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Review Article

Feature Diversity of Zonal Karsts

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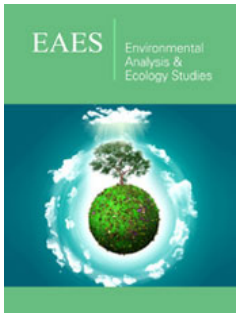

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Abstract

A relation was determined between the distance of zonal karst types from the Equator and the diversity of their features.

Keywords: Zonal karst type; Feature diversity; Distance from the Equator

Introduction

The determination of karst types by their environment through their feature diversity is described here. Based on their characteristics, karst areas can be categorized as karst types. Researchers have distinguished and described various karst types [1-6]. Karst types can be classified as zonal and azonal groups [7]. Zonal karsts are climate dependent (e.g., tropical karst). Azonal karsts occur in the area of zonal karsts, but they are more or less independent due to any of their characteristics (for example according to rock quality karst can be of evaporate type or carbonate karst type under any climate).

The characteristics, the features, and the processes of a karst type are more or less different from other types. Table 1 includes the above-mentioned characteristics of various zonal karst types. It can be established that on the Earth, the feature diversity on zonal karst types being closer to the Equator is greater than farther from it. However, the number of processes and effects being present in their area first increases farther from the Equator (Temperate Belt) then it decreases (Cold Climate Zone).

The reason for the increase of feature diversity is that dissolution intensity increases towards the Equator which can be traced back to the increase of biogenic CO2 production. Since under temperate climate the larger number of processes and effects does not change this fact either, this indicates that dissolution is the predominant process which is responsible for the development and state of the phenomena of karst areas prevails over other geomorphic process on the karsts [8].

Table 1: Solution and partly solution surface karst features and processes on zonal karst types.

Zonal Karst Type	Feature	Occurrence on Zonal Pseudo Karst Type, on Zonal Karst Type and Feature	Process, Effect, Characteristic Feature
tropical, subtropical	inselberg with common base (D)	fengcong	solution, concretion, biosphere, society, root system, insolation, chemical weathering, pluvial erosion, fluvial erosion, mass movements, thermal water, effect of karst surface, vertical crust movements, changes of base level of erosion, rock quality, crust structure
	solitary inselberg (D)	fenglin	
	intermountain plain (D, C)	fenglin	
	tower (D)	stone forest	
	ridge (D)	arête	
	giant grike (D)	tsingy	
	karst hill (M)	intermountain plain	
	polje C	fengcong	
	solution dolines (M)	fengcong	
	uvala (M)	fengcong	
	cockpit doline (D)	cockpit karst	
	shaft (M)	fengcong	
	blind valley (M, C)	mixed allogenic-autogenic	
	ponor (M, C)	mixed allogenic-autogenic	
	bare karren (M)	inselberg	
	subsoil karren (D)	inselberg, intermountain plain	
	calcareous sinter (D)	inselberg, valley	
karsts of temperate belt	karst hill (M)	autogenic	dissolution, concretion, biosphere, society, root system, insolation, frost weathering, chemical weathering, pluvial erosion, fluvial erosion, snow erosion (K), glacial erosion (K), mass movements, thermal water, effect of karst surface, vertical crust movements, changes of base level of erosion, rock quality, crust structure
	polje (M, C)	autogenic	
	solution doline (D)	autogenic	
	uvala (D)	autogenic	
	shaft (M)	autogenic	
	blind valley (M, C)	mixed allogenic-autogenic	
	ponor (M, C)	mixed allogenic-autogenic	
	bare karren (M)	autogenic	
	subsoil karren (D)	autogenic	
	calcareous sinter (M)	valley	
taiga, tundra	blind valley (D)	mixed allogenic-autogenic,	dissolution, frost weathering, pluvial erosion, fluvial erosion, mass movements, snow erosion, glacial erosion(K), thermal water, vertical crust movement, changes of base level of erosion, rock quality, crust structure
	ponor (D)	mixed allogenic-autogenic,	
	pillars (P)	valley side	
	solution doline (M)	valley floor	
	bare karren (M)	rock outcrop	

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