Supplementary Material

1 Additional Seasonal Dependence Results

1.1 Gifhorn

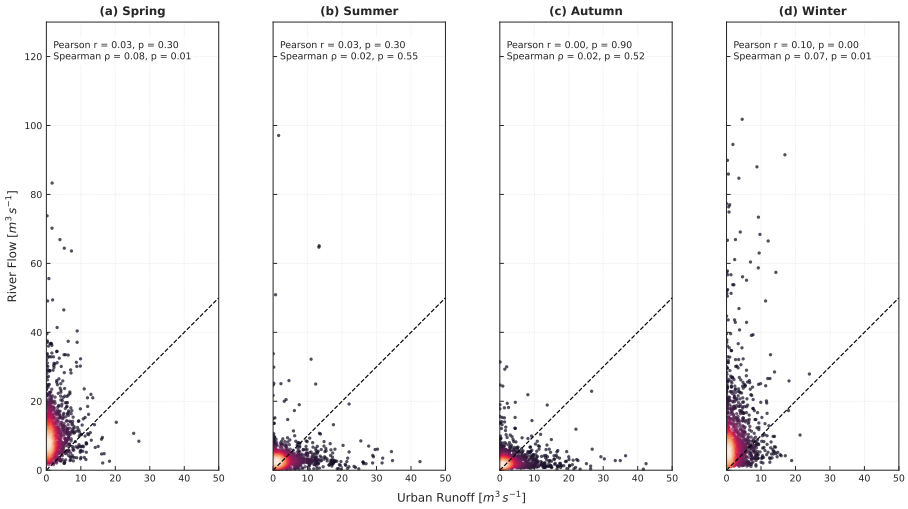


Figure S1: Seasonal density scatter plots of daily urban runoff versus 1-day river flow for Gifhorn. Rows correspond to study sites and columns to seasons. Zero-runoff days are omitted. Point color represents local observation density, and dashed lines indicate the 1:1 relationship.

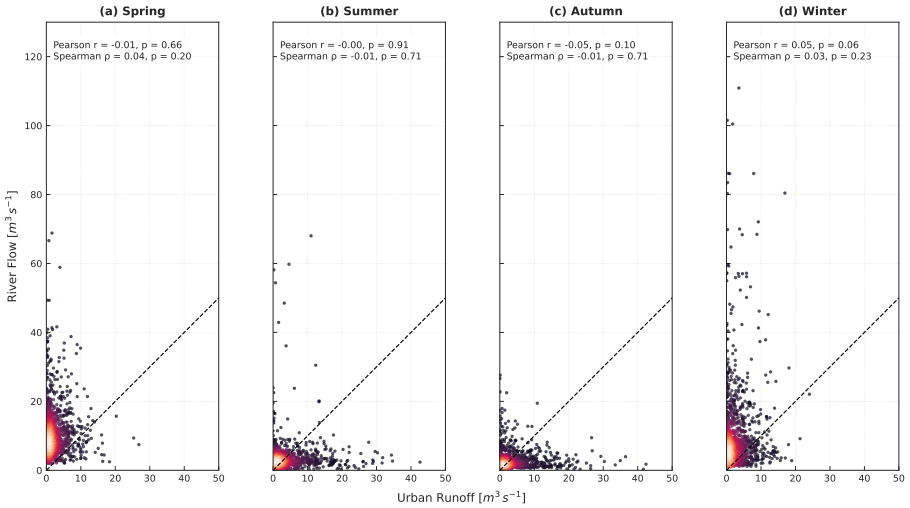


Figure S2: Seasonal density scatter plots of daily urban runoff versus 4-day river flow for Gifhorn. Rows correspond to study sites and columns to seasons. Zero-runoff days are omitted. Point color represents local observation density, and dashed lines indicate the 1:1 relationship.

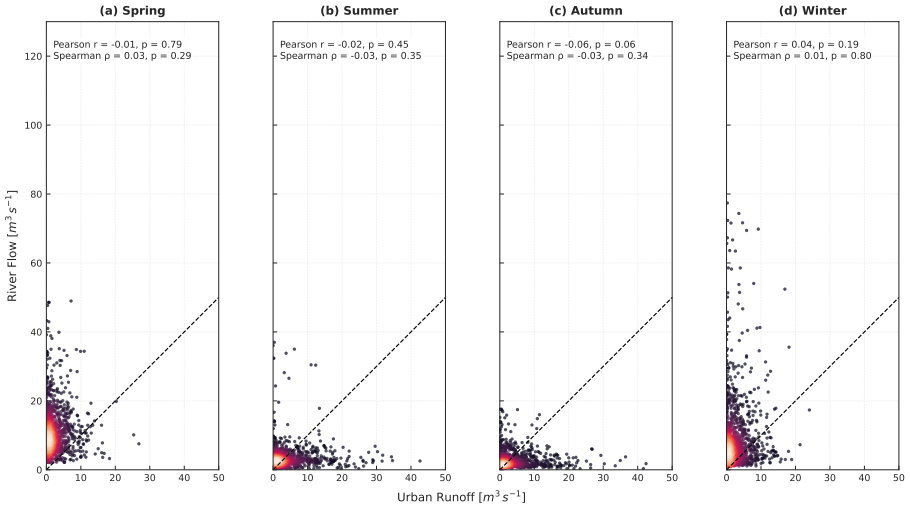


Figure S3: Seasonal density scatter plots of daily urban runoff versus 10-day river flow for Gifhorn. Rows correspond to study sites and columns to seasons. Zero-runoff days are omitted. Point color represents local observation density, and dashed lines indicate the 1:1 relationship.

