



Flash Flood Climatology (1975-2009) for the WFO Burlington, VT County Warning Area

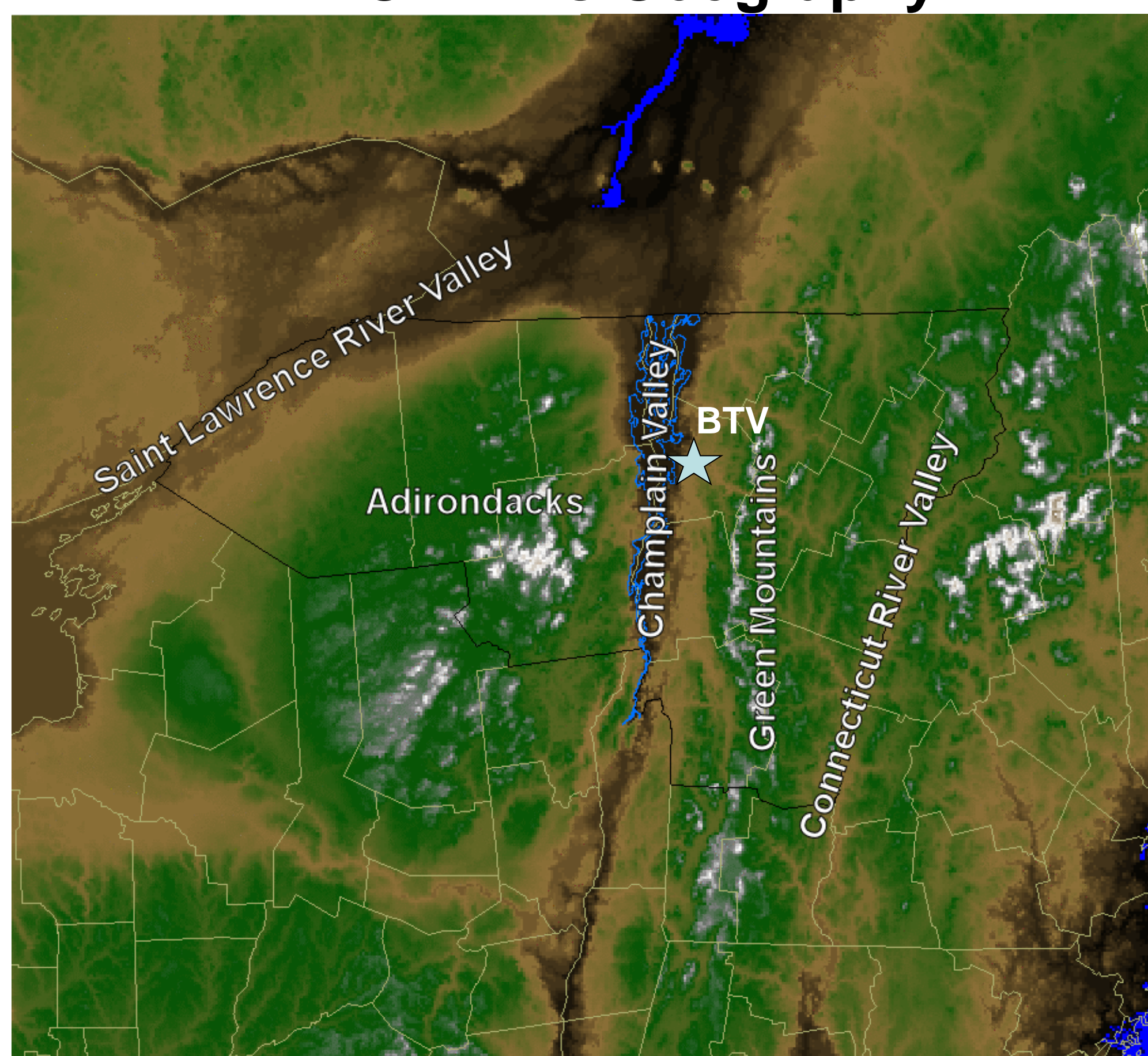
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Introduction

Flash flooding is one of the most significant weather phenomenon that affects Burlington's county warning area (CWA), causing, on average, millions of dollars of damage per year. This study seeks to help forecasters in preventing flash flood casualties and reducing property damage by improving understanding of the frequency, severity, and geographical distribution of flash flood events across the CWA.

