



A modified Drought Index for the WMO RA VI Region

P. Bissolli and S. Pietzsch

Deutscher Wetterdienst, Dep. Climate Monitoring, Offenbach, Germany (peter.bissolli@dwd.de, Fax: +49 69 8062 3759)

Drought is a phenomenon which can cause large economical impact even in Europe. To assess the magnitude and the spatial extension of drought events, it is important to have a standardized drought index which is applicable for a large climatically heterogeneous region like Europe or the WMO RA VI Region (Europe and the Middle East). Such an index should describe the drought phenomenon adequately, but it should also be derivable from meteorological quantities which are easily and timely available in whole Europe.

In a first investigation, some candidates for drought indices were chosen, compared and assessed for applicability in whole Europe. The most appropriate one seem to be the widely known Standardized Precipitation Index (SPI) which is a standardized and handy measurement of drought for any location and requires nothing but precipitation data. However, it has turned out that for some places in the RA VI Region, notably in arid regions in summer, the SPI does not always provide reasonable or easily interpretable results.

For that reason, some modifications of the SPI have been tried out and tested statistically. It seems that the gamma distribution of precipitation which is used for computation of the SPI is in fact the most appropriate one and other distributions have not improved the results substantially. On the other hand a so called zero correction, which sets very small precipitation totals to dry values, only dependent on the precipitation distribution, but independent on the individual location delivers more reasonable results.

Maps of the new modified drought index and its anomalies from the climate normal are produced quasi-operationally and distributed via the Internet each month. The drought monitoring is part of the monitoring programme of the WMO RA VI Pilot Regional Climate Centre on Climate Monitoring (RCC-CM) hosted by the German Meteorological Service (Deutscher Wetterdienst, DWD), and the maps can be found on its present platform ECSM (European Climate System Monitoring, www.dwd.de/rcc-cm).