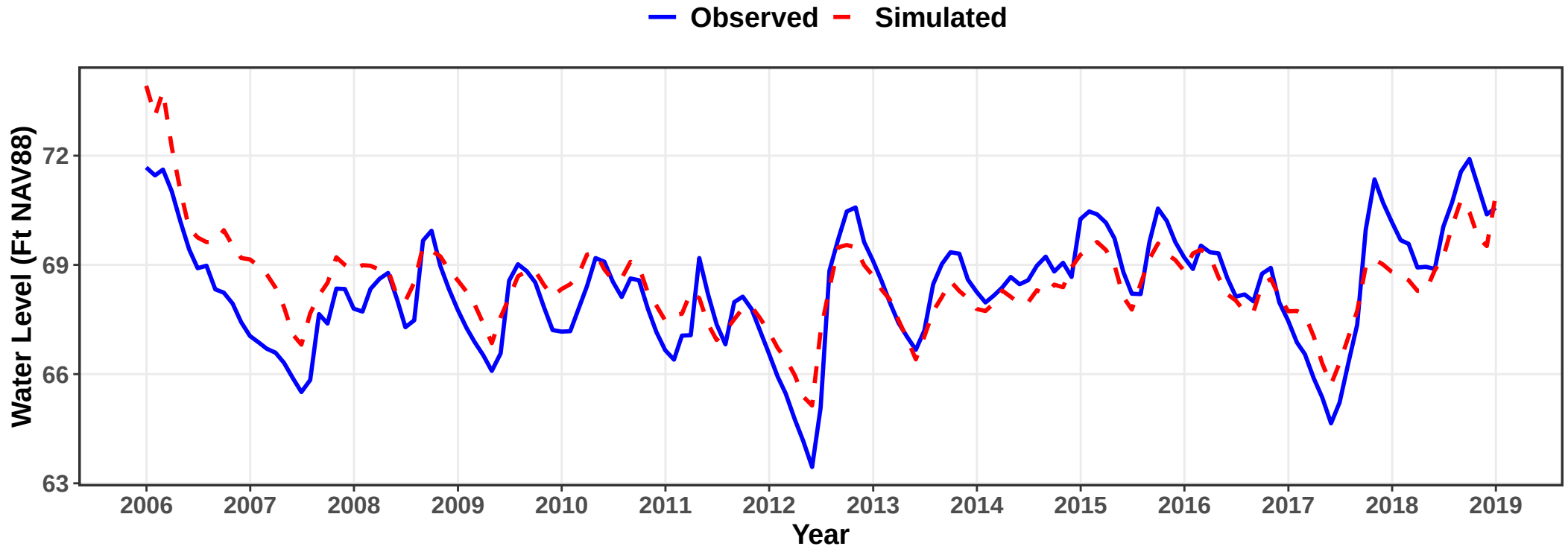


Stage Duration Curve

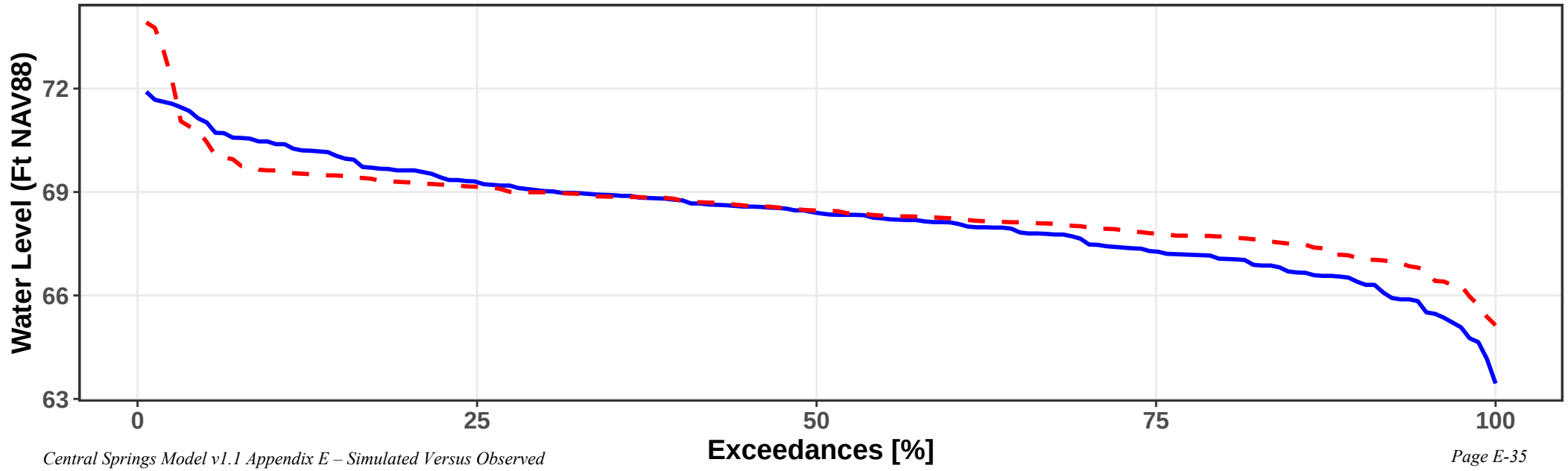


SID771460 @ ROMP 102.5 L Fldn Aq (Below MCU I) Monitor

