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Heat Flow Measurements iu Perialpine Lakes along the Swiss Geotraverse

By *Peter Finckh* *)

Heat flow measurements in perialpine lakes were carried out to supplement the scanty information concerning the thermal conditions in the crust underlying central Europe. A probe was built which allowed the measurement of 11 temperature values at equally spaced sub-bottom intervals up to a maximum penetration of 10 m. Measurements of this type were made in Lake Zurich, Lake Zug, Lake Lucerne, Lago Maggiore, Lago di Como, Lago d'Iseo and Lago di Garda. After the retrieval of the probe a sediment core could be collected on samples of which thermal conductivity was measured after treating the material in such a way that exsolved gas bubbles were eliminated. Continuous seismic reflection and refraction profiles in all these lakes provided a set of parameters for gradient correction due to heat flow refraction. Additional corrections were applied on the basis of palynologically determined sedimentation rates and for the influence of the last period of glaciation. Final values obtained in this manner indicate rather high values of about $2.8 \cdot 10^{-6}$ cal/cm^2·sec (117 mW/m^2) north and south of the Alps. This is partially confirmed by earlier measurements in lakes but shows a considerable discrepancy with measurements from the central Alps.

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