



The runoff map of Sicily

F. Nigro (1), **A. Pisciotta** (1), Favara (1) & P. Renda (2)

(1) Istituto Nazionale di Geofisica e Vulcanologia, Sezione di Palermo, via U. La Malfa n. 153, 90146, Palermo, Italy

(2) Dipartimento di Geologia e Geodesia dell'Università, C.so Tukory n. 131, 90134, Palermo, Italy

(pisciotta@pa.ingv.it / fax: + 390916809449)

Abstract

In Sicily, the absence or sketchiness of hydrographic instrumentation prevents the adequate evaluation of runoff value. In order to estimate groundwater budget and understand the inflows, outflows and changes in the aquifer groundwater storage we need a simple procedure to create runoff maps.

The Kennessy's method has been employed to this research, in which the runoff coefficient of a watershed is estimated using three physiographic variables (slope angle, permeability and vegetation cover) and a parameter that defines the climatic conditions of the island. Moreover a Geographical Information System (GIS) was developed to manage and to integrate data.

The method was compared to instrumental records from a large collection of instrumented drainage basins in the Sicily are, it shows that the method provides reliable estimates of runoff.

This research enables us to present a new application of the method, producing the runoff coefficient map. This application is a new useful tool to have a clear vision of the local distribution of runoff/rainfall ratios and it is an important contribution to the solution of other hydrogeological problems. Besides this procedure can also be used for determining the long-term of the runoff value in areas for which runoff data are not available and to produce runoff maps for present and future scenario climates.