10 Novembre - Matin -

Présidée par le Pr. MEULENKAMP J.E.

1. - HYPSOMETRIC RESEARCHES IN THE MEDITERRANEAN SEA

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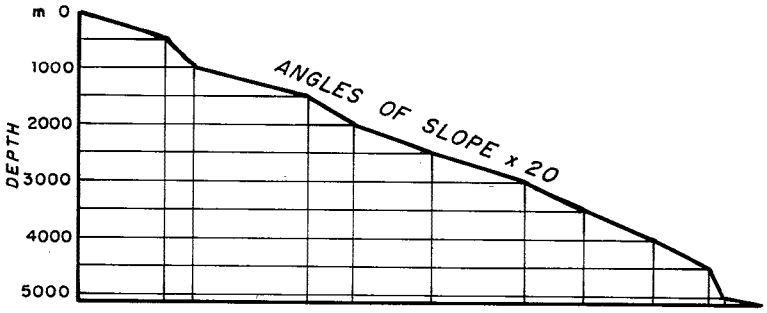
(Note présentée par E. ZARUDZKI)

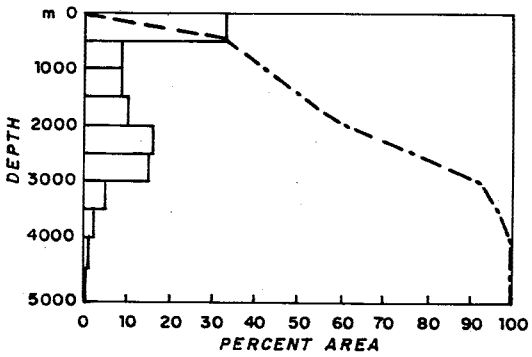
The hypsometry of Mediterranean Sea has been measured including Black Sea. The employed chart is a bathymetric one edited by Laboratorio di Geologia Marina of Bologna, scale 1:3.000.000, Mercator projection at lat. 40°, elaborated on the basis of italian and foreign official charts and using, expecially for central Mediterranean Sea, the data collected by R/V Bannock during cruises run by Laboratorio di Geologia Marina of Bologna and Osservatorio Geofisico Sperimentale of Trieste.

The Mediterranean Sea has been divided into 11 areas limited by isobaths of 500 m. These areas have measured by a polar planimeter Salmoiraghi mod.236. To avoid the errors due to deformations in the Mercator projection, the measured areas have been corrected by comparison with actual areas of the corresponding spherical trapezes of 2° of lat. and.long. The average slopes of the above mentioned 11 areas have been determined by the methods of Peucker and Finsterwalder (contour interval x length of lower contour/intercontour area), Strahler (contour interval/intercontour area/mean length of two contours), De Smet (contour interval x mean length of two contours/inter contour area). The average depth and slope have been calculated by weighted mean procedure.

The hypsometry of Mediterranean and Black Sea is shown in the histogram and cumulative frequency curve, to the values of table 1. The frequency curve is bimodal with a main modal class corresponding to the interval 0-500 m of which the more extensive area is in the 0-200 interval (approximately the continental shelf). A secondary mode is in the 2000-3000 m interval that, above all, corresponds to transition from continental slope to bathyal plains. The depths exceeding 4500 m are the less frequent and belong only to the Hellenic Trough. The average depth of Mediterranean Sea has resulted 1485,6 m with a maximum of 5121 m in the Jonian Sea. The average slope by Peucker and Finsterwalder method has resulted 1°33' and by the De Smet and Strahler methods 1°22'. Slopes relatively high refer to 500-1000 m and 1000-1500 m intervals that mostly belong to the upper part of the continental slope and to depths below 5000 m that belong to the Hellenic Trough. The highest slope (4500-5000 m interval) also is comprised in the Hellenic Trough.



Clinographic curve of the Mediterranean Sea to the values of the Smet and Strahhov methods.



Hypsometry of the Mediterranean Sea.