ME = 0.2 MAE = 0.8 R^2 = 0.669 NSE = 0.654

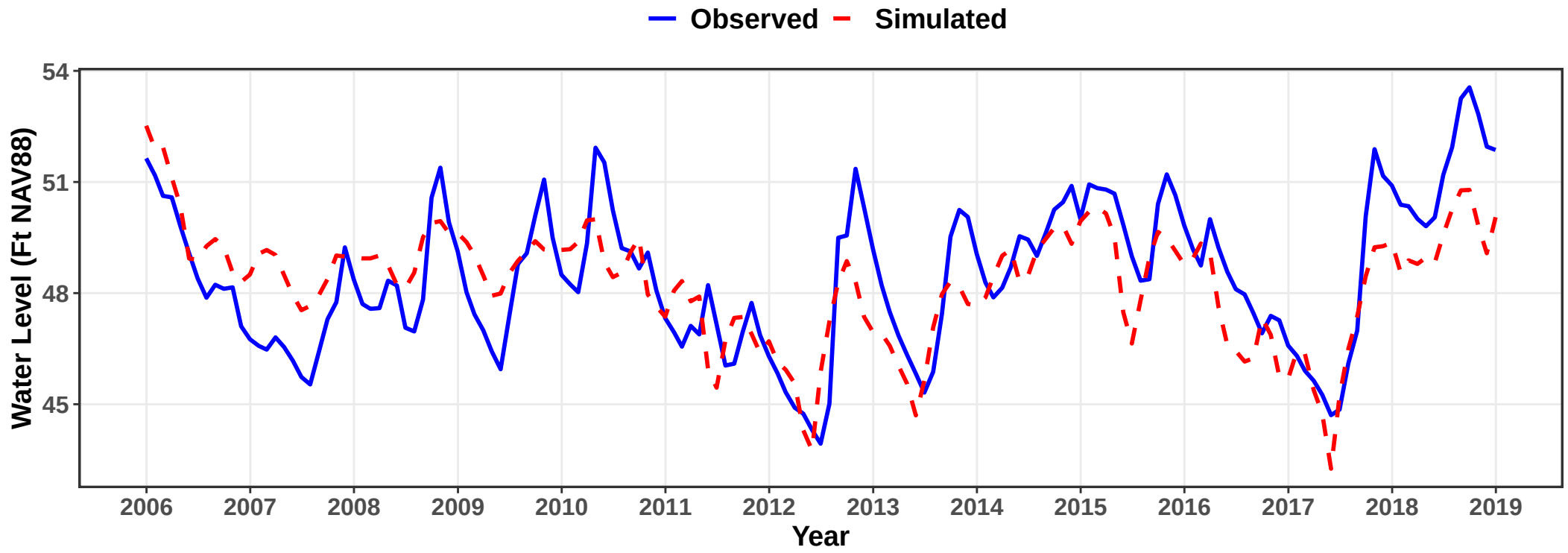


Stage Duration Curve

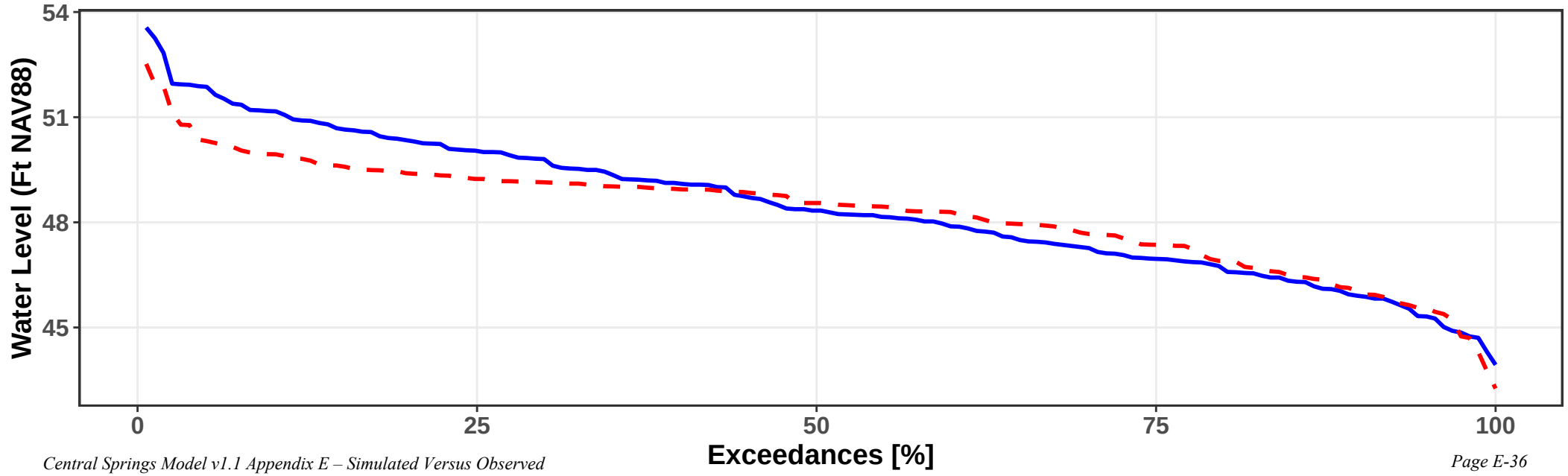


