

HISTORICAL CLIMATOLOGY IN EUROPE – THE STATE OF THE ART

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Abstract. This paper discusses the state of European research in historical climatology. This field of science and an overview of its development are described in detail. Special attention is given to the documentary evidence used for data sources, including its drawbacks and advantages. Further, methods and significant results of historical-climatological research, mainly achieved since 1990, are presented. The main focus concentrates on data, methods, definitions of the “Medieval Warm Period” and the “Little Ice Age”, synoptic interpretation of past climates, climatic anomalies and natural disasters, and the vulnerability of economies and societies to climate as well as images and social representations of past weather and climate. The potential of historical climatology for climate modelling research is discussed briefly. Research perspectives in historical climatology are formulated with reference to data, methods, interdisciplinarity and impacts.

1. Introduction

Recent decades have witnessed a growing interest in past climate variability and climate change. This is related to the study of global warming resulting from the anthropogenic enhancement of the greenhouse effect (Houghton et al., 1996, 2001). Corresponding investigations were based mainly on global temperature series since the 1850s (Jones et al., 1986) or the 1880s (Hansen and Lebedeff, 1987; Vinnikov et al., 1990). These global series were further systematically updated and studied in many papers (e.g., Jones et al., 1999, 2001; Hansen et al., 1999, 2001). Historical climate analyses have improved the estimates of anthropogenic effects on climate by providing a more accurate understanding of the natural background climate variability. On a local or regional scale, many instrumental series from individual stations or regions exist, some of them reaching back as far as the 17th century (such as temperature series of Central England since 1659 – see Manley, 1974, or precipitation series for Kew, England since 1697 – Wales-Smith, 1971; Paris precipitation from the 1680s onwards – see Slonosky, 2002; temperature and pressure series from Paris and London – see Legrand and LeGoff, 1992; Slonosky et al., 2001) or the early 18th