Table 1

Depth	Area		Angles of slope		
m	Km2	%	Peucker and Finsterw.	De Smet	Strahler
0-200	687,789	23.175	0°37'	0°34'	0°34'
0-500	972,909	32.782	1°5'	0°57'	0°57'
500-1000	274,823	9.260	2°56'	2°47'	2°47'
1000-1500	275,343	9.278	2°37'	2°18'	2°18'
1500-2000	298,652	10.063	1°50'	1°49'	1°49'
2000-2500	467,275	15.745	1°9'	1°3'	1°3'
2500-3000	437,353	14.736	1°	0°52'	0°52'
3000-3500	151,540	5.106	2°5'	1°26'	1°26'
3500-4000	72,118	2.430	1°41'	1°10'	1°10'
4000-4500	17,364	0.585	2°43'	1°27'	1°27'
4500-5000	375	0.013	7°39'	4°56'	4°56'
5000-5121	50	0.002	3°52'	2°5'	2°5'
	2,967,802	100.000			

References

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CLOSS - It might be of interest, to make similar investisations after having taken away the young unconsolidated sediments. Many reflection profiles exist, so that this can be made in many areas. Other features of tectonics may also influence the hypsometry.

Réponse : En effet les sédiments récents ont tendance à aplanir les pentes. Je transmettrai votre suggestion aux auteurs.

AN EXAMPLE OF SYSTEMATIC SURVEY OF BEACH DATA

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Introduction.

The data have been collected from a section 2,5 km south of Porto Corsini (Northern Adriatic Sea). The features, weekly measured during October, November and December 1971, are: 1) the angle slope (Φ) of an upper scarp corresponding to high water level, 2) the angle slope (Φ') of a lower scarp due to deposition of coarse sand at the contact of uprush with backwash, 3) the distance (A') between the two scarps, 4) their difference in height (B), 5) the average slope (Φ_m) of the beach between them and 6) the distance (A) of the upper scarp from dunes ridge. Also minor features as ripple marks and beach cusps have been measured. Moreover lenght (λ), height (h) and period (T) of waves have been directly observed.

Results.

The beach parameters of the table 1 have been correlated among them and compared with the sea state. The correlation data point out that: 1) to a decrease of parameter A corresponded an increase of parameters Φ, Φ', B, Φ_m and that 2) to a decrease of parameter A' or to an increase of parameter B corresponded an increment of Φ_m. The decrease of A has resulted dependent upon frequent waves coming from E and SE (force 3-4) with wind speed higher than 10 Knots. The observed ripple marks belong to the foreshore. Their parameters, i.e. the symmetry index (a/b) and ripple index (λ/h), are reported and compared with waves features in table 2. The most significant correlations resulted between waves steepness (h/ λ) and a/b and between h/ λ and ripple back angle. It seems therefore that increasing the waves steepness, ripples become more flat and asymmetrical. A direct correlation resulted also between waves steepness and spacing (S) of beach cusps.

Table 1

Date	A (m)	A' (m)	B (m)	Φ	Φ'	Φ_m
3 Oct.	78.85	31.35	0.40	2°	8°	0°43'
10 Oct.	72.20	13.30	0.50	4°	9°	2°8'
17 Oct.	70.30	19.95	0.50	4°	7°	1°26'
24 Oct.	74.10	21.85	0.50	5°30'	9°	1°16'
31 Oct.	74.70	14.00	0.40	2°	8°	1°37'
7 Nov.	74.40	11.40	0.40	2°	5°	2°1'
14 Nov.	53.80	17.30	0.60	4°	6°	1°57'
21 Nov.	52.70	20.00	0.70	5°	10°	2°1'
28 Nov.	60.80	15.00	0.70	5°	-	2°39'
5 Dec.	62.70	13.70	1.00	8°	-	4°8'
19 Dec.	62.70	12.50	1.00	7°	9°	4°36'
26 Dec.	62.70	12.15	0.85	8°	9°	4°