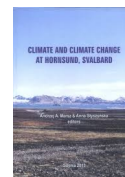


Climate and Climate Change at Hornsund, Svalbard

Andrzej A. Marsz and Anna Styszyńska (eds.)

Gdynia Maritime University, Gdynia, 2013.

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The monography issued by the Publishing House of Gdynia Maritime University, Poland, represents a result of a long-term systematic study of climate in the region of Hornsund, Southern Spitsbergen. Both editors of the book invited some colleagues and formed an experienced climatologic team consisting of Jacek Ferdynus (Gdynia Maritime University), Tadeusz Niedźwiedz and Ewa Łupikasz (Department of Climatology, Faculty of Earth Sciences, University of Silesia in Katowice, Sosnowiec). The team members utilized their expertise and long-term experience from climatologic activities associated with the Polish Polar Station at Hornsund. They wrote an outstanding book that thanks to a wide spectrum of scientific topics and fundamental analyses of data represents the first complex review of climate in the region of Southern Spitsbergen.

The monography has classic structure on one hand, however, presents numerous facts about climatic conditions of Hornsund in such details, that has never been published before. The authors use not only data from long-term measurements carried out at the Polish base since 1978 (guaranteed by the Institute of Meteorology and Water Management) but also meteorologic and climate data sets provided by other Polish academic institutions: Polish Academy of Science (Institute of Geophysics in Warsaw), University of Wrocław (Institute of Geography and Spatial Management, Department of Meteorology and Climatology) and Polish Academy of Science (Department of Geomorphology and Hydrology of Lowlands in Toruń). The book is a logical follower of former publication of climate characteristics of the Hornsund region (Klimat rejonu Polskiej Stacji Polarnej w Hornsundzie – A. A. Marsz, A. Styszyńska (eds.), published in Polish in 2007).

In a brief Introduction, major astronomic, climate-forming, oceanic and circulation factors of the Southern Spitsbergen region are presented. Then, more detailed information and analyses of particular meteorological factors follow, *i.e.* atmospheric pressure, air flow, cloudiness and sunshine duration, solar radiation, temperature, humidity, precipitation, visibility and fog. Their complex analyses results in climate typization and classification into groups, and classes of climate types. Then a synthesis, not only summary, of the presented results is given which results in the evaluation of oceanicity and continentality of climate, humidity character, cooling effect, analysis of positive/negative degree days that are important for snow accumulation and ablation periods.

After the analytic and descriptive characteristics presented in the first part of the book, an attention is devoted to changes of climatic conditions. First, testing of associations between selected climatic characteristics is given in this part of the book. It is followed by an analysis temporal changes of atmospheric pressure, circulation indices (the indexes of western and southern circulation, index of cyclonicity) and variability of wind velocity and wind direction, cloudiness and sunshine duration. Basic analyses of temporal changes in air temperature, and precipitation (the multiannual variability of yearly totals and number of days with different precipitation sums) are given as well resulting in overall trends in changes of atmospheric precipitation. All results are critically evaluated and summarized. However, such summary is not a final part of the book. What follows is a clear final summary of the meteorological measurements that have been made since the establishment of the station in Hornsund, *i.e.* snow depth and temperature of the soil substrate. The monograph has several enclosures, such as *e.g.* calendars of circulation indices (westerly circulation index, zonal index, southern oscillation index, meridional index and cyclonicity index).

The book is richly endowed with plenty of neatly arranged tables and well-done graphic presentations. The monograph can be categorized as classic, very comprehensively conceived books focusing dynamic aspect of climate. The monography is designed for climatologists but also for specialists from other disciplines related to natural science. It can be recommended to everyone interested in the climate of Southern part of the island of Spitsbergen. It may help a reader to gain a comprehensive information on climate in the Atlantic sector of the Arctic.

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