INTERNET AND SOCIAL NETWORKING : A CHANCE FOR AVALANCHE EDUCATION ?

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ABSTRACT : Community websites about backcountry skiing are the places where avalanches are discussed. Beginners can learn, experienced people and professionals can improve, and trainers can see people's issues. And last but not least, young people are present on social networks, so we can communicate with them.

Discussions are fine. But we also need facts and measures. Accuracy and scientific rigor. And these data must be public and available to illustrate the words of specialists. Not only available on web sites, but also "open", usable to build smart applications. Since we have everything we need to achieve them :
- data : avalanches, snow and weather measurements, maps, routes, etc. but also stories of accidents, told by those who were caught up in them
- technologies at low cost : cloud computing, multimedia terminals (with gps, camera, etc.)
- methods : agile methods allow us to develop simple and focused applications
- legal framework with Creative Commons licenses, for example
- and... people : a large community, with an incredible variety of skills. As in the mountains, the most important in software development is the human factor.

So, let's collaborate! For the benefits of everyone.

An example - just a draft of the future : www.aleaski.info. This application is focused on "Where will I go skiing tomorrow?". It uses a lot of data, to show a unique and simple map : backcountry outings and avalanches over the last few days, avalanche danger forecast, real-time observations of experts and hut staff, weather forecasts, webcams, meteorological stations.
Thanks to camptocamp.org, skitour.fr, data-avalanche.org, etc. who share their data.

All we need is imagination...

1. INTRODUCTION

Community websites about backcountry skiing are the places where avalanches are discussed. Beginners can learn, experienced people and professionals can improve, and trainers can see people's issues. And last but not least, young people are present on social networks, so we can communicate with them.

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Ok, that's fine, we need to use these media. But maybe we could do a little bit more.

We can build smart and useful applications, we have all the necessary elements for this. These applications can help to improve, learn, share, spread the word about avalanches and safety.

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avalanche.org, etc. who share their data.

All we need is imagination, and I hope this presentation will give you some ideas!

First, let's present the ingredients : the raw material, the technology, the method and the people. Next, a concret example : www.aleaski.info And – in conclusion – some words about the future.

2.THE RAW MATERIAL

Data are the raw material for building interesting applications. They can come from many sources and be very different.

A small list, not exhaustive :

- Estimations of avalanche danger
- Weather measurements : wind, precipitations, temperature, etc. Archives and real time data.
- Specific snow measurements : depth, snowdrift, etc.
- Weather forecasts
- Avalanches occured
- Dangerous places
- last days outings
- Comments and pictures from other skiers
- Observations from hut staff, mountain leaders, experts, etc.
- Accidents
- Webcams
- Maps

They can come from devices, from professionnal observers or from anybody (crowdsourcing).

Some data are very accurate and checked. Other are less reliable. But all are interesting.

All these data can be combined to produce new data. We can use them for post-analysis, for training, for making decisions, etc.

The most important is that this data must be available. In databases, in text or Excel file or in RSS feed, in real time or one month later, it doesn't matter.

We have a chance : the open data movement. From Wikipedia : « Open data is the idea that certain data should be freely available to everyone to use and republish as they wish, without restrictions from copyright, patents or other mechanisms of control. ».

The US government was the first, in 2009, to give access to some data, at www.data.gov, and many other countries have now their own sites : UK, Canada, Australia, Russia, Norway, France (last year), etc.

'Creative Commons' offers a legal framework to publish, share and reuse data. It is an example of open licence, but there are others.
For example, data of the european community site camptocamp.org are available under Creative Commons licenses.

3.TECHNOLOGY

Powerful, reliable and scalable infrastructures are available. From now on there are not only reserved to NASA or other big organizations. Everybody can use them, thanks to Google, Amazon and the others. With spending some dollars or euros per year, your application can be available to the world.

New devices, like smartphones and tablets have very impressive features : camera, microphone, GPS, etc. They can be use to publish data - like real time observations - or to use applications from anywhere.

4.THE METHOD

The challenge : build smart software. Simple, suitable and powerful. We got used to useless and expensive monsters from the software industry.

But since 2001, agile methods offer an alternative.

They promote collaboration and simplicity and are a great opportunity to reconciling users and software.
Be focused on a main goal, deliver working software frequently, take into account user feedback, build projects around motivated individuals, user-centered design : these are just some of the principles of agile methods.

And you know what ? They came from mountains.