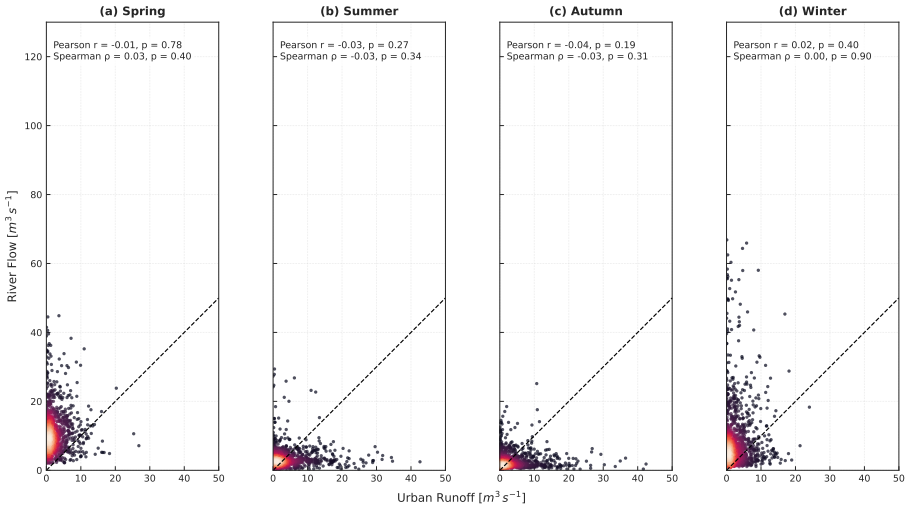


Figure S4: Seasonal density scatter plots of daily urban runoff versus 14-day river flow for Gifhorn. Rows correspond to study sites and columns to seasons. Zero-runoff days are omitted. Point color represents local observation density, and dashed lines indicate the 1:1 relationship.

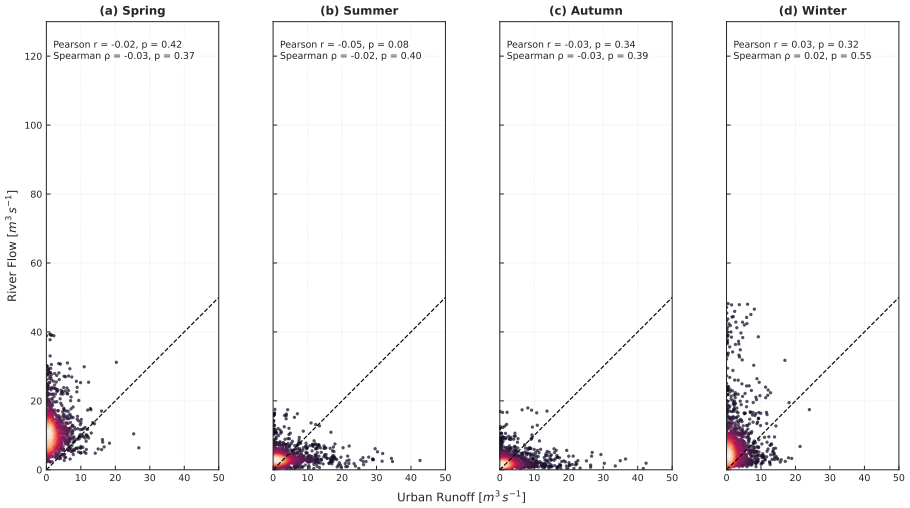


Figure S5: Seasonal density scatter plots of daily urban runoff versus 30-day river flow for Gifhorn. Rows correspond to study sites and columns to seasons. Zero-runoff days are omitted. Point color represents local observation density, and dashed lines indicate the 1:1 relationship.

1.2 Celle

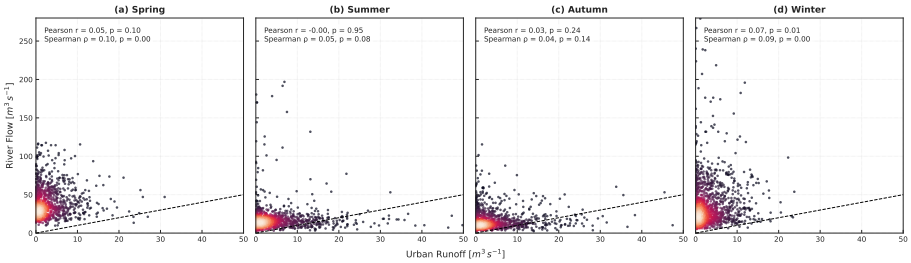


Figure S6: Seasonal density scatter plots of daily urban runoff versus 1-day river flow for Celle. Rows correspond to study sites and columns to seasons. Zero-runoff days are omitted. Point color represents local observation density, and dashed lines indicate the 1:1 relationship.

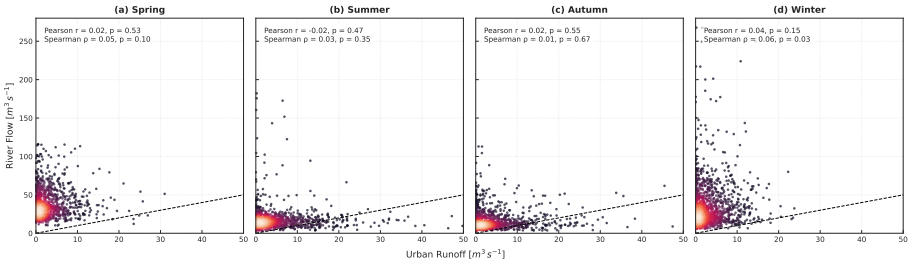


Figure S7: Seasonal density scatter plots of daily urban runoff versus 4-day river flow for Celle. Rows correspond to study sites and columns to seasons. Zero-runoff days are omitted. Point color represents local observation density, and dashed lines indicate the 1:1 relationship.

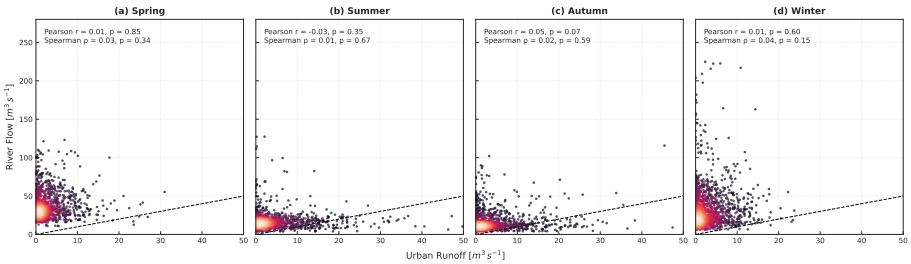


Figure S8: Seasonal density scatter plots of daily urban runoff versus 10-day river flow for Celle. Rows correspond to study sites and columns to seasons. Zero-runoff days are omitted. Point color represents local observation density, and dashed lines indicate the 1:1 relationship.

