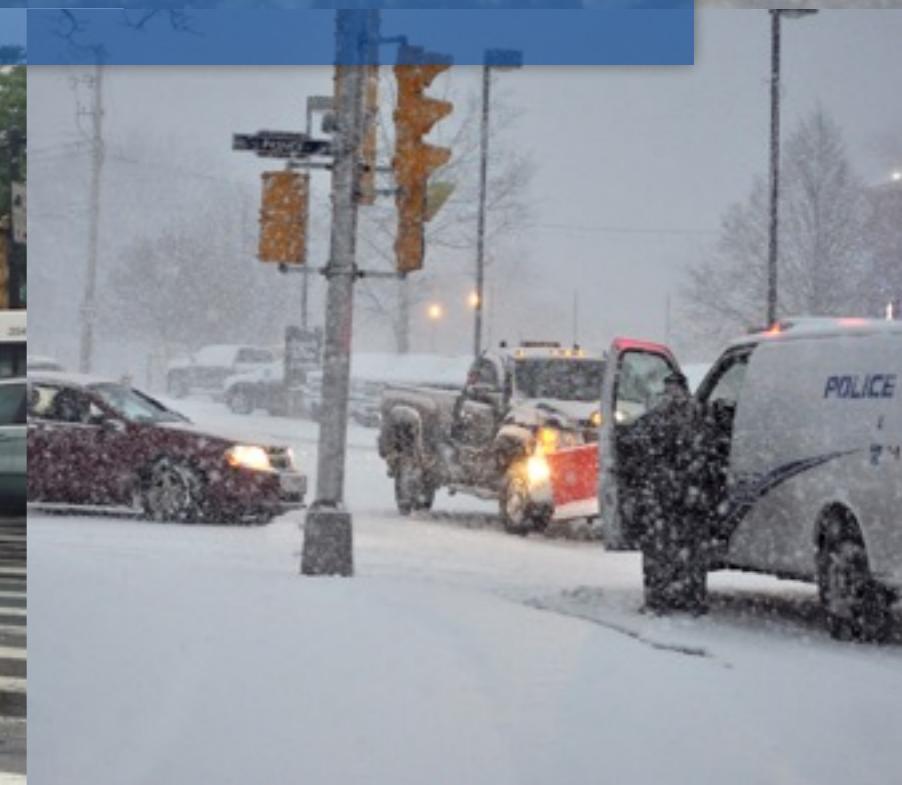
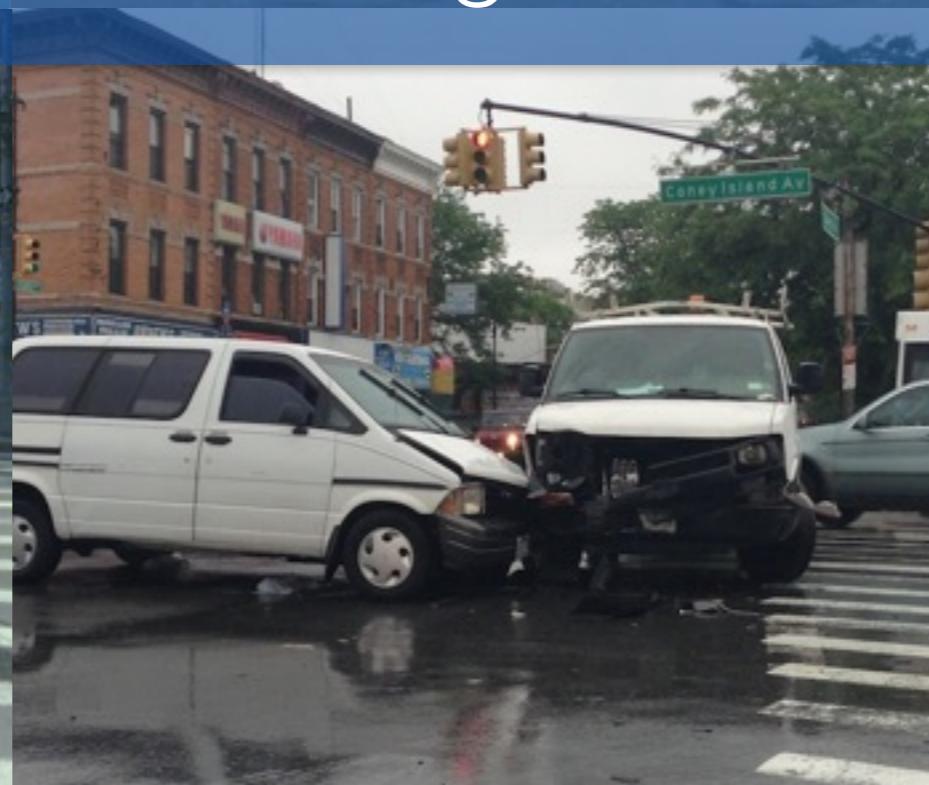


# **NYC vehicle collision Worst Location and Weather**

Tohei Yokogawa, Ph.D.