WFO BTV's Geography



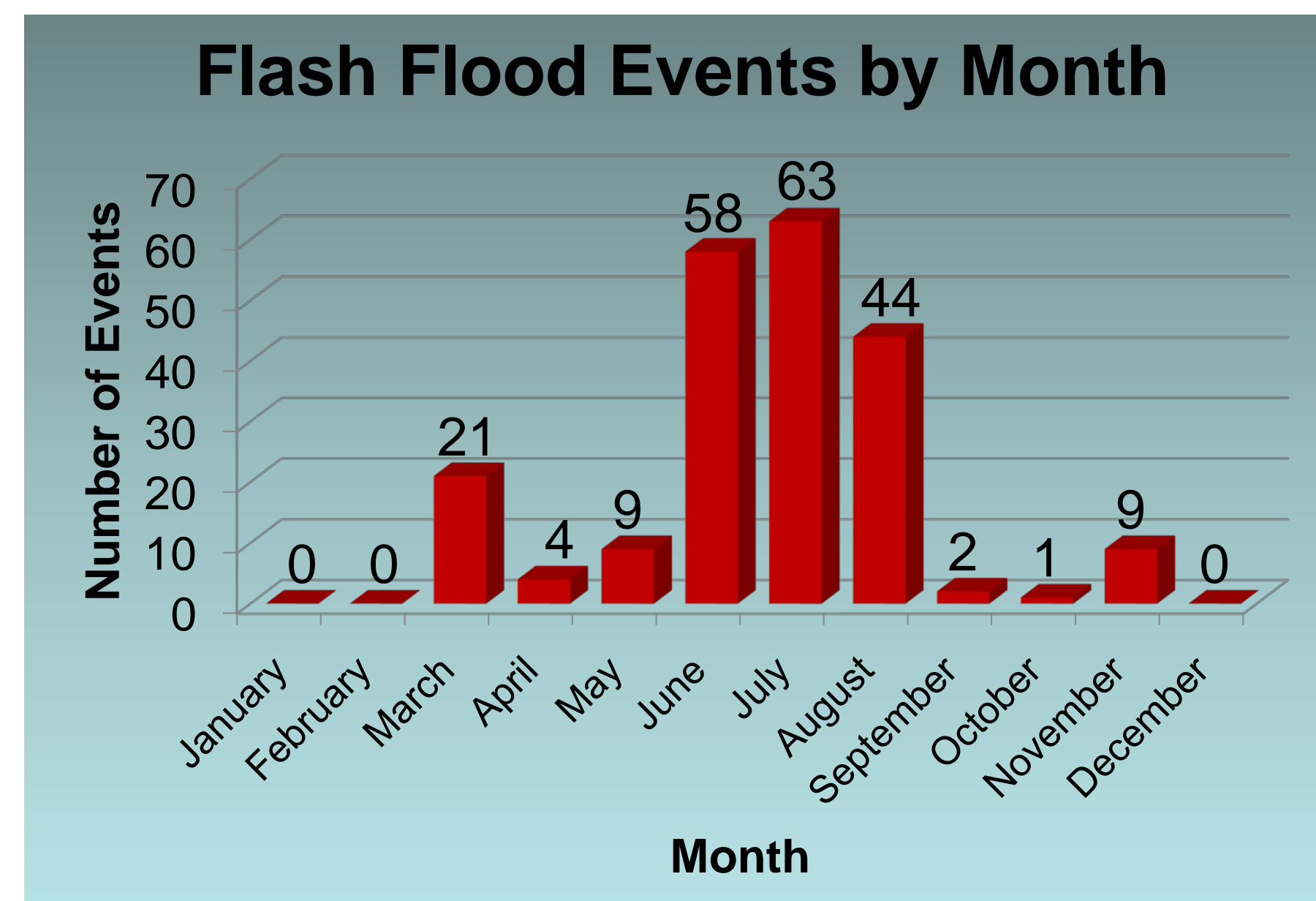
Burlington's CWA is characterized by complex terrain

- Adirondacks in NY; elevations up to 5300 ft
- Green Mountains in VT; elevations up to 4400 ft
- Saint Lawrence River Valley along NY/CA border
- Champlain Valley along VT/NY border
- Connecticut River Valley along VT/NH border