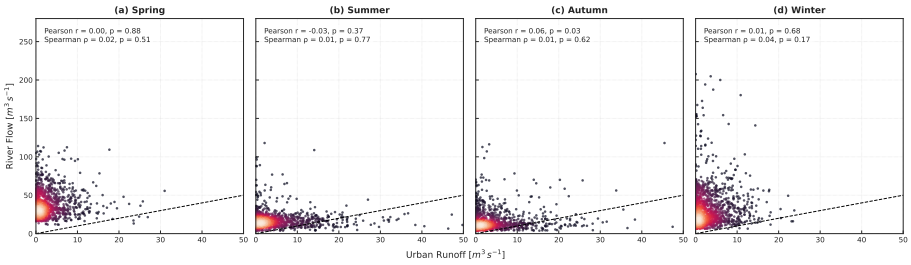


Figure S9: Seasonal density scatter plots of daily urban runoff versus 14-day river flow for Celle. Rows correspond to study sites and columns to seasons. Zero-runoff days are omitted. Point color represents local observation density, and dashed lines indicate the 1:1 relationship.

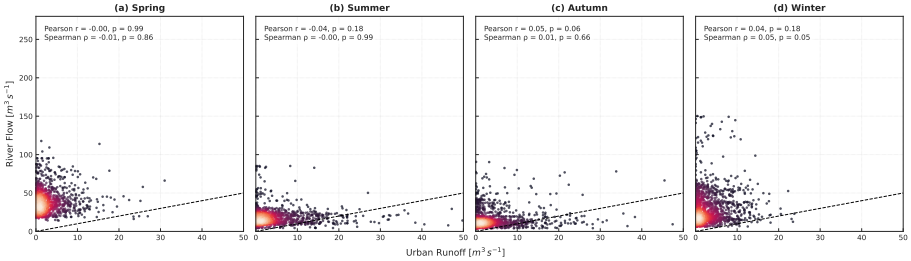


Figure S10: Seasonal density scatter plots of daily urban runoff versus 30-day river flow for Celle. Rows correspond to study sites and columns to seasons. Zero-runoff days are omitted. Point color represents local observation density, and dashed lines indicate the 1:1 relationship.

1.3 Verden

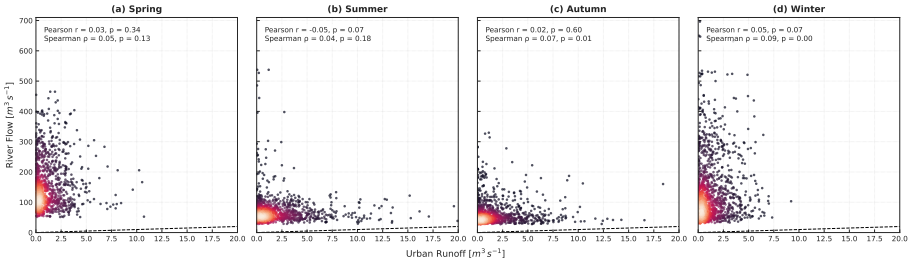


Figure S11: Seasonal density scatter plots of daily urban runoff versus 1-day river flow for Verden. Rows correspond to study sites and columns to seasons. Zero-runoff days are omitted. Point color represents local observation density, and dashed lines indicate the 1:1 relationship.

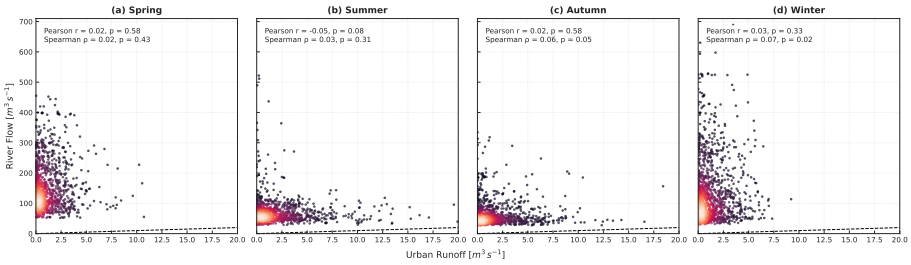


Figure S12: Seasonal density scatter plots of daily urban runoff versus 4-day river flow for Verden. Rows correspond to study sites and columns to seasons. Zero-runoff days are omitted. Point color represents local observation density, and dashed lines indicate the 1:1 relationship.

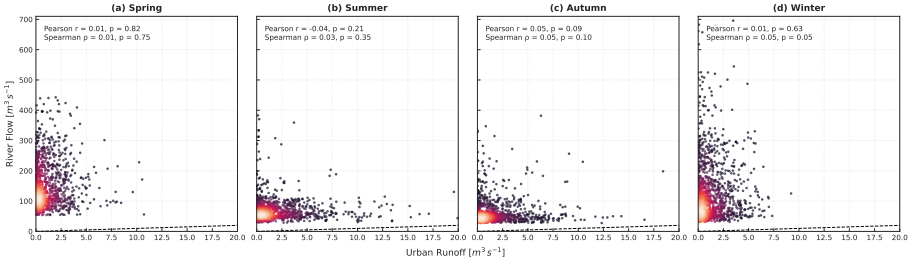


Figure S13: Seasonal density scatter plots of daily urban runoff versus 10-day river flow for Verden. Rows correspond to study sites and columns to seasons. Zero-runoff days are omitted. Point color represents local observation density, and dashed lines indicate the 1:1 relationship.

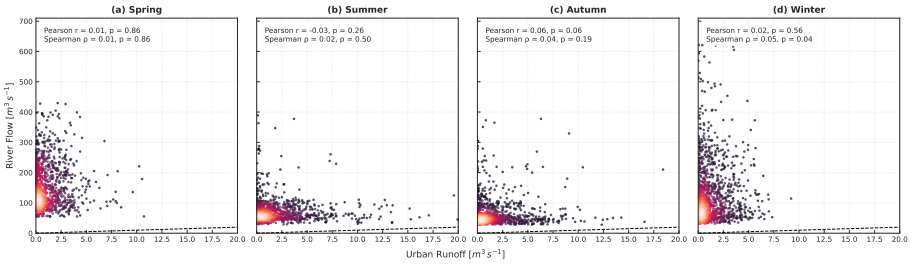


Figure S14: Seasonal density scatter plots of daily urban runoff versus 14-day river flow for Verden. Rows correspond to study sites and columns to seasons. Zero-runoff days are omitted. Point color represents local observation density, and dashed lines indicate the 1:1 relationship.

