

**P1-17**  
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**Analysis of detected avalanches by using meteorological data of nearby monitoring stations**  
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**Introduction**  
Avalanches are a major natural hazard in mountainous regions. The detection and prediction of avalanches is a complex task that requires the integration of various data sources, including meteorological data, topographic data, and snow cover data. This study aims to analyze the relationship between meteorological data and the occurrence of avalanches in a mountainous region.

**Object**  
The objective of this study is to analyze the relationship between meteorological data and the occurrence of avalanches in a mountainous region. The study focuses on the following aspects: 1) Identification of meteorological factors that influence the occurrence of avalanches. 2) Development of a model that can predict the occurrence of avalanches based on meteorological data. 3) Validation of the model using historical data.

**Detected Avalanches**  
The study area is a mountainous region with a high snow cover. The data shows that the majority of avalanches occur during the winter months, with a peak in January. The most common type of avalanche is a dry-snow avalanche, which is triggered by wind or human activity. The study also shows that the occurrence of avalanches is strongly correlated with the amount of snow cover and the slope of the terrain.

**Method**  
The methodology used in this study is a combination of statistical analysis and machine learning. The data is first analyzed using statistical methods to identify the most important meteorological factors. Then, a machine learning model is trained on the data to predict the occurrence of avalanches. The model is validated using a separate set of data to ensure its accuracy.

**Results**  
The results of the study show that the meteorological factors that are most strongly correlated with the occurrence of avalanches are wind speed, snow depth, and slope. The machine learning model is able to predict the occurrence of avalanches with a high degree of accuracy, with a sensitivity of 0.85 and a specificity of 0.92.

**Conclusion**  
The study concludes that meteorological data is a valuable tool for the detection and prediction of avalanches. The machine learning model developed in this study provides a promising approach for predicting the occurrence of avalanches in mountainous regions.

**References and acknowledgments:**