



PROSNOW FACTS

Snow management in ski areas: costs - practices - tools - needs

Background information

The PROSNOW project aims at building a meteorological and climate prediction system supporting the management and optimization of snow in Alpine ski resorts. Maximizing the chances for actual up-take and use of this climate service requires its best possible tailoring to the users' needs and a clear demonstration of its added value. Therefore, the needs of ski areas with respect to snow management are collected, the costs associated to snow management and potential cost reduction levers investigated, the expected benefits of using the PROSNOW service studied and the ability and willingness of potential users to pay for such a service analysed. Different means and methods are deployed for this purpose, including an online-survey that addresses representatives of Alpine ski areas.

The online-survey was carried out from end of March to mid of May 2019. Its main goal was to test, whether the insights gained in the nine pilot ski resorts also held for a broader group of Alpine ski areas. The topics addressed by the survey included ski areas' snow management practices and costs, their need for, interest in, and assessment of a forecasting service like PROSNOW, and - to a smaller extent - their ability and willingness to pay for such a service.

Online survey among 44 ski areas

Broad range of Alpine ski areas covered

The PROSNOW online survey covers 44 ski areas located in France, Austria, Switzerland and Italy. The size of the responding ski areas ranges from 1 to 306 kilometres of slopes.

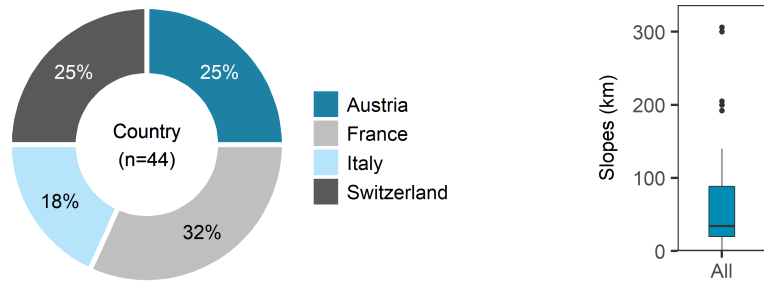


Fig.: Overview on the characteristics of the 44 ski areas covered by the online survey.

Snow management as considerable cost element

Snow management can account for a considerable fraction of a ski area's total operating costs. In the responding ski areas, this fraction ranges from 5 % to 40 % - with a mean of 21 % - and is mainly made up of grooming and snowmaking costs.

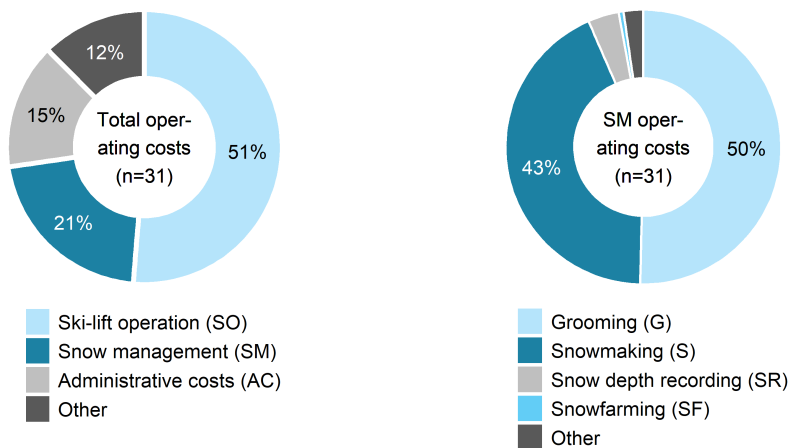


Fig.: Average distribution of total operating costs and snow management costs of the 33 responding ski areas.

Conclusions

- The market for weather forecasting products is characterized by a huge amount of freely available information, which is likely to level down the willingness to pay. This underlines the importance of **clearly demonstrating the difference and added value of PROSNOW** over currently used and most often freely available weather forecasting products.
- One of the intended strategies to bring PROSNOW forecasts to the market is their integration into already established and used snow management tools and services. Such tools and services tendentially show a higher spread among **large-sized ski areas, which thus form one of the target groups**.
- Many ski areas decide for a no-risk or low-risk strategy when it comes to building a basic snow cover in the pre-seasonal period. Nevertheless, some fraction also seems willing to consider somewhat **uncertain information on subsequent conditions** when deciding about the exploitation of potential snowmaking hours. One reason could be limited water resources and the corresponding necessity to avoid the risk of waste.
- The majority of survey participants shows some interest in a forecasting service like PROSNOW and regards it important and useful for snow management, **particularly for optimizing water use**.

