```
================================================================================
GB-InSAR ROCKFALL PREDICTION SYSTEM
COMPREHENSIVE ANALYSIS REPORT
================================================================================

ANALYSIS PERIOD:
  Start Date:        2025-09-18
  End Date:          2025-10-17
  Duration:          29 days
  Total Records:     62
  Monitoring Points: 62

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DISPLACEMENT STATISTICS
================================================================================

DISPLACEMENT:
  Mean:              -0.0000 (normalized)
  Min:               -2.1757
  Max:               3.3122
  Std Deviation:     1.0082

CUMULATIVE DISPLACEMENT:
  Total:             -1.1789
  Average Rate:      -0.0190 per record

DISPLACEMENT RATE:
  Mean:              0.0000
  Max:               2.6733

DISPLACEMENT ACCELERATION:
  Mean:              0.0000
  Max:               2.0774

================================================================================
RISK ASSESSMENT
================================================================================

Risk Distribution:
  Medium       :  39 records (62.9%)
  Low          :  18 records (29.0%)
  High         :   5 records (8.1%)

High Risk Events:    5
Current Alerts:      3

================================================================================
MODEL PERFORMANCE
================================================================================

Random Forest Classifier:
  Accuracy:          100.0%
  F1 Score:          1.000

Gradient Boosting Regressor:
  R² Score:          1.000

Top 3 Important Features:
  1. displacement                  : 0.4321
  3. cumulative_displacement       : 0.2228
  6. daily_displacement_change     : 0.1669

================================================================================
FILES GENERATED
================================================================================

✓ Data File:         c:\Users\rkste\Desktop\AI Rockfall Prediction\Data\rockfall_data.csv
✓ Predictions:       c:\Users\rkste\Desktop\AI Rockfall Prediction\Upload\GB-InSAR\Analysis\rockfall_predictions.csv
✓ RF Model:          c:\Users\rkste\Desktop\AI Rockfall Prediction\Upload\GB-InSAR\Analysis\random_forest_model.joblib