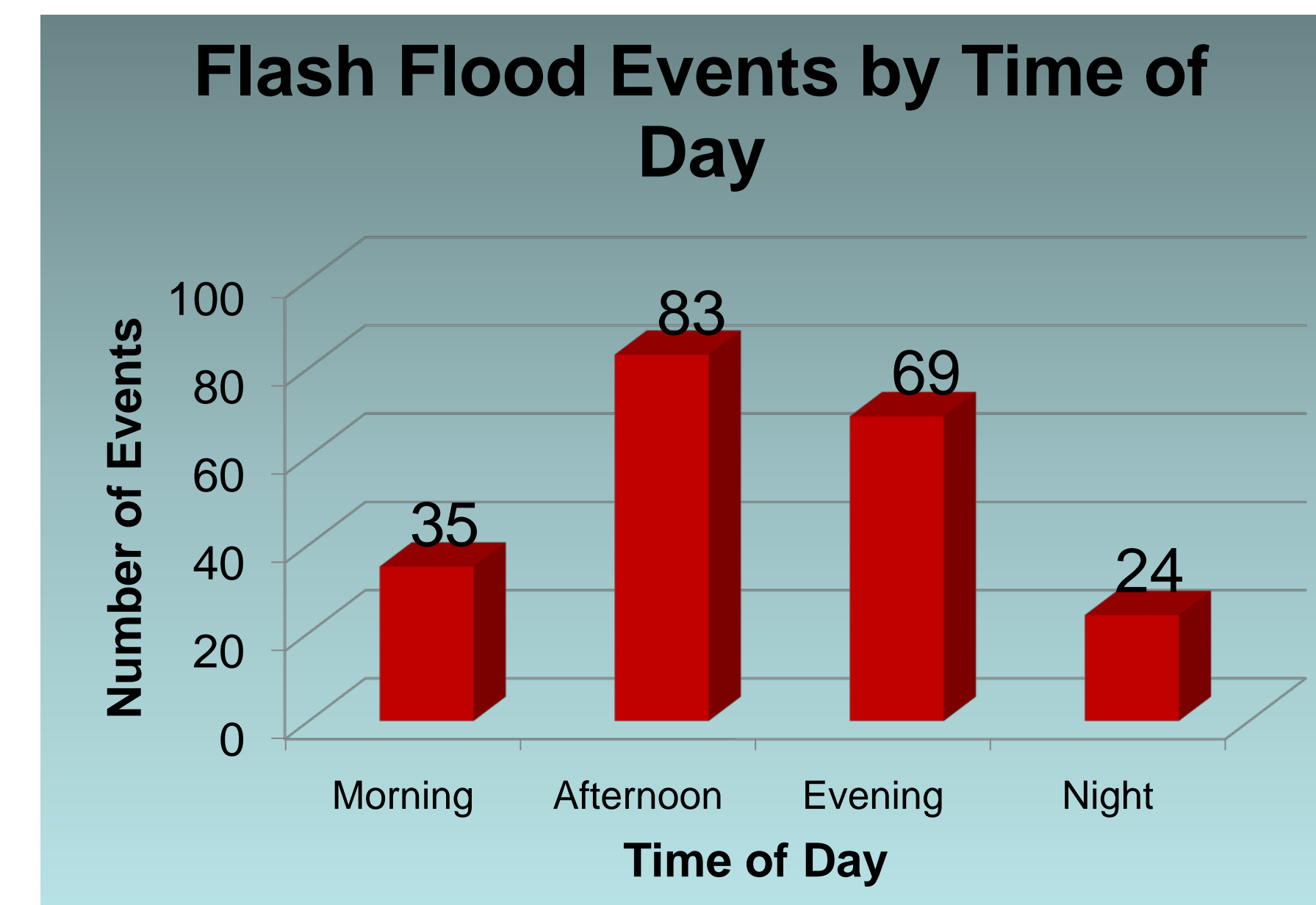
Data and Methods

- Used NCDC Storm Data to find flash flood events
- A total of 211 events were used
- Events became scarce in the 1970s
- Damage statistics prior to 1993 not used due to a change in record keeping