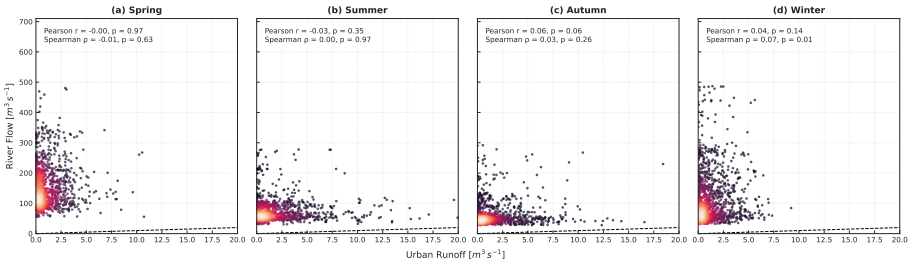


Figure S15: Seasonal density scatter plots of daily urban runoff versus 30-day river flow for Verden. Rows correspond to study sites and columns to seasons. Zero-runoff days are omitted. Point color represents local observation density, and dashed lines indicate the 1:1 relationship.

2 Additional Marginal Extreme-Value Fits

2.1 Gifhorn

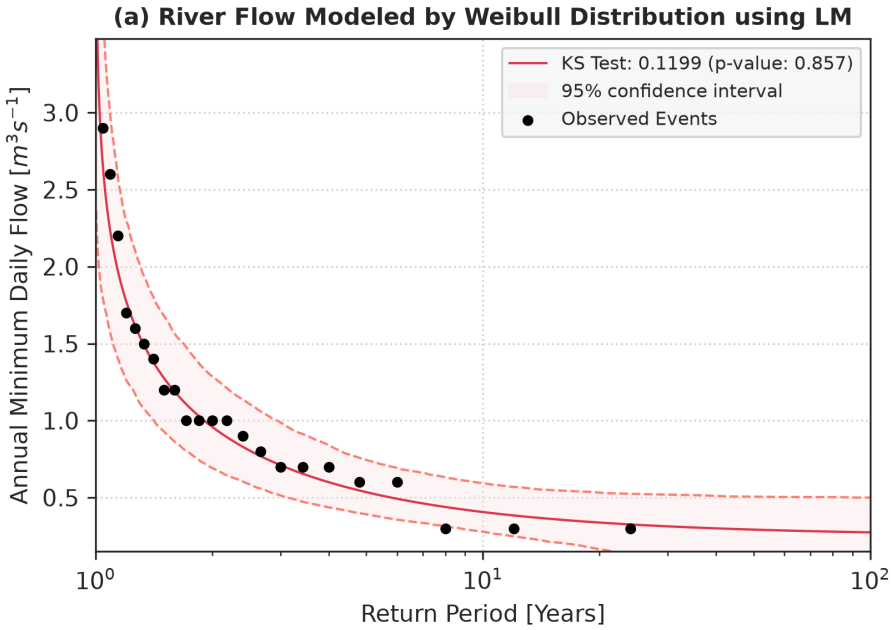


Figure S16: Marginal extreme-value analysis of 1-day low river flow at the Gifhorn site. The selected extreme-value distribution is shown by the solid red line, dashed red lines denote the 95% bootstrap confidence intervals, and black points represent the empirical extreme events.

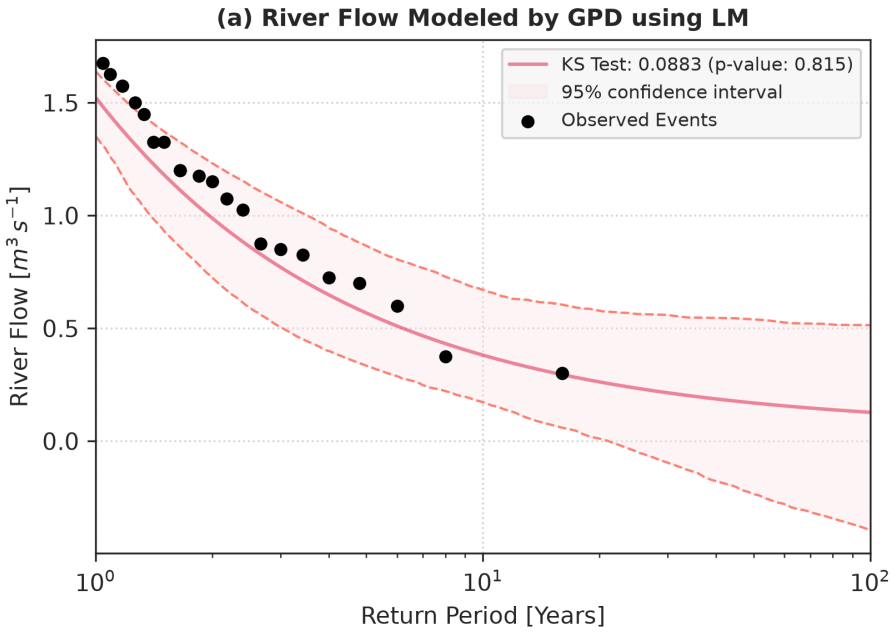


Figure S17: Marginal extreme-value analysis of 4-day low river flow at the Gifhorn site. The selected extreme-value distribution is shown by the solid red line, dashed red lines denote the 95% bootstrap confidence intervals, and black points represent the empirical extreme events.

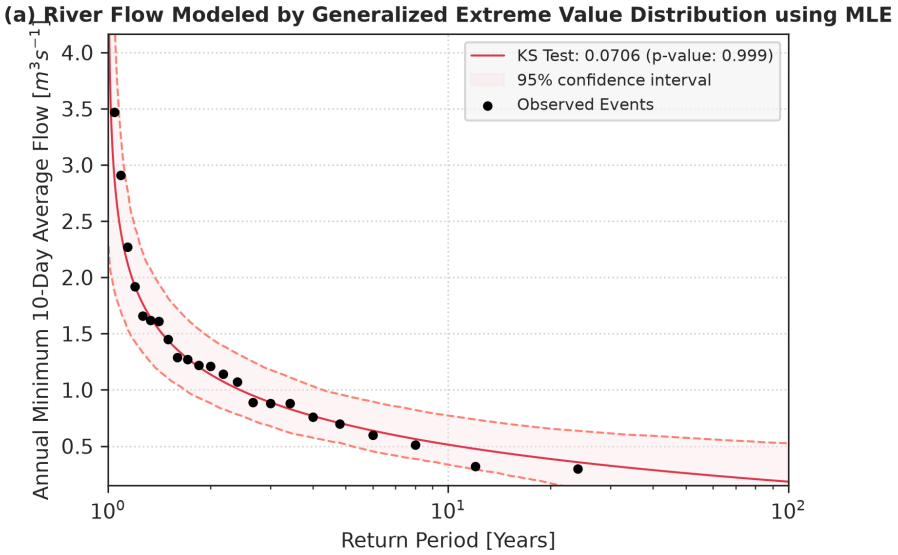


Figure S18: Marginal extreme-value analysis of 10-day low river flow at the Gifhorn site. The selected extreme-value distribution is shown by the solid red line, dashed red lines denote the 95% bootstrap confidence intervals, and black points represent the empirical extreme events.

