

LAWINE TIROL - THE OFFICIAL APP OF THE TYROL AVALANCHE WARNING SERVICE

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ABSTRACT: LAWINE TIROL is the official App of the Tyrol Avalanche Warning Service and the regional daily paper "Tiroler Tageszeitung (TT)". Smartphones will now provide backcountry skiers, free riders and all others riding off-piste through Tyrol's mountains in wintertime with all information necessary for planning their routes safely.

KEYWORDS: app, mobile, avalanche information.

1. INTRODUCTION

Austria is one of the most popular skiing nations in the world. Especially the region Tyrol is very famous in terms of winter sports and winter tourism. In the winter season of 2016/17 were about 26.5 million over-night stays and about 5.9 million arrivals. Tyrol has always attracted many skiers, snowboarders and backcountry skiers. Because of the many new possibilities created in the last years, the number of backcountry skiers is growing every year. In 2015 more than half a million people practiced the sport in Austria. This results in more people being off-piste and in high alpine terrain. Because of that there is a higher demand for security concerning avalanches and dangerous situations in the Tyrolean Alps. The LAWINE TIROL-App attracts those who want to be more safe off-piste and want to know a little bit more than just the avalanche danger level.

2. LAWINE TIROL APP

LAWINE TIROL is the official App of the Tyrol Avalanche Warning Service and the regional daily paper "Tiroler Tageszeitung (TT)". Smartphones will now provide backcountry skiers, free riders and all others riding off-piste through Tyrol's mountains in wintertime with all information necessary for planning their routes safely.

In addition to the daily avalanche bulletin and current station data, the LAWINE TIROL App offers practical tools such as compass, altimeter and inclinometer as well as background knowledge about avalanche research. Moreover, push messages pass on the popular TT tour tips and any urgent avalanche information from the TT.com editors.

The App features a closed area for members of the Tyrolean Avalanche Commission which enables mobile access to the most important internal information such as information on avalanche training courses and events.

The underlying idea was to make winter sports in free terrain safer, given that nearly every deadly avalanche accident within the last couple of years happened offside the marked-piste. Already existing information from the Tyrolean Avalanche Commission is made accessible with a simple and modern means to the community of backcountry skiers and free riders as well as others who ride off-piste.

3. AVALANCHE INFORMATION

Avalanches are mostly triggered by free riders or backcountry skiers themselves. It is unlikely that an avalanche where people get killed arises on its own. According to statistics roughly 98 percent of avalanches with casualties are caused by those who become the victims. Most fatalities through avalanches, in Austria, season 2016/17, accrued when the local avalanche danger level was "considerable" (level 3). Skiers frequently ignore the warnings and go off-piste anyways, because of the seemingly nice, fresh snow. "Typical accident-days" are the first few days with nice weather after it snowed. Slopes without any tracks and a lot of new snow are extremely dangerous, because a little amount of pressure or disturbance on the wind-drifted snow is enough to root an avalanche.

The main cause for skiers to trigger an avalanche off-piste is the combination of snowdrift accumulations and old snow (According to the Austrian avalanche report 2016/17 about 68 percent of the accidents with fatal casualties were caused by problems with old snow). Because both of these types of snow have different structures, they cannot be combined easily. Therefore even little pressure can cause an avalanche to go off in scarps. Typically avalanches accrue on very steep, shady, high alpine slopes with not a lot of skiing activity. Until the 30th of December 2016 there

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were only four accidents, two of those claimed the lives of people. All of these accidents happened in high alpine and very steep terrain. The cause was the instable alt snow.

According to a survey by the Austrian board of trustees for alpine safety in the winter season of 2014/15 only 71 percent of the questioned stated that they had checked out the current avalanche bulletin. 29 percent did not read or listen to the avalanche bulletin. Of all questioned over 70 percent were able to give the right avalanche danger level. In terms of evaluating the avalanche danger about 30 percent do not use a method to judge the situation. 34 percent declared drawing on their own experience, feeling, assessment and gut feeling as their method. Regarding gear brought to the backcountry tour 93 percent said they carried an avalanche rescue beacon and 85 percent packed an avalanche probe. About 12 percent did not bring a shovel and 82 percent did not wear an Airbag on tour.

Topicality of the subject: The App mainly addresses young free riders and snowboarders, because they often try out more dangerous slopes and they are more careless, but they always have their phones in reach. It is also meant to be downloaded by older backcountry skiers who tend to use smartphones more and more often. Users try to obtain relevant information and to minimize the hazards of the recreational sport dramatically. In Austria between the months of October 2016 and Mai 2017 there were 145 avalanche incidents registered, with 375 people involved, 25 of those were deadly injured. Looking at earlier seasons, this is slightly over the ten-year-average number.

4. MARKETING & COOPERATION

Marketing strategy: The LAWINE TIROL App is advertised by "Tiroler Tageszeitung (TT)" both in their print copies and online. The trailer of the App was shown in several movie theaters in Tyrol.

