

Preliminary Heat-Flow Profile across the Atlantic

DURING the 1962 *Zephyrus* expedition of the Scripps Institution of Oceanography, University of California, fourteen heat-flow measurements were made from Martinique to the Canary Islands. The measurements are on a line except on the crest of the Mid-Atlantic Ridge, where an area was sampled. The instrumentation has been discussed previously^{1,2}, and our preliminary values are presented in Table 1 and in Fig. 1 with bathymetry.

Table 1. HEAT-FLOW VALUES AND LOCATIONS

Station No.	Latitude (N.)	Longitude (W.)	Depth (m)	Thermal conductivity 10^{-3} cal/°C cm sec	Heat-flow 10^{-6} cal/cm ² sec
9	16° 24'	57° 39'	4,660	1.8	0.7
11	19° 10'	52° 03'	5,350	1.7	1.4
12	20° 12'	49° 01'	4,640	1.5	0.5
13	21° 06'	46° 30'	3,920	1.7	0.3
14	21° 04'	44° 57'	3,257	2.2	1.8
15	21° 56'	45° 46'	3,380	2.0	6.5
16	23° 06'	45° 39'	3,984	2.0	3.0
17	23° 34'	44° 14'	4,960	2.0	1.6
18	23° 57'	44° 59'	3,490	2.1	2.8
19	23° 36'	42° 28'	4,120	2.2	0.5
20	24° 16'	39° 06'	5,440	1.9	0.4
22	25° 05'	34° 13'	5,610	2.0	0.7
23	26° 14'	26° 27'	5,280	2.0	1.2
25	26° 57'	19° 58'	4,300	2.1	1.0

The results indicate a variation by a factor of about twenty, from 0.3 to 6.5×10^{-6} cal/cm² sec. High values occur in a belt 200 km wide on the crest of the Mid-Atlantic Ridge and low values are found on its flanks, forming a heat-flow pattern similar to that of the East Pacific Rise³.

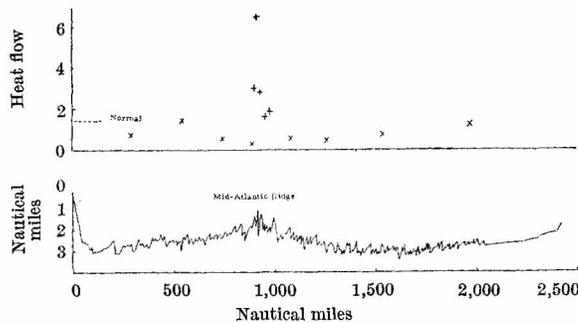


Fig. 1. Heat flow and bathymetry on *Zephyrus* expedition profile. x, Station in line of bathymetric profile; +, station interpolated into profile

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R. D. NASON
W. H. K. LEE

Department of Earth Sciences,
University of California,
La Jolla, California.

¹ Bullard, E. C., Maxwell, A. E., and Revelle, R., *Adv. Geophys.*, **3**, 153 (1956).

² Von Herzen, R., and Maxwell, A. E., *J. Geophys. Res.*, **64**, 1557 (1959).

³ Von Herzen, R., *Nature*, **183**, 892 (1959).