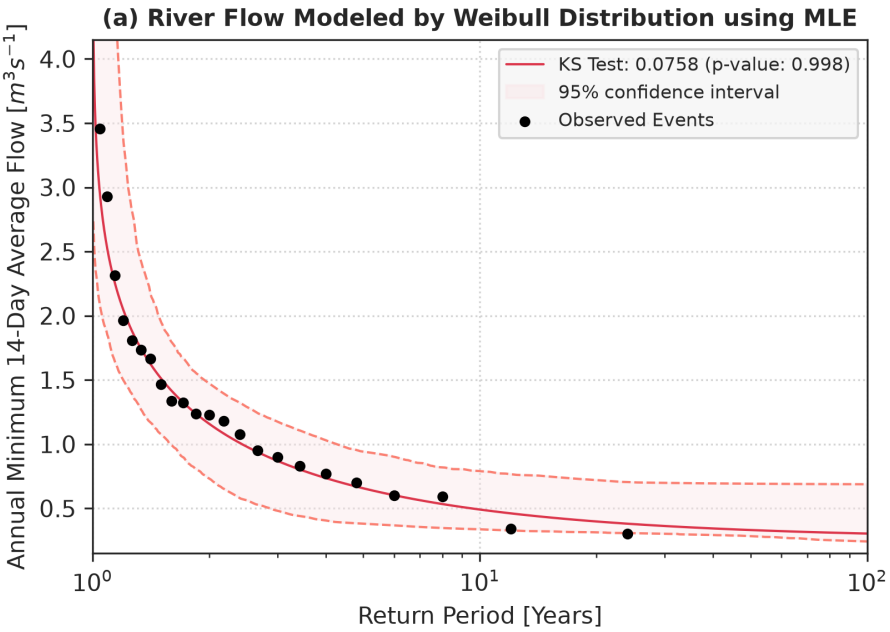


Figure S19: Marginal extreme-value analysis of 14-day low river flow at the Gifhorn site. The selected extreme-value distribution is shown by the solid red line, dashed red lines denote the 95% bootstrap confidence intervals, and black points represent the empirical extreme events.

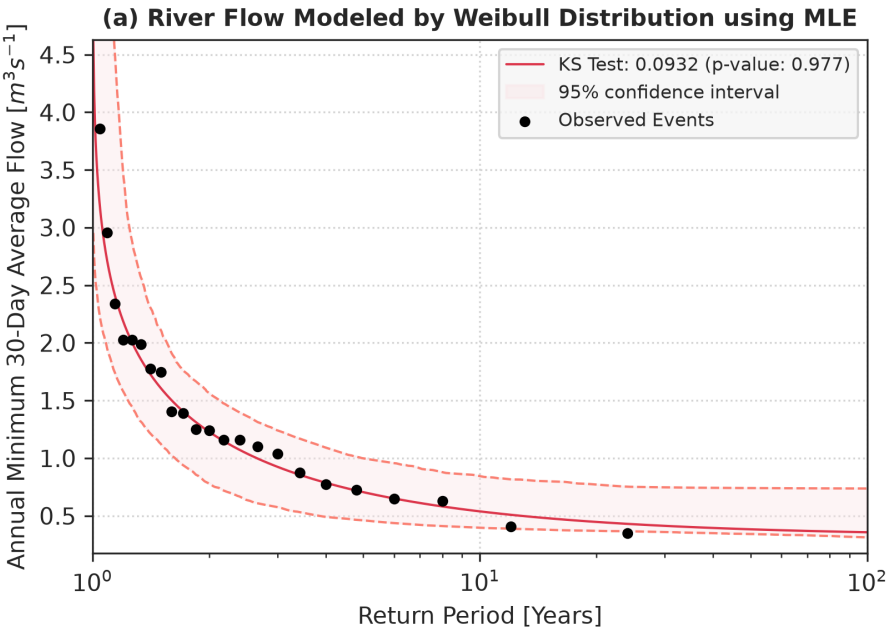


Figure S20: Marginal extreme-value analysis of 30-day low river flow at the Gifhorn site. The selected extreme-value distribution is shown by the solid red line, dashed red lines denote the 95% bootstrap confidence intervals, and black points represent the empirical extreme events.

2.2 Celle

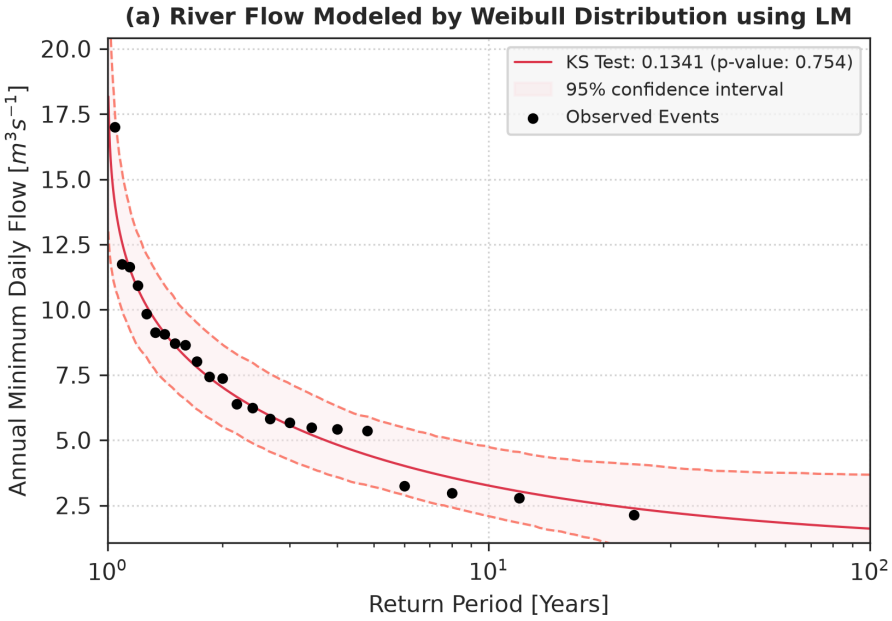


Figure S21: Marginal extreme-value analysis of 1-day low river flow at the Celle site. The selected extreme-value distribution is shown by the solid red line, dashed red lines denote the 95% bootstrap confidence intervals, and black points represent the empirical extreme events.