**There were 205,913 vehicle collisions in NYC in 2014**

**How can we reduce this number?**

- 1. Worst location**
- 2. Worst weather**

600,000 collisions + hourly weather data for 3 years

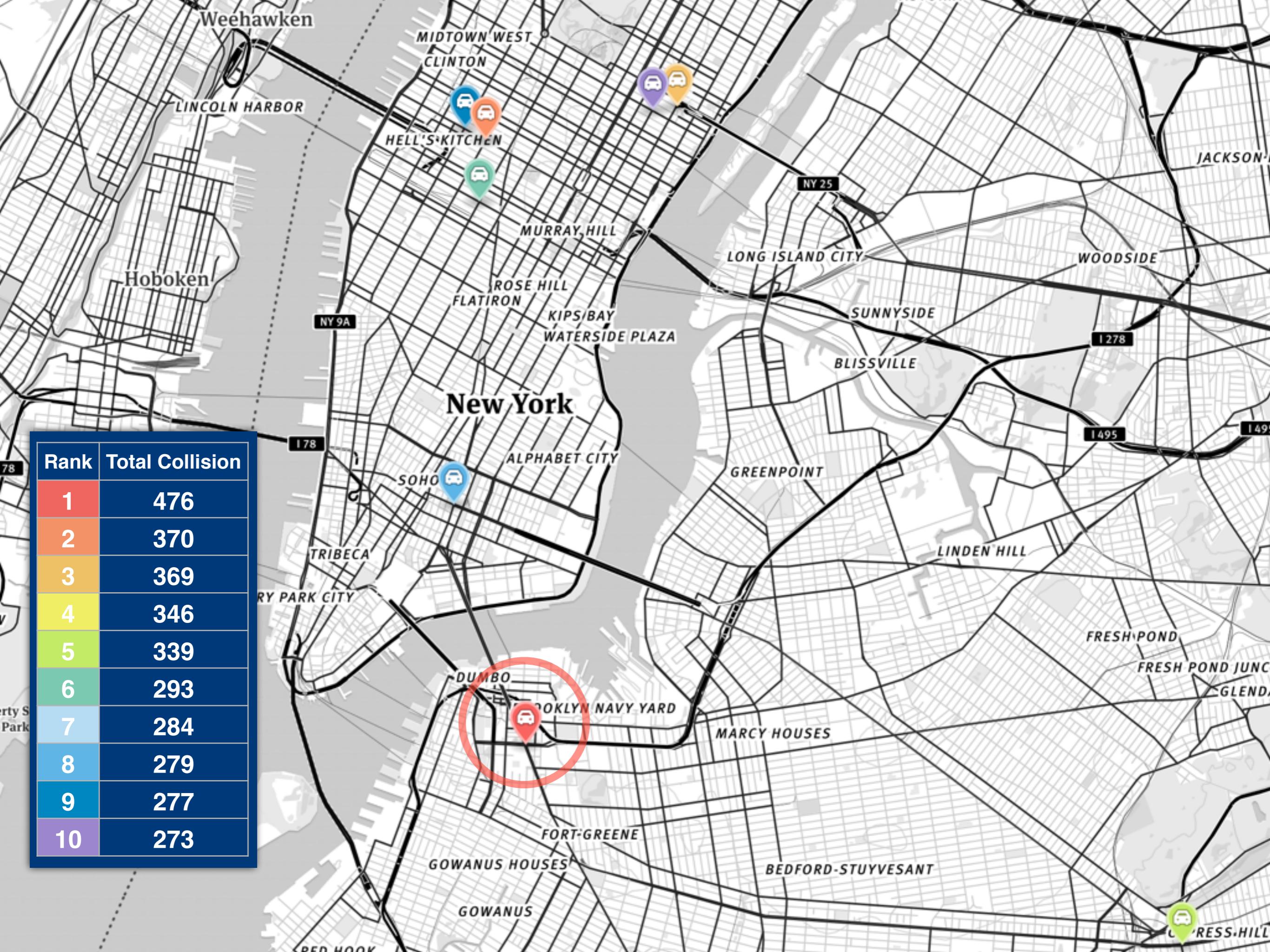
NYC Collision data:

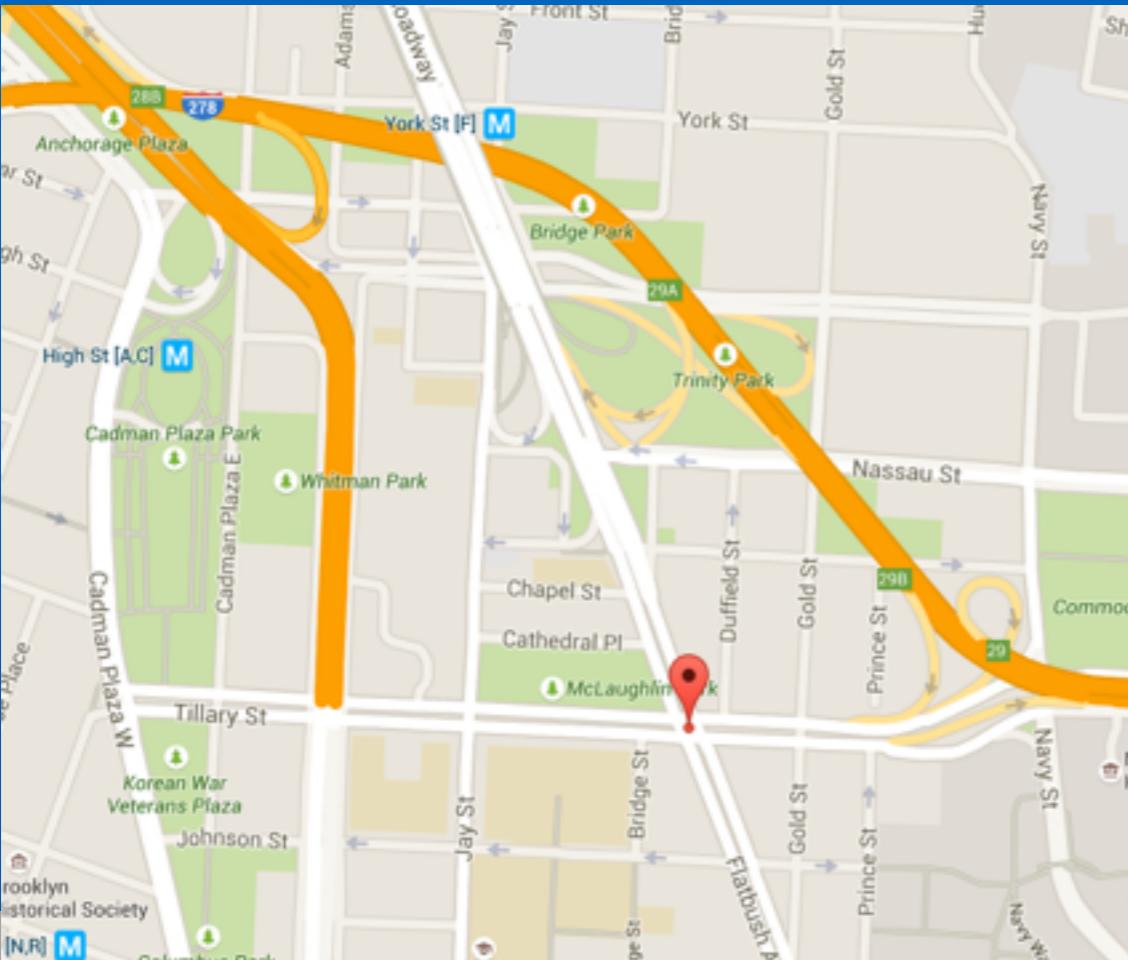


NYC Weather data:



<https://data.cityofnewyork.us>  
[www.wunderground.com](http://www.wunderground.com)

