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GEOFIZIKAI KÖZLEMÉNYEK
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# CRUSTAL LAYER THICKNESS DETERMINATION FROM CODA WAVES

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In an earlier paper (BISZTRICSÁNY, 1970), crustal layer thickness determination from coda waves was discussed, according to HARDTWIG's theory (1962).

To extend the validity of results arrived at in the cited work, one has to compare the values obtained with those of other stations. The conclusions of this work are briefly described hereafter.

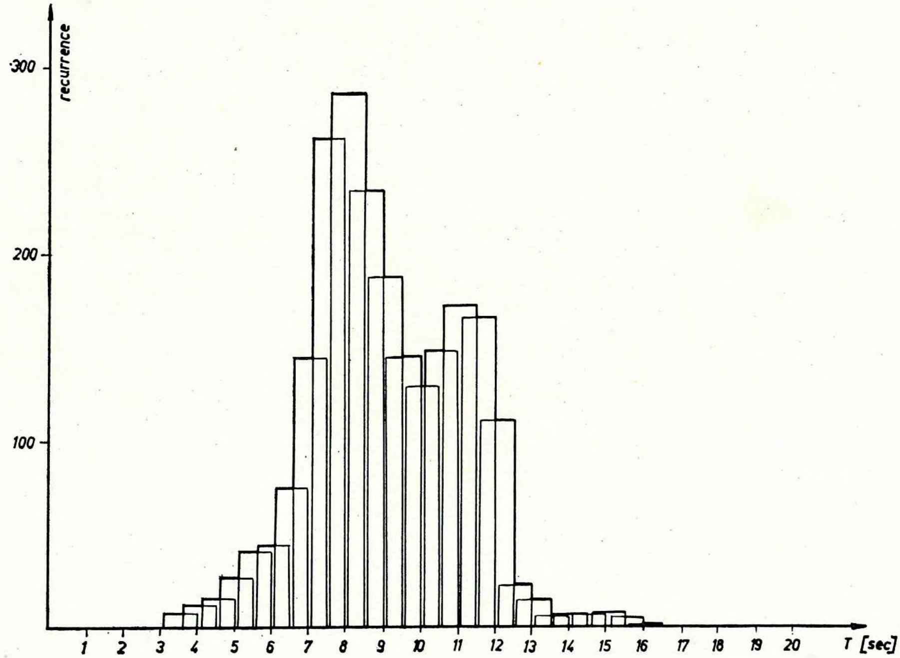


*Fig. 1.* Period-recurrences from Sopron compared to those of Budapest
*1. ábra:* A soproni állomás periódusgyakorisága a budapestiével összehasonlítva
*Рис. 1.* Повторяемость периодов для Шопронской станции в сопоставлении с Будапештской

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The method of calculation was the same as reported, but it was based on 1100 data of shallow focus earthquakes observed by the vertical seismometer Kirnos, in Budapest. The epicentral distance was the same as before: $5 < \Delta^\circ < 50^\circ$. The frequency maximum or recurrence peak of periods, here too, was found around 8 and 11 sec (Fig. 1). The function $Z = f(T)$, obtained from these 1100 data, is as follows (Fig. 2):

$$Z = 0{,}054\ T^2.$$

With this formula the following thickness values have been obtained:

at $T = 8$ sec: $z_0 = 20{,}35$ km,
at $T = 11$ sec: $z_0 = 27{,}58$ km.