SID872386 @ ROMP 115 L Fldn Aq (Below MCU I) Monitor

ME = −0.2 MAE = 1.2 R^2 = 0.5455 NSE = 0.533

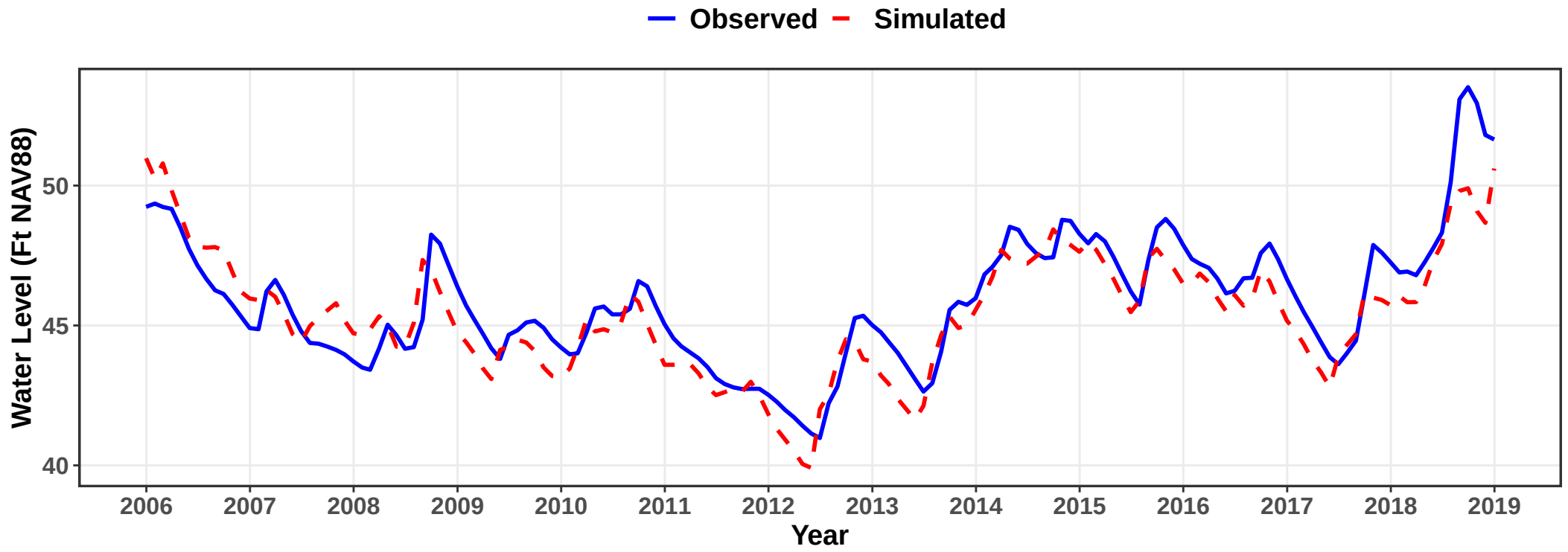


Stage Duration Curve

