



Interannual Variability of Total Cloud Cover and Cloud Types over Eastern Part of Romania

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Clouds play a key role in climate and weather forecasting. The observations of clouds and cloud cover at regional scale are very important in the study of clouds' radiative forcing, and consequently, in changing the radiative budget in the climatic system. This paper is focused on the analysis of spatial and temporal distribution of clouds and cloud cover. These observational data can be used in regional climate models.

Synoptic surface cloud observations from 14 stations are used to examine the variability of the cloud cover in 2006 over Moldova, which is the extra Carpathian area of Romania. The hourly data of the total cloud cover and partial cloud ceiling were processed and statistically analyzed. The observational database was completed using a simple algorithm that improved the middle cloudiness environment by more than 39% and the high clouds environment by 100%, compared to the initial data. Trends in total and low cloud cover were investigated in detail by examining changes in the frequency of appearance.

The significant underestimation for the middle and high clouds was obvious for low cloudiness values of 6, 7 and 8 oktas, and it has reduced the average cloud cover up to 4.5% and the top up to 15.4%. Seasonal analysis performed in January and July 2006 showed that the low cloud cover was 50% higher in winter as compared to the warm season. The presence of the middle cloud cover was constant during the two seasons (generally between 60-70%), while the high cloudiness dominated during the summer months. The investigations of smaller regions and interannual variability are important, although the real fluctuations in cloud cover are relatively large in such instances. As such, a study of the fluctuations in cloud cover will be necessary in the future.