Raising Awareness about Avalanche Casualties

swiss-avalanches.github.io

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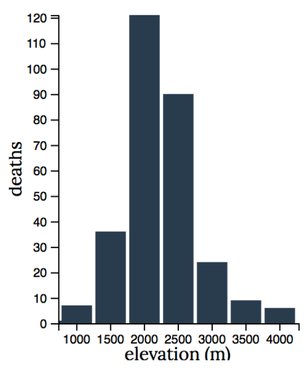
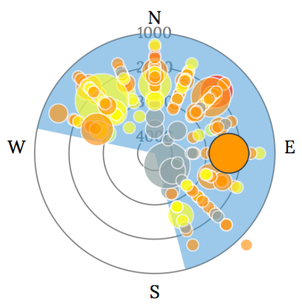
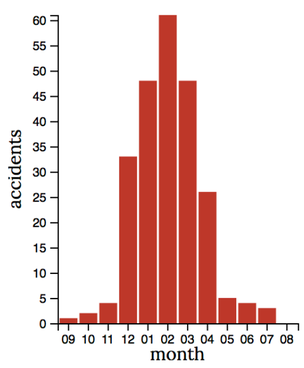
Risk zero does not exist in Alpinism. Given that most of the accidents are due to bad people decisions, we are convinced that raising concern about the past mountaineering accidents can strongly improve Alpinists' judgement. By leveraging means of interactive visualisation, we provide the skiers ways to understand the conditions of previous cases and maybe hints that could have changed the outcome.

AVALANCHE ACCIDENTS INTERACTIVE VISUALISATION

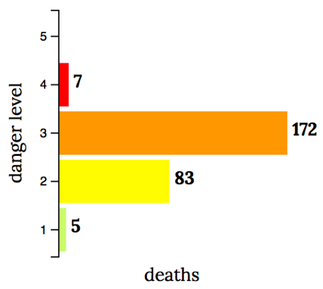
Each point represents an accident where the radius is proportional to mortality. The components below display avalanche case features and let the user apply filters for it. Changes are shared between components and data is updated on the maps.

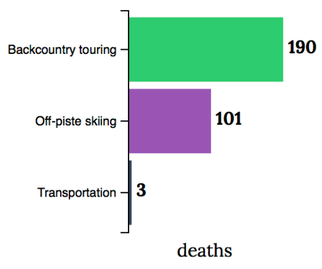


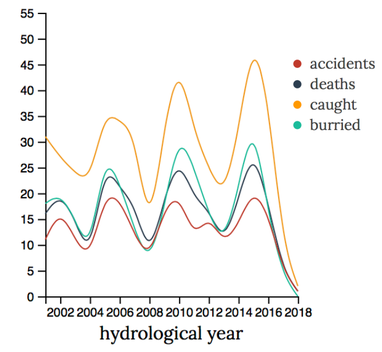




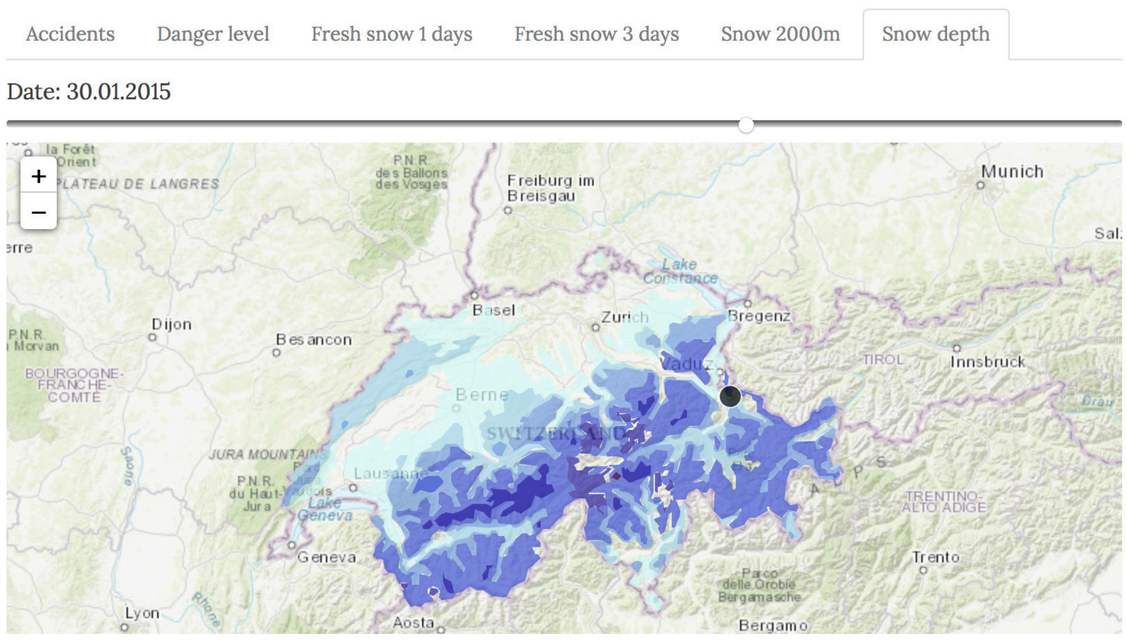
Number of accidents: 235 **Number of deaths: 294** **Survival rate: 58.2%**

