Global warming may be recognized both in shifts of regional mean climate, and also, in the frequency and intensity changes of different climatological extremes associated to both temperature and precipitation. In this contribution the main focus is on the analysis of precipitation-related climatic conditions. For this purpose we use different types of drought indices, namely, precipitation index, standardized precipitation anomaly index (SAI), De Martonne aridity index, Thornthwaite index, Lang’s rainfall index, Ped’s drought index and Foley’s anomaly index (FAI). In order to calculate the time series of these indices, temperature and precipitation datasets of PRECIS regional climate model simulations were used taking into account the SRES A2, B2, and A1B emission scenarios. The model PRECIS is a hydrostatic regional climate model (with 25 km horizontal resolution) developed at the UK MetOffice, Hadley Centre and was adapted for the Central/Eastern European region with special emphasis on Hungary. Simulations for the periods 1961-1990 (as the reference period), 1951-2100 (using SRES A1B emission scenario), and 2071-2100 (using the SRES A2 and B2 emission scenario) are analyzed. The results suggest that the climate of the Central/Eastern Europe is projected to become wetter in winter and drier in the other seasons. The largest drying in the 21st century is very likely to occur in summer.