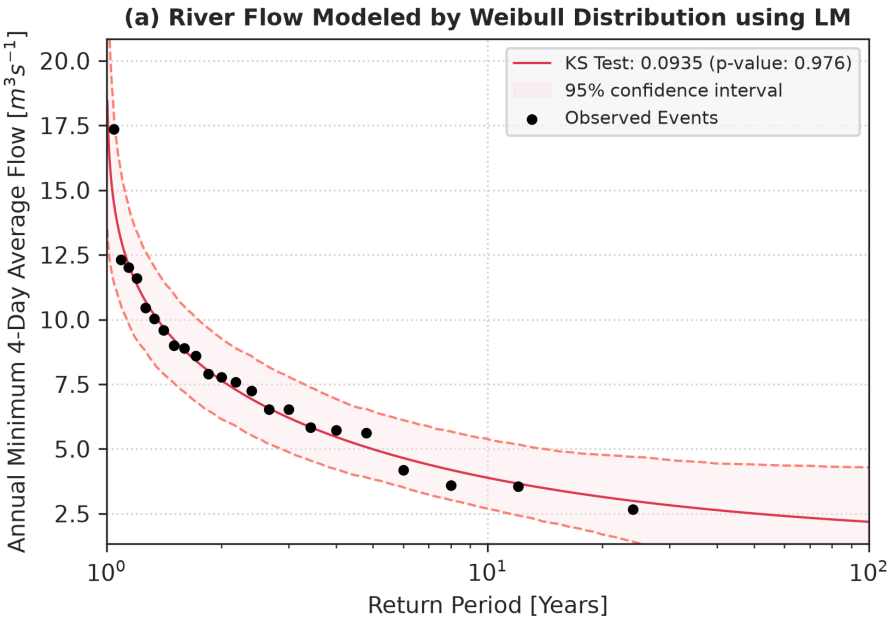


Figure S22: Marginal extreme-value analysis of 4-day low river flow at the Celle site. The selected extreme-value distribution is shown by the solid red line, dashed red lines denote the 95% bootstrap confidence intervals, and black points represent the empirical extreme events.

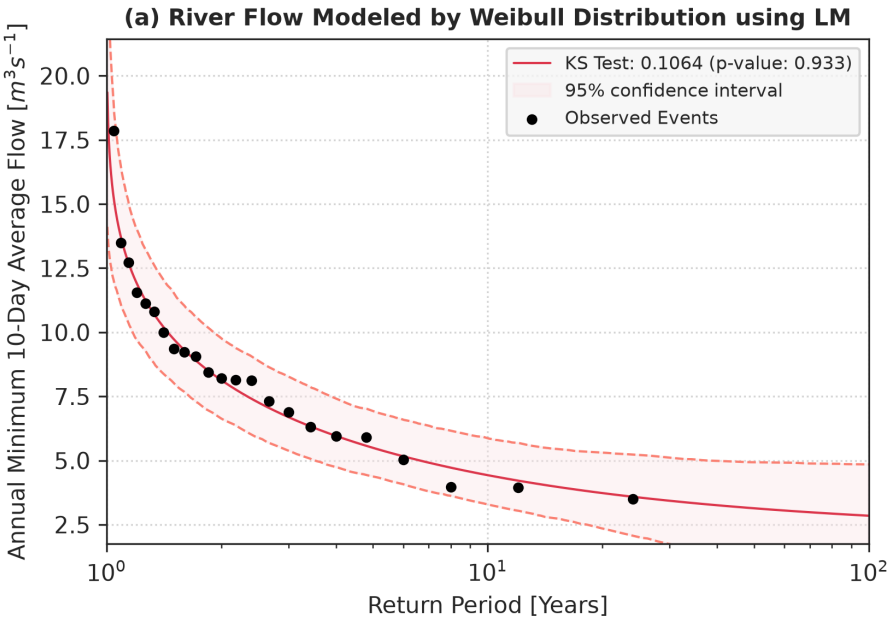


Figure S23: Marginal extreme-value analysis of 10-day low river flow at the Celle site. The selected extreme-value distribution is shown by the solid red line, dashed red lines denote the 95% bootstrap confidence intervals, and black points represent the empirical extreme events.

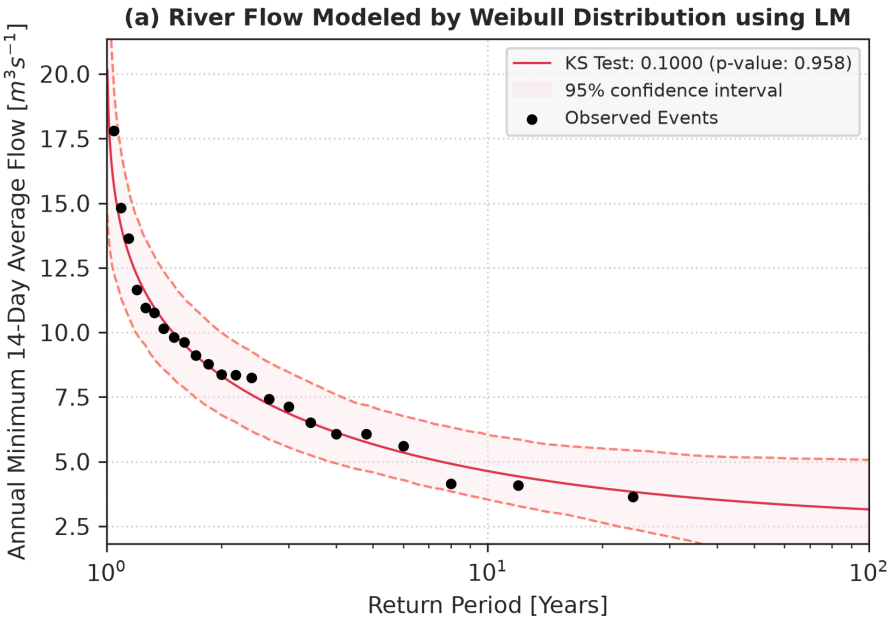


Figure S24: Marginal extreme-value analysis of 14-day low river flow at the Celle site. The selected extreme-value distribution is shown by the solid red line, dashed red lines denote the 95% bootstrap confidence intervals, and black points represent the empirical extreme events.