Results

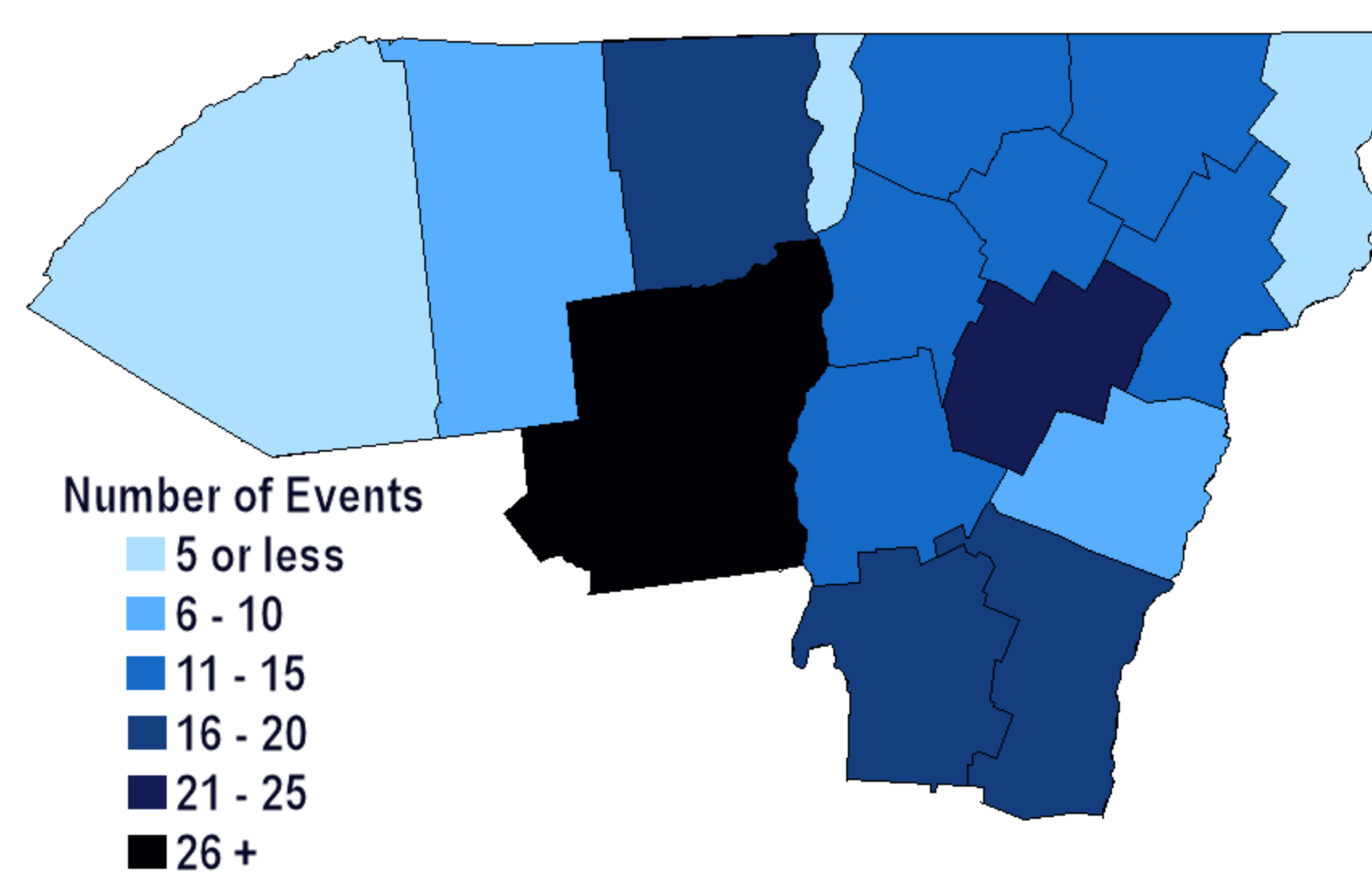


- Most flash floods occur in summer
 - BTV's peak severe weather season
- Secondary peak in March from ice jams



