



Frequencies of heat waves and dry spells in Austria and their variability over the past 50 years

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Based on a high quality and carefully homogeneity tested daily data set heat waves (according to a criterion applied by Kyselý et al. (2000) to Southern Moravian data) and dry spells have been studied over the last fifty years over the territory of Austria -heat waves at 12 locations up to an altitude of 800 m, dry spells at 30 stations up to 3000 m asl.

The frequency of heat waves is highly related to (and also limited by) the altitude above sea level, however highly influenced by local effects. During the last 50 years there has been an increase of heat waves, the corresponding number of days has increased by 25 in 200 m and by 6 in 500 m.

For the analysis of dry spells a threshold of 1 mm was chosen to analyse a sample of 30 stations. Their variability depend on the location, on the season, as well as on the lengths of the dry spells. For shorter periods, e.g. dry spells of 10 to 14 days, an increase in the flat eastern and northeastern regions is accompanied by a decrease in the mountainous parts in the western regions. Going into seasonal details, a country wide uniform picture was only found in autumn with a marked decrease of periods of at least 10, 20 or 30 days -the typical "Altweibersommer" singularities have become scarcer. For summer an increase in the frequencies of dry spells of at least 20 days could be identified in the eastern half of Austria between Lienz (in the Southwest) and Hohenau (in the Northeast). Around the 1990ies an accumulation of dry winters occurred with rainless periods of 20 days or even longer (a maximum of 83 days without precipitation was registered in the inner-alpine southern parts of Austria in 1992), and a slight positive trend has become evident since the 1950ies.