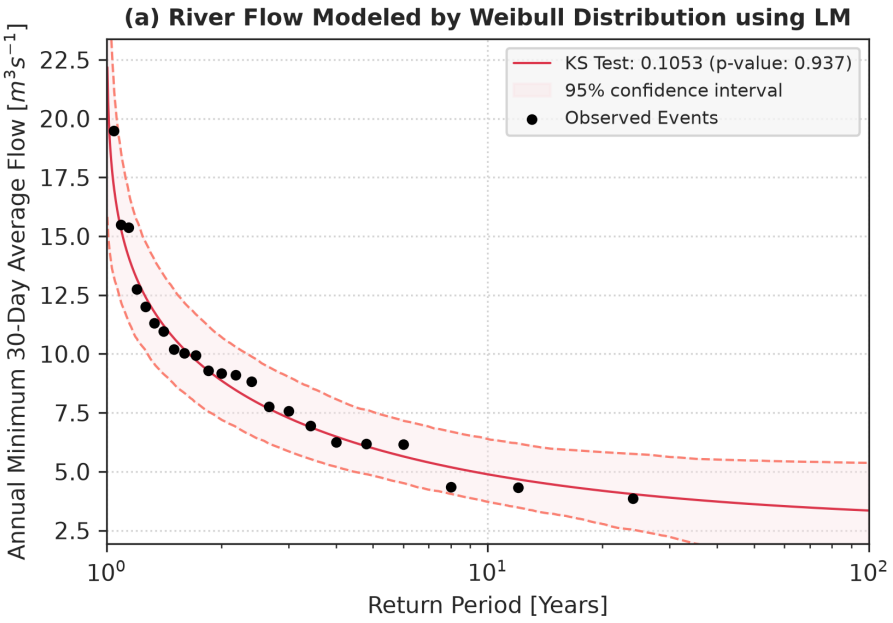


Figure S25: Marginal extreme-value analysis of 30-day low river flow at the Celle site. The selected extreme-value distribution is shown by the solid red line, dashed red lines denote the 95% bootstrap confidence intervals, and black points represent the empirical extreme events.

2.3 Verden

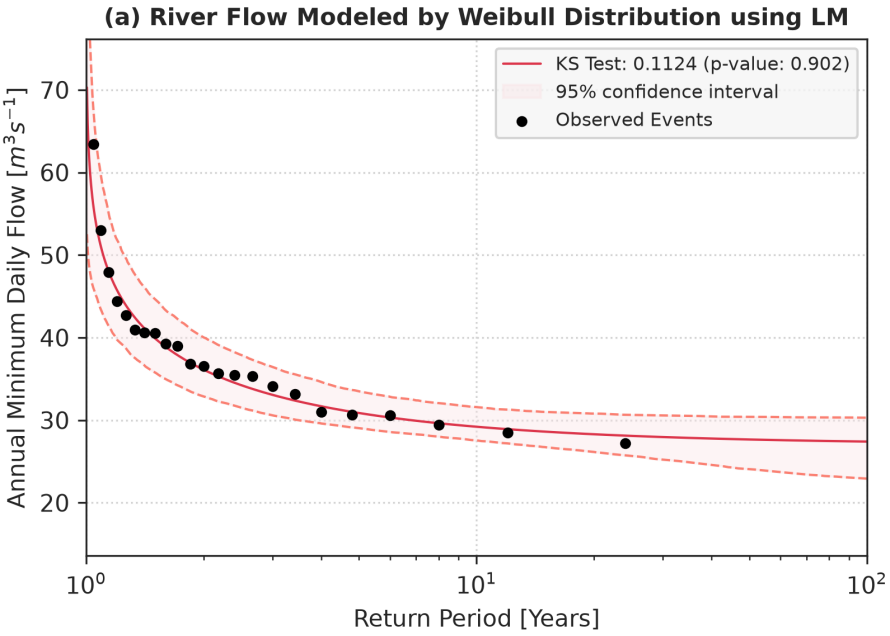


Figure S26: Marginal extreme-value analysis of 1-day low river flow at the Verden site. The selected extreme-value distribution is shown by the solid red line, dashed red lines denote the 95% bootstrap confidence intervals, and black points represent the empirical extreme events.

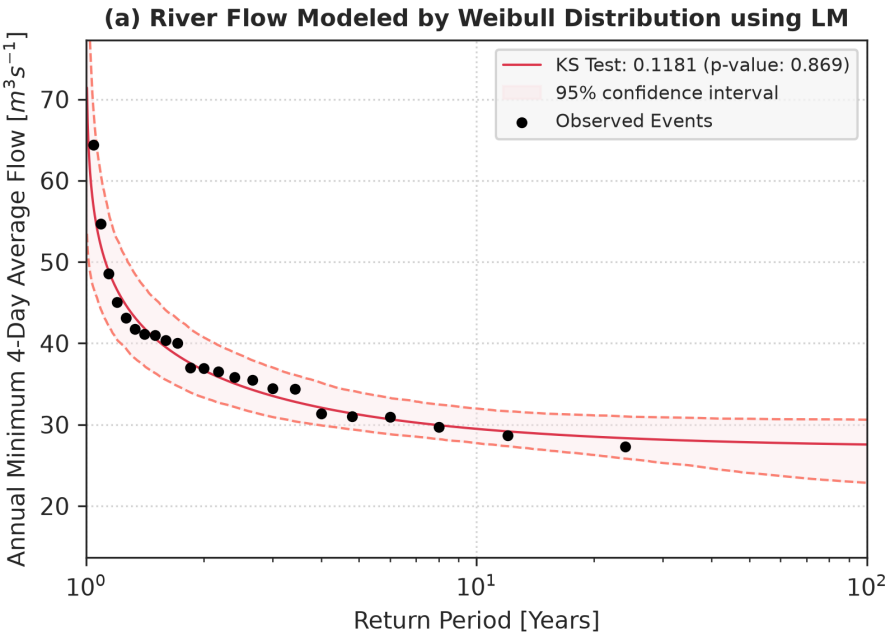


Figure S27: Marginal extreme-value analysis of 4-day low river flow at the Verden site. The selected extreme-value distribution is shown by the solid red line, dashed red lines denote the 95% bootstrap confidence intervals, and black points represent the empirical extreme events.

