Drought is the most complex and least understood of all natural hazards, affecting more people than any other event (Wilhite Ed., 2000). Therefore, identification of drought risk associated with the present and with expected climatic conditions remains an important issue. There are a number of parameters that can be used for describing drought events over various time scales e.g. Standardized Precipitation Index of the Palmer Drought Severity Index. The use of soil moisture as one of the indicators of the drought (especially in relation to projected agricultural impacts) is another essential part of many drought monitoring systems (e.g. Svoboda et al., 2002). One of the tools capable of describing soil moisture regimes in the framework of existing soil climate categories in accordance with the USDA soil taxonomy classification scheme (USDA, 1999) is the Newhall simulation model (Van Wambcke et al., 1992). We applied the model in this study to identify major drought and wet cycles both within the year or entire climate period. The most recent use and introduction of the model has been mentioned by Waltman et al. (2003) who developed the Enhanced Newhall Simulation model (ENSM). One of the main advantages of the ENSM is its flexibility and the fact that it allows the user to include the impact of precipitation on the soil moisture field in the calculations process. Figure 1. The spatial distribution of the four main categories of the maximum soil water holding capacity in the Digital Landscape Model. Figure 2: The spatial distribution of 50 meteorol. stations used as the source of weather data in the presented study and representation of altitude data available to the DLM.