



## **The beginning of the grain harvest in Norfolk as a proxy for mean April-July temperatures, c. 1270 AD - 1430 AD**

K. Pribyl and C. Pfister

Section of Economic, Social and Environmental History, Institute of History, University of Bern, Bern, Switzerland  
(kathleen.pribyl@hist.unibe.ch)

The date of the grain harvest in pre-industrial times was largely dependent upon mean spring and early summer temperatures. It thus constitutes a valuable source of information that helps to reconstruct these temperatures. The later the harvest began, the cooler the spring and early summer must have been. The work presented here uses a new data series of medieval grain harvests from the East Anglian region of Britain, which may be used as a temperature proxy.

The dates of the grain harvest have been extracted from the manorial accounts of Norwich Cathedral Priory. The manors of this Benedictine house are mainly situated in Norfolk, a region that is poor in medieval tree ring data. Approximately 700 account rolls survive for the period from c. 1270 AD to about 1430 AD, additional smaller series of manorial accounts from other Norfolk landowners have been included in the analysis. However, there remain gap years for which no information could be gained. Among the manors of Norwich Cathedral Priory, five main geographical groups can be distinguished, which also differ in microclimate and soil conditions .

The medieval harvest dates have been calibrated with the help of a comparison series of grain harvest dates over the period 1768 to 1861 from Norfolk. In this region these data correlate best with the mean April-July temperatures. Since the method of harvesting remained constant the harvest dates of this modern series can be used for calibrating the medieval dates.

The medieval data show a pronounced short term variability as would be expected. On the long term basis, preliminary results suggest that there is a cooling trend in mean April-July temperatures over the period 1270 to 1430 possibly indicating the onset of the Little Ice Age. This cooling trend is visible in all five groups of the Norwich Cathedral Priory manors, although some of the groups display a considerably steeper trend than the others due to microclimatic and soil conditions.