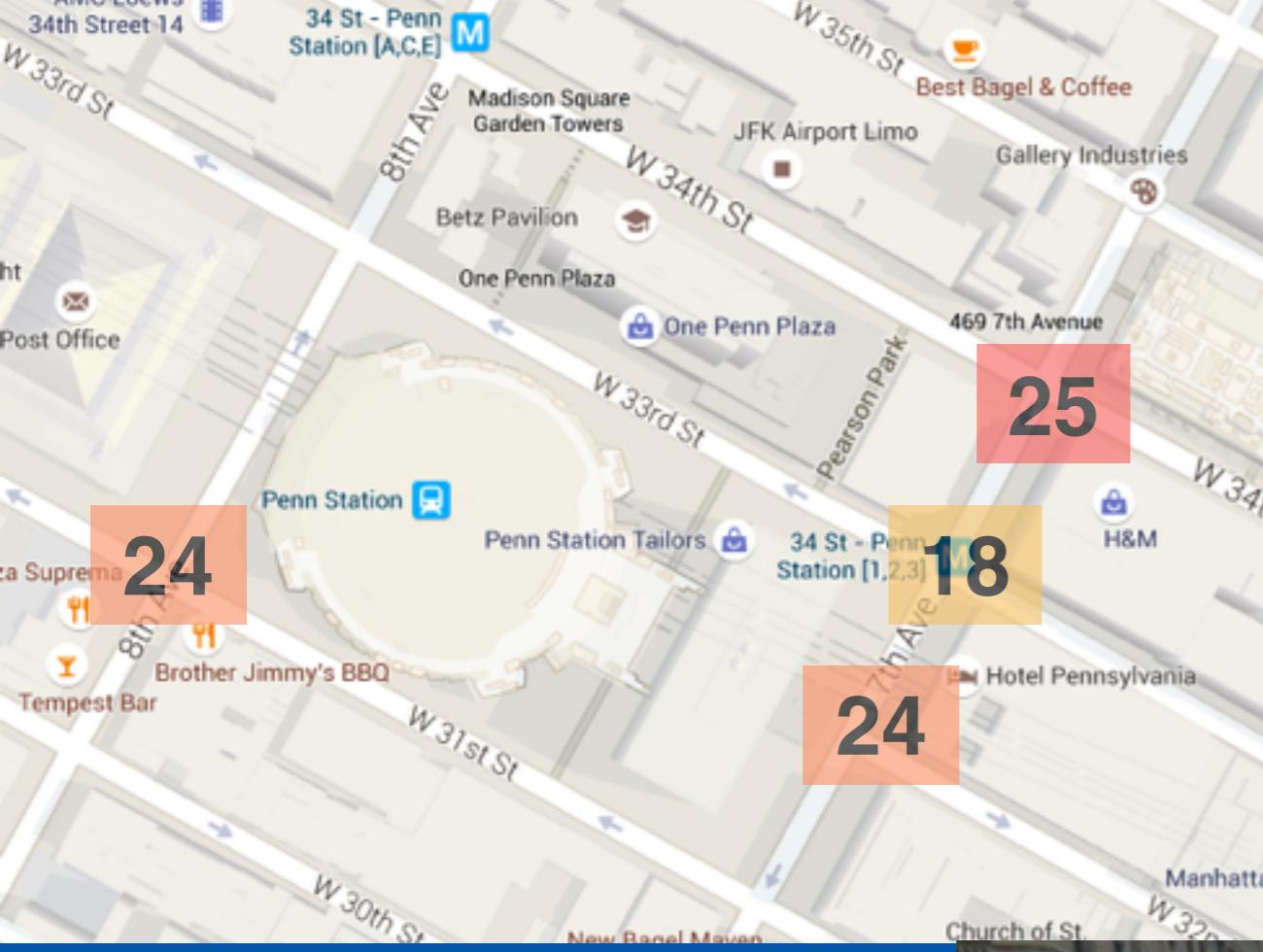




163.2 collisions per year  
13.6 collisions per month  
3.2 collisions per week



Flatbush Ave (connecting to Manhattan Bridge) and Tillary Street (connecting to I-278)



