Separation of the internal and external *Dst* fields with the use of high-latitude magnetic data

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Dst variation is produced by the primary external electric currents flowing in the magnetosphere and secondary internal currents inducing in the Earth. Thus, $Dst = H^{ext} + H^{int}$. One can separate the fields H^{ext} and H^{int} by utilizing variations of the geomagnetic field vertical component. If the external field is uniform and the Earth conductivity is spherically symmetric the internal currents produce a dipolar field outside the Earth. In this case one can easily obtain the following formula $H^{int}/H^{ext} = (1 + \Delta Z/Dst)/(2 - \Delta Z/Dst)$ where ΔZ is the variation of the vertical magnetic component near the geomagnetic pole. The processing of the magnetic data from obs. Thule for 1985 yielded $\Delta Z/Dst \approx -0.6$, which corresponds to $H^{int}/H^{ext} \approx 0.15$.