Traffic and Weather Conditions in D.C.

Traffic and inclement weather tend not to mix. My goal is to observe interactions between the two, by looking at which factors in the weather have the most significant impacts on the number of crashes.

Weather Data

- 2466 entries (2013-04 to 2019)
- Some of the data isn't particularly useful (but may be nice to have)
- AWND - Average wind speed
- PRCP - Precipitation
- SNWD - Snow Depth
- SNOW - Snowfall
- TAVG - Average temperature
- I originally gathered data from 2012-2019, but the 2012 data and some of the 2013 data was missing the predictors I was looking for, so I cut it out, along with repeat dates (since there are multiple observation areas, I just took the first unique one per day).

	STATION	NAME	LATITUDE	LONGITUDE	ELEVATION	DATE	AWND	PRCP	SNOW	SNWD	TAVG
0	USW00093721	BALTIMORE WASHINGTON INTERNATIONAL AIRPORT, MD US	39.1733	-76.684	47.5	2013-04-01	10.74	0.00	0.0	0.0	50.0
1	USW00093721	BALTIMORE WASHINGTON INTERNATIONAL AIRPORT, MD US	39.1733	-76.684	47.5	2013-04-02	8.28	0.00	0.0	0.0	40.0
2	USW00093721	BALTIMORE WASHINGTON INTERNATIONAL AIRPORT, MD US	39.1733	-76.684	47.5	2013-04-03	10.51	0.00	0.0	0.0	40.0
3	USW00093721	BALTIMORE WASHINGTON INTERNATIONAL AIRPORT, MD US	39.1733	-76.684	47.5	2013-04-04	4.25	0.04	0.0	0.0	37.0
4	USW00093721	BALTIMORE WASHINGTON INTERNATIONAL AIRPORT, MD US	39.1733	-76.684	47.5	2013-04-05	8.05	0.11	0.0	0.0	48.0
...	...	...	...	...	...	...	...	...	...	...	...
2461	USW00093721	BALTIMORE WASHINGTON INTERNATIONAL AIRPORT, MD US	NaN	NaN	NaN	2019-12-27	2.46	0.00	0.0	0.0	47.0
2462	USW00093721	BALTIMORE WASHINGTON INTERNATIONAL AIRPORT, MD US	NaN	NaN	NaN	2019-12-28	3.13	0.00	0.0	0.0	50.0
2463	USW00093721	BALTIMORE WASHINGTON INTERNATIONAL AIRPORT, MD US	NaN	NaN	NaN	2019-12-29	5.59	0.59	0.0	0.0	46.0
2464	USW00093721	BALTIMORE WASHINGTON INTERNATIONAL AIRPORT, MD US	NaN	NaN	NaN	2019-12-30	6.93	0.24	0.0	0.0	52.0
2465	USW00093721	BALTIMORE WASHINGTON INTERNATIONAL AIRPORT, MD US	NaN	NaN	NaN	2019-12-31	7.61	0.00	0.0	0.0	46.0

2466 rows × 11 columns

Crash Data

- Fully cleaned data
- Removed data prior to 2013/04/01 and after 2019/12/31
- Derives year/month/day from ReportDate
- Derives CrashCount through a groupby on ReportDate
- Removes 59 columns

	ReportDate	CrashCount	Year	Month	Day
0	2013/04/01	49	2013	04	01
1	2013/04/02	35	2013	04	02
2	2013/04/03	49	2013	04	03
3	2013/04/04	38	2013	04	04
4	2013/04/05	60	2013	04	05
5	2013/04/06	49	2013	04	06
6	2013/04/07	52	2013	04	07
7	2013/04/08	64	2013	04	08
8	2013/04/09	59	2013	04	09
9	2013/04/10	70	2013	04	10
10	2013/04/11	55	2013	04	11
11	2013/04/12	49	2013	04	12
12	2013/04/13	53	2013	04	13
13	2013/04/14	58	2013	04	14
14	2013/04/15	52	2013	04	15
15	2013/04/16	46	2013	04	16
16	2013/04/17	62	2013	04	17
17	2013/04/18	64	2013	04	18
18	2013/04/19	73	2013	04	19
19	2013/04/20	47	2013	04	20
20	2013/04/21	40	2013	04	21
21	2013/04/22	52	2013	04	22
22	2013/04/23	46	2013	04	23
23	2013/04/24	47	2013	04	24
24	2013/04/25	65	2013	04	25

Solution

- Determine which of the factors most influence crashes by creating a model to predict crashes
- Plot scores of each feature side by side