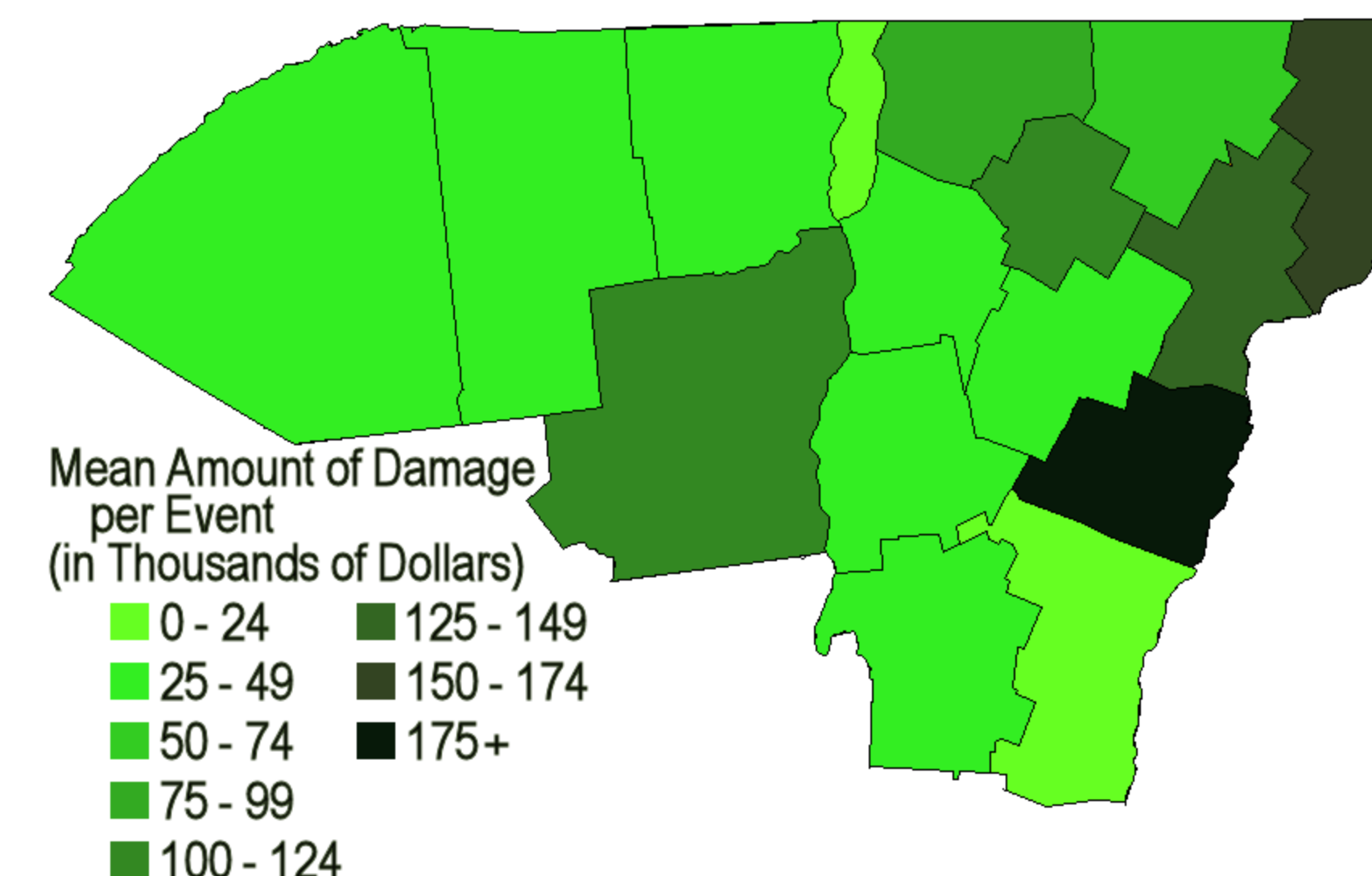
- Flash floods occur most often in the afternoon and evening hours
 - Daytime heating and instability at maximum

Number of Flash Floods by County



- Role of mountains and valleys evident
 - Greatest number of events is in Essex, NY, which also contains the CWA's highest mountain peaks
 - Also in the Green mountains,
 - Minimums in Saint Lawrence and Connecticut Valleys, Grande Isle county