Rank	Total Collision
1	25
2	24
3	24
4	18
5	17
6	16
7	15
8	15
9	15
10	15

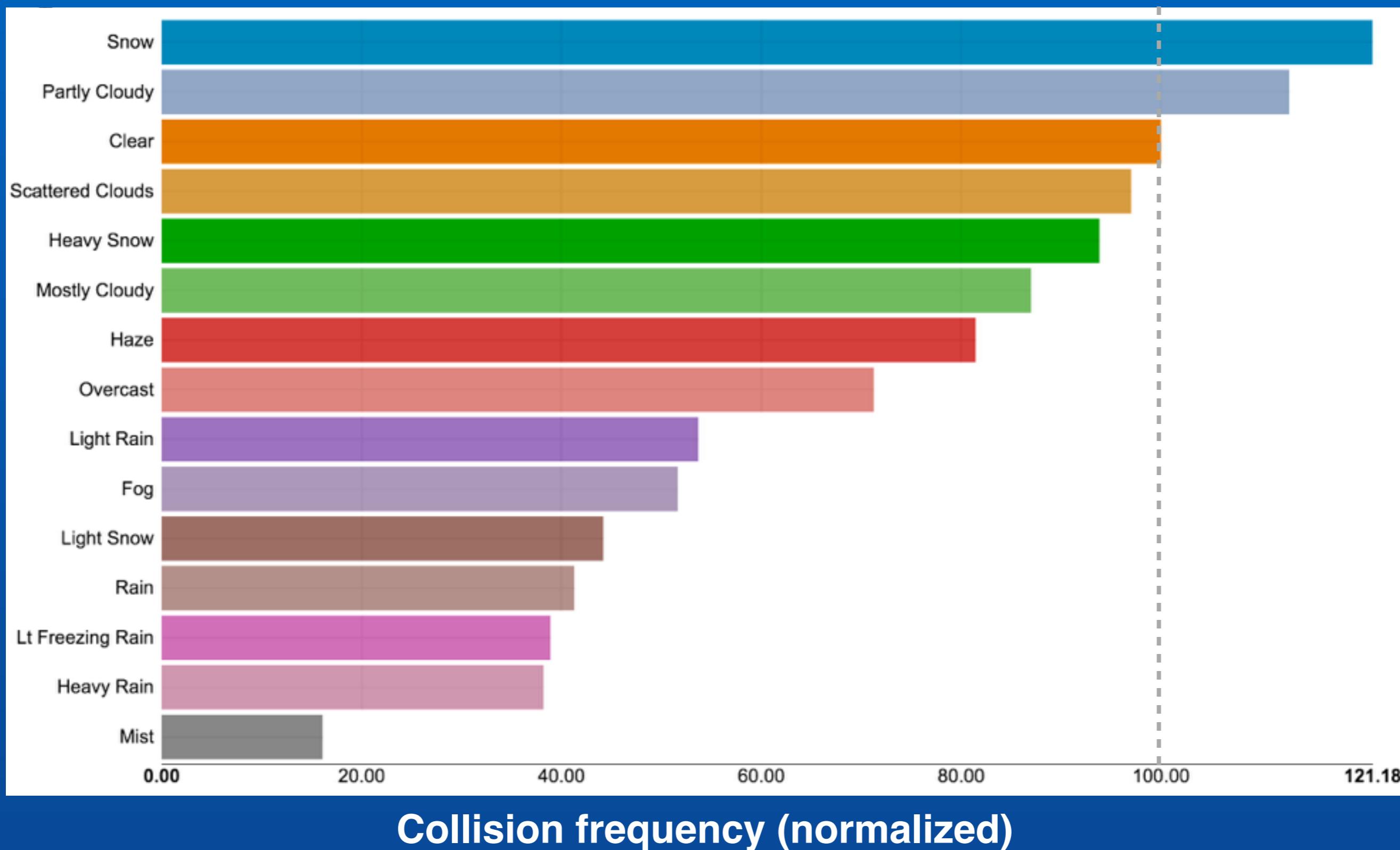
# Worst taxi-taxi collision location

(Drop off and pick up  
confusion?)