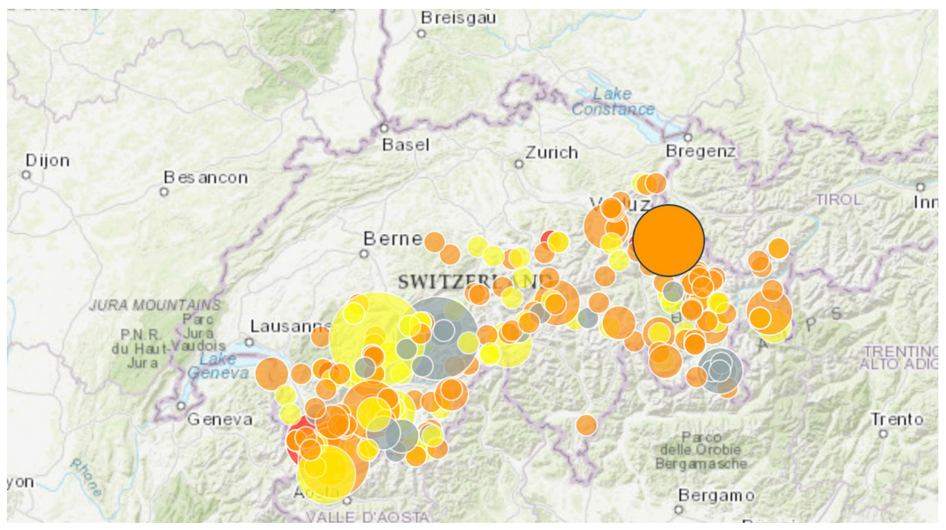






For any accident, we can further investigate the snow and danger conditions of the surrounding days. It can be used to track the evolution and find patterns or similarities between events.





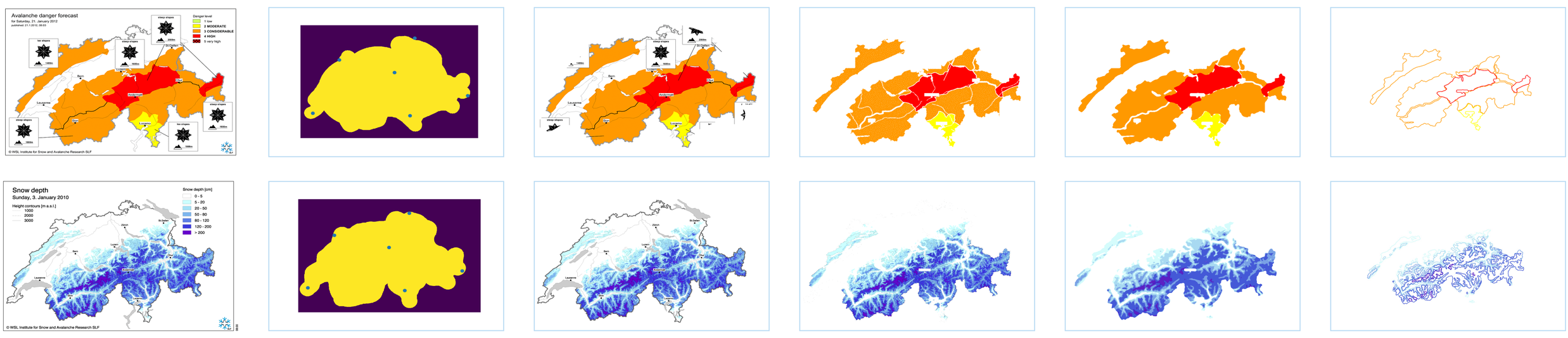
ACCIDENTS DATASET

The dataset contains 350 accidents that happened over the last 20 years in Switzerland. It has been retrieved from the Swiss Institute for Snow and Avalanches Research [1]. Features of this dataset are selectable on the visualisation components.

Date	Canton	Starting zone	Elevation	Aspect	Activity	Danger level	caught	buried	killed
2017-09-21	BE	Grindelwald	3390	E	1	-	2		1
2017-03-02	GR	Obersaxen Mundaun	2273	N	2	3	2	1	1
2017-02-22	VS	Leukerbad	3590	S	1	(2)	1	1	1
2017-02-05	VS	Ried-Brig	2205	NNE	1	3	1		1
2017-02-04	VS	Binn	2300	S	1	(3)	3	1	1
2017-01-21	SZ	Oberiberg	2130	N	1	2	1	1	1
2017-01-07	UR	Andermatt	2460	NW	2	3	5	1	1

MAP EXTRACTION

More than 10'000 danger maps and snow level maps were scraped from the SLF archives. From irregular images, the regions' contours were extracted by applying several image processing techniques. Smoothed polygons can now be displayed as interactive map overlays.



[1] https://www.slf.ch/en/avalanches/destructive-avalanches-and-avalanche-accidents/avalanche-accidents-of-the-past-20-years.html