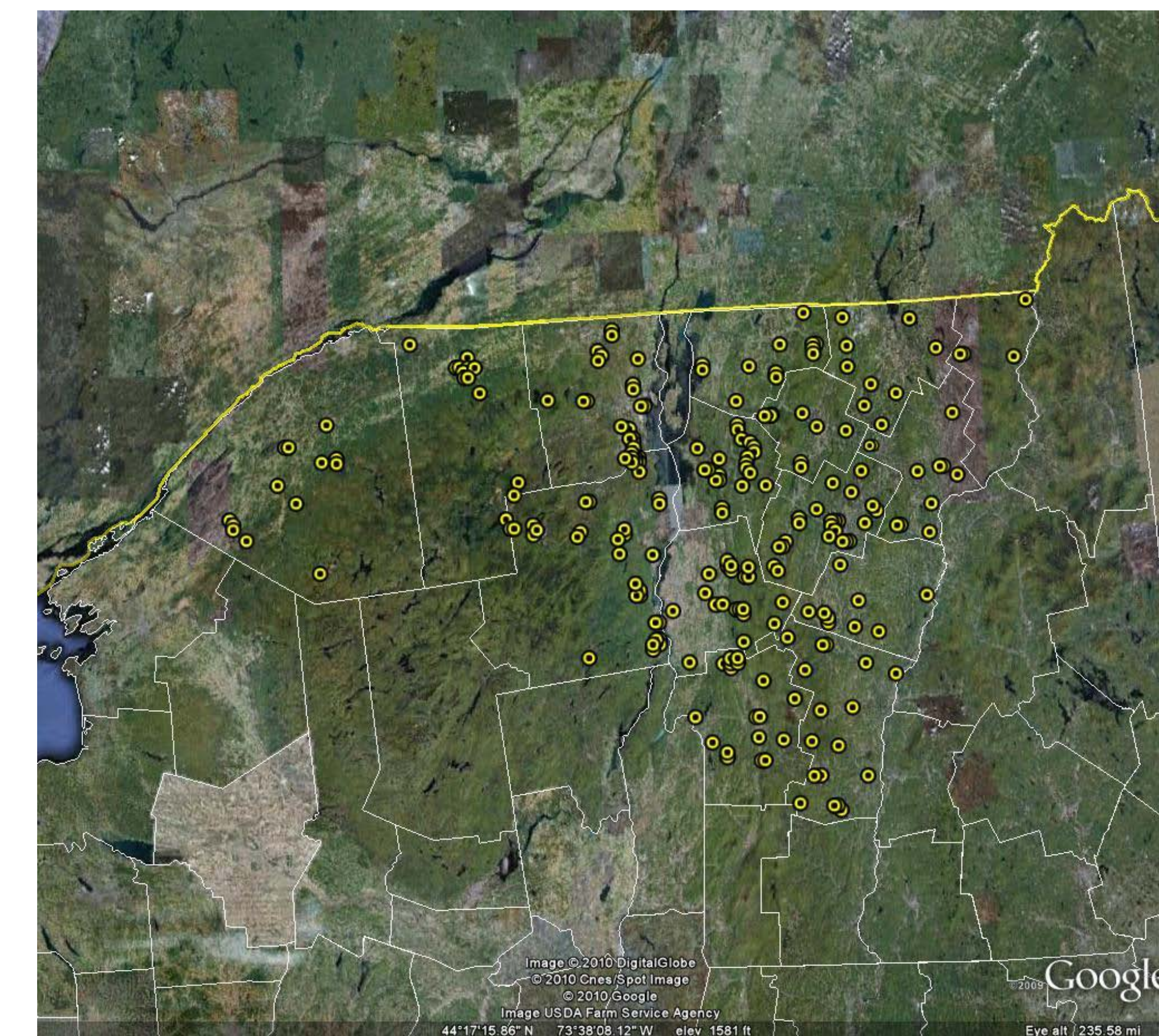
Mean Amount of Damage per Event



- Number of events does not correlate with mean amount of damage per event
 - Orange and Essex County, VT, have the highest damage per event, but both toward the low end of total events

Results

Areal Distribution of Flash Flood Events



Vermont reports indicate:

- Flash floods are evenly distributed throughout the Green Mountains and Champlain Valley
- Few events in CT River Valley

New York reports indicate:

- Flash flood are near population centers
- More events in Champlain Valley than Adirondacks
 - Adirondacks mainly State Park land with few towns

Future Investigation

- Use Google Earth to plot flash flood event damage
- What river basins have seen the most floods and/or damage?
- Any correlation between flash floods and/or damage and population centers?
- What role does land slope play?