



Analysis of Snow Cover Reliability for Alpine Skiing in Germany

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In a changing climate, changes in snow cover extent and duration can be expected, with resultant implications for winter tourism. Ski resorts in the German low mountain ranges as well as in the Alps are particularly attractive because of the rather short distances to urban centres. Snow reliability and slope quality in these areas are of crucial importance to their economic viability. The minimum snow depth required for ski operations depends on the specific slope characteristics. In general, the Organisation for Economic Co-operation and Development (OECD) considers a snow depth of 30 cm for a minimum of 100 days at the mean altitude of a snow resort as being adequate for alpine skiing. In our investigations, we analysed the number of days with at least 30 cm snow depth from December to April during the period 1971-2010 in the German alpine ski regions. A detailed description of the methodology applied is given in our contribution. We analysed the resulting time series for linear trends during this time span. Due to the high variability in snow cover, we assessed the significance of changes. In 3 of the 16 investigated ski resorts, we found significant reductions in the used indicator for snow reliability. The strongest decline was observed for the Berchtesgadener Land region, where the number of days with at least 30 cm snow depth came down from 110 to 77, i.e. about a third. The Ore Mountains and the Tegernsee-Schliersee ski resort are also affected by a significant decline of this indicator. There are indications that other regions could follow soon. Our analysis contributes to the indicator report for the German Strategy for Adaptation to Climate Change (DAS). It is intended to help the tourism industry to early adapt to climate change and to ensure sustainable attractiveness.