

Planning a new magnetic observatory in Iran

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A b s t r a c t (extended): The Tehran magnetic observatory being in operation since 1960 carries out the standard activity of measuring the absolute values of the geomagnetic field and its variations. The absolute instruments are: i) three sets of QHM (for measuring the H component); ii) Askania large Earth inductor (for measuring of I); iii) Schmidt's normal theodolite (for measuring of D). The variation instruments are modified: Eschenhagen type variograph and modified Watson type variograph. Since 1973 the total field is measured with a proton magnetometer according to internationally accepted requirements (*Wienert, 1970; Jankowski and Sucksdorff, 1996*). We send our yearly observatory reports to different World Data Centers and data gained are used for research work (*Guya, 1977*). In Fig. 1 the registration of a magnetic storm is shown. Observatory activities are of social benefit: many government organizations and private companies use our data for the purpose of making maps and exploring for oil and prospection. It is important that observatory site to be magnetically representative of its region, both for the secular variation, and for short-term variations (*Jankowski and Sucksdorff, 1996*). Breaking of an instrument, and the need for replacing or calibrating an equipment is a problem that we face here in Tehran, e.g. we were told that the Danish Meteorological Institute in Denmark has stopped the repair and calibration of QHM. Also the power shortage causes gaps in the recording. To avoid some of the above mentioned problems, we are planning to replace the photographic recordings with digital equipment such as fluxgate magnetometers to obtain more accuracy, and 10 or 30 seconds readings. Like many observatories in different countries, the earlier (40 years ago) Tehran magnetic observatory was located in outskirts of the city of Tehran, but today it is almost in the center of city and we have to cope with highway traffic and other sources of noise. During the year 1996, using a proton magnetometer the total magnetic field was measured at 14 sites along several profiles to choose a proper site for building a new observatory. Three sites were chosen in North-South and East of Iran. A map with recent measurements of total field in Iran can be seen in Fig. 2. We are also trying to join the INTERMAGNET program in future.

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