Penn Station / Madison square garden

**What weather conditions have  
the worst collision rates in NYC?**

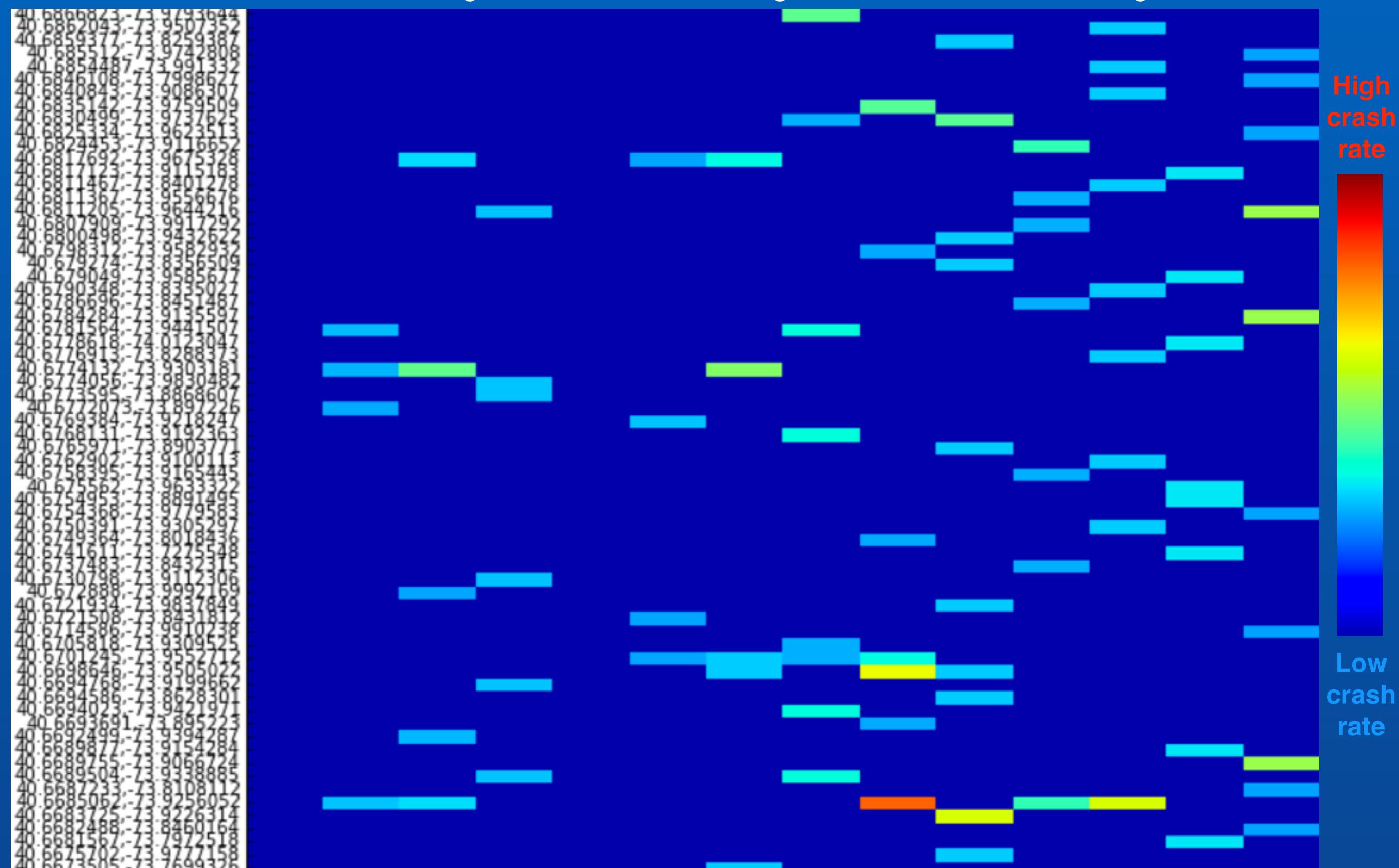


**New tool to characterize location**

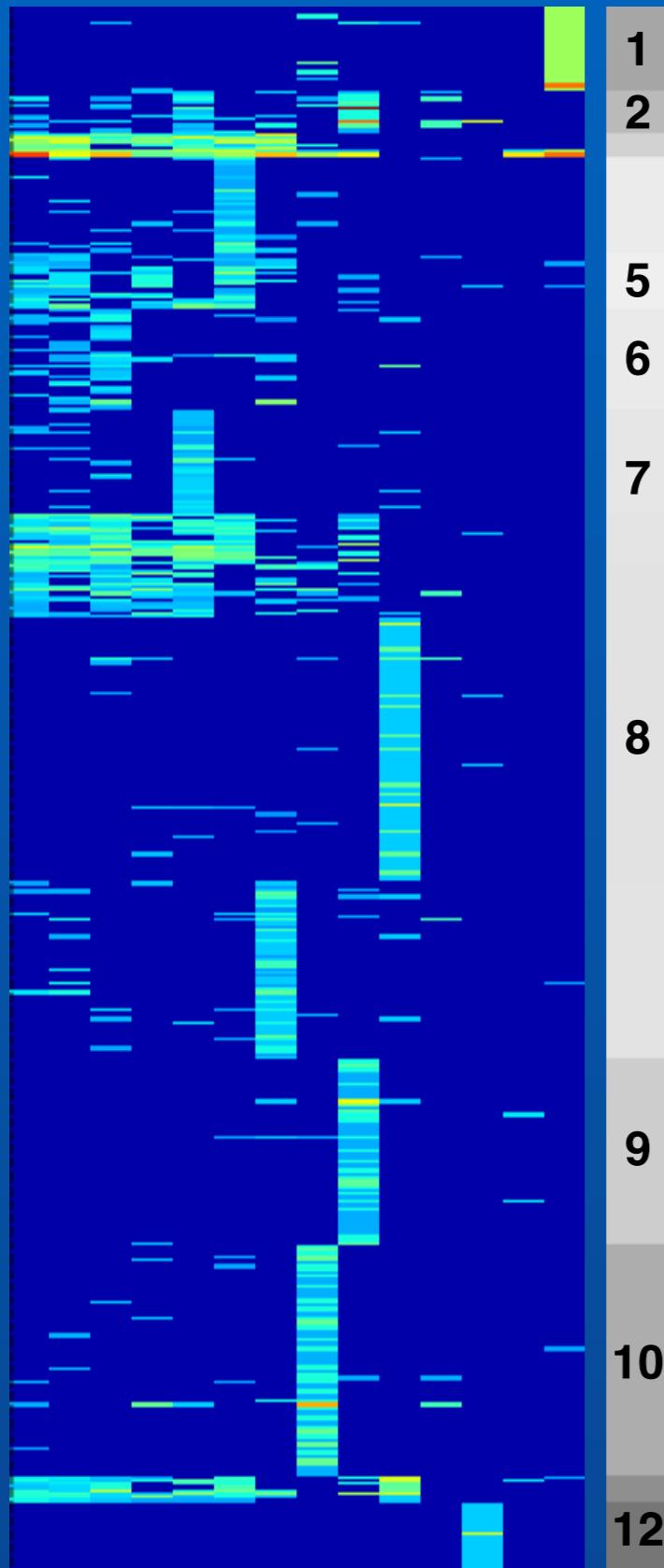
