

White Risk 2.0 – A new web-based platform for avalanche education

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ABSTRACT: In 2006 we developed the interactive learning CD „White Risk“ for promoting avalanche awareness. It rapidly became a popular product for avalanche education. Since its initial development in 2006, there have been tremendous technological advances and user behaviour has drastically changed. We are therefore completely renewing "White Risk". Starting in the winter of 2013-2014, "White Risk 2.0" will provide a modern avalanche education platform containing a website and a smartphone application. The web-based platform has four main components: 1) Comprehensive avalanche knowledge for beginners and professionals alike, illustrated with realistic 3D-graphics, 2) A trip planning tool with avalanche and weather information, online maps and useful checklists for trip preparation. This tool allows building a data base with planned routes and transferring them to mobile devices. 3) Exercises allowing users to test their avalanche knowledge. 4) An improved presenting tool for avalanche educators to use illustrations, animations, movies etc. extracted from "White Risk 2.0" for courses. In a future step, we will also develop and include e-learning courses with „White Risk 2.0“ content, customized to special user groups. "White Risk 2.0" will be available in German, French, Italian and English.

KEYWORDS: white risk, avalanche education, web-based platform, e-learning, didactics, trip planning

1 INTRODUCTION

The majority of avalanche accidents occur during off-piste or backcountry skiing. The best way to reduce avalanche accidents is through a combination of appropriate avalanche forecasting and education. This by providing modern and attractive products to practitioners. The SLF puts a lot of effort into these topics.

In 2006, the SLF partnered with Suva, the Swiss accident insurance company, to publish the interactive CD-ROM 'White Risk' (Harvey, 2006) for autodidactic avalanche education. The CD quickly became a popular product and was distributed about 40'000 times. Besides classical books, e.g. Munter (2003), Tremper (2008), Harvey et al. (2012) or leaflets (e.g. Harvey et al., 2009), White Risk allowed using new technology in avalanche education.

While the CD was designed mainly for autodidactic learning, there were many requests to use the audio-visual content for educational presentations. Therefore, together with all Swiss associations involved in avalanche education as well as with the company Atfront AG, the SLF further developed a tool called 'White Risk In-

structor'. This tool allowed professionals to create presentations for their avalanche training courses (Harvey, 2008).

With increasing popularity of mobile applications, in 2009 the SLF started to provide avalanche information and education with the smartphone application 'White Risk mobile' (Suter and Harvey, 2009). The positive feedback on White Risk mobile motivated the SLF to develop a GIS-based trip planning tool called SNOWSENSE which was launched in 2010 (Eckert and Suter, 2010).

Within a few years several digital products for learning, informing, planning and teaching were developed.

As technology advances rapidly, there is no future in publishing avalanche knowledge on CD-ROM or DVD. Furthermore, user behaviour has shifted to web and mobile devices. To pursue interactive avalanche education, a flexible online platform involving all products is required.

2 OBJECTIVES

The goal of White Risk 2.0 is to produce a web-based platform providing the following parts:

- A completely renewed autodidactic learning part containing avalanche knowledge, with a lot of interactive new learning tools.
- A GIS based trip planning tool with the capability to transfer planned tracks to the

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smartphone app 'White Risk' or any other GPS device.

- A presenter tool for professionals to create presentations with interactive White Risk content.
- Modular e-learning units composed of White Risk content containing specific teaching units for all sorts of users.

Users should be able to navigate more easily through the whole content. Further the graphical setup will be completely renewed.

3 CONCEPT

Starting on 18 December 2013, www.whiterisk.org will lead users to the new home page. There will be three White Risk 2.0 versions: a lite free version and two versions to purchase with a yearly license. The first e-learning units will be on-line about a year later.

3.1 Autodidactic learning

This part replaces the previous CD and provides comprehensive avalanche knowledge for beginners and professionals. Each chapter starts with a rotating 3D mountain. As soon as a topic is chosen, a so-called interactive balcony opens which can be scrolled left or right. The

balcony illustrates primary knowledge of the topic. By clicking on a blue button, a new level opens below containing more detailed information on a specific topic. The entire content can be scrolled up to the rotating mountain or down to the end of the lowest level (Fig. 1).

Further many interactive features and learning tools are provided. For example, the analyser will help to learn what factors play a major role in increasing or decreasing a specific avalanche problem. Another tool will help users to better understand the influences of incoming and outgoing energy in the snowpack.

3.2 Web-based trip planning

We enhanced the SNOWSENSE trip planning prototype (Eckert and Suter, 2010) and embedded it into the White Risk environment (Fig. 2). Users can draw a route on a digital map, define and evaluate key passages and see the profile and the calculated time required. Furthermore, the current avalanche bulletin and a weather forecast are provided. A progress bar shows how complete the preparation is.

After saving the route in the database, planned tracks are available on the smartphone app 'White Risk' for navigation in the terrain (Fig. 3).



Fig. 1: Extract of the explorative learning part showing design of the balcony-level (red dotted lines) and detailed level below (yellow dotted lines).

