

Reevaluate of the baseline value in the early years of "KAKIOKA"

TOYA, Takeshi¹, OWADA, Takeshi¹, FUKUI, Keiichi^{1*}

¹Kakioka Magnetic Observatory, JMA

Secular variations of horizontal component of geomagnetic field at Kakioka have step-like changes at 1924-1925, 1931 and a hill-like change of 20 nT at a period from 1941 to 1946. And also, hourly geomagnetic data is unstable in a period from 1924 to 1925. The geomagnetic records from January of 1917 to August 1923 were lost by the 1923 Kanto Earthquake.

We reevaluated the baseline values and hourly data of 1924 to 1946 from original data, such as field notes of magnetic absolute observation, observation notes of geomagnetic data, the magnetograms, and temperature data. We reprocessed for these data as follows.

1. Reexamine of the parameters in Gauss-Lamont method.
2. Revise the observation notes through the recalculate from original data written on the field notes.
3. Reexamine of the scale of magnetograms.
4. Redetermination of gap values.
5. Redetermination of the temperature coefficient in the variation observation data.
6. Recalculation of the observed baseline values and adopted baseline values.
7. Check and correct of reading values of variometer.

The hourly data obtained from this process were checked through the comparison with data at Niemegek, Honolulu, and Alibag.

The step-like changes of 1924-25 and 1931 disappear in the reevaluated secular change, but the hill-like change in 1941-46 remains. Although the values in 1946 remain the abnormal data, the hill-like change in 1941-42 is truth. It is possible that the variation in 1941-42 is magnetic jerk. This was pointed out as "propagated variation from earth internal source" by Yanagihara (1976).

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