Location clustering with weather+collision

# Location

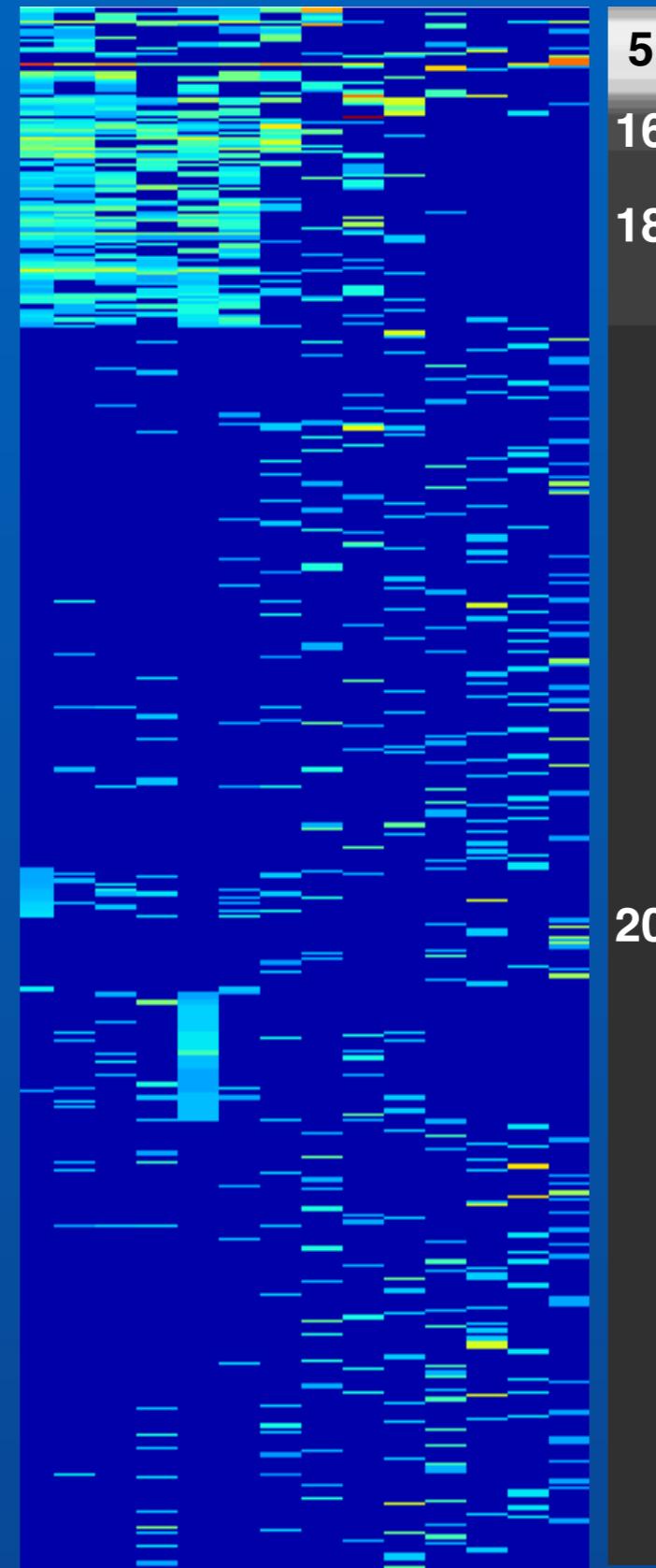
Clear    Most cloud    Part cloud    Haze    Rain    Snow    Light frez rain  
 Overcast    Light rain    Scat cloud    Light snow    Hev rain    Fog    Hev snow