In February 2001 seventeen software developers met at a ski resort in Snowbird, Utah to do some skiing while spending time reflecting on what defined the core principles of agile software development methods.
The ‘agile manifesto’ was born.
So, agile back to the mountains ? I hope.

5.THE MOST IMPORTANT : PEOPLE

A lot of people work, travel, study or just live in the mountains. Associations, companies, travellers, moutain leaders, skiers, scientists, ski resort or hut staff, etc.

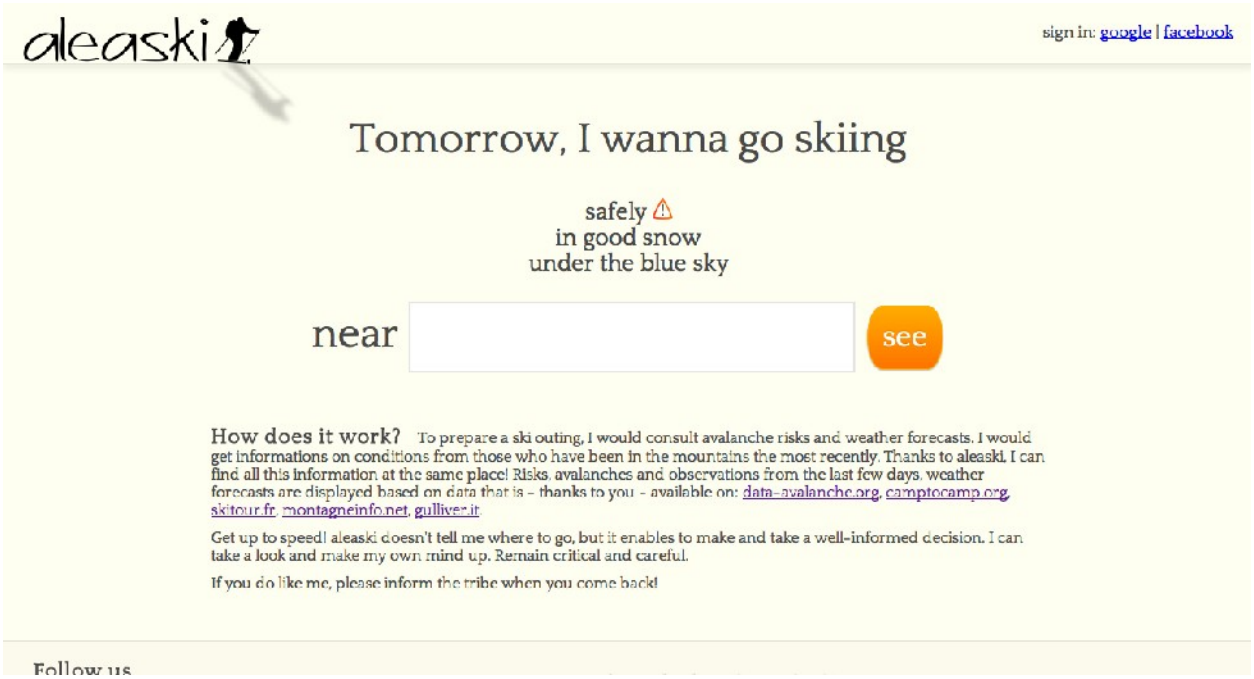
This list is infinite. But too often, everyone stays in his own domain. We need to open our minds and to listen to the others. We already know that human factors are very important in the mechanism that lead to an accident.
Physicals phenomena are interesting, but not sufficient to understand and prevent them.

As Alain Duclos says : “The new challenge is no more to improve prediction, but to better manage the unexpected”.

Collaboration and communication is an important key for this difficult goal : ‘manage the unexpected’.

