





The temporal variations of components D, H and Z of the geomagnetic field have been continuously recorded by two recording systems in the Tihany *Observatory*. The data will be published in the *Annals* of the Observatory as well as they are duly supplied to international Data Centres.

In order to trace the *slow variations of the terrestrial magnetic field* a new recording system started its experimental operation. To keep the recording chamber at constant temperature a very sensitive AC heat regulator system has been set up (Fig. 42).

An analysis of the hourly values of records piled up since 1954, started. The long series permits a wide range of analysis (from a few hours to 11 years). The data-punching (on tape) and check up are finished, and some experimental runnings were carried out.

In *ionospheric, magnetospheric research* the cooperation with the Budapest University has been going on. Hourly *whistlers* have been recorded all over the year. When ARCAD and IK 5 satellites passing, extra recordings were maintained. Statistical analysis of the recordings is under way to be published in the *Annals* 1972-73.

The atmospheric radio-noise recording equipment of 27 Kilohertz has been in permanent operation and test recordings for 4 Kilohertz were attempted.

To trace the physical features of the magnetosphere, 20 of the storms of 1969-70 were utilized giving preference to long storms. These, however, proved to be sums of several subsequent shorter storms and periods are apt to fade because of phase-differences. Having considered a period range of 20-70 min (sampling by two minutes) some relative maxima were obtained at 32 and 63 min, but no definite statements can be made as yet. The work is going on.

The theoretical preparations to analyse the instabilities of the magnetosphere, with special regards to the outer magnetosphere of the Earth, started.

The investigation of the areal distribution of the temporal variation of the magnetic field was attempted at 15 stations of the *National Magnetic Network*.

The calculation of the normal fields for the epoch 1970,0 has been completed.

The observatory instruments underwent a comparative test with those of Kiev, Odessa, Lemberg (Lvov) and Hurbanovo (Ógyalla).

From the yearly values of 17 European observatories  $D$ ,  $H$ , and  $Z$  isopore maps of Central and Southeastern Europe were constructed, reaching back to twenty years of data (Figs. 43-45).

*Gravity tidal analysis* went regularly on, keeping in mind a systematically occurring drift which has proved to be due to the ambient temperature alone. The thermal stabilization of the recording chamber, however, did not completely solve the problem. The research must be continued.

The theoretical results testify the ratio of Love numbers  $b_2$  and  $k_2$  to be as permanent as the *geoid*.

The *paleomagnetic* research of the rock-samples of *Mt. Börzsöny* has shown some areal regularity, namely the northern part is mainly positively, the southern part is negatively polarized. The TRM and anomalies show no apparent correlation. The TRM is, nevertheless, sometimes rather intensive.

In the *geodetic gravimetric survey* the points of the First Order Gravity Net 1971 were compared to those of 1951. The points are connected to the International Polygon. The measurements were carried out with Sharpe and Askania gravimeters.

Apart from borderland (Czechoslovakian-Hungarian) equalizing measurements and instrumental research (accuracy of Sharpe gravimeters; see: *Geophysical Transactions*, Vol. XXII., *in press*), a secular network has been set up and the gravimetric coverage of high (hilly) triangulation points has been completed.