✓ GB Model:          c:\Users\rkste\Desktop\AI Rockfall Prediction\Upload\GB-InSAR\Analysis\gradient_boosting_model.joblib
✓ System Report:     c:\Users\rkste\Desktop\AI Rockfall Prediction\Upload\GB-InSAR\Analysis\system_report_3.json
✓ PDF Report:        c:\Users\rkste\Desktop\AI Rockfall Prediction\Upload\GB-InSAR\Reports\gbinsar_rockfall_report.pdf

================================================================================
 GB-InSAR Rockfall Prediction Analysis Complete!
 All monitoring data processed and analyzed!
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```
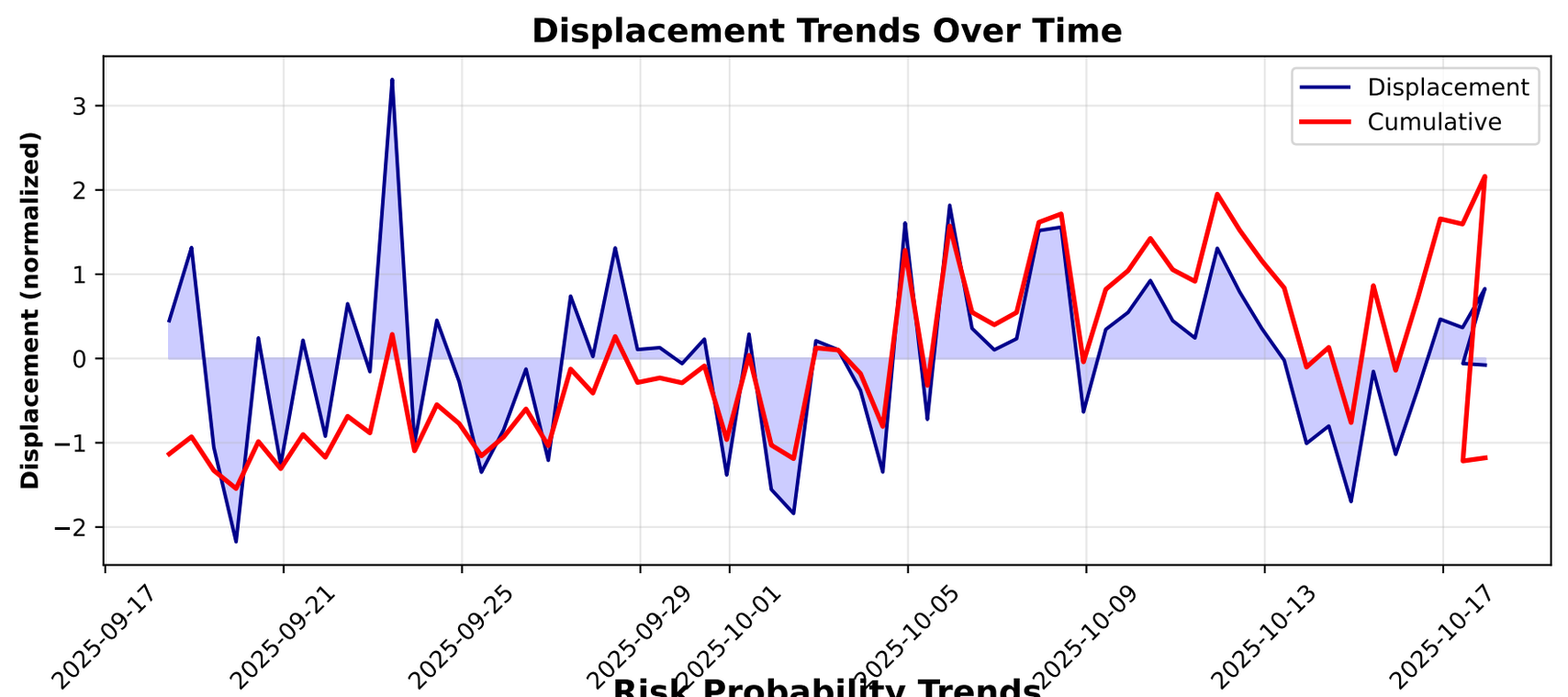
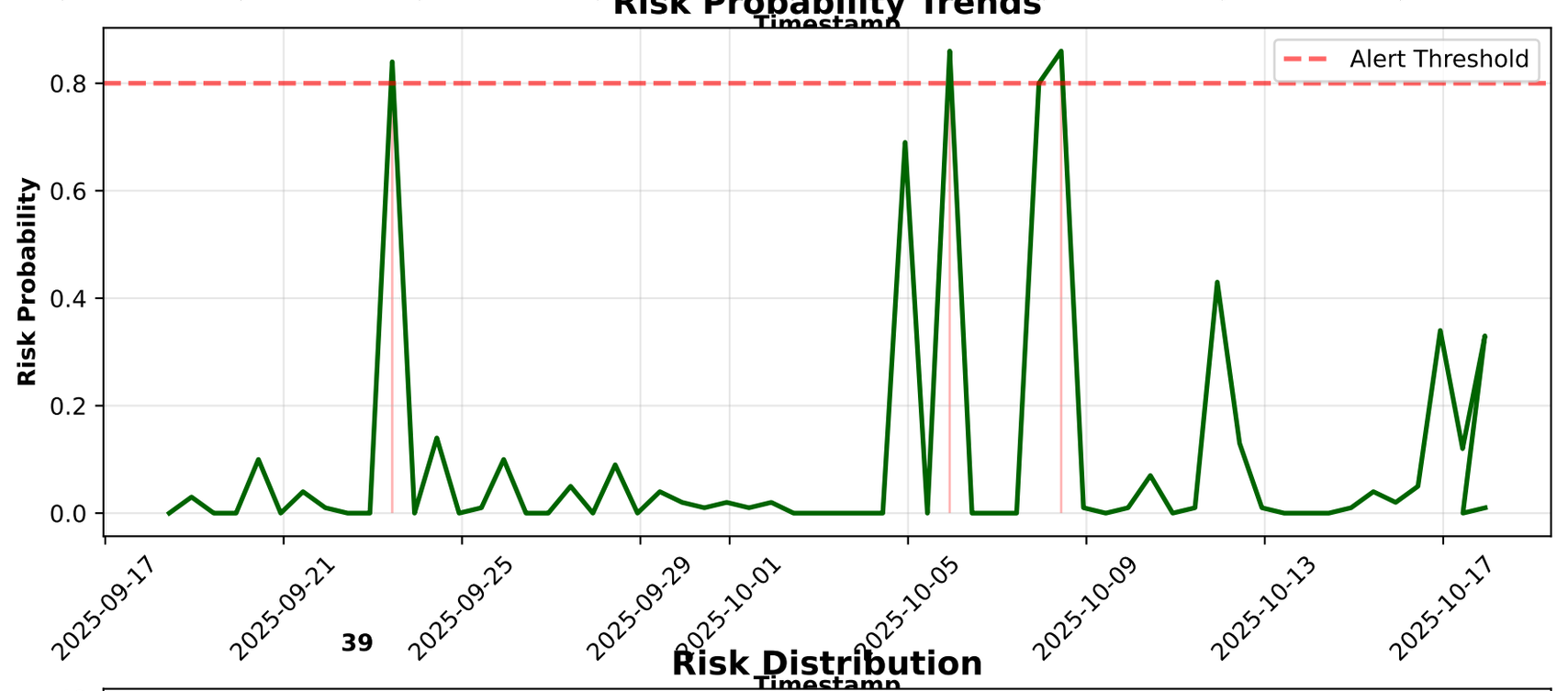
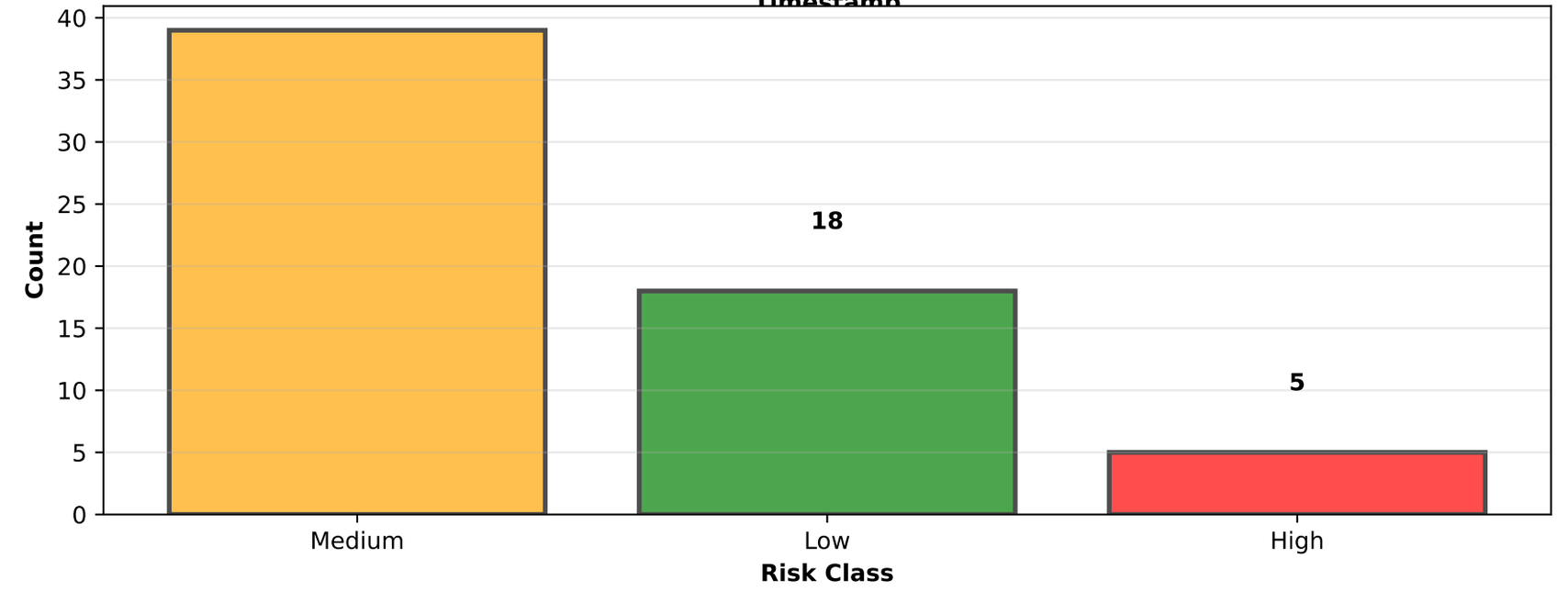


Displacement Trends Over Time
Displacement
Cumulative
Displacement (normalized)
3
2
1
0
−1
−2
2025-09-17
2025-09-21
2025-09-25
2025-09-29
2025-10-01
2025-10-05
2025-10-09
2025-10-13
2025-10-17
Timestamp


Risk Probability Trends
Alert Threshold
Risk Probability
0.8
0.6
0.4
0.2
0.0
2025-09-17
2025-09-21
2025-09-25
2025-09-29
2025-10-01
2025-10-05
2025-10-09
2025-10-13
2025-10-17
Timestamp

39


Risk Distribution
Count
40
35
30
25
20
15
10
5
0
39
18
5
Medium
Low
High
Risk Class