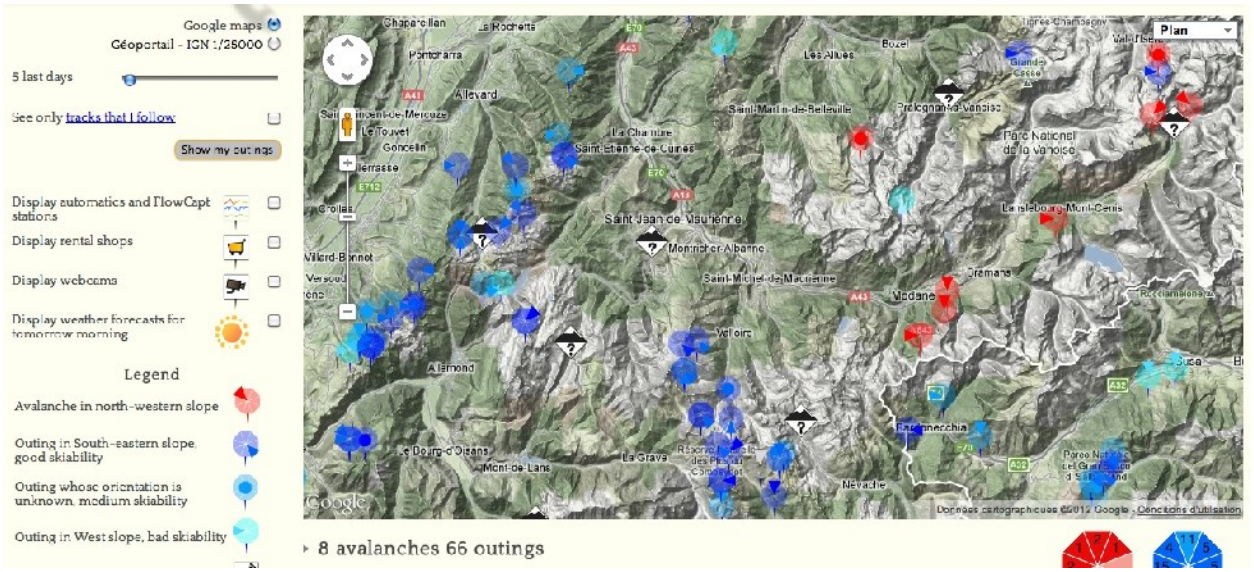
6.ALEASKI

What is aleaski ? Let's look at the homepage :

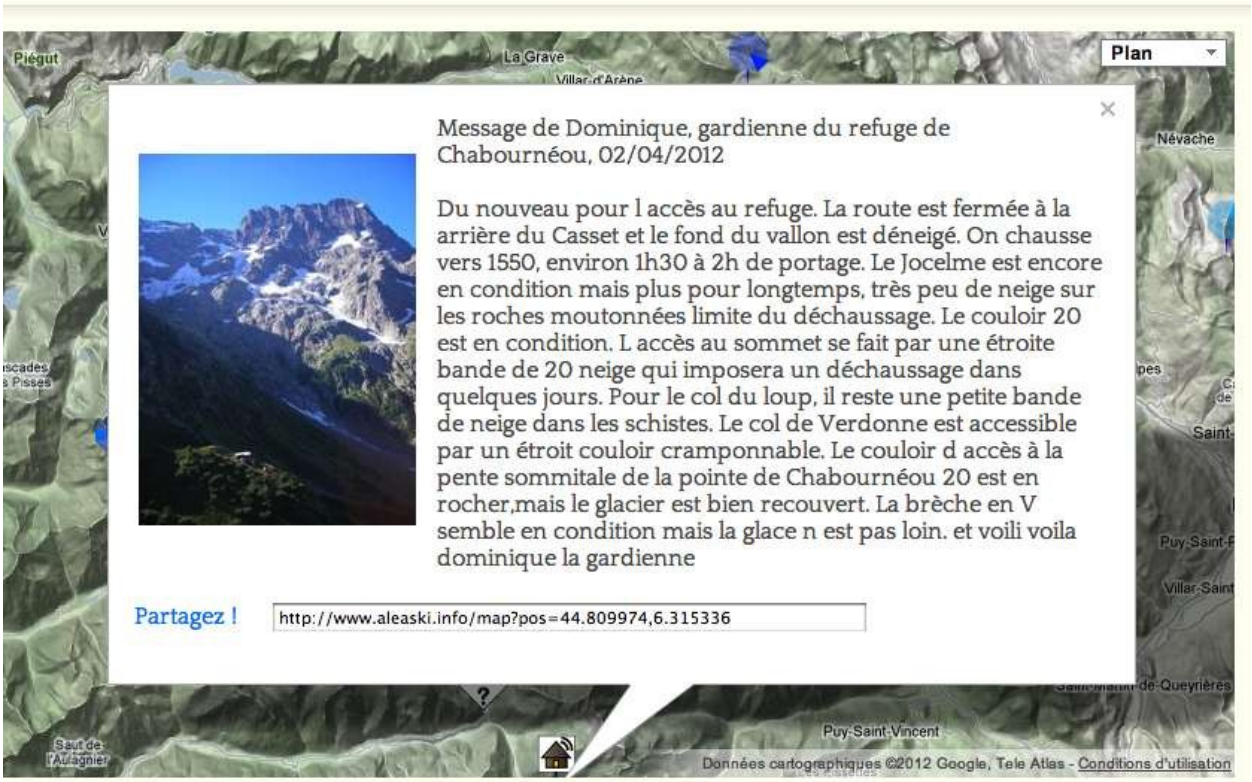


This application is focused on: “Where will I go skiing tomorrow?”. It does not pretend to tell you where to go, but just to give you information to make your decision.

