Geophysical Research Abstracts, Vol. 7, 04885, 2005 SRef-ID: 1607-7962/gra/EGU05-A-04885 © European Geosciences Union 2005



Summer droughts in the Alpine region: occurrence and characteristics in the historical time and the second half of the 21st century

P. Calanca (1)

(1) Agroscope FAL Reckenholz, Air Pollution/Climate Group, Zürich, Switzerland (pierluigi.calanca@fal.admin.ch)

Summer droughts are recurrent features of the European and Alpine climate, causing significant losses of agricultural production. Drought characteristics are conveniently quantified in terms of the statistical properties of the soil moisture distribution, which are readily inferred from climatic data with the help of stochastic soil moisture models. Investigations conducted for representative locations in Switzerland over the historical time (1901 to present) show an average occurrence of summer droughts in one out of ten years, with losses of agricultural production of up to 50%. The model results confirm the fact that the interannual variability in the rate of storm arrivals is the major driver of the variability in summer mean soil moisture conditions, and thus of droughts occurrence in the Alpine region, but also stress the importance of radiation conditions in determining length and intensity of droughts. Use of stochastic soil moisture models in conjunction with state-of-the-art regional climate scenarios further indicate a significant increase in the frequency, length and intensity of droughts episodes during the second half of the 21st century.