Geophysical Research Abstracts, Vol. 9, 02021, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-02021

Analysis of Rainfall Aggressiveness and Rainfall Erosivity in Slovenia

Š. Lakota Jeriček and M. Mikoš

University of Ljubljana, Faculty of Civil and Geodetic Engineering, Ljubljana, Slovenia (matjaz.mikos@fgg.uni-lj.si / Fax: +386–1251–9897)

Soil erosion as the major threat to soils in Europe can be successfully estimated using modelling approaches such as RUSLE. But the rainfall and runoff erosivity factor R used in RUSLE can be easily estimated only locally in precipitation stations using rain gauge recorders. Usually, a dense network of precipitation stations is available where daily precipitation data are measured with ombrometers. Therefore, in many cases the rainfall aggressiveness is rather determined in order to estimate potential soil erosion at regional scale, using monthly and annual rainfall data.

In Slovenia (area of 20,273 km^2) in 2005, the Environmental Agency was in charge of 188 precipitation stations, out of them only 38 were using rain gauge recorders. For 3 different time periods (10 years: 1995-2004 with 168 stations; 20 years: 1985-2004 with 138 stations; and 40 years: 1965-2004 with 108 stations) we used the CORINE methodology, and the estimated rainfall erosivity in selected precipitation stations was divided into 5 classes from low to very strong, using MFI values. Additionally, this erosivity classification was compared to the climatic aggressiveness classification, proposed by Gregori et al., 2006. Using monthly and annual precipitation data, also the precipitation concentration index (PCI) was computed and the precipitation seasonal variations were classified into 4 classes.

The relationships between the mentioned precipitation parameters were presented in the form of annual and monthly rainfall erosivity maps of Slovenia.