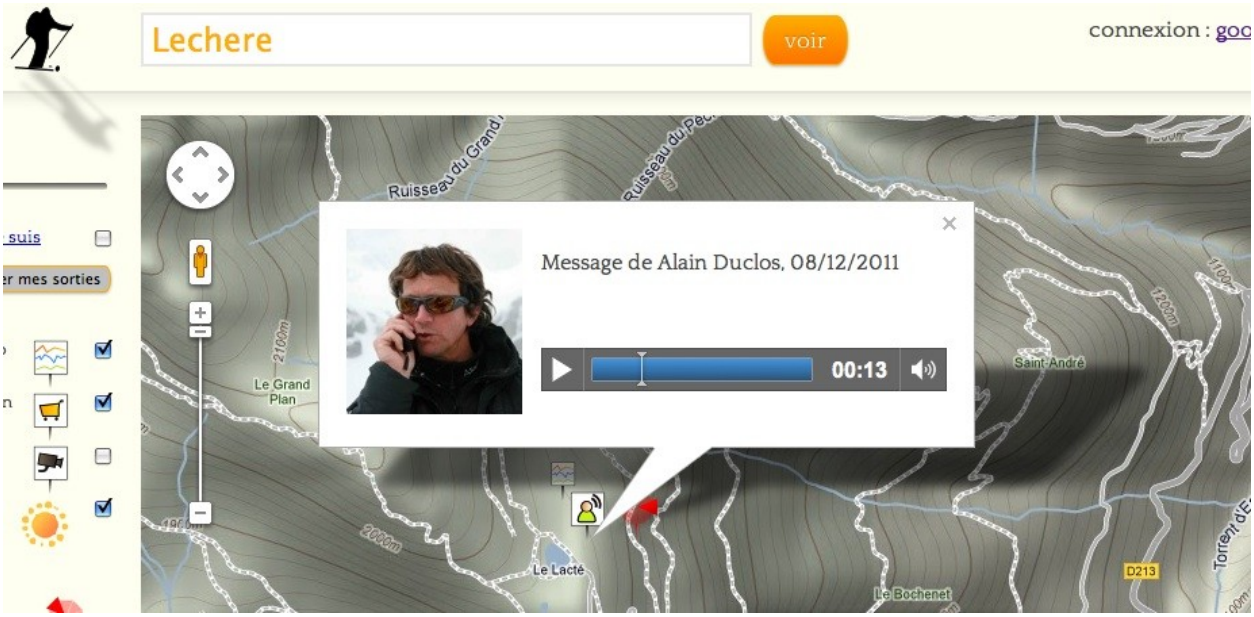
You can see where the others went during the last five days - and read their comments - where avalanches occured, when the snow fell and the wind blew :



But you also can read observations from hut staff
(sent by email and automatically displayed) :



And, last but not least, you can enjoy the comments of experts in real time. They record them with their smartphone, they are automatically geolocated and send to aleaski.
A couple of minutes after, you can listen to them :



7.TO BE CONTINUED...

Next ? May be real time interactions. We have a project, with the ENSA (French National School of Ski and Alpinism) : Every year, for one month, 50 trainees, in small groups, roam in the mountains around Chamonix.

Imagine that these groups publish - in real time - observations about the conditions (snow, danger, etc.), with a very simple iphone or android application
.
Imagine that these observations are automatically sent to other trainees. Isn't it good for safety ? And for education ?

And imagine that these observations are avalaible on the internet, located with accuracy on a map, and that you can listen to them. Yes, listen.

Another example : augmented reality.
We can have information about dangers, on our smartphones, displayed 'on top' of the reality.

And maybe, in a close future, you'll just have to look at a mountain, with your smartphone or anything else (some glasses, maybe ?) in front of you, to see where are the slopes more than 30° and where some avalanches occured.

And don't forget games! It's probably the best way to attract young people and to educate them.

It's up to you...

8.REFERENCES

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The agile manifesto : http://agilemanifesto.org/
Camptocamp : http://www.camptocamp.org/
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