Pan-European Mountain Tourism Meteorological and Snow Indicators

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Ski tourism plays a major role in European mountain areas such as the Alps, Pyrenees, Scandinavia, Turkey, Eastern European Mountains etc. Meteorological conditions govern the operating conditions of ski resorts, due to their reliance on natural snow fall and favorable conditions for snowmaking. However, there is currently a major lack of assessment of past and future operating conditions of ski resorts at the pan-European scale in the context of climate change. The presented work aims at filling this gap, as part of the ongoing development of "European Tourism" Sectoral Information System (SIS) of the Copernicus Climate Change Services (C3S). C3S is run by the European Center for Medium-range Weather Forecast (ECMWF) on behalf of the European Commission. The Mountain Tourism Meteorological and Snow Indi-cators (MTMSI) are derived using statistical adjustment of EURO-CORDEX climate projections (multiple GCM/RCM pairs for several RCP) using the UERRA 5.5 km resolution surface reanalysis as a reference, followed by snowpack models runs using the Crocus multi-layer model, with and without snow manage-ment options (grooming, snowmaking). Results are generated by 100 m elevation bands for NUTS-3 geographical areas spanning all mountainous areas in Europe. The resulting data can be aggregated in time and space in various ways, depending on the use case. The presentation quickly introduces the un-derpinning elements for the generation of this product, and illustrates results at the pan-European scale as well as for smaller scale case studies, for past and future climate conditions. The data will be made available freely through the Copernicus Data Store starting in 2019. It is expected that the data and the tools developed within this project will not only make it possible to analyze the climate sensitivity of ski tourism in Europe as a topical yet academic research question, but would also help third-parties in devel-oping climate services specifically targeting the ski tourism industry in Europe.