Geophysical Research Abstracts,
Vol. 10, EGU2008-A-02397, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-02397
EGU General Assembly 2008

Diurnal temperature range over Europe between 1950 and 2005

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It has been widely accepted that diurnal temperature range (DTR) decreased on a global scale during the second half of the twentieth century (e.g. Vose et al. 2005). In contrast, we show that the long-term trend has reversed from a decrease to an increase during the 1970s in Western Europe and during the 1980s in Eastern Europe (Figs.2/3). As shown in fig.1 a-c the long-term change in DTR is dependent on both change in outgoing longwave radiation and incoming global radiation. The latter has undergone a significant transition from increase/dimming to decrease/brightening (e.g. Wild et al. 2005). Consequently we expect DTR trends to show a transition from decrease to increase (Makowski, et al. 2007). Our analysis is based on the high-quality dataset of the European Climate Assessment and Dataset Project, from which we selected approximately 200 stations, covering the area from Iceland to Algeria and from Turkey to Russia for 1950 to 2005. We investigated national and regional means as well as the pan-European mean with respect to trends and reversal periods. 17 of the 24 investigated regions including the pan-European mean show a significant increase since 1990 at the latest. Of the remaining 7 regions, 2 show a non-significant increase, 3 a significant decrease and the remaining 2 no significant trend.