



Limits of Snowmaking in a changing Climate

R. Steiger

Institute of Geography, University of Innsbruck, Austria (robert.steiger@uibk.ac.at)

Despite the fact that snowmaking is limited by climatic factors, ski lift operators trust in technical improvements and believe that the future will not be as menacing as assumed by recent climate change impact studies. Snowmaking is the most common used strategy to reduce the effects of poor winter seasons and to open the resort as scheduled.

This study's aim is to assess, if and where snowmaking can be a viable adaptation strategy in Tyrol, concerning climatic and economical limitations. A snow-model with an integrated snowmaking module will be calibrated in the Kitzbuehel region using climate data in high temporal resolution (up to 15 minutes intervals). In order to account for the complexity of mountainous regions, aspect and shading will be included in the model. The aim is to be able to simulate the snow depth of every grid cell of the ski slopes in the research area. Using output data from a regional climate scenario, it is possible to estimate the rising costs of snowmaking, due to higher snowmelt rates, less days suitable for snowmaking and due to the fact that snowmaking is less efficient and therefore more expensive running at higher temperatures.

Being in the first year of the 3-year project, the methodology of the snow model shall be presented to a critical audience at the EGU.