Correlations between speeding offenses and weather conditions

Agenda

01 Data

02 Correlations

Data

Speeding offenses

Speeding offenses data

Recorded speeding offences of the municipal speed monitoring of cologne from the year 2017 until dec 2021

− Dataset from mobilithek (provided by City of Cologne)

− 2 932 314 lines

− Date and time in own format

− Locations referenced from other Tables

Year	Month	Date	Time	License Pl	Speed	Exceedance	Vehicle	Location
2017	1	10117	28	KL-	46	13	04a	40
2017	1	10117	255	-87	49	16	04a	40
2017	1	10117	437	K-	39	6	04a	40
2017	1	10117	650	K-	42	9	04a	40
2017	1	10117	933	SG-	73	10	04a	972
…								

Data
Weather

Meteostat

Open platform providing access to historical weather and climate data

- Own Python library

- 6 different weather stations in/near Cologne

- Records with hourly weather data

- **Temperature**, **Precipitation** and **Wind speed**

  used for this project

Column	Description	Type
Station	The Meteostat ID of the weather station	String
time	The datetime of the observation	Datetime64
temp	The air temperature in °C	Float64
dwpt	The dew point in °C	Float64
rhum	The relative humidity in percent (%)	Float64
prcp	The one hour precipitation total in mm	Float64
snow	The snow depth in mm	Float64
wdir	The average wind direction in degrees (°)	Float64
wspd	The average wind speed in km/h	Float64
pres	The average sea-level air pressure in hPa	Float64
tsun	The one hour sunshine total in minutes (m)	Float64
coco	The weather condition code	Float64

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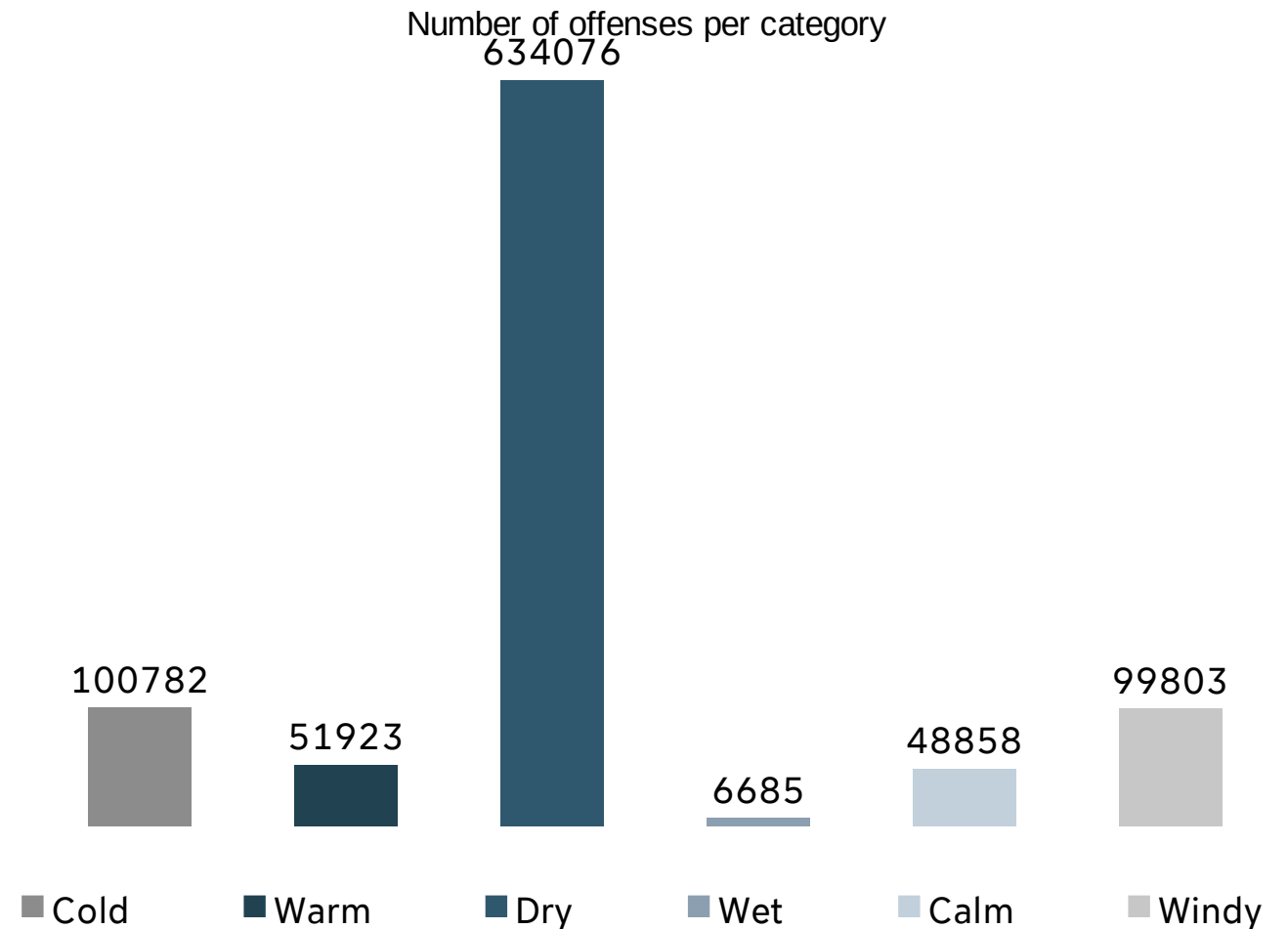
Correlations

Weather condition categories

Weather conditions divided into 6 categories

- **cold**: temperature < 5°C

- **warm**: temperature >= 25°C

- **dry**: precipitation < 0.5mm

- **wet**: precipitation >= 2mm

- **calm**: wind speed < 5km/h

- **windy**: wind speed >= 25km/h

Number of offenses per category

634076

100782

51923

6685

48858

99803

Cold Warm Dry Wet Calm Windy

Correlations

FAU

Relative number of offenses per weather condition

Number of offenses in relatioin to number of days with that weather condition

(Counting weather conditions on all days in the dataset)

5.794 %	3.671 %	5.269 %	4.637 %	6.359 %	4.316 %

Cold   Warm   Dry   Wet   Calm   Windy
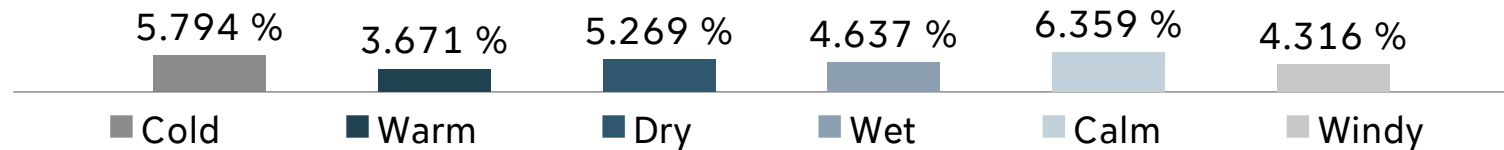
None of the weather conditions examined seem to have an influence on the number of speeding offenses.

**Friedrich-Alexander-Universität
Technische Fakultät**

Thank you for your attention