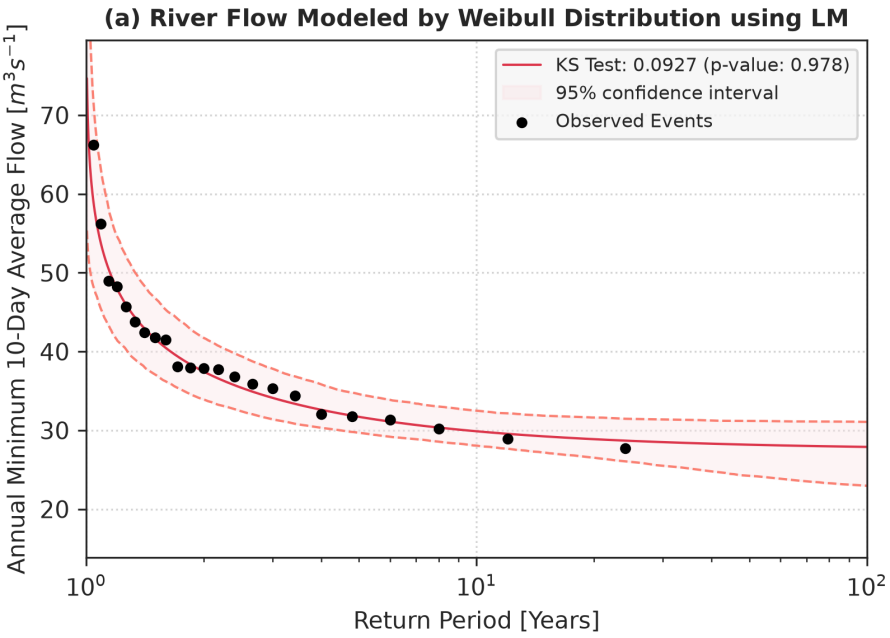


Figure S28: Marginal extreme-value analysis of 10-day low river flow at the Verden site. The selected extreme-value distribution is shown by the solid red line, dashed red lines denote the 95% bootstrap confidence intervals, and black points represent the empirical extreme events.

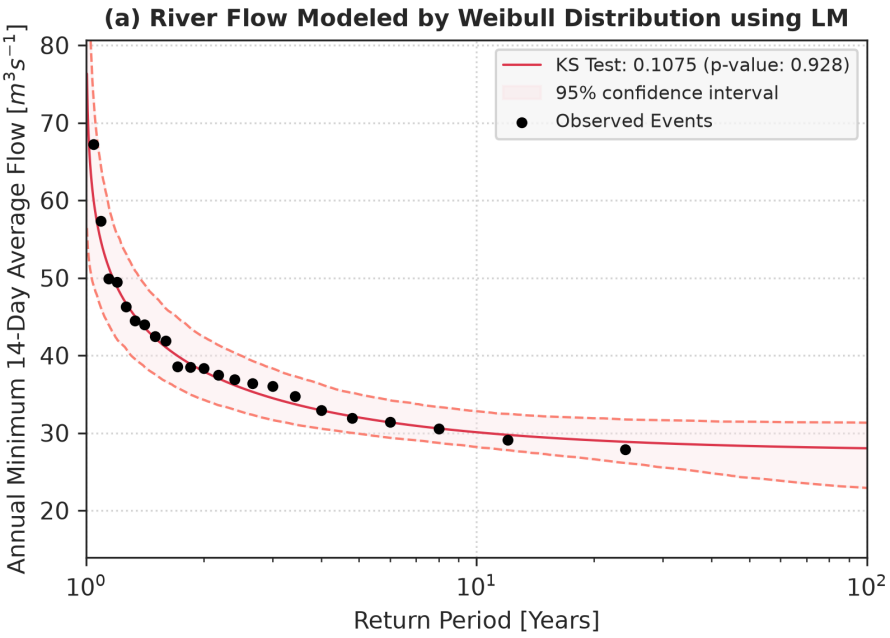


Figure S29: Marginal extreme-value analysis of 14-day low river flow at the Verden site. The selected extreme-value distribution is shown by the solid red line, dashed red lines denote the 95% bootstrap confidence intervals, and black points represent the empirical extreme events.

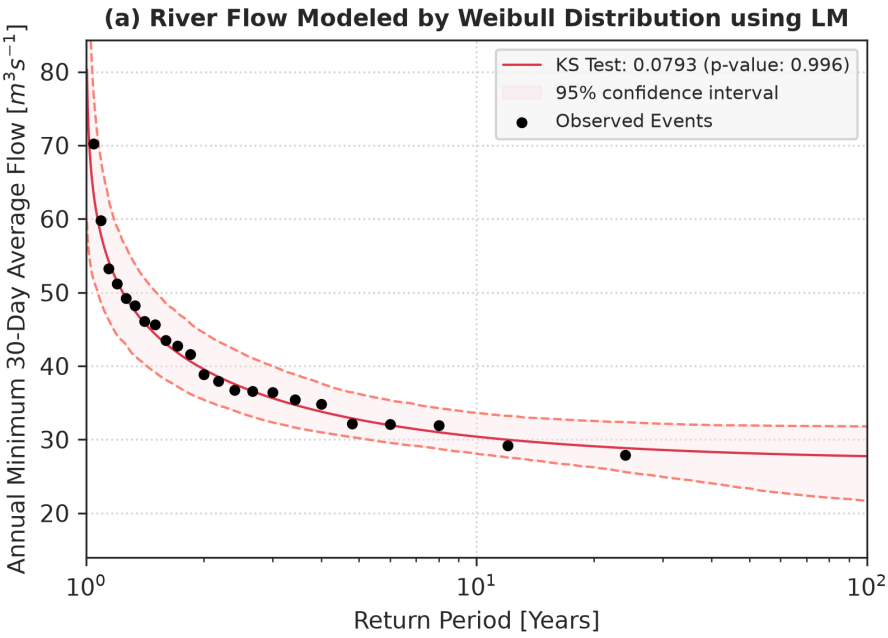


Figure S30: Marginal extreme-value analysis of 30-day low river flow at the Verden site. The selected extreme-value distribution is shown by the solid red line, dashed red lines denote the 95% bootstrap confidence intervals, and black points represent the empirical extreme events.