

## Effect of induced electric current in the Earth on geomagnetic Sq field in the Z component

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Long term variation of geomagnetic Sq field amplitudes in the Y (Sq(Y)) and Z (Sq(Z)) components at some observatories and the ratio of Sq(Z)/Sq(Y) was studied.

Although the variation of both Sq (Y) and Sq (Z) can be basically explained by the solar activity effect, especially variation of Sq (Z) is affected by the induced current in the Earth, and may be different for each observatory. For example, at Honolulu, although Sq (Y) was increasing through the whole period mostly, Sq (Z) decreased around 1960, Sq(Z)/Sq (Y) fell about to 0.55 from about 0.65. This is a feature peculiar to Honolulu and is considered to be due to the relocation of the observatory in 1960 to have influenced Sq (Z). Although Sq(Z)/Sq (Y) of Kanozan is almost the same as Kakioka reflecting geographical nearness, the ratio becomes larger at Kanozan than at Kakioka around 1975-1990 about all the seasons. This suggests that electrical conductivity distribution of the underground affecting the induced current in the Kanto district may have some change in the period.

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