

Climatic oscillations in the period 1910-2004. The impact of a global climate change in local climate, on the beginning of growing season and the first flower in Gravenstein apples.

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It will be examined whether changes in global climate can be shown in local climate, by looking at data from the Norwegian meteorological stations in Bergen, Leikanger and Ås. The global mean temperature has increased since 1861, and largest increase in temperature has been in the periods 1910-1945 and 1946-2000 (Watson et al., 2001). Because of this three main periods will be examined, 1910-1945, 1946-1975 and 1976-2004. The correlation between monthly means of NAO-index and temperature from the chosen stations is examined, and this correlation indicates climatic oscillations in the three main periods. After this, air pressure and radiation data was included in the examination, and monthly means were replaced by ten-day means to achieve a more precise time for when the climatic changes happen. Earlier examinations have shown a leap in air pressure that indicates a transition from a winter circulation to a spring circulation (Strand and Grønås, 2001). It will be examined whether this leap changes in time or not. Statistical methods will be used to find correlations between NAO-index and temperature, to examine trends in different parameters and to test for significance. A model based on temperature is used to find the beginning of growing season each year and changes in this starting time is also examined. In the end the meteorological parameters will be compared with changes in growing season and flowering in Gravenstein apples. The results show relatively large changes in the different parameters in the examined periods, and changes in global climate are shown in local climate measurements. The largest temperature increase was found in the periods 1910-1945 and 1976-2004, and especially in the last period the growing season and flowering in Gravenstein was earlier as well.