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Monitoring of performance of greening techniques on skiing runs at the skiing region of Montafon/Vorarlberg

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At the alpine areas the construction of ski runs frequently leads to spacious terrain corrections, which can trigger soil erosion processes and affect the morphology and overall appearance of the landscape. Beside the gentle treatment of natural ground it is important to install a vegetation layer in accordance with the location immediately after the constructing of a ski slope to prevent erosive slope processes. This ground vegetation layer is most important and essential for sustainable use of these sensitive areas, in general plants grow very slowly at morphological changed alpine areas due to short period of potential plant growth and the local climate conditions at this level of altitude. The whole vegetative ecotypes are sensitive and natural balanced.

At the study site in the skiing are of Montafon / Vorarlberg (Austria) greening techniques have been applied for more than two decades. Within the scope of a research work the performance of different greening areas has been investigated. The areas differ in the year of greening implementation, altitude, fertilization, exposition, slope and type of soil and distributed over the whole ski region. In a first step different parameters of all 208 sections of the ski runs have been used to setup a GIS system. This first step results in an identification of characteristic test sites for more detailed analysis. Finally 17 areas have been filtered out to investigate the most important parameters such as plant dominance, moss level, fertilization, soil analyses, altitude of the area and the year of the implemented vegetation measures.

The paper shows on one hand the monitoring approach and on the other hand results about the current situation of the vegetation layer of ski slopes. The results are applicable for the organization and management of maintenance work of the most degraded stated ski slopes from a vegetative type and soil conservation point of view.