

地磁気観測所における CA 変換関数の長期変動について (序報)

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Long-term changes in the conductivity anomaly transfer functions at Japanese Magnetic Observatories (preliminary results)

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Stimulated by the finding of the large time-changes in the geomagnetic conductivity anomaly (CA) transfer function at Kakioka before and after the 1923 Kanto Earthquake [Yanagihara and Nagano, 1976; Shiraki and Yanagihara, 1980], Fujita [1990] analyzed the time changes in the CA transfer functions in the interval from 1976 to 1988. He concluded that Au for the period of 60min. at Kakioka tends to decrease in this interval. Recently, the 2011 Off the Pacific Coast of Tohoku Earthquake (March 11 Earthquake from now on) occurred in the vicinity of Kakioka. Therefore, it is very important to examine recent changes in the CA transfer functions.

The CA transfer functions are calculated by using the geomagnetic 1-minute data in the days with daily sum of K index larger than 15 [Fujita, 1980] from 1976 based on the power spectral method [Everett and Hyndman, 1976]. Monthly mean values of the CA transfer functions thus obtained are used for analysis.

The preliminary analysis confirmed the gradual decrease in Au for the period of 60min. at Kakioka as shown in Fig. 1. In addition, the changes in recent years seem to be anomalous compared with the almost linear decrease in Au, although we cannot insist any definitive conclusion about the recent changes in the CA transfer functions yet. This anomalous changes may be caused by March 11 Earthquake, or low geomagnetic activity in 2009, or may be natural fluctuations. In the presentation, we will talk characteristic features of the time changes of the CA transfer function at Kakioka and at other magnetic observatories.

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Reference

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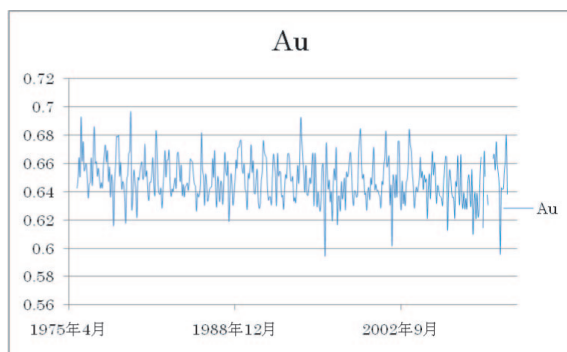


Fig. 1. Au for the 60min.-period at Kakioka from Jan. 1976 to May 2011.