Full report: Köberl, J., Cognard, J., Francois, H. (2019). PROSNOW Report on Interviews and Surveys with European Alps Stakeholders, PROSNOW deliverable D2.4

Widespread use of weather forecasts

With 91 %, the great majority of responding ski areas is making use of weather forecasts for planning snow production. Wind speed and wet bulb temperature are the parameters of highest interest. Most ski areas draw on freely available products. The spread of charged products is linked to the country of location. Annual costs of charged products range from € 400 to € 1,500.

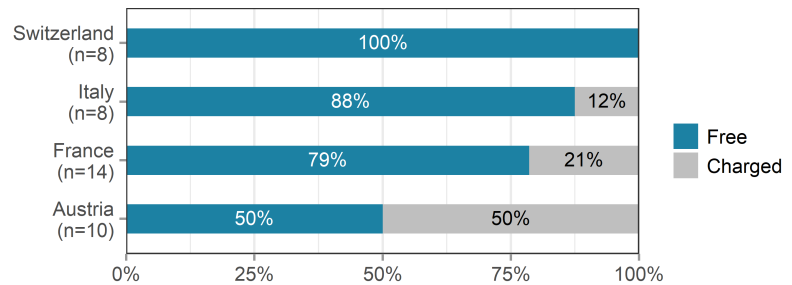


Fig.: Use of free vs. charged weather forecasting products.

Besides weather forecasts, the majority of respondents is also making use of tools and services for snow depth recording, grooming management and/or snowmaking. Overall, ski areas in the uppermost size-class (i.e. 150 to 306 slope-km) show the highest usage rates of tools and services for snow management.

Different handling of forecast uncertainties

In the case of a forecasted subsequent snowmelt-event, almost 40 % of the asked ski areas either require high certainties of event occurrence (80 % and more) or are unwilling at all to leave potential snowmaking time unexploited in the pre-season period of basic snow cover production. On the other hand, about 30 % indicated to decide against snowmaking in case of a subsequent melting risk of below 50 %.

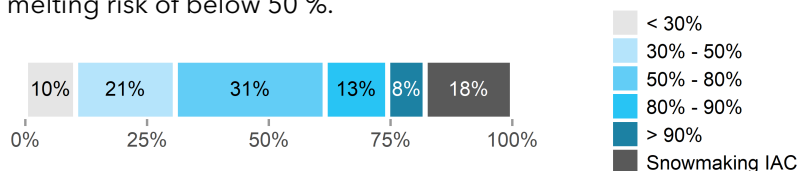


Fig.: Required certainty of a forecasted subsequent snowmelt-event to leave a 24-hour period of perfect snowmaking conditions unexploited in the period of basic snow cover production (IAC = in any case).

PROSNOW rated useful for resource optimisation

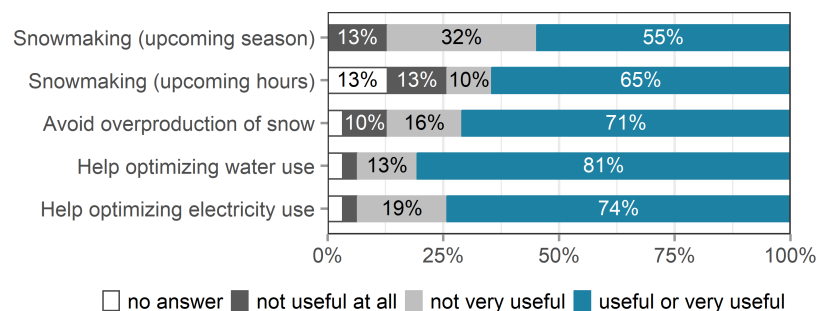


Fig.: Respondents' assessment of PROSNOW's expected usefulness for different areas of application (not adjusted for rounding differences).