Iceland glacier crevasse mapping project

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• Iceland is covered by roughly 11,000 km² of glaciers (meaning that roughly 11% of the country is covered by glaciers)
• No limitations are on who travel on glaciers
• Majority of the glacier terrain in Iceland is flat
• Tourism has bee on the rise in the last 10 years
• Occasional volcanic eruption change glacier surfaces.
Glaciers in changing climate

• With warming climate, crevasse areas are more likely to be open and exposed over the year.

Photo: Snævarr Guðmundsson
Accidents on Icelandic glaciers

- Through the years, accidents on Icelandic glaciers have been common.
- But given the number of people who travel on them all year round, serious or fatal accidents have been seldom.
A tragic accident in 2010 caused the initiation of the crevasse mapping project.
Data gathering and mapping of hazard areas

- Aerial and satellite images.
- Fly over glacier and photos taken
- Known safe driving and hiking routes on the glaciers.
- Lidar digital elevation models.
- Mapping in a Geographical information system.
- 97% of glaciated surface mapped.
GIS
Mapping the glacier surface
Maps for everyone

• Free of charge
• Crevasse maps are not an authority
• They do not ban travel on dangerous areas
• They are meant for reference
• Common sense is still needed!
Crevasse classification

- Green
- Yellow
- Red
Green

- Relatively flat and safe glacier surface.
- Safe to travel on regardless of travelling method.
- Only small crevasses in late summer or autumn.
Yellow

- Safe to travel during winter, more hazardous during summer time.
- Big crevasses under winter snow.
Yellow

Photo: Snævarr Guðmundsson
Yellow

Photo: Snævarr Guðmundsson
Red

- Big crevasses and dangerous for travel all year.
- Steep icefalls or around subglacial geothermal areas.
Red

Photo: Snævarr Guðmundsson
Red

Photo: Snævarr Guðmundsson
Application

- PDF files in computers or on paper
- GPS
- Web based
PDF maps

- PDF map can be viewed on a phone, tablet or in a computer.
- Map scan can be printed out and brought in the field.
Maps can be used as a layer in handheld GPS devices and smart phones
Web based
www.vefsja.iskort.is
Travellers not using the crevasse maps
Conclusion

• The maps have been proven very useful for glacier travel in Iceland.
• The multiple platforms is a key for the distribution of the maps to as many users as possible.

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