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Some laws of destruction by wave erosion of a land adjoining to the sea during slow and catastrophically fast transgressions.

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It is known, that in Pliocene-Pleistocene the Black Sea level changed in an interval from zero up to 100 meters and more in relation to the modern level. During this time as a result of wave erosion, fluctuations of a sea level and vertical movements of Earth crust, coastal mountains have been destroyed and modern coast and shelf of the Black Sea were formed.

General laws of destruction by wave erosion of rocks, bounding the sea, under relative sea level change are of significant scientific interest. Knowledge of these laws allows to perform reconstruction of seacoast and shelf plate evolution and to estimate consequences of fast or catastrophically fast sea level rising. Hydrological and litodynamical processes occurring on a shelf of the Black Sea during historical time are of special interest.

Based on field observation, experiments in a wave flume and theoretical research it is established (Yesin, etc., 1980) that under conditions of relative sea level rising with constant speed, invariable wave climate and geological conditions, wave erosion approaches a steady state when shore retreats with constant speed. Intensity of coastal mountains abrasion is defined by A value:

À=V/(Uóð+Uç), (1)

Where V - vertical speed of bottom destruction in swash zone close a water boundary;U - speed of level increase,V - speed of Earth crust lowering.

The dimensionless value of A is designated as an abrasion number (Yesin, 1980).

In steady conditions the slope of a formed shelf (tgγ) is defined under the formula

$$tg\gamma = \frac{tg\alpha}{1+A} \tag{1}$$

Where tgα - bottom slope in bench zone.

(1) formula shows, that A value defines a degree of coastal mountains abrasion: the more the value of A, the less slope of a formed shelf and, hence, waves destroy greater volume of a coastal land.

Under the (1) formula one can perform reconstruction of shelf evolution during transgression, if the rate of the sea level rising is known.

At catastrophic rising of sea level (meters per year) A possesses small values. Thus initial shelf abrasion will be insignificant (tg$\gamma \approx$ tgα). Relating to a problem of the Flood evidence search this means, that it is necessary to search ancient cliffs covered by sediment on depths from 90 up to 120 meters. Their presence will testify that the sea was filled with water very quickly at these depths and waves had no time to break them.