



WEB OF SCIENCE

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Balneo and PRM Research Journal

DOI: <http://dx.doi.org/10.12680/balneo.2021.452>

Vol.12, No.3 September 2021

p: L54

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Abstract

Introduction. The study analyzes, based on the hourly monitoring (since 2020) of meteorological elements (air temperature, relative humidity, atmospheric pressure, wind speed) the biometeorological conditions specific to the microclimates inside the Tg. Ocna and Cacica salt mines, but also of surface topoclimates. The study is a preliminary one, coming with a first set of biometeorological results, which will be completed later with new information from the monitoring of the physical parameters of the air in the two salt pans and their surface during the years 2021 and 2022.

Data and methods. In order to realize this study were used monthly grid data from ANM (*National Agency of Meteorology*) (1961-2013) for the stations Cacica and Târgu Ocna and hourly data (2020) for the two salt mines, obtained by two sensors (HT-163 USB Temperature Humidity and Air Pressure Data Logger). The sensors were placed at depths of 70 meters in Cacica salt mine, irrespectively 240 meters in Troțuș salt mine from Târgu Ocna. The climatic and microclimatic database was processed and graphically and cartographically transposed in Excel, irrespectively ArcGIS 10.4 software.

Results. During the study we shaped the annual regime of the above mentioned mete-climatic elements and of the THI bioclimatic index for the two interest areas including for the two salt mines. The calculus of the THI thermo-hygrometric index permitted to highlight the months with bioclimatic comfort/discomfort both for the stations and the salt mines. On the surface the stations are characterised by a THI variation correlated with the evolution of the air temperature (with values ranging from -1.9° and 16.8°C at Cacica and -1.0° and 19.2°C at Târgu Ocna). The months with climatic comfort are June, July and August for both stations. The salt mines are characterised by an evident thermo-hydric uniformity (10.0° and 10.7°C and 71% la Cacica, irrespectively 13.2° and 14.2°C and 61% in Troțuș salt mine) and an easy thermic discomfort by cooling all over the year: 10.9°C THI index at Cacica salt mine and 13°C at Troțuș salt mine.

Conclusions. The contact area mountain-plateau in which are situated the stations Cacica and Târgu Ocna benefits from favourable natural bioclimatic factors: indifferent sedative bio-climate, pure air, ozone-rich and ionized, mineral springs. THI shows a bioclimatic comfort in the summer months. Thus the year period when can be organized open air recreation touristic activities covers the summer months, but slightly extends to the temporal frame of spring and autumn months (May and September). The Troțuș and Cacica salt mines, from bioclimatic point of view, are characterised by a moderate cool thermic regime, with a big independence degree from the external environment. The baric regime depends on the surface pressure and on the salt mine depth and the relative humidity oscillated around the values of 60 % (Troțuș salt mine) and 70 % (Cacica salt mine). The stable atmosphere and the microclimatic uniformity provide Cacica and Troțuș salt mines certain balneary-climatic qualities recommended both to tourists and patients (suffering from respiratory diseases, asthma etc.)