

Preface

A crucial factor in the development of climatic conditions is the amount of solar energy supplying the system. In addition, many additional extra-terrestrial elements provide the climate with various permanent, planetary characteristics and various internal climate factors also create spatial differences. As a result of the entire complexity of overlapping relations involved, the climate of the planet is diversified; with overlapping spatial units shaped by individual factors. In a definite place, climate properties are a product of several factors, which makes it possible to distinguish a certain range of regions, from continental to specific microclimate areas. The narrowing of separate climatic spaces from the macro to micro-scale is an effect of the declining impact of climate forming-factors. On the macro scale, the geographical zones (which are clearly different in all the climate elements) cover vast areas which are established mainly on the basis of the solar energy supply and the heat balance conditions. In the micro scale, however, a field of standing corn, a tree top or another element of the environment may affect a micro-space and modify a small number of atmosphere elements, which sometimes makes only tiny differences in an absolute sense, although it is significant for the environment.

In view of the above, climatic studies are significant not only in a global, zonal or continental perspective. Studies into global climatic changes are very important and the results are interesting not only to researchers, but also to the general public. However, a need to study climate on a regional and meso-climate scale can be also demonstrated, resulting from the fact that this is where the important climate properties (from the point of view of shaping the environment and human needs) are established. Therefore, for practical reasons, it is important to specify the properties characterizing the climate of the region as well as its possible changes, since only due to such knowledge can key decisions be taken concerning preventive and adjustment activities. Such knowledge, in the context of the needs presented, is more important than information on general indicators of global climate changes.

When justifying the need to carry out regional climatic studies, it must be emphasized that they are also of high importance for environmental protection and development. A failure to refer to climatic conditions existing over the research area can be considered a serious defect in an ecological study; and this is sometimes the case. Therefore, each publication expanding the knowledge of the climate of the area can provide an important point of reference to any study concerning environmental development, activities dependent upon weather factors (e.g. agriculture, tourism, health care, etc.), as well as people's lives.

International literature provides a huge number of publications describing local climates. In addition, the Polish literature includes a large number of studies devoted to this subject. Nevertheless, it does not mean that this subject has been exhausted, since climate is a feature subject to permanent changes, which requires constant monitoring. Therefore, each new approach to the problem (taking into consideration another time range for a given area) provides new, essential and useful knowledge. The Polish literature offers well-described basic conditions forming climatic regionalism and numerous reports written years ago can form a necessary knowledge base. The problem is that some descriptions of a quite detailed nature are actually based on a quite limited database. This refers to the entire area of the country, including the north-eastern part of Poland. However, this part of the country does not exist as a climatic region. Any descriptions referring to this territory are based on a possible choice of locations of stations which can be used in order to prepare characteristics of the climate. The analyses referring to the climate of north-eastern Poland adopted as a starting point boundaries resulting only from the availability of data sources, while detailed descriptions assumed that information would refer to the areas known in the literature as physiographic and climatic regions.

While analysing potential climatic conditions which can play a leading role in ascribing specific features to the atmosphere of the area, the focus should be placed primarily on the geographical location. This approach leads to a series of consequences. First of all, the area of north-eastern Poland – as with any other – is situated on a route of specific currents of circulation, which determines the dependence of the climate on characteristics of inflowing air masses. In addition, the location of the territory in relation to the coast of the Baltic Sea should be specified, as well as the possible impact of this basin on the climate. Factors of vital importance also include physiographical elements such as the remains of the last glaciation. Thus, all previous studies concerning the climate point to its mosaic-like nature (with the lack of one clear common feature) and visible effects of its geographical location, area hilliness, woodiness and the presence of water bodies. The aim of the present study is to present a climate profile based on data originating from climate monitoring, supplementing the previous achievements in this field (first of all, broadening the time frames). This will allow us to assess the current state and, in a certain, although limited extent, provide an insight into the future, which is important, particularly in the face of the alarming tone of publications and opinions concerning global changes.

Zbigniew Szwejkowski