STUDY OF SPECIFIC DEGRADATION IN THE NORTH OF ALGERIA - DEVELOPMENT OF AN EMPIRICAL MODEL

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Abstract:

The knowledge of solid transport constitutes a significant phase in the study of erosion and the dams silting. Solid transport represents the second phase of erosion and raises primarily of the flowing. By definition, it is the quantity of materials transported by water of a river for one given period.

To allow the engineers to consider correctly the transport solid at the ungauged rivers, it is essential to develop a relation between this last one and the explanatory factors of the phenomenon. We will try to find first a preliminary relations and then the end the final relations between annual specific erosion and the various physico-climatic parameters of the watersheds, with the simple and multiple correlations, in order to develop a forecast tool of annual yield at the ungaged sites.

Our study is based on the hydroclimatologic data of fourteen representatives' watersheds of the various physical and climatic areas of which the surface areas varies between 100 and 3615 km^2. The catchments selection is carried out according to the consistency and the quality of the available data of solid transportation from the national agency of the hydraulic resources (ANRH).

The watersheds are characterized by a surface varying from 100 to 3615 km^2, a drainage density from 1,9 to 6,2 Km/Km^2, a minimal altitude from 25 to 190 m and a maximum altitude from 1113 to 2300 m. Geographically, the watersheds are distributed as follow : seven basins in the center of Algeria, four in the East of Algeria and three basins in the West of Algeria. The choice was also based on the condition of availability of the rainfall data.

The development of an empirical relation between annual average specific degradation and the physic-climatic parameters of the basins gives certain significant factors such as:

- Liquid flow, the Fournier climatic index, the drainage density, watersheds surfaces, the eroding lithological formations (marls and clays).

The factors referred above explain more than 92 % of the variance of the specific degradation (developed formula).

Key words: erosion; specific degradation; empirical model; Algeria.