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How does weather affect the use of public transport in Berlin?

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Bringing together weather observations, forecasts, passenger counts and ticket sales, we investigate how weather influences the utilization of public transport in Berlin. The study is a collaboration between the Institute of Meteorology of the Freie Universität Berlin and the Berliner Verkehrsbetriebe which operate the bus, tram and underground services in Berlin.

The long-term aim of this study is to explore the possibility to benefit from weather forecasts when planning transport. In a first step, we analyse the relationship between different weather parameters and the use of public transport using observations from the last few years on different spatial and temporal aggregation levels.
In Berlin passengers travelling by public transport are not registered. Passenger counts exist for a limited number of buses. In addition, the number of ticket sales can be used to study the behaviour of people who use public transport occasionally and don't own a season ticket. With respect to weather we benefit from a relatively dense network of observational sites. To further increase the coverage of the area we also use radar data.

On the poster we will present the influence of different meteorological (e.g. precipitation, temperature and wind) and non-meteorological (e.g. working day/public holiday) variables on ticket sales and passenger counts. Even though the most dominant factors are of non-meteorological nature, weather, especially precipitation, also plays an important role. Finally, we will introduce and validate a statistical model, forecasting ticket-sale anomalies on the basis of the relevant meteorological and non-meteorological factors.

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