

In this thesis a statistical detection of singularities (strong deviations from the smoothed mean annual cycle of a climatic variable) was performed on the basis of mean daily air temperature at the Prague – Klementinum station over the period 1881–2000. A temporal stability of all singularities was investigated, and probabilities of the occurrence of the strongest ones and some of the most often mentioned ones were determined. Long-term changes of occurrence of these singularities and their relationships to atmospheric circulation were analyzed. The results show that the temporal stability (annual recurrence as well as regular occurrence at specific calendar days of a year) cannot be assumed for most singularities. Moreover, some of the singularities found using this procedure can generally be just statistical properties of a chosen sampling without relationships e.g. to circulation conditions. That is why it is not proper to look for singularities tied closely to a specific date and use only one reference period for their detection. Variability of atmospheric circulation is the main source of long-term changes of the occurrence of examined singularities.