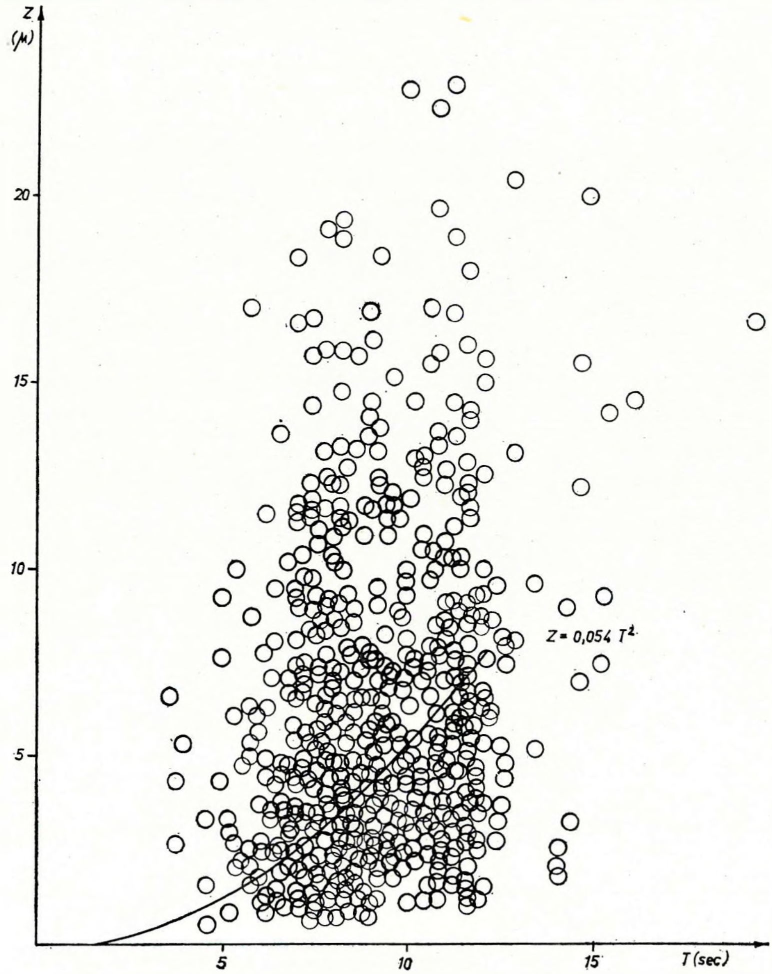


*Fig. 2.* Coda amplitudes vs. periods
2. *ábra.* Kóda hullámok amplitúdó-periódus összefüggése
*Рис. 2.* Зависимость амплитуд кодовых волн от периодов

Fig. 2 indicates that $Z=f(T)$ data are rather scattered. For actual calculation such records were selected which showed comparatively slight scattering, practically not half of the records were suitable for the work.

The integrated results can be seen in Fig. 3. The following curve of second order was computed with the method of least squares:

$$Z=0{,}035\ T^2.$$

The difference between the two equations is so slight that the thickness values must also closely agree, as shown below:

| | |
|---|---|
| at $T=$ 8 sec | $z_0=22{,}2$ km, |
| at $T=$ 11 sec | $z_0=27{,}8$ km. |

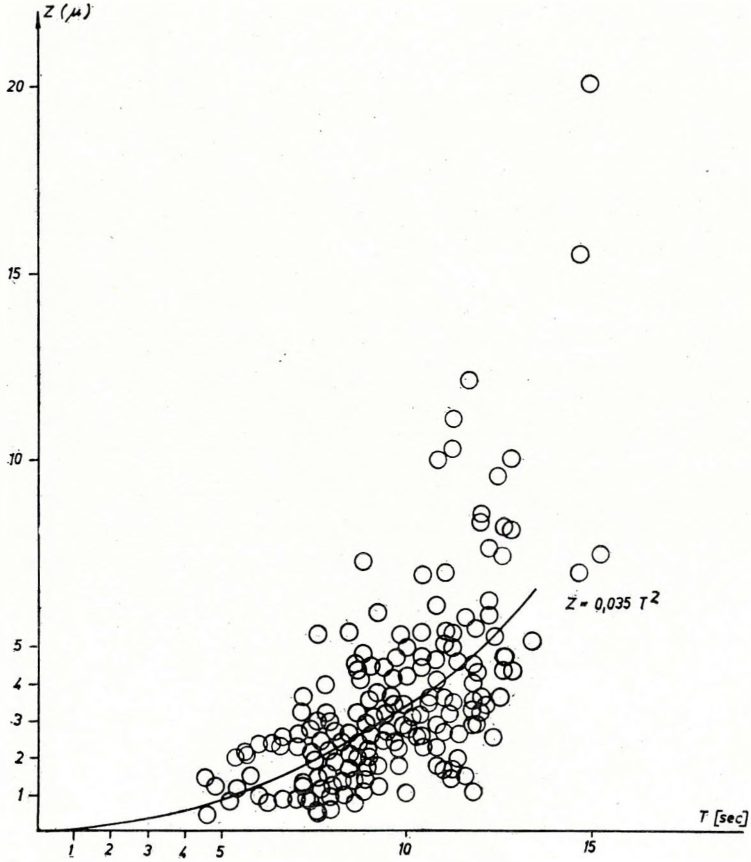


*Fig. 3*
*3. ábra*
*Рис. 3.*

The values for the Conrad and Mohorovičić discontinuity obtained this way from the Budapest station agree well with those calculated for the Hungarian basin from deep seismic soundings. The recurrence peak around 6 sec did not show up, neither did, consequently, the corresponding discontinuity at around 13—15 km.

An interesting, and hardly random, coincidence is that according to MTS reports from the Sopron (Nagycenk) observatory, a low resistivity layer in the same depth is known in the vicinity of Sopron only.

It is interesting to note that a pattern of long period noise, as computed by Walzer (1969) shows great similarity to our results.

## REFERENCES

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