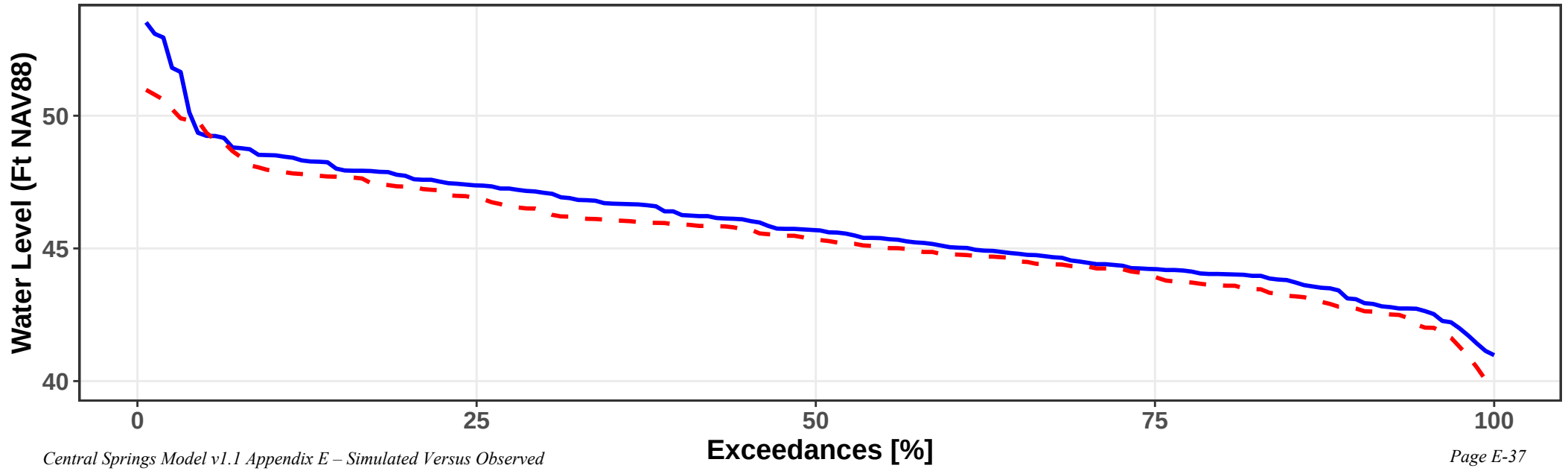


SID905297 @ ROMP 131.5 L Fldn Aq (Below MCU I) Monitor

$ME = -0.5$ $MAE = 0.9$ $R^2 = 0.8021$ $NSE = 0.757$

