

# Extreme Event Detection

January 25, 2026

Chicago, IL | Weather Risk Analysis

TOTAL EXTREME DAYS

82

ANALYSIS PERIOD

91 days

EXTREME DAY RATE

90.1%

RISK LEVEL

High

## Extreme Event Summary

Event Type	Threshold	Days Detected	Frequency	Risk Assessment
Heat Wave	> 35°C	0	0.0%	Low
Cold Snap	< -5°C	33	36.3%	High
Frost	< 0°C	48	52.7%	High
Heavy Rain	> 25mm	1	1.1%	Low
High Wind	> 50km/h	0	0.0%	Low

## Threshold Configuration

The following thresholds are used for extreme event detection. These can be customized based on industry requirements:

Event	Default Threshold	Industry Use Case
Heat Wave	> 35°C	Emergency Response

Heat Wave	> 35°C (95°F)	Worker safety, HVAC load, agriculture
Cold Snap	< -5°C (23°F)	Pipe freeze risk, transportation
Frost	< 0°C (32°F)	Agriculture, construction delays
Heavy Rain	> 25mm (~1 inch)	Flood risk, drainage capacity
High Wind	> 50 km/h (31 mph)	Construction, aviation, outdoor events

### Risk Assessment for Chicago, IL:

- Overall extreme weather risk: High
- Most frequent extreme event: Frost (48 days)
- Recommended mitigation: Enhanced monitoring and contingency planning

**Methodology:** Daily weather data from Open-Meteo ERA5 reanalysis. Events counted when threshold breached on any given day. Thresholds aligned with NOAA/WMO extreme weather definitions. Risk levels: High (>10%), Moderate (5-10%), Low (<5%).