Geophysical Research Abstracts
Vol. 13, EGU2011-10182, 2011
EGU General Assembly 2011

Testing of different soil combinations as substrates in golf courses in the cold climate environment: new results

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The Geological Survey of Finland (GTK) was, with some partners, carrying out a cooperative project, POMARA, in the Levi tourist center in northern Finland during 2008-2010. The purpose of this applied geology project was to determine which soil combinations work best over the long term as substrates on slalom slopes and golf course areas in a cold climate environment. The monitoring studies of the test areas on the slalom slopes and golf courses included the measuring of water content and temperature and also some measurements of deflection.

In the slalom slopes the most important task was to compare test areas covered by:
1. Carex peat
2. Combination of sandy till (50 %) and Carex peat (50 %).
Results are telling that during summer time water content of Carex peat is remarkably higher than in the combination of Carex peat and sandy till. On the other hand, during spring time the combination of Carex peat and sandy till is thawing earlier than Carex peat. But when looking the growth of vegetation, the Carex peat area is growing better than the combination of Carex peat and sandy till. In that way Carex peat seems to be better, but in the long run it will be interesting to follow if the combination of Carex peat and sandy till will stand up better against frost weathering than peat itself.

In the golf course areas the main task was to compare test areas consisting of:
1. Fine sand (80 %) and Sphagnum peat (20 %)
2. Fine sand (80 %) and Carex peat (20 %)
During the growing season (summer) the water content in test areas consisting of fine sand and Carex peat was a little bit higher than in fine sand and Sphagnum peat. In temperatures no clear differences between the test areas were detected. Growing of the green was good in both combinations. In the combination of fine sand and Carex peat the flexibility of green was higher.

GTK's partners in the project were Oy Levi Ski Resort, Levi Golf & Country Club Oy, the local water supply and sewerage company, the Municipality of Kittila and Tampere University of Technology. The project was partly funded by the European Regional Development Fund program. Follow-up research will continue afterwards. It is assumed that the project results can be used in other same kind of landscaping processes in northern areas.