Ring current decay rates of magnetic storms: A statistical study from 1957 to 1998
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We perform a statistical study of the decay times for the recovery phase of the 300 most intense magnetic storms that occurred from 1 January 1957 to 31 December 1998. The $Dst$ index in the decaying stage has been fitted by an exponential function, and a very good correlation has been obtained for most of the storms. Statistically representative values for the decay time ($\tau$) are obtained by averaging the most reliable $\tau$ values, which resulted from applying a least squares method to the $Dst$ index time series during every recovery phase. The mean value of $\tau$ turned out to be $14 \pm 4$ hours. We have also found that for very intense storms ($Dst_{min} < -250$ nT) the values of $\tau$ tend to decrease as the intensity of the storm increases.