The data used is provided by the Tyrolean Avalanche Commission with more than 5,600 field stations. Not only the avalanche danger level but also a multitude of additional information such as air temperature, snow depth, and wind speed are provided. The App also covers some background information about wet and gliding snow and offers travel advices to avoid an avalanche in these kind of snow-situations. The design was provided by "Tiroler Tageszeitung (TT)".

5. USE OF THE APP

In general, users of the LAWINE TIROL App gain an overview of the cross-regional, regional and local avalanche danger levels. When the positioning function is activated, the App will recognize in

which region an individual is located and will provide him/her with all important information necessary.

6. KEY FEATURES OF THE APP

The LAWINE TIROL offers a section for news. This section provides an overview of the danger level (divided in morning time and afternoon time). It is possible to read or listen to the whole bulletin. There is information about danger spots, gliding and wet snow, springtime scenario, gliding avalanche. User also have access to air temperature and wind speed material. Another category offers information about the depth of snow. This data is available for right now and over the course of 24, 48 or 72 hours. In addition to the general Tirol section of the news, users can choose the different regions depending on where they are or want to go. If the positioning function is switched on the app can determine where the user is located and provides the locational news.

The stations are displayed in a list or on the map, so the user is able to choose the exact station he/she needs for the day. The data from the stations is updated constantly and is conditioned for mobile use. Station detail offers an overview of sea height, air temperature (at the moment, minimal and maximal) and wind direction, speed and squall. Station graphics are also displayed.

With report observation it is possible for LAWINE TIROL-App users to send an observation of avalanche, snow or danger directly through the app to the Tyrolean Avalanche Commission. A photo title and description of the incident can be added to the report form.

TOOLS:

Apart from pure avalanche information, additional tools are provided such as compass, inclinometer, altimeter and many others.

Emergency call provides the numbers of mountain rescue and the emergency telephone number. Through a button it is also possible to download the emergency app.

Innovative features include compass, altimeter and inclinometer:

The compass can easily be calibrated by moving the mobile phone in a figure 8. It is now much easier to determine the bearing. The altimeter uses the positioning function to measure the height of the current location. The inclinometer measures how steep the terrain, a person is located in, is. The app provides a hint for the user to help measuring correctly.

7. ADDITIONAL FEATURES

Furthermore the app offers a variety of other features such as the Tour checklists for those who have checked on the current avalanche situation and are convinced it is safe. The Tour checklists help structuring the backcountry tour to ensure a safe trip. With the three lists no necessary item or information will be neglected. Also included in the App is a spot for backcountry-tour-tips. These tips are provided by "Tiroler Tageszeitung (TT)", and they are very well received by readers/users. The tips give an insight to a few of the best tours. They include a short article about the tour, with tips and directions to the desired destination.

Through the app users also have access to breaking news by the "Tiroler Tageszeitung (TT)". If an avalanche or another kind of danger occurs the information is available in the app. Another feature of the app is the archive. It is possible to look up the avalanche news of the last couple of days. The archive provides an overview of the situation on past days.

If users want to brush up their knowledge about avalanches there is an avalanche wiki available. It gives detailed information about the danger scale and the meaning of the avalanche danger levels. The different problems with avalanches are also described with more detailed information. In addition to that there is a section for avalanche danger patterns. There are 10 scenarios with a description and video about each of these danger patterns. To test the studied people can also download the "Lawien Quiz"-App. There is a direct download link displayed in the LAWINE TIROL-App.

Moreover, there is a section about equipment. LAWINE TIROL offers detailed information about the gear with a description and a picture.

8. IMPROVEMENTS

Process improvement: The process of evaluating the avalanche danger situation is improved, as members of the Commissions have all current and necessary information permanently with them. Moreover, information is enhanced by the "Report observation" function: Backcountry skiers who observe avalanches or other incidents can pass on the information directly to the Avalanche Commission.

Productivity and efficiency improvements: Members of the Avalanche Commission will have all information with them, irrespective of where they are. Thanks to the App, they can do without accessing the website which often takes a long time to load. This information is available offline. And in addition, the members of the Avalanche Commission do no longer have to call the

Avalanche Commission Office to obtain the latest information.

Organizational improvement: The communication ways within the Avalanche Commission have improved and the members of the Avalanche Commissions are provided with the latest information. The App not only provides avalanche information but also features an internal area for commission members where they can find information on avalanche training courses, events and more.

9. COMPARISON TO OTHER APPS

Customer value vis-à-vis competitors' products: Previous Apps only provided general information on the danger level. The LAWINE TIROL App provides users with information about the avalanche danger level (sorted by region, as well as separately, in the morning and afternoon) and offers a variety of further information (such as wind speed, hazardous sites, tour tips, guides to handle the gear correctly and many more)

So far not offered by any other App: Additional tools such as compass, inclinometer and altimeter are indeed a bonus.

In contrast to competitors' products, the app is also available offline.