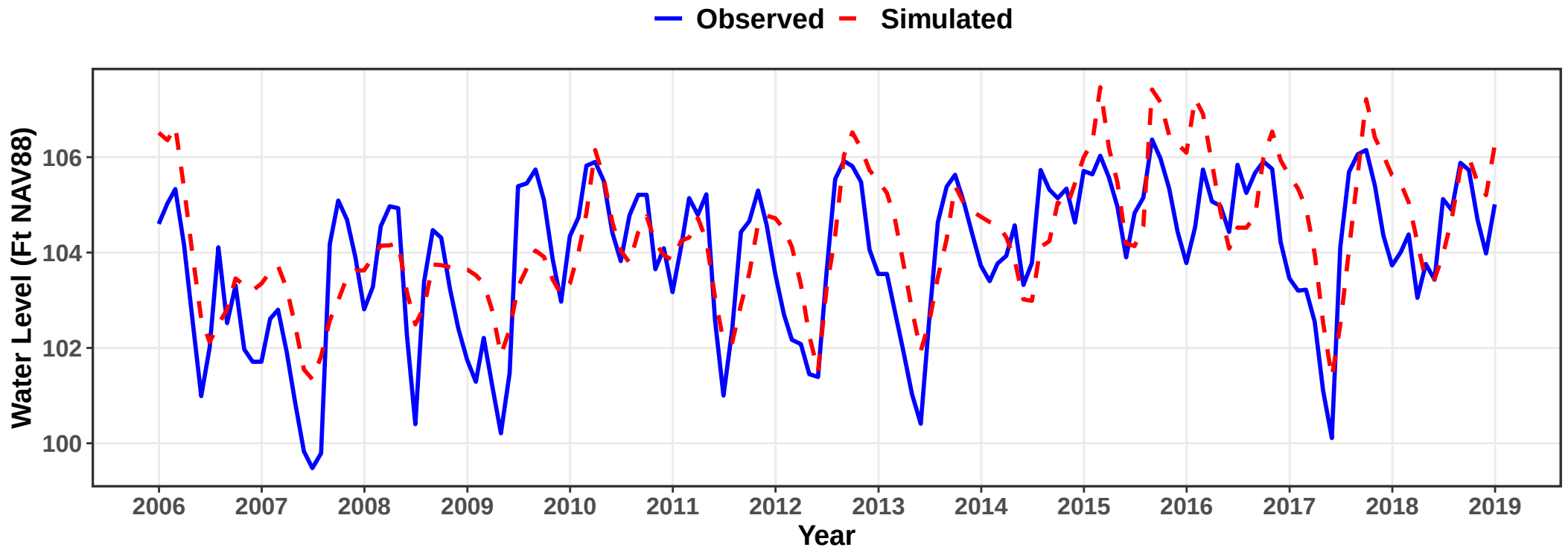


Stage Duration Curve



SID938830 @ ROMP 88 L Fldn Aq (bl MCU I) Monitor

ME = 0.4 MAE = 1 R^2 = 0.5315 NSE = 0.45



Stage Duration Curve