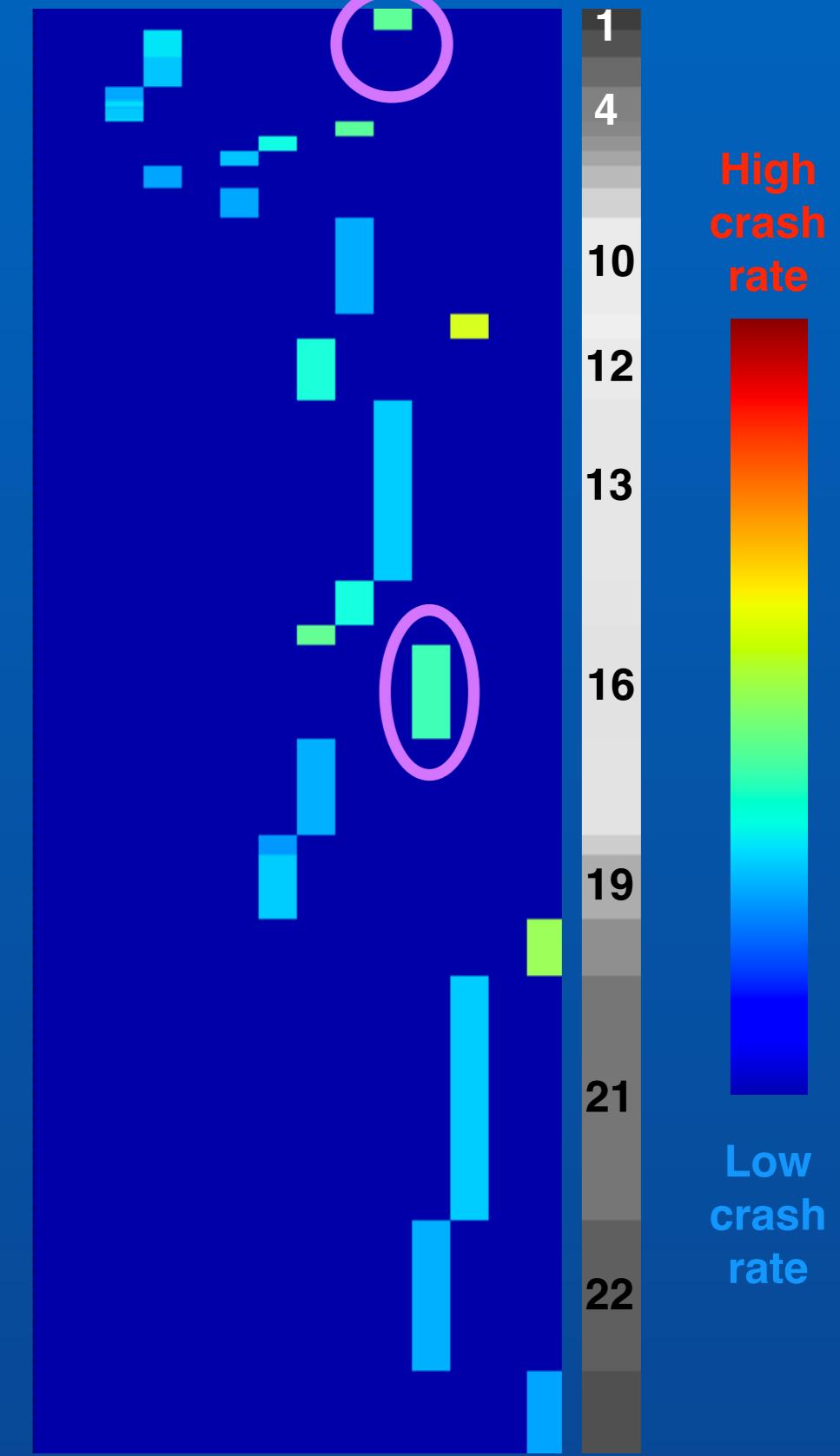
# K-mean



# Mean-Shift



# DBSCAN

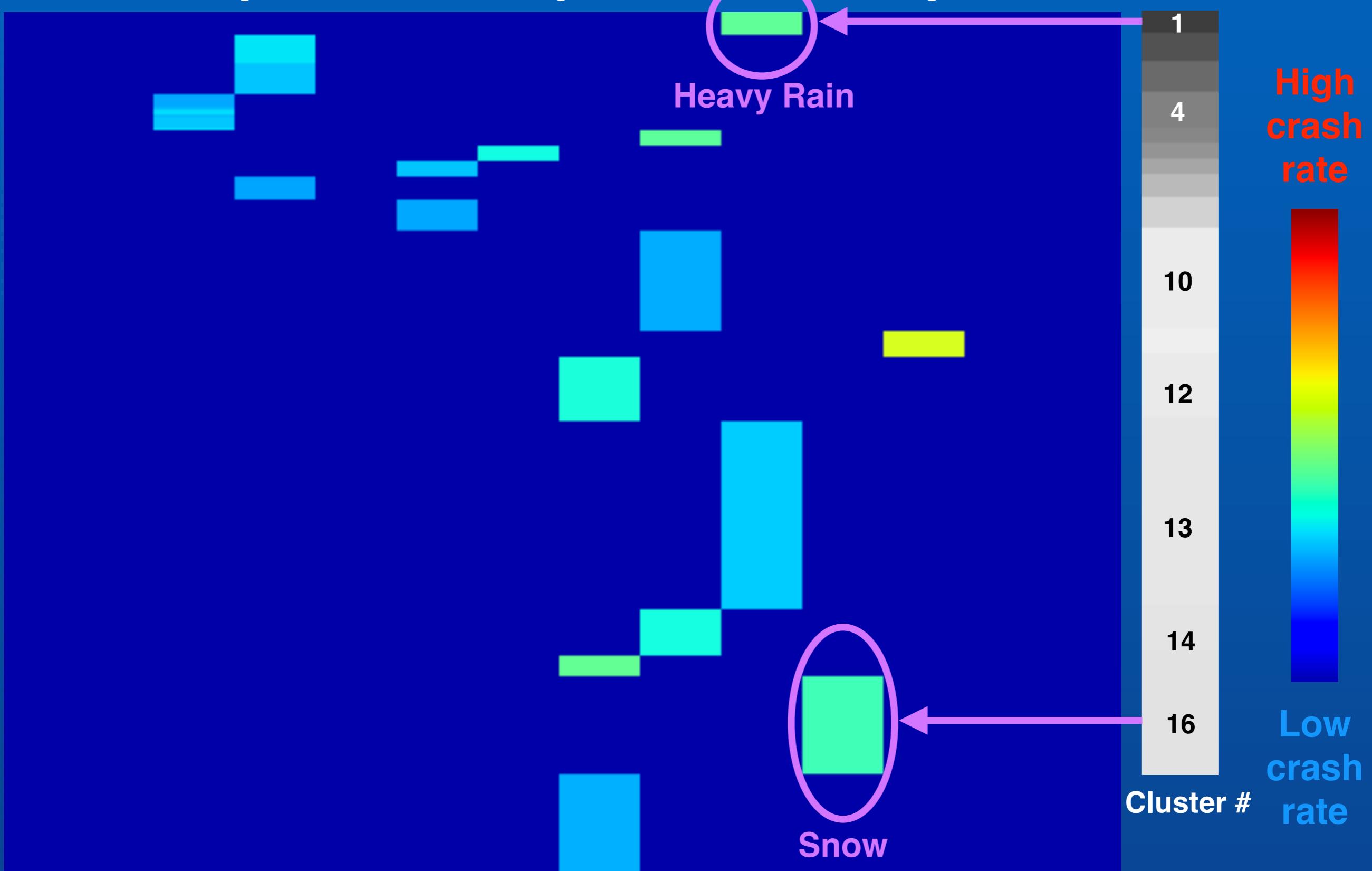


High  
crash  
rate

Low  
crash  
rate

# DBSCAN

Clear    Most cloud    Part cloud    Haze    Rain    Snow    Light frez rain  
Overcast    Light rain    Scat cloud    Light snow    Hev rain    Fog    Hev snow



# Locations sensitive to **Heavy rain** (multi-lane, high average speed?)



# Locations sensitive to **Snow** (sloping roads)



1. Worst location: Flatbush Ave and Tillary Street
2. Worst weather: Snow especially on sloping roads
3. Location clustering by weather-collision data is a new method to explore collision environments