

Lab 3: GEV Inference

GEV parameter estimation with Turing.jl, Benchmark with Extremes.jl, Confidence intervals for return levels

CEVE 543 Fall 2025

2025-09-12

1 Objectives

1. Implement GEV parameter estimation using Turing.jl
2. Compare results with traditional methods using Extremes.jl
3. Calculate confidence intervals for return levels

2 Before

! Instructions

Do this before the lab date so that lab itself can go more smoothly.

3 Background and Reading

4 Tasks

Modify the code section below to address the following tasks.

1. Set up GEV parameter estimation model in Turing.jl
2. Implement traditional GEV fitting using Extremes.jl for comparison
3. Calculate and visualize confidence intervals for return levels
4. Compare Bayesian vs traditional approaches for parameter uncertainty

5 Code

Bibliography