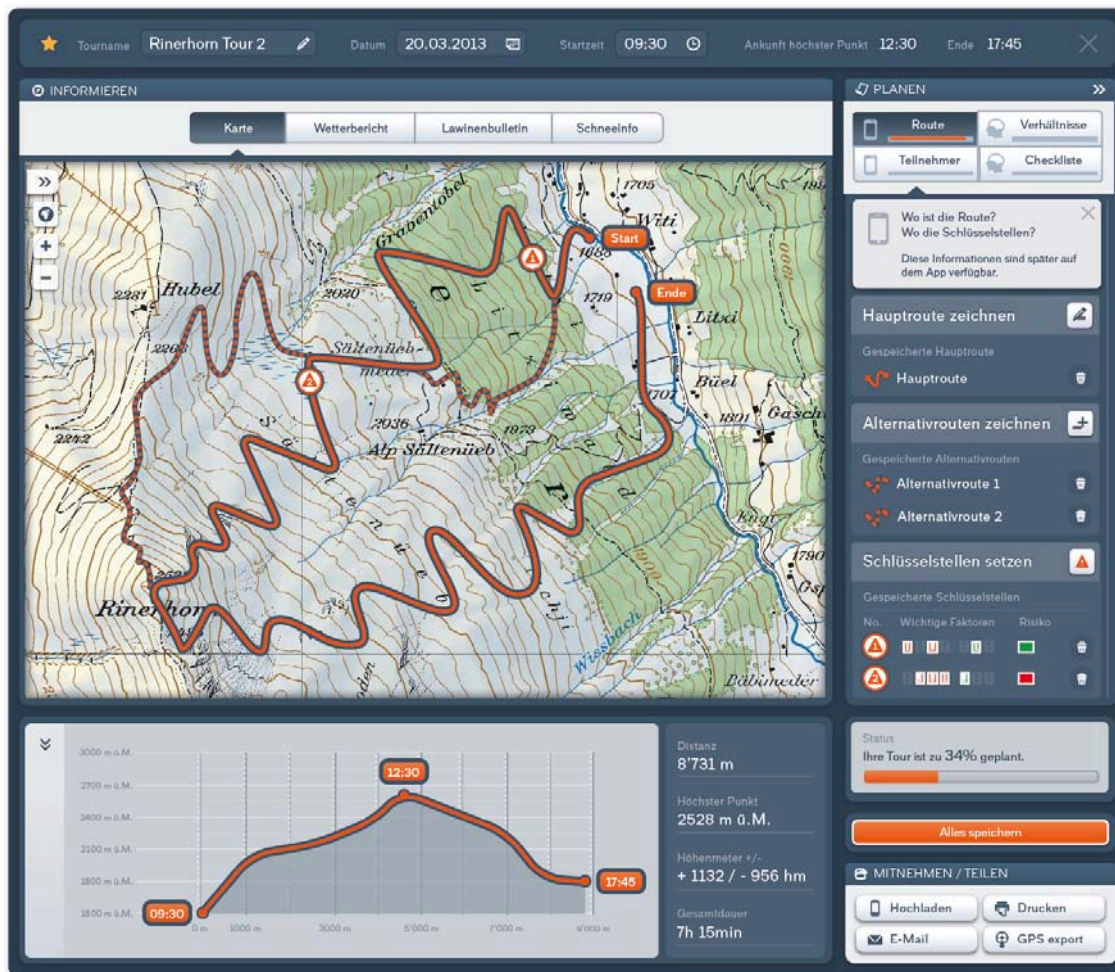


Fig. 2: Interface of the White Risk trip planning tool.

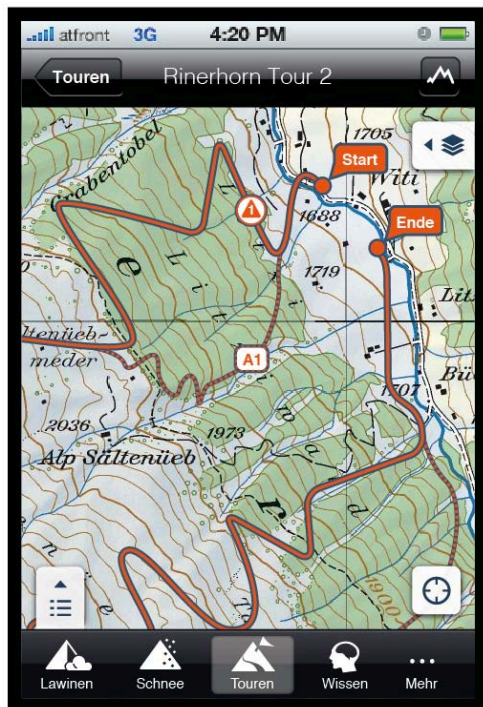


Fig. 3: Transferred planned route from the web trip planning tool to the smartphone App 'White Risk'.

3.3 Presenter tool

White Risk 2.0 contains many pictures, movies, illustrative graphics and interactive elements. The presenter tool allows instructors of avalanche classes to create their own presentation with White Risk content. Running presentations does not require any internet connection as well as editing an existing presentation with own images. The presenter tool is minimised to basic features and is easy to use. All it requires is a PC or a MAC with a web browser and a flash player.

4 CONCLUSIONS AND OUTLOOK

Due to the new web-based platform, White Risk can easily be updated and upgraded whenever new content becomes available. Therefore White Risk 2.0 provides users with current and up-to-date avalanche knowledge. Each year, we also plan to include some new accident case studies.

Starting in the winter 2013-2014, White Risk 2.0 will be available in German, French, Italian

and English. Translations into other languages will be easier with the new on-line version.

Starting in the winter 2014-2015, we plan to include e-learning courses on this platform. Thus, users will be guided more strictly through relevant content on a specific topic.

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